



THE ILLINOIS-INDIANA SEA GRANT PROGRAM

A Biennial Report
April 1984 - May 1986

IL-IN-SG-87-2
1500 June 87
COMM-NA 85AADSG0830N

Published by the Illinois-Indiana Sea Grant Program with funding from the National Sea Grant College Program, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

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Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. William R. Oswald, *Director*, Cooperative Extension Service, University of Illinois at Urbana-Champaign.

The Illinois Cooperative Extension Service provides equal opportunities in programs and employment.

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Message from the Program's Coordinators

The Illinois-Indiana Sea Grant Program has grown rapidly during its first four years.

For the newest of the country's 31 Sea Grant programs, it has been a time of challenge and progress.

In the past two years, Illinois-Indiana Sea Grant has introduced a viable research component, which has raised the program one level in the hierarchy of Sea Grant designations, from a Marine Extension project to a coherent program. This university-based research provides a vital linkage that allows the Marine Extension staff to convey research findings to interested clients.

Research projects being conducted by experts from five universities are addressing marine issues such as fluctuations in the diets of salmon and trout; the recreational use of Indiana's southern Lake Michigan shoreline; the development of gene transfer technology for aquaculture; and the toxins in tropical and subtropical fish that cause ciguatera poisoning.

The Illinois-Indiana Sea Grant Program has continued to work with a wide variety of client groups, such as those involved in the marine, charterboat, and tourism industries, to help solve business problems and answer questions regarding marine issues.

We are pleased to have had the opportunity to cooperate with the Illinois Department of Agriculture on their 1986 aquaculture feasibility study by serving on the Illinois Aquaculture Advisory Committee and by providing information from Sea Grant sources. This study titled, *The Illinois Aquaculture Industry: Its Status and Potential*,

has created a greater awareness of aquaculture throughout Illinois. The next three to five years will see marked growth in this new Illinois industry.

As host of the 1986 Great Lakes Sea Grant Marine Extension Workshop in Michigan City, Indiana, the Illinois-Indiana Sea Grant Program spent a great deal of time and effort planning and carrying out the event. Speakers discussed such issues as high lake levels and shoreline erosion, transportation, Great Lakes policy issues, fisheries, and waterfront development.

The Illinois-Indiana Sea Grant Program depends heavily on the ongoing support of the many volunteers who serve on the program's Extension and Research advisory committees, as well as the hard-working staff members who are asked to perform a wide range of duties. The contribution of all of these people has been essential to the program's success.

We have now set our sights on achieving college program status. With the continued commitment and support of our staff and residents of Illinois and Indiana, this goal is well within our reach. Looking back over the past two years we come away not only with a sense of accomplishment but also with a source of inspiration for a new period of challenge and growth.

Robert D. Espeseth,
Coordinator

Burnell C. Fischer,
Co-Coordinator



Introduction

The Illinois-Indiana Sea Grant Program serves a population of over 8 million people living within an hour's drive of Lake Michigan's southern shores. Besides providing drinking water for this population, the lake offers excellent fishing, swimming, boating, and other recreational opportunities.

In recent years, some of the traditionally industrial shoreline has begun to be revitalized as a recreational resource. And more revitalization plans are underway. With its beautiful parks and beaches and interesting historical sites, the lakeshore now supports a thriving tourist industry important to the region's economy.

To help these people use the Lake Michigan resource to its full potential, the Program's Extension, Research, and Communications components work together in providing useful information and in helping to solve lake-related problems. In this way, Sea Grant is making a significant contribution to the economic and ecological development of the Illinois and Indiana shoreline.

The Extension adviser and Program leaders identify areas for educational development by working with the various Lake Michigan user groups and the Area Marine Extension Advisory Committee to specify areas for educational development and to determine important marine issues that should be addressed.

The Sea Grant staff also identifies technical information and solicits research projects to best serve the needs of its clientele. In addressing these needs, the Marine Extension component deals with such issues as water quality, rising lake levels, Lake Michigan's tourism industry, boating safety, waterfront development, and aquaculture.

