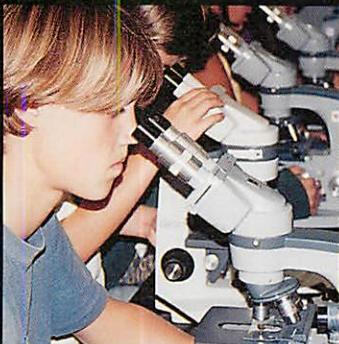


EDUCATION • OUTREACH • RESEARCH



OHIO SEA GRANT
STRATEGIC PLAN
2000-05
&
IMPLEMENTATION PLAN
2000-02

Sea Grant

Ohio Sea Grant College Program

INCLUDING
F.T. STONE LABORATORY
THE CENTER FOR
LAKE ERIE AREA
RESEARCH (CLEAR)
AND THE
GREAT LAKES AQUATIC
ECOSYSTEM RESEARCH
CONSORTIUM (GLAERC)

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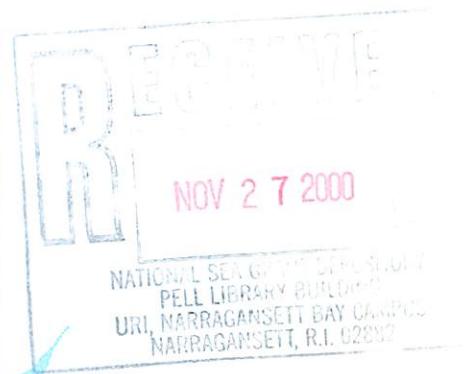
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OHIO SEA GRANT
STRATEGIC PLAN
2000-05
&
IMPLEMENTATION PLAN
2000-02

INCLUDING
F.T. STONE LABORATORY
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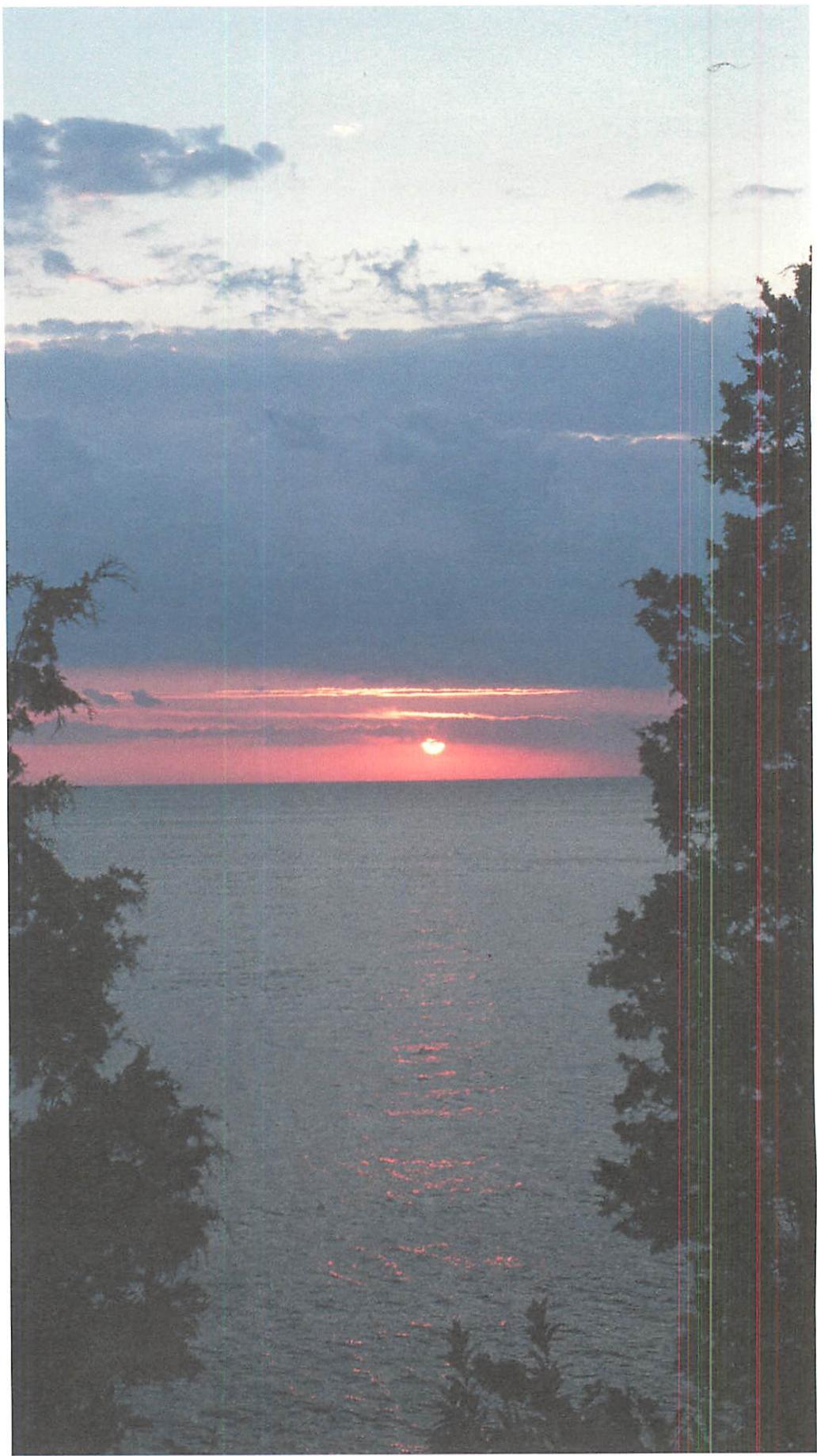
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This document summarizes the 2000-05 Strategic Plan (*Goals and Objectives*) and the 2000-02 Implementation Plan (*Actions*) for the Ohio Sea Grant College Program. This is the first time the annual planning activities for The Ohio State University Lake Erie

Programs—Ohio Sea Grant College Program, Stone Laboratory,

the Center for Lake Erie Area Research (CLEAR), and the Great Lakes

Aquatic Ecosystem Research Consortium (GLAERC)—have been

synthesized in one report. The document provides some very basic

information about the Lake Erie ecosystem to establish the setting

for our work. The document also briefly describes the four programs

(Stone Laboratory, Ohio Sea Grant, CLEAR and GLAERC) and the

strategic planning and priority setting activities that were used to

create this document and that provide the basis for our strategic

planning process. The categories used in this plan match the categories

of the National Sea Grant College Program Strategic Plan for the

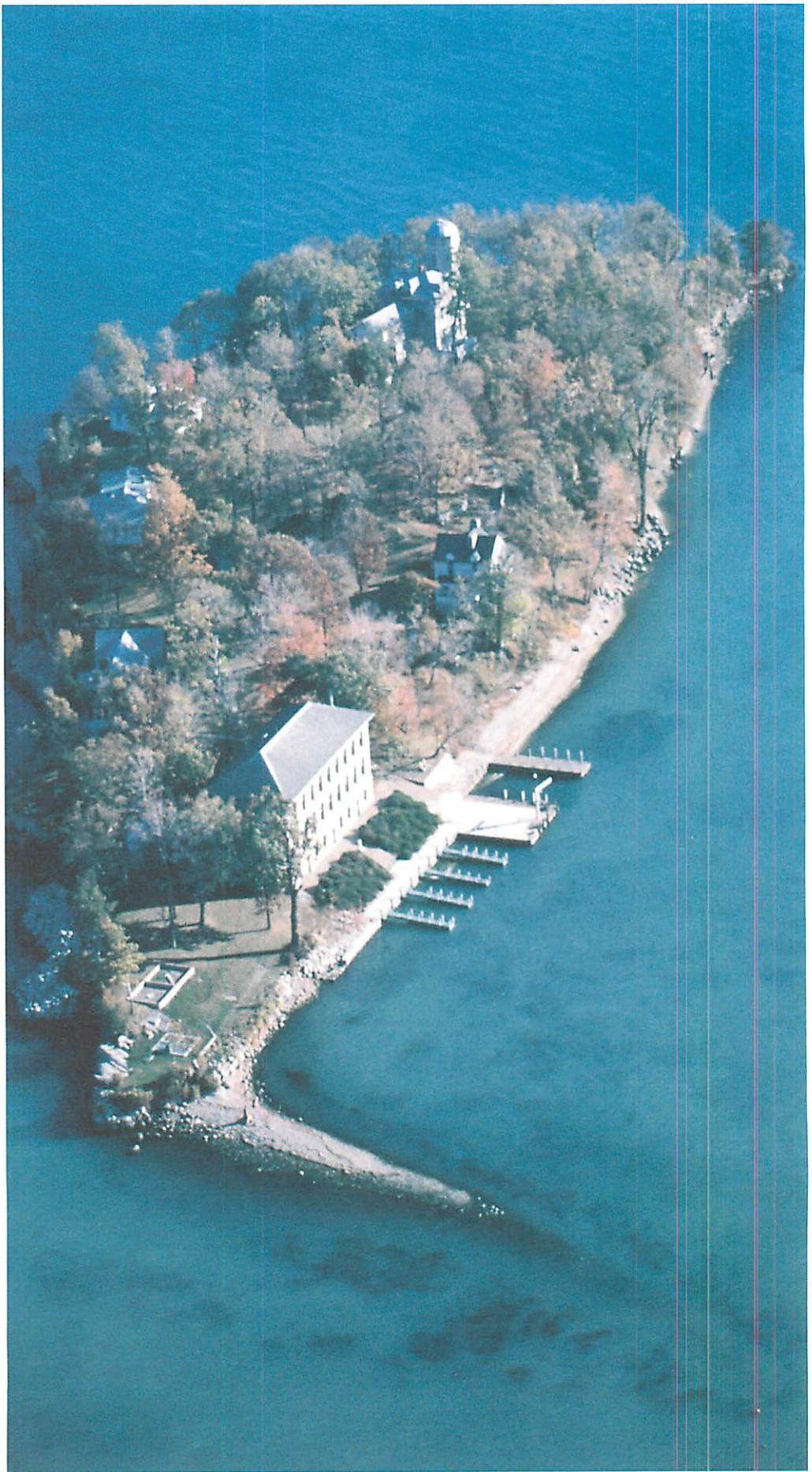
period 1995-2005, clearly demonstrating how Ohio Sea Grant can

address local needs and national priorities. Additional back-

ground information used to develop this plan is available from the

Ohio Sea Grant College Program.

