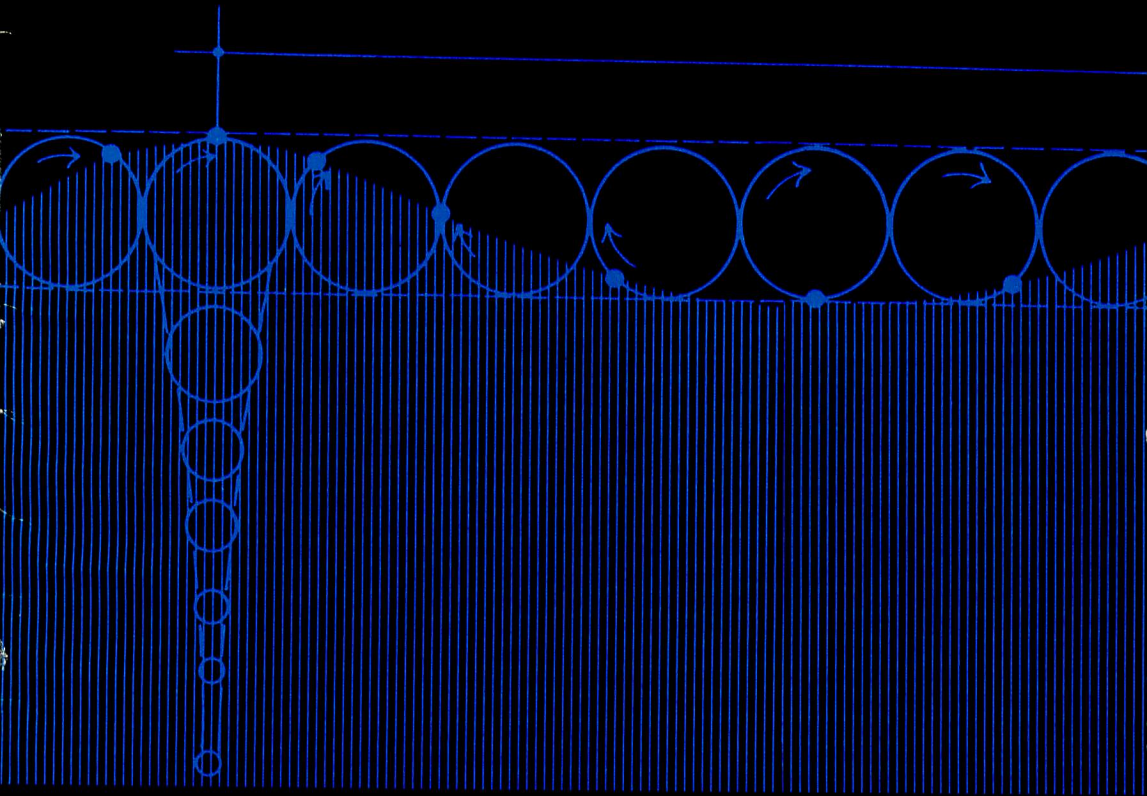


MICHU-A-72-001



SEA GRANT PROGRAM  
The University of Michigan

1. The first of the  
notes in the series.

*When we try to pick up anything by itself, we find it attached to everything in the universe.*

John Muir

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# Sea Grant Depository

## **SEA GRANT: NATIONAL**

The resources in and beneath the waters of our planet are becoming increasingly important to the future of mankind. We know far too little about our water resources and man's impact upon them. Recognizing this, the United States Congress passed the National Sea Grant College and Program Act in 1966 (P.L. 89-688). This act calls for "federal support toward the establishment, development and operation of programs designed to achieve the gainful use of marine resources . . . with the object of imparting useful information to persons currently employed or interested in the various fields related to the development of marine resources, the scientific community, and the general public."

As part of the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), the Sea Grant Program presently funds projects at more than 90 colleges, universities, and private institutions along the nation's sea coasts and the Great Lakes.



## **SEA GRANT: MICHIGAN**

The University of Michigan first became a member of the Sea Grant family in 1969 and has since created a multi-disciplinary research team consisting of over 120 faculty members and researchers from diverse areas. It is a cohesive program of applied research, education, and public service, designed to provide a regional problem-solving capability for the Great Lakes.

The Sea Grant effort is organized into three sections: research, education, and advisory services. These divisions allow for a comprehensive, yet coordinated approach to the handling of Michigan's water-related problems.