The Program's Research component, initiated in 1984, is addressing

marine resource problems confronting people in the Lake Michigan region.

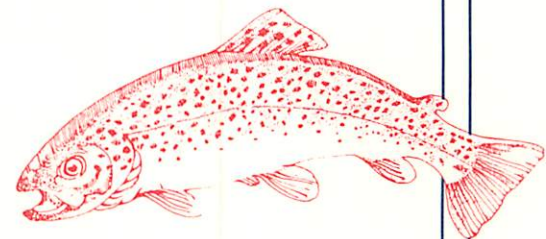
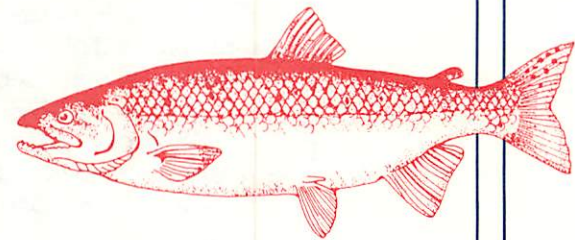
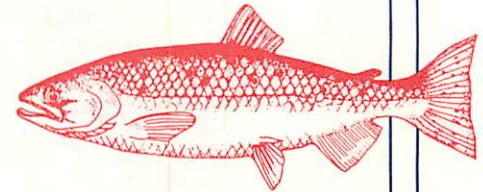
Researchers from eight Illinois and Indiana universities have submitted proposals. Funding was awarded to researchers from five of those universities to investigate several areas of research. Two studies that have already been completed are "Prey Handling Times for Salmonids" and "The Southern Lake Michigan Sportfishery: Angler Profiles and Specialization Model."

Current and ongoing research projects include:

- Food habits of Lake Michigan salmonids in Illinois waters
- Food habits of salmonids in the Indiana waters of Lake Michigan
- Analysis of the behavioral bases for changes in salmonid diets
- Factors affecting participation in water-based recreation on southern Lake Michigan
- Production, identification and characterization of multiple toxins responsible for ciguatera in the Caribbean and South Atlantic
- Development of gene transfer technology for aquaculture

The results of several of these studies will help many people who use and promote the Lake Michigan resource, including sportfishermen, fishery managers, charterboat operators, and policy-makers.

The Communications component plays an essential role in disseminating the results of Extension and Research activities to specific users as well as to the general public. The main vehicles for communication are the quarterly newsletter (*The HELM*), Extension and Research publications, news releases, and informational displays.



MARINE EXTENSION

The Marine Extension component provides training and educational opportunities for diverse audiences. It is the line between university researchers and educators, policy-makers, business-people, and those who depend on Lake Michigan for their livelihood or recreational enjoyment.

Extension staff include Christine Pennisi, area adviser; Robert Espeseth, program coordinator; and Burnell Fischer, program co-coordinator. This small group works together to organize and conduct a variety of Marine Extension activities, including workshops and seminars about Lake Michigan resources and environmental issues.

From 1984-86, Extension efforts consisted of work in four areas--marine enterprises, the Cooperative Extension Service, coastal awareness activities, and the Great Lakes Sea Grant Network.



MARINE ENTERPRISES

There are large numbers of marine enterprises in the southern Lake Michigan region which serve the public in the areas of tourism, sportfishing, boating, and aquaculture (the cultivation of aquatic resources). Sea Grant Marine Extension staff has developed programs and information to assist the many individuals involved in these marine-related businesses.

Shoreline Tourism and Recreation

Tourists and travellers bring several billion dollars into the southern Lake Michigan region each year. The image of the southern Lake Michigan region is improving, but many residents and visitors must still be made aware of the shoreline's exceptional recreational assets, parks, museums, and historical sites.

Communities that once emphasized shipping and heavy industry are now relying on a tourism industry built around the natural beauty and recreational opportunities of southern Lake Michigan. Sea Grant is dedicated to helping the shoreline communities of Illinois and Indiana make this shift, which is so critical to the region's economy.