PREFACE





INTRODUCTION

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The Great Lakes hold approximately 20% of the world supply of fresh-water and about 95% of the supply in the United States. Lake Erie is the 12th largest freshwater lake in the world, and has approximately 10,000 square miles of surface area making it larger than Lake Ontario, but much smaller than the other three Great Lakes. Many people believe Lake Erie is Ohio's most valuable natural resource and possibly the most important lake in the world. As we end the millennium and summarize our strategic planning efforts to begin the next millennium, we need to examine Ohio's Great Lake and review some of the critical issues Ohio Sea Grant has been, and will be, addressing in the future.

Water Quality

In the last 25 years we have seen huge improvements in water quality on all of the Great Lakes. Lake Erie has gone from being the nation's poster child for pollution problems (e.g., in 1969 the Cuyahoga River caught fire), to being one of the best examples of how to restore an ecosystem. The Lake provides drinking water to 11 million people each day. It also supports the largest sport fishery in the Great Lakes and the largest freshwater commercial fishery in the world. Lake Erie water quality protection is, and will continue to be, a major concern for Ohio Sea Grant.

INTRODUCTION



Eutrophication

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Eutrophication was the buzzword of the 1970s and describes the natural aging process of lakes, i.e. as lakes age, they become shallower, warmer, and often more productive—a eutrophic lake is the most biologically productive. In Lake Erie, these eutrophic conditions caused over 90% of the bottom water (the water below the thermocline) in the central basin (the area between Sandusky and Erie) to become anoxic (devoid of oxygen) each summer. Lake Erie became eutrophic because it had become too productive. The oxygen in the water at the bottom of the lake was completely consumed each year as the huge algal population died, sank to the bottom, and was decomposed by bacteria. Much of this eutrophication research was conducted by CLEAR at Stone Laboratory. Models showed that excess phosphorus was the culprit, i.e. phosphorus was the essential nutrient for algal production that was in the shortest supply. Therefore, if we reduced the amount of phosphorus entering the Lake, we would reduce the amount of algae being produced and the amount of oxygen being consumed. Management agencies have been remarkably successful in reducing the loading of phosphorus from approximately 29,000 metric tons in 1969 to the target of 11,000 metric tons. Now some people are asking if we have gone too far, i.e. would we have more walleye, perch, and smelt if we allowed more phosphorus to enter the Lake? The answer is not simple, but we have led discussions within the scientific community on this question and believe that if zebra mussels had not invaded the Lake, then more phosphorus would produce more fish. However, based on the way the ecosystem has been changed by zebra mussels, we believe that more phosphorus would greatly increase the likelihood of blue-green algal blooms and the corresponding taste and odor problems. Unraveling the phosphorus issue will be one of our major efforts in the next decade.

Contaminants

In the early 1970s there was a tremendous uproar when the allowable level of PCBs in fish for commercial sale was reduced from 5 ppm to 2 ppm. While the PCB level in Great Lakes fish continues to decline, and the current level in walleye is less than 0.2 ppm, we know it is still not good enough. We must work to remove and prevent persistent toxic substances from entering the Lake. Furthermore, for those substances already in the Lake, Sea Grant research has shown that zebra mussels and round gobies are changing the pathways by which contaminants move through the Lake ecosystem, thereby increasing the potential for human exposure. Unraveling the contaminant puzzle will be a major issue in the next decade and the new century.

Fisheries

Lake Erie is the southernmost, shallowest (max. depth = 212 feet; the other Great Lakes are all over 750 feet deep), and warmest of the Great Lakes. Lake Erie is also the only lake with a watershed that is not dominated by a forest ecosystem. The Lake Erie watershed is primarily agricultural and urban. As a result, Lake Erie receives more sediment and nutrients than the other Great Lakes and is the most productive, frequently producing more fish for human consumption than the other four Great Lakes combined. In fact, during 40 of the 55 years between 1915 and 1970, including 1969 when the Cuyahoga River caught fire and the media wrote articles declaring Lake Erie to be dead, Lake Erie produced more fish than the other four Great Lakes combined. The cleanup of Lake Erie has paid huge dividends. The harvest of walleye by Ohio anglers was approximately 112,000 fish in 1976. Today, if we harvest 1 million walleye, we consider it a bad year. Lake Erie has become the "Walleye Capital of the World," and it is also recognized as the nation's top destination for smallmouth bass anglers. Maintaining this fishery and assuring that people can safely eat the fish will continue to be a major effort for Ohio Sea Grant. This is also an area where we will seek opportunities to enhance cooperation with the Ohio Department of Natural Resources and the other agencies that cooperate in the management of this resource (four states, one province, and two countries). Most of our effort will be with these agencies and the sport fishing community because it appears that Ohio's commercial fishery is a vanishing industry. Only 18 licensed commercial shore seine and trap net fishermen remain in today's heavily regulated industry.

INTRODUCTION

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Aquatic Nuisance Species and Ecosystem Changes

Over 140 nonindigenous species have entered the Great Lakes with about two-thirds coming in since the St. Lawrence Seaway opened in 1959. Zebra mussels and sea lampreys cause damage costing millions of dollars each year and creating huge changes in the ecosystem of Lake Erie. Sea Grant has been successful in developing control strategies for zebra mussels at water intakes but not in the open Lake. We know that the Lake Erie ecosystem has changed drastically as a result of the invasion of these species, and the system is far from stable. We must do a better job of modeling and managing the Lake on an ecosystem basis and preventing the introduction of additional nonindigenous species.

Great Lakes Water Diversions

INTRODUCTION

Demands for Great Lakes' water from outside of the basin will almost certainly increase in the future as a consequence of population increases and reductions in ground water resources. We must develop a better understanding of the implications for the loss of water, i.e. what are the benefits/costs of adding or losing an inch of water in Lake Erie.



Economic Development/Impact and Marine Trades

When Ohio Sea Grant started in 1977, approximately 50 charter captains and just over 200 marine-related businesses operated on Lake Erie. In 1999, there were 940 licensed charter captains and well over 400 marine-related businesses. Ohio Sea Grant has played a major role in these increases through its research, education and outreach efforts. For example, we have hosted one of the largest charter fishing conferences in the country annually for 20 years, through conflict resolution we were successful in opening the western basin artillery range to fishing, we have constructed eight artificial reefs in the central basin, we have taught marina management courses, we have conducted hundreds of seminars for anglers, and have assisted county visitors bureaus in marketing their regions. Tourism, fishing, and boating are very important on Lake Erie, but future development must be well planned and done in a sustainable fashion since over-crowding is becoming a problem.



INTRODUCTION

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Coastal Management Program

The Ohio Coastal Management Program (OCMP) is three years old and is part of the Ohio Department of Natural Resources and the National Ocean Survey of NOAA. They are attempting to address a number of very contentious topics including issues related to erosion and construction within the coastal zone. We see a number of opportunities to be of assistance to this program and/or to assist with information dissemination between the OCMP and the private sector. In the next few years we anticipate a number of opportunities to collaborate the OCMP and with the third NOAA partner in Ohio, the Old Woman Creek National Estuarine Research Reserve (NERR), on research, education, and outreach programs.

New Technology

It has been said that technology will be the driving force in the next decade and that three technologies in particular—biotechnology, communication technology, and satellite technology—will lead the way. Ohio Sea Grant must strive to keep abreast of technology development in these areas, participate in that development, and incorporate new developments into the program as rapidly as possible. Consequently, staff training and upgrading technical capabilities, a current program priority, will be an even greater priority for in the future.

INTRODUCTION

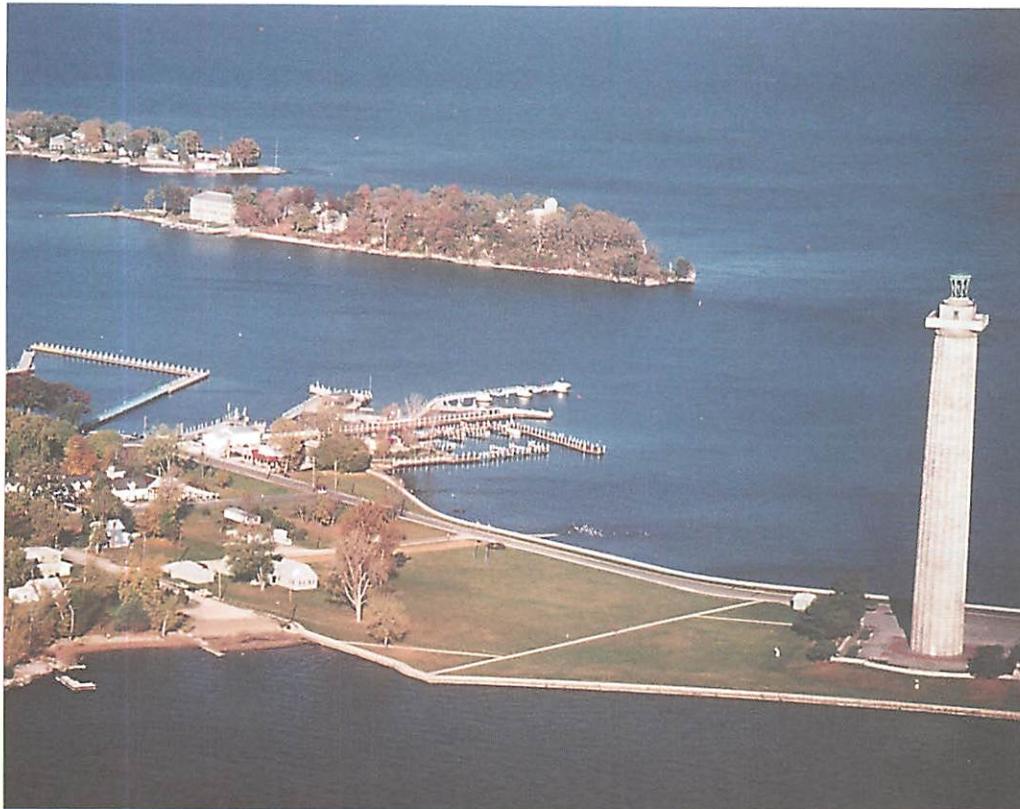


Education

The performance of K-12 students in math and science remains below desired levels in Ohio and in this country. Ohio Sea Grant is well known for the development of outstanding curriculum materials for grades 5-12, for the training of science teachers, and for research contributions to the education profession. At Stone Laboratory, Ohio Sea Grant has developed courses specifically for teachers and high school students. Our efforts in these areas must continue and expand as Ohio K-12 students strive to improve performance on science proficiency tests. The aquatic sciences are very interesting to students and the public, and, while our workshop program at Stone Laboratory has grown by 500% in the last 12 years, we are still reaching a very small portion of Ohio students. Therefore, in the next five years, we must take advantage of new opportunities in communication technology to take the aquatic sciences and our Sea Grant educational materials to the students and the public in their schools and homes.