Well aware of the vital importance of the Great Lakes to the Midwest and particularly to the state of Michigan, the Michigan Sea Grant Program is conducting research directly applicable to the development of predictive analysis models of the environment for use in public policy and decision making. These computerized representations of the "real world" show how changes in one part of the environmental system affect the other parts and thus help planners and decision makers predict the consequences of their actions.

## **COOPERATIVE PROGRAMS**

An important goal of the Sea Grant Program has been the establishment of cooperative relationships with Michigan's state agencies, other educational institutions, industry, and the public. The success and acceptance of the Program is evidenced by a joint House-Senate resolution passed by the Michigan legislature in 1972 "recognizing the vital importance of and pressing need for the Michigan Sea Grant Program . . . for bringing vast research potential to bear on the solution of many of the state's environmental problems and providing a coordinated approach to Great Lakes research."



Numerous joint research investigations are now underway as a result of Sea Grant's orientation to public service.

- A five-year meteorological study of nuclear power plants is being conducted by Sea Grant in cooperation with Consumers Power and Indiana & Michigan Electric Company. Begun in 1972, the investigation is designed to monitor and evaluate the meteorological effects on the

coastal environment of disposing heat either into the air or into the coastal waters of the lake.

- Evaluation of spray irrigation as a waste treatment method for Muskegon County is being studied jointly by Sea Grant and the Michigan Water Resources Commission. This process will spray wastes, presently discharged into Lake Michigan, on fields for irrigation. The system is designed to use soil as a natural filter, retaining nutrients and contaminants. Fields thus irrigated will yield cash crops. Sea Grant will conduct "before and after" tests to determine the changes in water quality and the effects on the soil and on Lake Michigan.

- Sea Grant's Coastal Zone Management project is yet another cooperative endeavor. This project is developing shoreland management and planning techniques to bring about judicious use of Michigan's valuable and fragile coastal areas. Together with the Michigan Water Resources Commission, Sea Grant works closely with the Traverse City Shorelands Coordinating Committee in a pilot shorelands planning program. The committee, composed of local officials and citizens, is attempting to identify local shoreline needs and problems and to seek regional solutions to them. Sea Grant will also work closely with the Water Resources Commission in assisting it to evolve a long-range, state-wide plan for management of Michigan's coastal areas.

## **RESEARCH**

Michigan's research program is primarily directed at identifying and solving the problems arising from the interaction of society with the environmental resources of the Great Lakes. Initially, Grand Traverse Bay, in northern Michigan, was selected for a concentrated pilot study. This area is similar in many respects to Lake Michigan and contains many of the same problems and possibilities as Lake Michigan, though on a much smaller scale.

In order to gain sufficient perspective, areas of research range from the chemical and biological to the engineering, legal, and socio-economic fields. A sampling of these pilot area projects include:

- Design, building, and launching of LAKELAB, an underwater habitat with which divers can be trained and new underwater research techniques and equipment can be tested.
- Building of an innovative, mobile, waste treatment plant for testing in canneries and municipalities.
- Investigation of avenues for institutional cooperation and the development of tools for planning and public policy.
- Studies of weather patterns and their effects on water temperature and lake currents.
- Shoreland surveys which include identification of erodible and ecologically unstable areas.
- Sampling of groundwater and lake sediments and measurement of biological production and pollution loads in the water.
- Measurement of recreational usage and estimations of future trends and needs.
- Studies of the economic impact of sport fishery.

These are only a few of the projects which give Sea Grant information which will eventually be translated into techniques for handling present environmental conditions and provide the perspective for predicting future trends and "hot spots."





## **EDUCATION**

The entire Sea Grant concept is based upon marine and water resources education—of students, of scientists, and most importantly, of the public.

Educational activities on the university level range from the participation of graduate students in advanced research to the sponsorship of regular courses. Nearly a hundred graduate researchers benefit from Sea Grant funding and many more participate in courses and field studies organized by Sea Grant. Courses in research diving techniques, training in limnological investigation, and programs such as the exciting Oceanography Field Practicum, held each year on the Atlantic in cooperation with Woods Hole Oceanographic Institution and the Marine Biological Laboratory, reflect Sea Grant's contribution to education.



Contrary to many research programs, Sea Grant strives for community and regional education. In order to familiarize public officials, industry, and citizenry with the extremely complex problems of environmental planning and management, Sea Grant has devised WALRUS (Water and Land Resource Utilization Simulation). This is a highly serious computer "game" in which participants play various roles, such as industrialist, farmer, politician, and developer in order to learn the complexities and interactions involved in resource planning. Students, scientists, and public officials find WALRUS an extremely useful educational tool.