Hospitality Training

Hospitality is vital to a successful tourism industry. Courtesy shown to a visitor will help create a positive impression of a community and encourage the traveler to come back again. In August 1984 the Extension component surveyed northwest Indiana tourism-related businesses and determined that no hospitality training was currently available for area businesspeople. To address this need, the Extension staff organized a hospitality workshop.

After consulting with the director of the new Lake County (Indiana) Convention and Visitor's Bureau and professors from Purdue University's School of Restaurant, Hotel, and Institutional Management, the Extension staff held its first hospitality training workshop in March 1985. The workshop took place in Lake County, Indiana where 43 participants representing sixteen enterprises attended. Survey results indicated that the participants gained a greater appreciation for their role in the tourism industry. And, many have modified their actions as a result of an increased awareness of the tourist's special needs.

Shoreline Resource Guide

The Extension component worked with the Lake County (Illinois) Department of Planning, Zoning and Environmental Quality to develop a Lake Michigan shoreline guide that will allow visitors to take a self-guided auto tour along the Lake Michigan coast. The trail, currently in the planning phase, will consist of existing roads that lead the traveler along the Wisconsin, Illinois, Indiana, and Michigan shorelines of Lake Michigan.

The auto trail concept would not have come about without Sea Grant's assistance in bringing together shoreline agency representatives and shoreline community officials through several meetings. The trail has been endorsed by six chambers of commerce in Lake County, Illinois, The Northern Illinois Regional Planning Commission, and Racine and Kenosha counties in Wisconsin.

The shoreline guide and auto trail could potentially serve as a regional marketing tool for tourism in the four Lake Michigan states, as well as become a major tourist attraction.

Economic Impact Study for Construction of a Large Marina Complex

The Illinois-Indiana Sea Grant Program provided the Lake County (Illinois) Economic Development Commission with numerous resource materials related to boating, marinas, and the economic impact of marina development. This information was used in a preliminary study of the potential economic impact of the Winthrop Harbor/Zion Marina, a large public marina complex along the Illinois shoreline.

The study later convinced Lake County and Illinois State government officials to fund the infrastructure development for the harbor, including the building and upkeep of incoming roads and harbor protection structures. Many new and revitalized harbors, such as those in Michigan City, Indiana, have also drawn support for their own efforts from this study.

Slide Program on Illinois Recreational Opportunities

The Sea Grant slide/tape presentation, "Things to See and Do in Illinois," was developed to provide Illinois residents and visitors with travel ideas for day trips, weekend visits, and extended vacations. Lake Michigan's recreational resources are an important part of the program.

Included with the presentation are informational brochures and a lesson plan outline to help generate questions and encourage discussion among the viewers. It has been shown by Illinois Extension advisers to a wide variety of organizations ranging from senior citizens groups and 4-H clubs to homemakers' associations and grade schools.

This slide/tape program and training module ties into Governor Thompson's "Build Illinois" program, which aims to raise the tourism image of Illinois for its own citizens and out-of-state visitors.

Viewers of the slide program praised the information provided and the quality of the slides. After presenting it to a group of junior high and high school students in LaSalle County, teachers said that "Things to See and Do in Illinois" was the best presentation used for their "Illinois" unit. And, Homemakers Extension Association leaders in McHenry County reported that they were "amazed by all the opportunities available in Illinois."

Bed and Breakfast Workshops

During recent years, the popularity of bed and breakfast enterprises has markedly increased in Illinois and Indiana. In response to this new interest, Sea Grant has developed bed and breakfast workshops to provide prospective proprietors with information necessary to begin such a business, and current owners with new ideas for their ongoing operations.

Bed and breakfast workshops were attended by 76 participants in Valparaiso, Indiana in March 1986 and by 64 participants in Joliet, Illinois in April 1986. Response to these workshops was good, with approximately 85% of the participants saying they would like to attend a future workshop and 90% saying they would recommend the workshop to others.

The Charterboat Industry

The charterboat industry is an important type of marine-related commerce on the Lake Michigan shoreline. In addition to encouraging sportfishing in the Illinois and Indiana waters of Lake Michigan, charterboat businesses attract many tourists each year. For these reasons, the charterboat industry has been a continuing focus of the Program's Extension activities, some examples of which are highlighted below.