Outreach

The education and outreach components of the National Sea Grant College Program are extremely important elements because they are so unique within NOAA and within government and scientific research programs in general. Ohio Sea Grant and the Great Lakes Sea Grant Network must work even harder to be the education and outreach program for the entire region, i.e. assisting with the dissemination of research results from GLERL, EPA, U.S. Geological Survey, etc., and bringing the needs of the public to the attention of these programs. These efforts will require communication, cooperation, and collaboration at levels much greater than we have experienced in the past. Linking more effectively to the private sector will be an equally important outreach challenge of the next decade. We must develop more effective mechanisms to get the information from the scientists to the users and take the needs of the private sector back to the scientific community. We must help universities and university scientists to become more engaged with local communities and the private sector. We must face the challenge of working with audiences that will diverge based on their technological capabilities.



PROGRAM
DESCRIPTION,
VISION
& MISSION

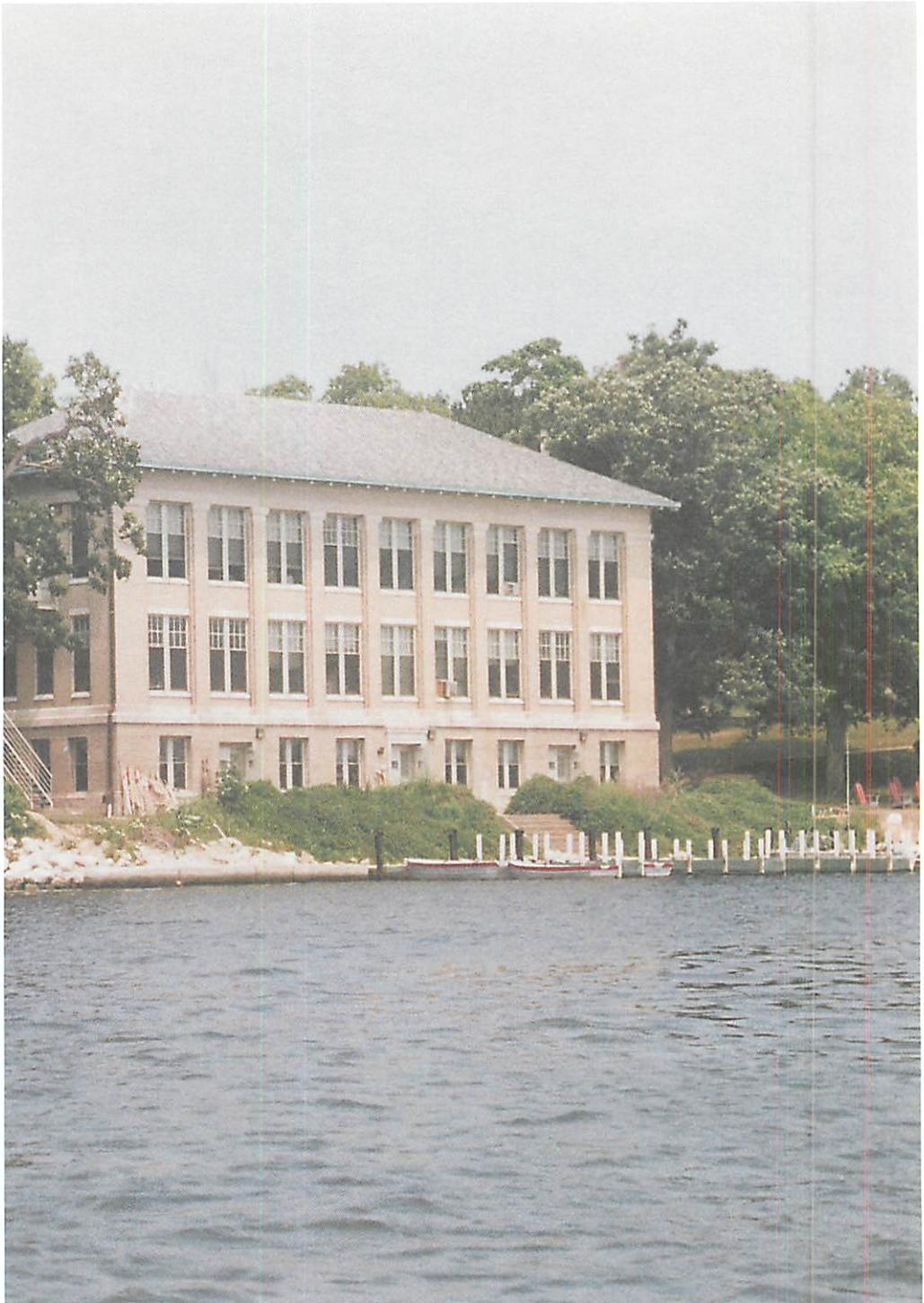
Program Relationships and Reporting Structure

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Dr. Jeffrey M. Reutter is Director of the Lake Erie Programs at The Ohio State University: the Ohio Sea Grant College Program, F.T. Stone Laboratory, CLEAR, and GLAERC. Stone Laboratory is part of the School of Natural Resources within the College of Food, Agricultural and Environmental Sciences. The Director of Stone Laboratory reports to the Vice President for Agricultural Administration, Dr. Bobby D. Moser. CLEAR is part of The Ohio State University Office of Research and the Director reports to the Vice President for Research, Dr. C. Bradley Moore. Structurally, the Ohio Sea Grant College Program is part of CLEAR, and GLAERC is part of Sea Grant, but operationally, Sea Grant has become the umbrella organization for the other three: Stone Laboratory, CLEAR, and GLAERC. This operational strategy takes advantage of Sea Grant's broader mission—research, education, and outreach. Stone Laboratory is the shared research facility for GLAERC and the base for many of Ohio Sea Grant's research, education, and outreach programs.

PROGRAM
DESCRIPTION
VISION,
& MISSION

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1895—Franz Theodore Stone Laboratory

Franz Theodore Stone Laboratory, Ohio's Lake Erie laboratory, is this nation's oldest freshwater biological field station and the North Coast Campus of The Ohio State University. Stone Laboratory is also the research, education, and outreach facility for the Ohio Sea Grant College Program. Originally called the "Lake Laboratory," the Laboratory began when a second floor was built on the state fish hatchery in Sandusky in 1895. In 1929, the Laboratory moved to its current location on the 6.5-acre Gibraltar Island at Put-in-Bay.

PROGRAM DESCRIPTION, VISION & MISSION

Vision for the Future

Our vision is to be universally recognized as the premier freshwater education and research facility in the country. Our education and research programs will be unsurpassed. Our education programs will be a model for science education in this country. The results of our research will be solving Lake Erie environmental problems and enhancing the value of the Lake.

Mission

The mission of the Franz Theodore Stone Laboratory is to serve The Ohio State University, the Ohio Sea Grant College Program, the State of Ohio, and the people of Ohio as their research, education, and outreach facility on Lake Erie. We must enhance the value of, and improve the management of, our marine and coastal resources through the education, research, and outreach programs conducted at the Laboratory. The Laboratory's programs should address the needs of, and create opportunities for, the following audiences: students in grades 5-12, college undergraduate and graduate students, K-12 teachers, research scientists, decision-makers and elected officials, technical staff in state and federal agencies, and the general public. Within this mission we have several goals:

1. Improve the quality of science education in Ohio by creating high-quality, hands-on science education opportunities for students in grade 5 through adults;
2. Create opportunities for undergraduate and graduate research training;
3. Create special educational opportunities for high school students and teachers;
4. Foster more informed decision-making through education and training programs for decision-makers and elected officials; and,
5. Encourage and support research on critical issues and problems facing Lake Erie, the Great Lakes, and the environment, providing the science behind more informed management decisions.

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1970—Center for Lake Erie Area Research (CLEAR)

When the Cuyahoga River caught fire in 1969, The Ohio State University, as the Land Grant College in Ohio, was expected to respond to the problem. Ohio State did so by creating CLEAR in 1970 to focus the expertise of the University's faculty on Lake Erie problems and issues. Much of the research within the Center was conducted at Stone Laboratory and addressed issues related to water quality, thermal pollution, nuclear power production, water intakes and discharges, the reduction of phosphorus inputs to the Lake, the lack of dissolved oxygen in the hypolimnetic waters of the central basin near Cleveland, and parasites in fish. CLEAR is now the home of the Ohio Sea Grant College Program.

PROGRAM
DESCRIPTION
VISION,
& MISSION

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1977—Ohio Sea Grant College Program

In 1974 the governor's Lake Erie Task Force recommended that The Ohio State University develop a Sea Grant Program for Ohio by working closely with the Ohio Department of Natural Resources and a number of Lake Erie businesses. CLEAR was given lead responsibility to develop the proposal and host the Sea Grant program for Ohio. Our first Sea Grant project (a science education project) was funded in 1977. We became a "coherent program" with one education project, one research project, and one extension agent in 1978, and a "Sea Grant Institution" in 1983. Based on the program's subsequent accomplishments, The Ohio State University was designated this country's 24th Sea Grant College by the Secretary of Commerce in September 1988.

The Ohio Sea Grant College Program is one of 29 Sea Grant programs in the National Sea Grant College Program (NSGCP) of the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. Every coastal state and every Great Lakes State has a program.

Sea Grant is a matching funds program and requires at least \$0.50 of non-federal support for every federal dollar invested in the program. Matching funds for Ohio Sea Grant are provided by a line item in the budget of the Ohio Board of Regents, The Ohio State University, private businesses and individuals, and by the home institution of scientists receiving grants from Ohio Sea Grant.

Vision for the Future

Sea Grant is an investment in the health of the nation's marine, coastal and Great Lakes resources. Sea Grant is an issue-based program for the 21st century—a partnership of the people, universities, government, and industry. Our vision is to be an exemplary Sea Grant Program and to be recognized for superior research, education, outreach, and administrative components. Within Ohio our vision is to be recognized for our outstanding science programs and leadership and integrity in solving problems related to the environment, education, and the economy.