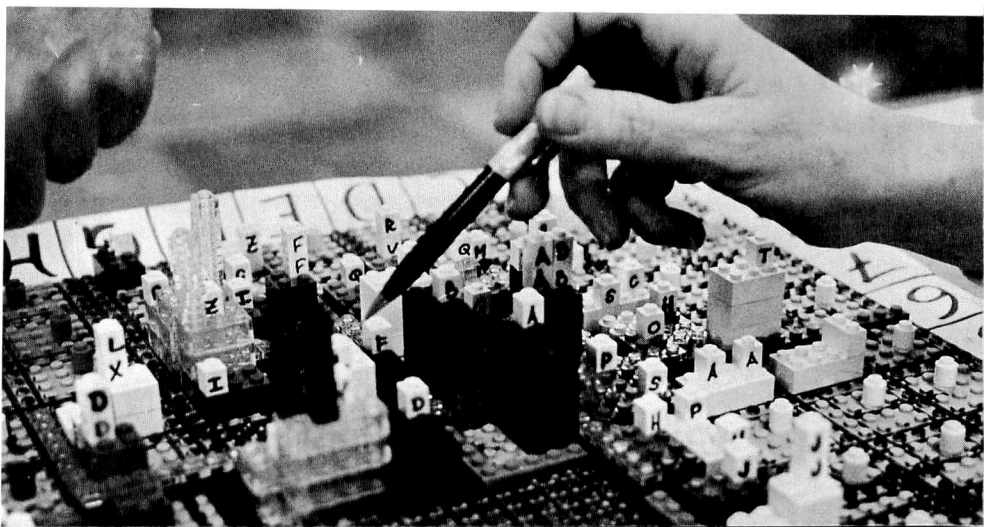
Sea Grant funds have also been used in support of Summer Science Camp, sponsored by a consortium of Michigan and Wisconsin institutions. Open to students from eighth grade through college, campers conduct independent and innovative research projects, often of amazing sophistication.

Conferences and seminars organized by Sea Grant serve as yet another method by which scientists, decision makers, and the public are acquainted with the environmental problem areas in the Great Lakes, and Sea Grant's efforts to resolve them. They have proven both effective and popular.

## ADVISORY SERVICES

Sea Grant research is designed to be of use to the public, and one of Sea Grant's advisory services is the interpretation and dissemination of results of the research to those people who can use it. Through its Advisory Services Office, Sea Grant seeks out those who are using the waters of the Great Lakes, whether for commerce, recreation, or other purposes, to determine the nature of their water-related problems. Often advisory service representatives can solve these problems with existing knowledge. Sometimes the nature of the problem calls for the creation of a new research project. Whatever the method needed, it is the goal of Michigan Sea Grant Advisory Services to identify and help resolve the water-related problems of the Great Lakes community. The Advisory Services Office welcomes contacts from all sectors.

Sea Grant disseminates information in many ways. One way is the publication and distribution of the results of Sea Grant investigations. These technical reports are available to the scientific community and to the concerned public. A list of available publications may be obtained by contacting the Sea Grant Office. Another method of disseminating information is the sponsorship of seminars, workshops, and conferences. Through its advisory services, Sea Grant is using all of these methods to bring the research community and the users of information together effectively.





## **FUTURE**

Upon completion of the Grand Traverse Bay pilot project, Michigan Sea Grant will use the knowledge and techniques assembled to launch a larger study in Lake Michigan. Ultimately Sea Grant may include the entire Great Lakes system in its predictive modeling efforts.

Sea Grant is also considering a variety of future projects, for example, special diver training for a possible arctic expedition, a study to examine the winter ice as usable "land" for both recreational and commercial activities, plans for shoreland recreation in large urban areas, and a Coastal Zone Research Laboratory.

The establishment of a National Sea Grant Program, ensuring continued funding for marine research, has enabled institutions such as Michigan to establish comprehensive, long-term programs. Previous studies in the Great Lakes have often been of a fragmented, short-term nature. With the assurance of continued support, Michigan has been able to create a program of greater scope and capability than has previously been possible in the Great Lakes.

To take advantage of this potential, Sea Grant must increasingly involve local and regional decision makers in its activities. It must also continue to seek the cooperation and participation of industries and organizations whose interests or activities include or affect the quality of the water and shorelands. Sea Grant's water research is designed to be of use to the public. To fully realize its goal, Sea Grant needs the support and cooperation of everyone concerned with the quality and the future of the Great Lakes.

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