Charterboat Business (formerly Charterlines)

This quarterly newsletter, written by the Marine Extension adviser, was initiated in January 1985 to provide information that would help Illinois and Indiana charter captains run their businesses more effectively. In surveying its 300 subscribers to determine the publication's effectiveness after its first year, 82% of the respondents indicated that *Charterboat Business* provided them with worthwhile information.

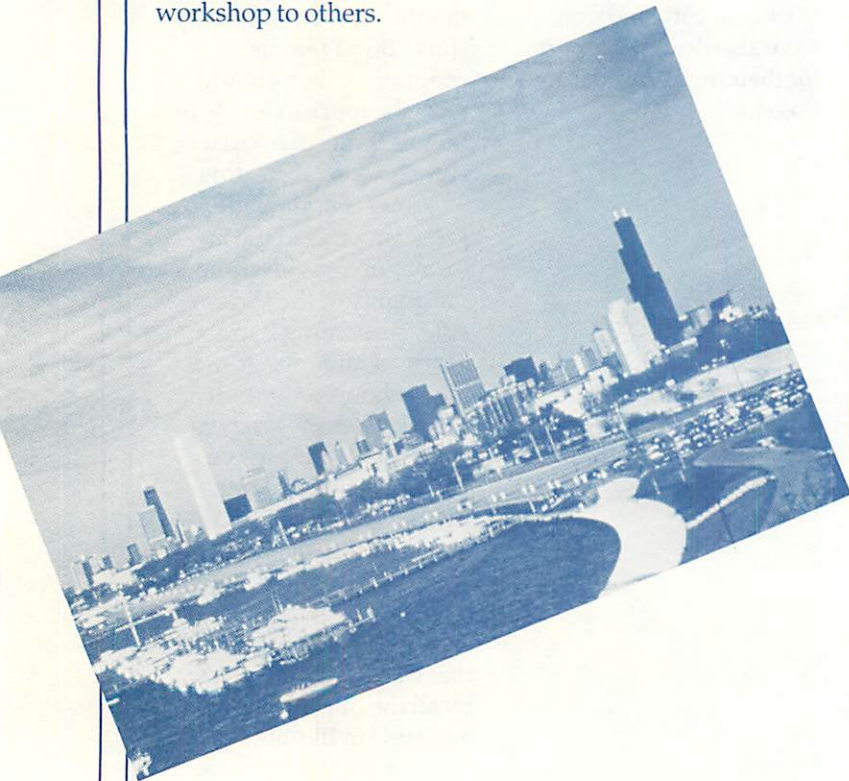
Charterboat Workshops

The Extension staff has held several workshops for charter captains to present them with new information relevant to their businesses. At an April 1984 workshop, several speakers made presentations to 50 charter captains on the topics of the sea lamprey research program and state license reciprocity policies and inspection procedures. Seventy-seven percent of the attendees reported that they found the sessions useful.

A Sea Grant workshop, held in April 1985 at Burnham Harbor Yacht Club in Chicago, included presentations on putting

The MAREP Program

This mariner reporting program (MAREP) was implemented through the cooperation of approximately 25 volunteer southern Lake Michigan charterboat operators who have been trained in making and reporting weather observations. These near-shore weather statistics add more complete information to the data collected by weather stations located on shore. The Extension adviser represented the Great Lakes Sea Grant Network in reporting on regional MAREP activities at the National MAREP Conference in June 1985.



the toxic contaminant issue in perspective, the cooperative monitoring program for lampreys, and the MAREP weather reporting program.