Mission

The mission of the Ohio Sea Grant College Program is to increase understanding, assessment, utilization, development, conservation, and wise management (stewardship) of our Great Lakes and ocean resources, with particular emphasis on Lake Erie. Within this mission we have several significant goals:

1. Promote sustainable economic development on the Lake Erie coast and watershed by applying scientific knowledge to solve resource problems;
2. Develop the critical knowledge and technology to enable coastal industries in Ohio to enhance profitability and establish economic leadership;
3. Identify, protect, and conserve valuable coastal habitats and resources and improve environmental conditions in the Lake Erie and Great Lakes ecosystems;
4. Enable coastal and Great Lakes communities to successfully adapt to changing social and economic conditions; and,
5. Improve the quality of marine and aquatic education in Ohio, develop a more informed citizenry, and thereby contribute to a higher quality of life for Ohioans.

PROGRAM DESCRIPTION, VISION & MISSION

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Ohio Sea Grant's 9 Points

Ohio Sea Grant must be a partnership among

1. academia,
2. government, and the
3. private sector.

Ohio Sea Grant must use a combination of

4. research,
5. education, and
6. outreach

to focus on the

7. economy, the
8. environment, and
9. education.

We believe these 9 points should influence every decision the program makes.

LAKE ERIE

PROGRAM DESCRIPTION VISION, & MISSION

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1992—Great Lakes Aquatic Ecosystem Research Consortium (GLAERC)

In 1992 Ohio Sea Grant formed the Great Lakes Aquatic Ecosystem Research Consortium (GLAERC) composed of approximately 40 of the top aquatic scientists at Ohio colleges and universities including Bowling Green State University, Case Western Reserve University, Cleveland State University, Heidelberg College, John Carroll University, Kent State University, Miami University, Mount Union College, The Ohio State University, Ohio University, University of Toledo, and Wright State University. The mission of GLAERC is to enhance collaboration, cooperation, communication, and sharing of equipment and facilities. This consortium makes Ohio's top scientists more effective and competitive for federal funding and allows them to better address the critical issues and problems affecting Ohio's surface waters. Stone Laboratory is the Consortium's shared research facility.

In addition to focusing on priorities and actions for the future, our planning process included a number of self-evaluation activities designed to evaluate and improve the operation and effectiveness of the program. Self-evaluation activities included: formal evaluations sent to investigators who had been funded by the program or submitted proposals for funding; an evaluation survey sent to our newsletter readers; focus group meetings with our Advisory Committees and the Friends of Stone Laboratory to review our efforts and priorities; one-on-one meetings between the director and each staff member to discuss their position and ideas; monthly staff meetings held in the Columbus Office; semi-annual meetings among the groups responsible for the program at Stone Laboratory (the academic program, Physical Facilities, and the Office of Housing, Food Services and Event Centers); quarterly/monthly meetings of the Sea Grant Extension and Communication staff; and a retreat for the Extension Program/Communication staff facilitated by Dr. Reutter. Typical planning meetings include: a review and discussion of recent programs and activities to determine what was successful and what should be modified, added, or deleted in the future; and a re-evaluation of our goals, objectives, and actions to be sure we are addressing the most important issues in the most effective manner. In addition to regularly improving our individual programs, these activities have also resulted in a number of improvements in the overall program. Several of the more significant changes resulting from self-evaluation efforts are highlighted in the following pages.

PLANNING PROCESS

PLANNING PROCESS

Program Priorities

We identified a need to make reporting simpler for investigators and more useful to the public, our outreach personnel, and those who evaluate us in Washington. The first step in our strategy to address this need was to modify our terminology for our project areas/priorities and adopt the terminology used in the National Sea Grant College Program's Strategic Plan for the period 1995-2005. Modifying the terminology did not require a change in any of our priorities. The modification was done for research projects and our outreach activities. As a result, it is much easier to demonstrate how our projects and programs fit into the National Priorities, and it is also easier for the National Sea Grant College Program to use our results in reports to NOAA, Department of Commerce and other agencies.

Research Reporting

Our next action was to develop a new reporting system to replace the standard hard copy, final reports, and provide a more effective method of tracking projects and gathering progress reports. We needed a system that could be updated easily and that was brief and concise. We wanted a system that was simple for investigators to use, valuable to the scientific community, and easy for our agents and the general public to read and understand. We also wanted to improve our ability to gather listings of undergraduate and graduate students supported, titles of theses and dissertations, presentations, scientific publications, projects supported during a specific period of time, etc. Our solution was to develop the "Ohio Sea Grant Project Reporting System." The system is maintained on our server as a database, and transferred to our web site where it can be searched and viewed by anyone. Investigators are encouraged to update their reports every six months by visiting the web site and simply adding new information or modifying what is already there.

Outreach Reporting

Within our Extension program we identified a need to improve our ability to report accomplishments and activities so that our users and all involved with the program would be more aware of our work. Annual reports were not timely enough, and because calendar years (January to December), state fiscal years (July to June), federal fiscal years (October to September), Canadian fiscal years (April to March), Sea Grant funding years (March to February), and academic years (October to September) differ, it was very difficult to have timely information available for all interested audiences. Our solution was to develop a quarterly reporting system for both activities and accomplishments. Each calendar year, the quarterly reports are cumulative making the final quarterly report also the annual report for that year. Accomplishments are presented in a brief, bullet format and are presented in the format/outline of our priorities and the National Sea Grant Priorities.

Within our communications program we identified a need to improve our dissemination of research results—Dr. Reutter and Karen Ricker, our Assistant Director and Communication Coordinator, were also leading regional activities on this issue for the International Joint Commission. To improve our dissemination of research results we developed several special workshops for reporters at Stone Laboratory, and we initiated a “Research Review” section in our newsletter, *Twine Line*. To measure our effectiveness, we collected copies of media coverage of our programs and our projects. We also distributed these to University administrators, Sea Grant officials, principal investigators, and advisory committee members as a method of highlighting our outreach accomplishments. In 1997 we identified 78 articles, 151 in 1998, and 273 in 1999, in which we appeared.

PLANNING PROCESS

Research Proposal Evaluations

Our original Ohio Sea Grant Executive Committee was composed of outstanding Ohio investigators, selected for their ability to successfully compete in Sea Grant funding competitions. While very effective and fair, this committee could appear to an uninformed observer as being biased because they were also competing for, and receiving, Sea Grant funding. Correcting this perception required a great deal of explanation, and providing that explanation to everyone was challenging. As a result, in 1996, we abandoned our Executive Committee and moved to two external review panels—one to review preproposals and one to review full proposals. The individuals on the panels are highly respected scientists and managers within Ohio and the region. An observer from the National Sea Grant College Program also sits on the panels. This review process has been well received by our principal investigators. Furthermore, at the request of the Lake Erie Protection Fund and the Ohio Plant Biotechnology Consortium, we have assisted both groups in adopting the Ohio Sea Grant model.

Funding Issues

The guidance we received from our Forum of Investigators (investigators who had been funded or submitted proposals to the program) is summarized below.

We should continue to encourage and reward:

- Projects that address critical needs and current issues;
- Projects that support graduate and undergraduate students;
- Principal investigators who donate their time so that more students can be supported;
- Collaboration and cooperation with management agencies to assure that research, education, and outreach efforts are addressing management needs;
- Collaboration with the private sector;
- Leadership of, and participation on, regional research, education, and outreach programs;
- Sea Grant Outreach involvement on research projects.

We will also continue to require principal investigators to prepare at least one article for the popular press in addition to their normal scientific publications.

Stone Laboratory Research, Education, and Outreach Programs

Self-evaluation activities of our research, education, and outreach programs go on continually at Stone Laboratory. These include surveys of all students and all workshop leaders, and personal discussions with principal investigators and faculty members. When weaknesses are identified, we immediately begin planning efforts to address them. In the past few years our success in this regard has been remarkable as evidenced by the four examples that follow.

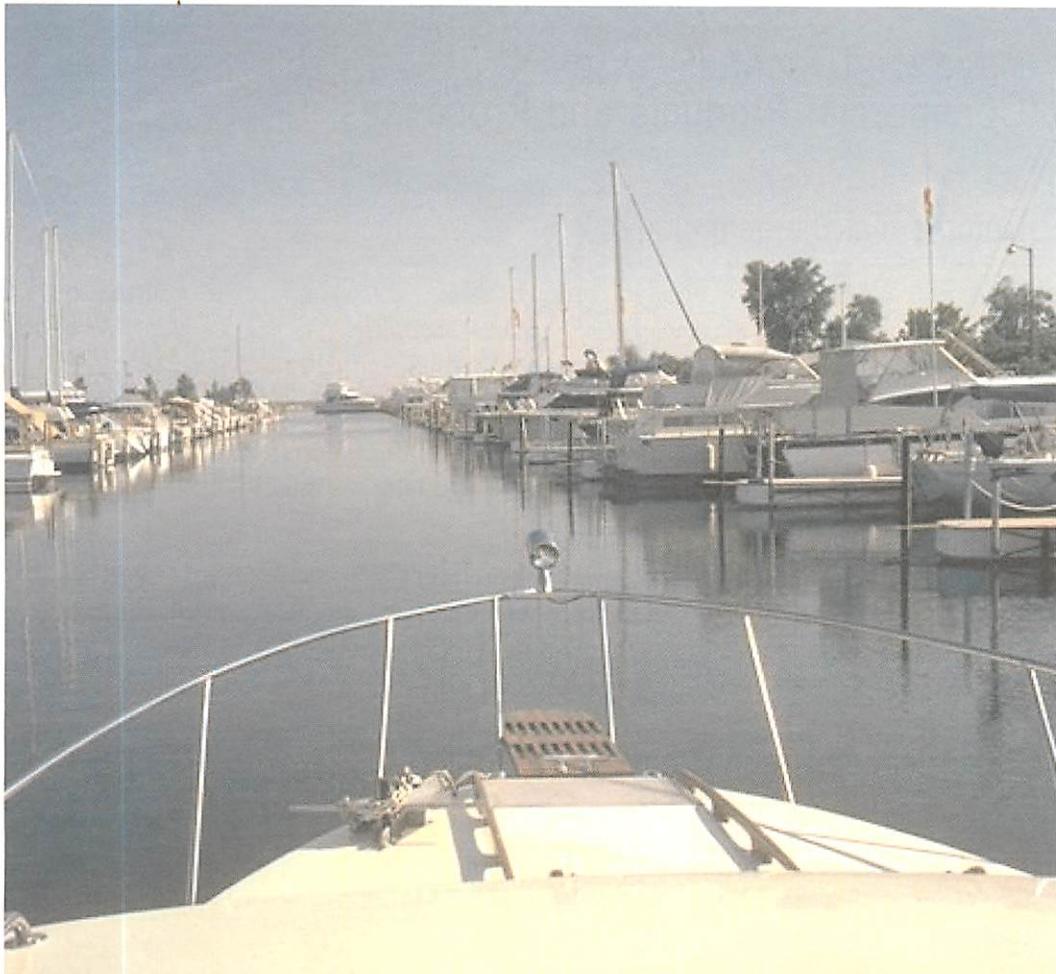
1. Students resided and studied on Gibraltar Island, but the Stone Laboratory library was housed in the main office on South Bass Island. This was not only an inconvenience, but presented logistical and safety issues. With the assistance of the Friends of Stone Laboratory, we moved the entire library from South Bass Island, to the third floor of the Laboratory Building on Gibraltar Island to make it more accessible and convenient.
2. Faculty, researchers, staff, and students are often in residence at Stone Laboratory for extended periods of time. Due to the relative isolation of the laboratory, it is often difficult and inconvenient for personnel to conduct their normal and/or necessary business with the rest of the university community. With assistance from the Office of Housing and Food Service, the Telecommunications Network Center, and the Office of Residence and Dining Halls, a T1 line to the laboratory was installed with over 50 new telephones and data lines to aid in data transmission, distance learning, and information transfer.
3. Workshops, summer class field trip activities, and research activities were often limited by the fact that Stone Laboratory only had one vessel available for these activities. With assistance from the Division of Wildlife, ODNR, the Friends of Stone Laboratory, and the Office of Physical Facilities, we have been able to obtain a new research / education vessel, the *Gibraltar III* (formerly called the Explorer). This vessel will replace the *Gibraltar II*, surpass the existing capabilities of the 50+ year old *BioLab*, and address the needs of our expanding Sea Grant research and outreach programs at the Laboratory.
4. Stone Laboratory is a unique location and facility. Often there are opportunities to host meetings, conferences, and programs that would be ideally suited to Stone Laboratory's location. With the assistance of the State Legislature and Ohio State University we have begun the renovation of Jay Cooke's Castle, a National Historic Landmark, which will ultimately fulfill a need for additional conference space for our outreach program.

PLANNING PROCESS

Strategic and Implementation Planning Activities

In the development of this plan we sought input from our Private Sector Advisory Committees, the Friends of Stone Laboratory, the Director's Advisory Council, the Forum of Sea Grant Investigators, and our program staff and we surveyed approximately 1,000 people annually at the Cleveland Boat and Sport Shows. Furthermore, in the development of our strategic and implementation plans, we were fortunate to be able to lead (Chaired or Co-Chaired by Dr. Reutter) regional planning efforts for the Council of Great Lakes Research Managers within the International Joint Commission, the Lake Erie Phosphorus Group, and the "Lake Erie at the Millennium Program," and to participate in the planning efforts of the Lake Erie Commission. Consequently, our plans and proposed actions address regional priorities, goals and objectives, and frequently involve leadership of multi-agency / state / country programs.

PLANNING PROCESS



OHIO
SEA GRANT
STRATEGIC
PLAN
2000-05
&
IMPLEMENTATION
PLAN
2000-02

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The outline which follows uses the basic structure of the National Sea Grant Strategic Plan for the period 1995-2005—particularly for the overall goals of the program and the focus on the economy, the environment, and education. The objectives and actions have been developed locally and clearly demonstrate the manner in which the Ohio Sea Grant College Program addresses both local needs and national priorities. Our plans to implement the strategic plan are specified in the planned actions. Goals and objectives will be reevaluated every four years and actions will be reevaluated every two years. The reporting strategy we intend to use to evaluate our effectiveness in accomplishing this plan will follow the pattern we have used for many years, e.g. a reiteration of each goal, objective, and action, followed by the results and accomplishments/benefits.

Advanced Technology for Commercial Products and Processes

Commercial Biotechnology

Goal

Support the growth and development of high-tech businesses and industrial processes by creating new products and processes from Ohio's coastal resources using marine (aquatic) biotechnology.

Objective Use marine biotechnology to recover valuable materials from industrial waste streams, disposal facilities, and lake sediments.

Action

Encourage biotechnological research on *Chlamydomonas* for use in removing heavy metals from water and sediments; seek opportunities to commercialize this work; and develop partnerships and/or collaborative agreements with the private sector and state and federal agencies.

Environmental Technology

Goal

Develop technologies that enhance environmental monitoring, improve waste treatment, and remove contaminants from industrial and agricultural waste streams, lake sediments, and coastal environments.

Objective Develop new technologies, including bio-engineered organisms, that are safe and capable of detecting, removing, and/or detoxifying contaminants in a cost-effective manner.

Action

Continue to solicit and support research to develop and evaluate new technologies, e.g. sonication to remove metals from sediment.

Action

Develop environmentally friendly composting technology for sanitary disposal of nuisance mayfly accumulations and provide this information to municipalities and industries facing mayfly disposal problems, e.g. continue the demonstration project in collaboration with the City of Port Clinton and the Ohio EPA to address the mayfly problem in that coastal city.



Seafood Production

Commercial Fisheries

Goal

Develop better ecosystem models so resource managers can improve fishery forecasts.

Objective Seek opportunities to collaborate with resource management agencies and assist in the development of improved fishery forecasts and management strategies.

Action

Continue to support and lead ecosystem modeling efforts through the International Joint Commission and its Council of Great Lakes Research Managers.

Action

Develop collaborative programs with the Ohio Department of Natural Resources to assist in the development and evaluation of management strategies.

Goal

Seek new techniques and solutions to assist resource managers in allocating fish equitably.

Objective Support research and outreach efforts to develop and evaluate a variety of alternative allocation strategies.

Action

Assist management agencies with conflict resolution and gathering user input.

Action

Collaborate with the Ohio Division of Wildlife to identify and evaluate new management strategies.

Goal

Assist fisheries managers, industry, and coastal communities in understanding the social, economic, and legal impacts of management strategies.

Objective Support research and outreach efforts to model alternative fish allocation strategies to maximize the economic impact/benefits of the fishery to Ohio.

Action

Prepare a technical summary evaluating economic impact of a potential buy-out of the commercial fishery and inform decision-makers of the results.

ECONOMIC LEADERSHIP

Sustainable Aquaculture

Goal

Develop grow out system technology and increase the fundamental knowledge of animal husbandry in such areas as reproduction, hatchery technology, growth, nutrition, and disease diagnosis and control.

Objective Cooperate with OSU Piketon Aquaculture Research and Extension personnel to develop new technologies and inform the Ohio aquaculture industry of advances in fish farming technology to improve decision-making.

Objective Increase Ohio's production of farm-raised crayfish and baitfish and assist producers in expanding markets for these products.

Goal

Enhance aquaculture through biotechnology by developing heartier fish, healthier feeds, and improved strategies for disease control.

Seafood Technology

Goal

Support HACCP (Hazard Analysis Critical Control Point) training for the Ohio seafood industry.

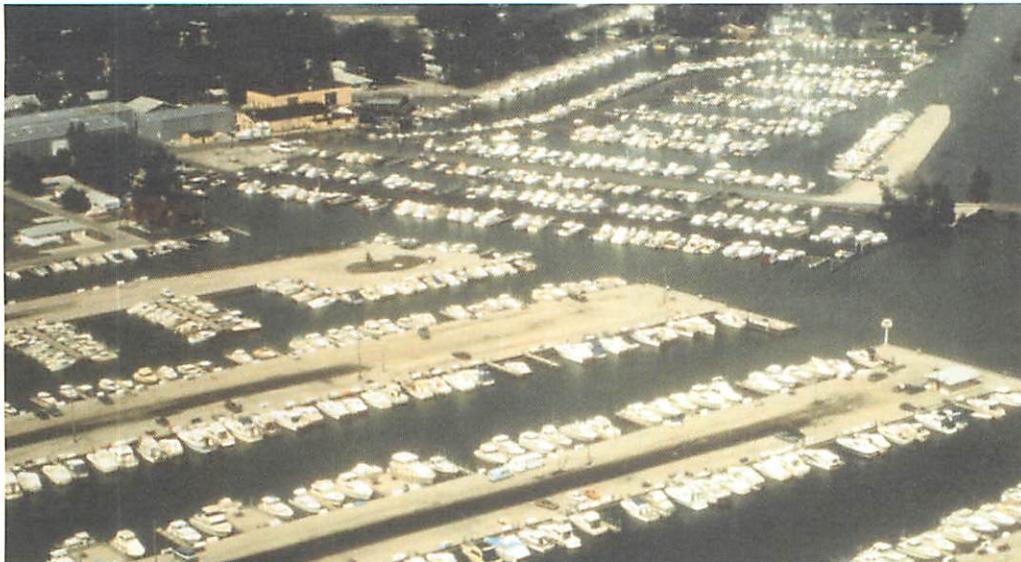
Objective Improve seafood safety and improve HACCP compliance within the Ohio Seafood industry.

Action

Conduct HACCP training for the Ohio commercial fishery and aquaculture industries as needed.



Coastal Economic Development



ECONOMIC LEADERSHIP

Coastal Business Development

Goal

Concentrate research and outreach efforts to support business development and retention in:

Fishing

including: sport and charter fishing, tackle manufacturing and sales, bait production and sales, etc.

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Objective Increase profitability in the charter fishing industry through business and technology development and education.

Action

Conduct the Ohio Charter Captains Conference annually and conduct business surveys every 4-5 years.

Objective Reverse the decline in sport fishing participation and enable fishing businesses to retain clientele.

Action

Explore ways to interact with the National Outreach Strategy for Recreational Fishing and Boating to increase participation in angling and boating.

Action

Continue to host Sea Camp for 4-H youth and develop a Lake Erie Fishing program for 4-H.

Objective Collaborate with the Ohio Division of Wildlife on research and outreach efforts to evaluate management strategies and disseminate results.

Action

Join the Division of Wildlife on a Management Team for Lake Erie.

ECONOMIC LEADERSHIP

Coastal Recreation

including: boating, swimming, tourism development, diving, sightseeing, birding, hunting, etc.

Objective Improve the decision-making process regarding the development and retention of coastal recreation businesses.

Action

Develop and prioritize research and outreach efforts related to the evaluation of coastal recreation in collaboration with management agencies, the private sector, and local governments.

Action

Support research and outreach efforts to determine the economic and environmental impacts of various types of coastal recreation to assist resource managers.

Objective Generate databases of public opinions, attitudes, and values as they relate to marine and aquatic issues to guide future research, education and outreach activities and to influence management decisions.

Action

Continue socio-economic research with coastal recreational users including surveys at boat and sport shows.

Action

Share research results with state and regional management agencies and professional associations (e.g. Lake Erie Marine Trades Association) to aid in prioritizing research.

Objective Investigate opportunities for development of new recreational activities and businesses on Lake Erie, e.g. scuba diving and bird watching.

Action

Develop an "Underwater Field Guide for Lake Erie" to be used by divers, students, and teachers.

Action

Link the scientific community, bird watching groups, and visitors' bureaus to enhance educational value, participant enjoyment, and economic impact of bird watching.

Objective Develop a "Wet (by boat) Circle Tour" to compliment the existing circle tour to increase boater satisfaction/pleasure and tourism impact.

Action

Collaborate with the Division of Watercraft and visitors' bureaus to increase the availability of transient docks in communities.



ECONOMIC LEADERSHIP

Marine Trades

including: marinas, boat sales, shipping, etc.

Objective Increase the profitability of marine businesses through business and technology research, education, and outreach.

Action

Continue to cooperate with the ODNR Division of Watercraft and the Lake Erie Marine Trades Association to inventory and report boat sales figures within Ohio.

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Action

Conduct research to upgrade and refine figures on the economic impact of boating in Ohio in cooperation with the Ohio Division of Watercraft and the Lake Erie Marine Trades Association and share/interpret the results for decision makers.

Objective Increase recreational access to Lake Erie.

Action

Assist coastal communities with planning to upgrade coastal parks, beaches and marina facilities.

Industrial and Commercial Businesses

within the coastal zone and the Lake Erie watershed.

Objective Encourage business expansion and development on brownfield sites.

Action

Continue efforts with the Greater Cleveland Growth Association and economic development groups in Toledo to redevelop brownfield sites.

Action

Assist existing businesses with expansion plans to reduce urban sprawl and prevent the development of new brownfield sites caused by business relocations.

ECONOMIC LEADERSHIP



Coastal Community Development

32

Goal

Conduct environmental and social science research and develop and implement outreach efforts to support sustainable community development and the revitalization of coastal communities.

Objective Collaborate/lead efforts with ODNR, OEPA, and local communities to develop watershed management plans for every Lake Erie watershed in Ohio.

Action

Develop collaborative funding options with state agencies to support research that evaluates the economic and environmental impact of a variety of developmental strategies within coastal watersheds.

Goal

Develop and implement strategies to enhance brownfield redevelopment, reduce urban sprawl, protect key environmental features, and reduce pollution from aging industries and communities.

Objective Continue our successful outreach programs in Cleveland and Toledo emphasizing brownfield redevelopment and business retention and expansion within urban coastal communities.

Action

Hire a new extension agent in Toledo as soon as possible and enhance collaboration with development groups within the City of Toledo with Sea Grant's focus on riverfront brownfields.

Marine Infrastructure

Goal

Develop safe and effective underwater inspection and survey mechanisms and mount a comprehensive and long-term research effort to meet the technological challenges posed by the aging and obsolescence of marine structures.

Objective Support research and outreach efforts to develop new technologies to produce quality welds underwater, and to produce and inspect these welds where visibility and environmental conditions are severely limiting.

Goal

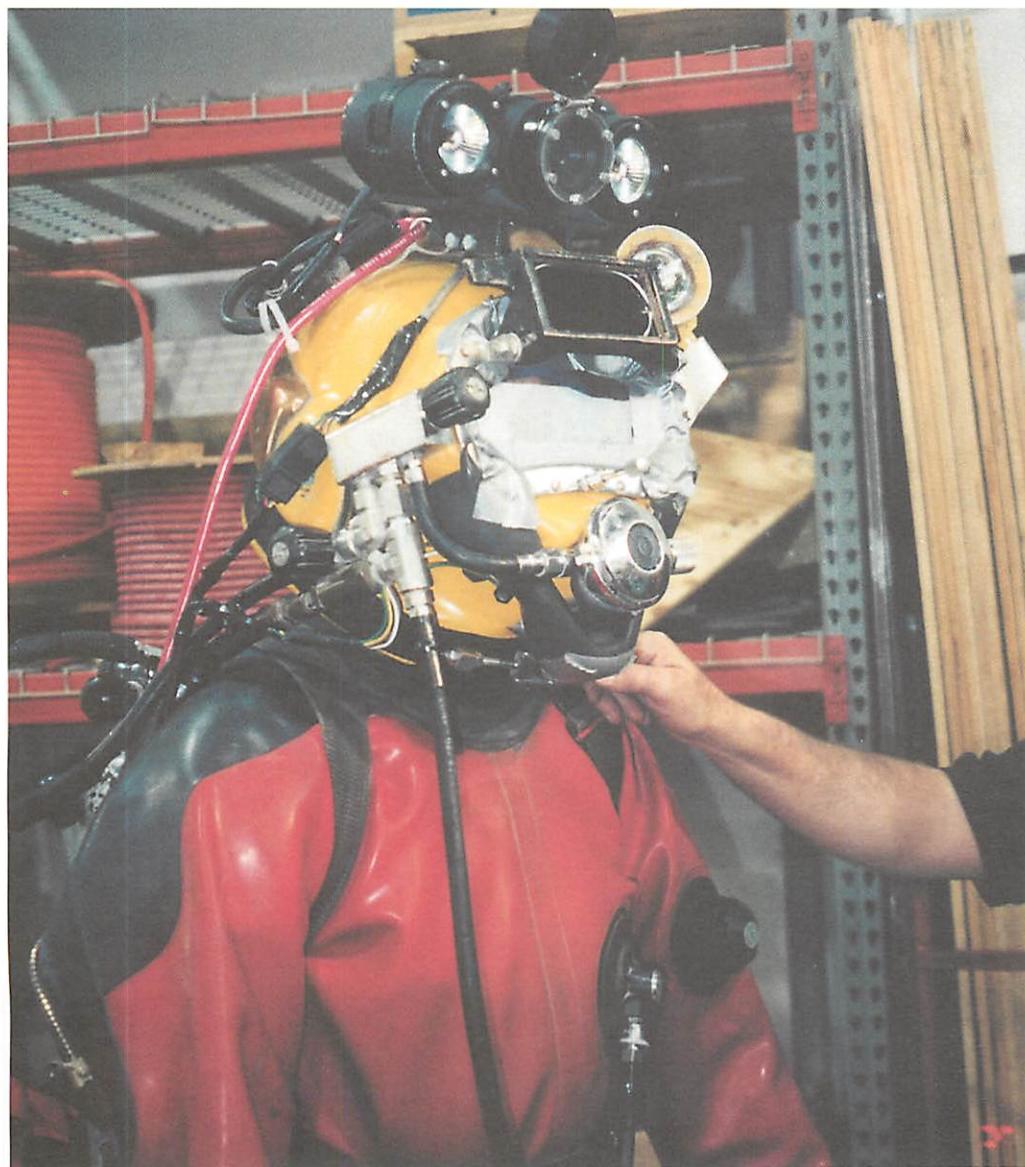
Maintain safe and adequate commercial and recreational access to Lake Erie.

Objective Enable Ohio coastal communities, property associations and businesses to improve safety, access, and navigation in their waterways.

Action

Assist local communities and businesses with obtaining dredging permits for recreational harbors.

ECONOMIC LEADERSHIP



ECONOMIC
LEADERSHIP

3 4



Coastal Ecosystem Health



Coastal Ecosystems

COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY

Goal

Develop and implement an ecosystem management plan for Lake Erie.

Objective Develop the necessary scientific information to manage Lake Erie as an ecosystem.

Action

Support and/or lead efforts within the International Joint Commission and other regional and state agencies/groups to understand and model the Lake Erie ecosystem to assist managers and improve management of the system. Include the following stressors in the modeling efforts: contaminants, nutrients, aquatic nuisance species, and sediment loading.

3 5

Goal

Achieve watershed level management to control tributary loading and habitat protection for all Lake Erie tributaries in Ohio.

Objective Quantify the impacts of human activities on the aquatic environment and transfer the information to managers to influence the decision-making process at the local community and watershed levels.

Action

Collaborate with management agencies to identify and prioritize research efforts within the Ohio Sea Grant Program that support watershed management plans.

Action

Assist citizen advisory councils and resource managers with the interpretation of research/scientific information to develop watershed protection, best management practices, and tourism development programs.

COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY



3 6

Goal

Support research and outreach efforts to develop the technical ability to improve and rejuvenate damaged ecosystems and put the technology to use.

Objective Develop and implement nonpoint source pollution control programs (including beach and underwater clean-up events) in cooperation with federal, state, and local governments.

Action

Develop and provide economic data to local municipalities and tourism bureaus detailing the loss of revenues stemming from beach closures.

Action

Continue leadership of underwater cleanup efforts at Put-in-Bay.

Objective Reduce runoff of sediment, contaminants and nutrients from farm land into Lake Erie.

Action

Provide active support and assistance to the Lake Erie Buffer Initiative to reach interagency goals established for new buffers and filter strips.

Objective Evaluate alternative rejuvenation strategies (including wetland mitigation) to improve damaged ecosystems.

Action

Support/encourage research to evaluate the impacts of dams, weirs, and other man-made modifications and the effects of their removal on fish spawning habitat and stream quality.

Action

Define the desired characteristics of functional coastal wetlands.



COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY

Coastal and Great Lakes Habitats

Goal

Support research and outreach efforts to determine the impacts of habitat alteration and loss on the fishery and the entire aquatic ecosystem.

3 7

Objective

Support research and outreach efforts to determine the biological and economic impacts of artificial reefs and assist with their continued development where and when appropriate.

Action

Continue evaluations of fish use of artificial reefs constructed with rubble from old Cleveland Stadium.

Action

Collaborate with the Ohio Division of Wildlife to establish a tagging program to characterize smallmouth bass use of artificial reefs.

Action

Support research to map Lake Erie's artificial reefs and transfer the information to users.

Action

Investigate the development of a deep-water artificial reef demonstration project.

Action

Evaluate intentionally sinking vessels as artificial habitats and diver destinations as done in many of our coastal states.

Action

Collaborate with the Submerged Lands Advisory Committee to mark shipwrecks for divers.

COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY

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Goal

Support research efforts to develop the technical ability (including biotechnology) to improve and rejuvenate habitats that have been lost or damaged with particular emphasis on Areas of Concern. Implement these results to improve Lake Erie habitats and assist Remedial Action Plans.

Objective Develop and implement Special Area Management Plans for coastal regions in collaboration with the ODNR Coastal Management Program.

Action

Develop at least one successful interaction with the Coastal Management Program to improve a damaged ecosystem in year one.

Objective Develop and evaluate new technologies to remove and/or detoxify contaminants in Areas of Concern.

Goal

Develop programs, in cooperation with federal, state, and local governments, to quantify and minimize the impact of aquatic nuisance species and to control and prevent their introduction into coastal and Great Lakes waters.

Objective Minimize the spread of aquatic nuisance species from Great Lakes' waters into Ohio's inland waters.

Action

Continue outreach/education programs for the live bait industry and angling public to prevent ANS spread.

Objective Enable Ohio's live bait industry to comply with new and pending regulations designed to control the spread of aquatic nuisance species and to help the industry implement a system for certifying bait species to be ANS-free.

Action

Collaborate with the Ohio Division of Wildlife to develop a HACCP-style live bait inspection and certification procedure that can be adopted by the live bait industry.



COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY

Sustainable Development

Goal

Promote sustainable development through research and outreach efforts to assess the links between ecology and economic development.

Objective Improve the decision-making process in support of sustainable development within the Lake Erie coastal zone.

3 9

Action

Develop a training program for coastal managers at Stone Laboratory and/or one of our partner organizations along the Ohio shoreline.

Goal

Provide accurate, unbiased information on the potential economic and social impacts of current and proposed land use and other development plans, policies, and regulations.

Goal

Assist decision-makers in evaluating the effectiveness of policies intended to prevent, manage, and improve environmental problems in the coastal zone and the Lake Erie watershed.

Objective Develop proactive strategies for wetland preservation, riparian stream buffer acquisition, and other programs for improving water quality in coastal watersheds and Lake Erie in collaboration with local watershed action groups.

Action

Develop fact sheets, news releases, and/or seminars to increase awareness among landowners of programs compensating them for implementing stream bank protection practices, such as buffers and filter strips.

Action

Participate on citizen advisory councils working to protect and improve Lake Erie tributaries and their drainage basins.

Public Safety

COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY

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Coastal Hazards

Goal

Develop new technologies to measure and forecast physical conditions and parameters including: water levels, sediment loading and transport, currents, wave heights, and shoreline processes.

Objective Support research and outreach programs to improve capabilities and utilization of the Great Lakes Forecasting System (GLFS).

Action

Demonstrate the function and value of the GLFS to user groups and decision makers at seminars and workshops.

Goal

Reduce damage associated with storms, water level changes, and erosion.

Objective Improve the ability of local governments and emergency management agencies to alert citizens and businesses to threats stemming from storms and fluctuating water levels.

Action

Provide news releases, alerts, web pages, and personal assistance to agencies and local officials on critical storm and water level information, including the GLFS.

Objective Improve the ability of coastal facility operators to minimize damages and business losses caused by fluctuating lake levels.

Action

Provide current and forecast information on lake levels to marina managers, marine contractors, plant operators, and other coastal business personnel and inform them of possible actions to minimize property damage.

Objective Improve the ability of coastal property owners to minimize damage from fluctuating water levels.

Action

Provide outreach education to property owners on lake level changes, low-water hazards, flood insurance and emergency actions (e.g., sandbagging, evacuation, etc.).

Objective Improve the ability of state and local governments to identify and remove coastal navigation hazards.

Action

Develop an outreach program to assist local governments in understanding permit processes, funding sources, and engineering alternatives for channel improvement, dredging, and hazard removal.

COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY

Safety at Sea

Goal

Focus research, education and outreach efforts to make boating and recreational, scientific, and commercial diving safer.

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Objective Increase safety for underwater welders.

Action

Support research efforts to reduce welding stress by simplifying the process and reducing the time required to make quality welds.

Objective Increase safety for recreational and scientific divers.

Action

Implement a Diving Safety Program for Stone Laboratory and all Ohio Sea Grant research.

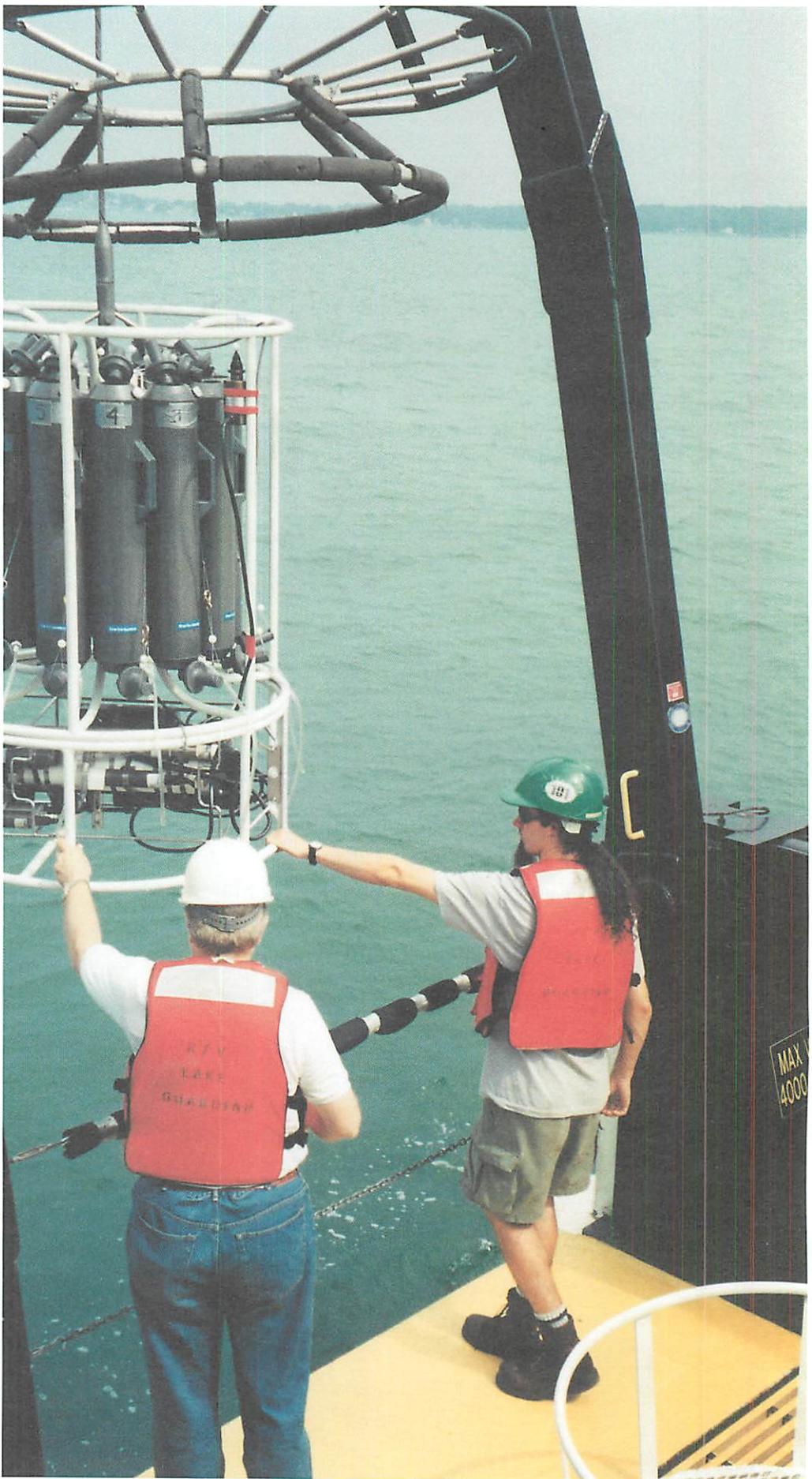
Objective Cooperate with the ODNR, Divisions of Watercraft and Wildlife to encourage safe boating practices—particularly for duck hunters and users of small boats and personal watercraft.

Action

Collaborate with the Ohio Division of Watercraft on surveys and evaluations to identify boating safety issues and problem areas.

EDUCATION AND HUMAN RESOURCES

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Technically Trained Workforce



EDUCATION AND HUMAN RESOURCES

Scientists, Engineers, and Educators

43

Goal

Produce highly skilled graduates to fill the need for environmentally focused scientists, engineers, and educators in the workforce.

Objective Provide educational and training opportunities for undergraduate and graduate students that address real-world problems, opportunities, and management needs.

Action

Continue to recruit and provide support for undergraduate and graduate students.

Action

Expand information technologies used at Stone Laboratory to include distance learning capability, video, and data sharing for teaching.

Action

Enhance Stone Laboratory curriculum using spatial referencing and remote imaging technologies.

Action

Provide teaching support on Lake Erie issues, environmental economics, and coastal geologic resources to college students and classes. Such support may be through the use of guest instruction, visits, or workshops at Stone Laboratory or the use of curricula developed at Stone Laboratory.

EDUCATION AND HUMAN RESOURCES

4 4



Objective Emphasize and reward undergraduate and graduate training on research projects.

Action

Provide this information to investigators developing proposals for Ohio Sea Grant and use student training as a criterion in selecting projects for funding.

Objective Encourage undergraduate and graduate training and educational programming in both formal and non-formal settings.

Action

Promote and encourage outstanding applicants to fellowship programs, e.g. Knauss Fellowships.

Action

Generate new sources of support for students, e.g. perhaps through sponsored or applied research.

Action

Develop a fellowship/internship program with agencies, local decision-makers, and museums for graduate and undergraduate students.

Action

Assist educators to enhance their awareness and utilization of the resources of Stone Laboratory and Sea Grant.

Resource Managers

Goal

Improve the ability of managers and decision-makers to understand and address Great Lakes' and coastal issues through education and outreach programs.

Objective Enhance technical and management skills among agency and institution managers by developing education and outreach products and programs in the aquatic and social sciences and emerging coastal issues.

Action

Increase the range of summer offerings at Stone Laboratory to include resource management topics.

Action

Organize an environmental economics seminar at the annual International Association for Great Lakes Research Conference.

Action

Educate and inform resource managers and key decision-makers of the most up-to-date research based information on Lake Erie through the use of research seminars, publications, workshops, and the Sea Grant extension services.

Action

Develop and / or host educational seminars or field trips, which focus on environmental problems facing Lake Erie and the State of Ohio.

Action

Contribute to NSF's Digital Library system with products related to teaching and learning about freshwater environments.

Objective Demonstrate the long-term impact of formal education programs conducted by Ohio Sea Grant.

Action

Seek support to initiate a focused follow-up of students and substantive evaluation program for formal education efforts at Stone Laboratory.

EDUCATION AND HUMAN RESOURCES

4 5

Technical Training

Goal

Make Ohio marine industries and businesses both more environmentally aware and more profitable.

Objective Provide training on new technologies and management practices for private sector.

Action

Continue providing technical workshops and seminars to showcase new technologies and research.

Environmentally and Scientifically Informed Citizenry

Pre-College Education

Goal

Improve K-12 science education in Ohio and the nation through curriculum development, teacher training, technology transfer, and the development of hands-on educational opportunities for students.

Objective Expand opportunities for teacher education and development.

Action

Develop and institutionalize a Master's program for inservice teacher education using primarily Stone Laboratory summer courses.

Action

Seek support to develop distance learning capability, video, and data sharing for teaching at Stone Laboratory.

Objective Increase knowledge levels and interest in aquatic science students.

Action

Provide a unique, exciting aquatic science workshop experience to over 5,000 K-12 students, offering hands-on lessons about Lake Erie, the Great Lakes, and the oceans.

Action

Develop a workshop program that could be taken to schools that either choose not to, or are unable to come to Stone Laboratory.

Action

Develop a follow up survey program, to evaluate the effectiveness and/or impact of the workshop program on students' environmental awareness, choice of college and/or major, choice of recreational activities, and their ultimate choice of careers.

Objective Create opportunities for exceptional students to participate in real-world aquatic research and educational experiences.

Action

Continue and expand the use of single day and week long shadowing experiences for selected students.

Objective Improve the facilities and capabilities of Stone Laboratory and increase scholarship support for students and teachers.

Action

Encourage continued support for Stone Laboratory from the existing support groups.

Action

Develop a strategic plan to seek new sources of support for Stone Laboratory.



Informal Education

Goal

Increase public understanding of science and environmental, Lake Erie, Great Lakes, and marine issues through lectures, museum programs, youth programs, the mass media, and emerging communication technologies.

Objective Increase utilization and understanding of Sea Grant research results and educational contributions.

Action

Develop an annual or biennial Sea Grant research conference where current projects will be reviewed and summarized in a style understandable and enjoyable for the public and the media.

Action

Seek support for hosting a regional Great Lakes Education Summit for K-12 and non-formal education leaders.

Action

Establish an Ohio/Lake Erie Learning Consortium (Stone Laboratory, Lake Erie Nature and Science Center, University of Toledo, Old Woman Creek NERR, Great Lakes Science Center, etc).

Objective Increase the awareness and knowledge level of elected officials about coastal, Great lakes, and Lake Erie issues.

Action

Develop and/or host educational seminars or field trips that focus on environmental problems facing Lake Erie and the State of Ohio.

Action

Organize and host Ohio Sea Grant's State Legislature/Congressional Day educational programs.

Action

Develop educational and informative programs for newly elected State Legislators, a growing audience in the Legislature brought about by term limits.

Action

Collaborate with the Old Woman Creek NERR and the Ohio Coastal Program to develop a Coastal Training Institute.

EDUCATION AND HUMAN RESOURCES

EDUCATION AND HUMAN RESOURCES

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Objective Increase public knowledge and understanding about Lake Erie, the Great Lakes, the oceans, the aquatic sciences, and the mission of Sea Grant and our research, education, and outreach efforts.

Action

Develop and update the Ohio Sea Grant exhibit for use at regional and local fishing and boating shows, staff the exhibit and respond to Lake Erie user requests for information generated by the shows.

Action

Maintain high quality, active Sea Grant advisory Committees to assist with information dissemination efforts.

Action

Develop high quality articles, ideas, and information for the Sea Grant newsletter, *Twine Line*.

Action

Collaborate with the IAGLR 2001 Organizing Committee to maximize the media outreach effort for the IAGLR 2001 Conference in May 2001.

Action

Collaborate with the ODNR Coastal Management Program to maximize the media outreach effort for the Coastal Zone 2001 Conference in July 2001.

Action

Investigate the development of a Lake Erie 4-H project for Ohio youth.

Action

Host at least six Elder Hostel groups at Stone Laboratory.

Action

Expand and improve our web site as a major outreach element of the program.

Objective Renovate Jay Cooke's Castle at Stone Laboratory for use as a conference center for Ohio Sea Grant's outreach/education program.

Action

Support fund raising efforts through the Friends of Stone Laboratory, private donors, and the State Legislature to complete exterior and interior renovations of the building.

Ohio Sea Grant College Program

In 1974 the governor's Lake Erie Task Force recommended that The Ohio State University develop a Sea Grant Program for Ohio by working closely with the Ohio Department of Natural Resources and a number of Lake Erie businesses. CLEAR was given lead responsibility to develop the proposal and host the Sea Grant program for Ohio. Our first Sea Grant project (a science education project) was funded in 1977. We became a "coherent program" with one education project, one research project, and one extension agent in 1978, and a "Sea Grant Institution" in 1983. Based on the program's subsequent accomplishments, The Ohio State University was designated this country's 24th Sea Grant College by the Secretary of Commerce in September 1988.

The Ohio Sea Grant College Program is one of 29 Sea Grant programs in the National Sea Grant College Program (NSGCP) of the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. Every coastal state and every Great Lakes State has a program.

Sea Grant is a matching funds program and requires at least \$0.50 of non-federal support for every federal dollar invested in the program. Matching funds for Ohio Sea Grant are provided by a line item in the budget of the Ohio Board of Regents, The Ohio State University, private businesses and individuals, and by the home institution of scientists receiving grants from Ohio Sea Grant.

Vision for the Future

Sea Grant is an investment in the health of the nation's marine, coastal and Great Lakes resources. Sea Grant is an issue-based program for the 21st century—a partnership of the people, universities, government, and industry. Our vision is to be an exemplary Sea Grant Program and to be recognized for superior research, education, outreach, and administrative components. Within Ohio our vision is to be recognized for our outstanding science programs and leadership and integrity in solving problems related to the environment, education, and the economy.

Mission

The mission of the Ohio Sea Grant College Program is to increase understanding, assessment, utilization, development, conservation, and wise management (stewardship) of our Great Lakes and ocean resources, with particular emphasis on Lake Erie. Within this mission we have several significant goals:

1. Promote sustainable economic development on the Lake Erie coast and watershed by applying scientific knowledge to solve resource problems;
2. Develop the critical knowledge and technology to enable coastal industries in Ohio to enhance profitability and establish economic leadership;
3. Identify, protect, and conserve valuable coastal habitats and resources and improve environmental conditions in the Lake Erie and Great Lakes ecosystems;
4. Enable coastal and Great Lakes communities to successfully adapt to changing social and economic conditions; and,
5. Improve the quality of marine and aquatic education in Ohio, develop a more informed citizenry, and thereby contribute to a higher quality of life for Ohioans.

Ohio Sea Grant's 9 Points

Ohio Sea Grant must be a partnership among

1. academia,
2. government, and the
3. private sector.

Ohio Sea Grant must use a combination of

4. research,
5. education, and
6. outreach

to focus on the

7. economy, the
8. environment, and
9. education.

We believe these 9 points should influence every decision the program makes.

**OHIO SEA GRANT
STRATEGIC PLAN
2000-05**
&
**IMPLEMENTATION PLAN
2000-02**



OHIO SEA GRANT

Ohio Sea Grant, first funded in 1977, is one of 29 Sea Grant programs in the National Sea Grant College Program within the National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Every coastal and Great Lakes state has a program. Sea Grant, patterned after the Land Grant system, is designed to increase utilization, development, and wise management of coastal resources, through research, education, and technology transfer programs.

Sea Grant is a matching funds program requiring at least \$0.50 of non-federal support for every federal dollar received. Our six Extension Agents and their private sector advisory committees are nationally recognized for their accomplishments in improving Lake Erie and embracing its economy.

F.T. STONE LABORATORY

Franz Theodore Stone Laboratory, created in 1895 and located on the 6.5-acre Gibraltar Island at Put-in-Bay, is Ohio's Lake Erie laboratory. It is the nation's oldest freshwater biological field station and the North Coast Campus of The Ohio State University.

The Laboratory offers college-level courses each summer with faculty and students coming from all over the country. During the 1990s, students from 40 Ohio colleges, 31 out-of-state colleges, and 265 high schools have taken these courses for college credit. The Laboratory also provides a facility for year-round research, offers special conference facilities and speakers, and develops and offers custom-designed programs for grades 5 through adult with over 5,500 participants annually.

GLAERC

Great Lakes Aquatic Ecosystem Research Consortium

In 1992 Ohio Sea Grant formed the Great Lakes Aquatic Ecosystem Research Consortium (GLAERC) composed of top aquatic scientists at Ohio universities including Bowling Green, Case Western Reserve, Cleveland State, Heidelberg, John Carroll, Kent, Miami, Mount Union, Ohio State, Toledo, Ohio University and Wright State. GLAERC strives to enhance collaboration, cooperation, communication, and sharing of equipment and facilities. This makes Ohio's top scientists more effective and competitive for federal funding and allows them to better address the critical issues and problems affecting Ohio's surface waters. Stone Laboratory is the Consortium's shared research facility.

CLEAR

Center for Lake Erie Area Research

When the Cuyahoga River caught fire in 1969, The Ohio State University, as the Land Grant College in Ohio, was expected to respond to the problem. Ohio State did so by creating the Center for Lake Erie Area Research (CLEAR) in 1970. Much of the research within the center is conducted at Stone Laboratory and addresses issues related to water quality, fisheries, and sustainable development.