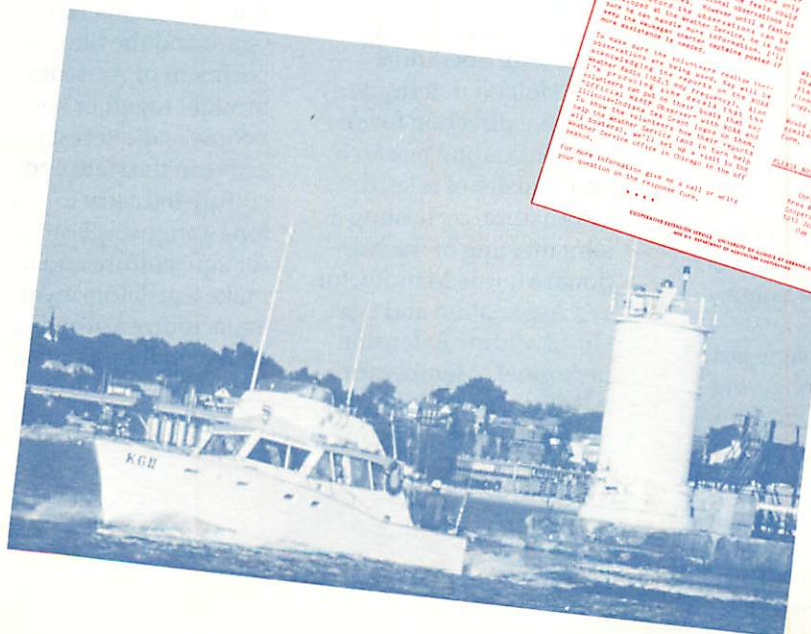
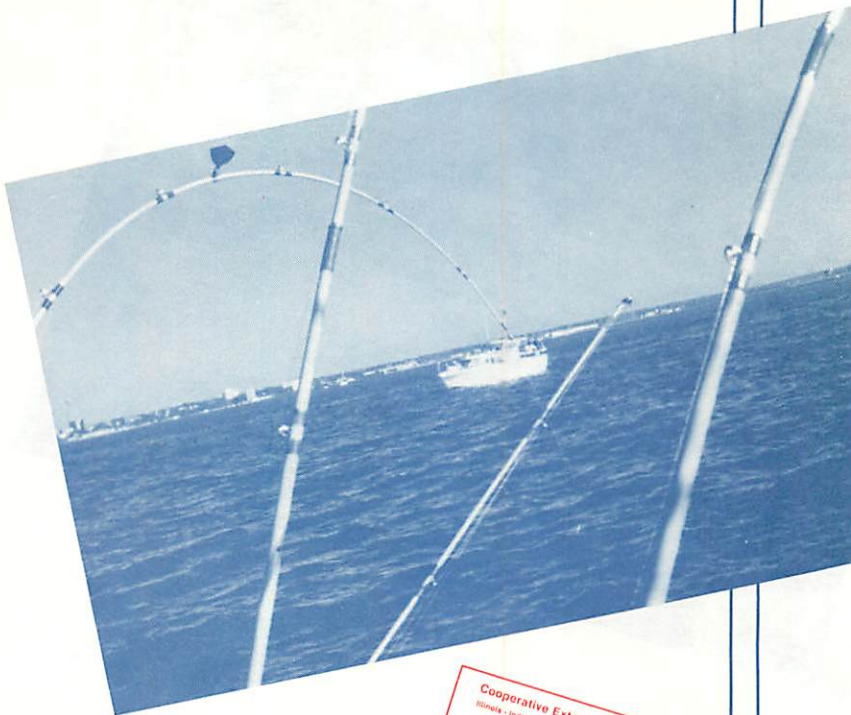
The editor of *Charter Industry Trade News* magazine published information from these presentations in its summer 1985 issue. The information in this tabloid reached nearly one thousand charter captains nationwide.

A November 1985 Great Lakes Sea Grant Network workshop was held in Springlake, Michigan for charterboat operators. The Extension adviser and charter captains from five Illinois and three Indiana enterprises attended. These operators were sponsored by their associations to attend this workshop and report the information to their fellow members.

Workshop topics included charterfishing involvement, reasons for charterfishing, and the amount customers spend on charterfishing. The adviser later developed articles for *Charterboat Business* on ways to promote the industry and financial management of a charterboat business (two other topics presented at the workshop).

In conjunction with the Chicagoland Sportfishing, Travel and Outdoors Show, the Extension adviser held a workshop for 79 Illinois and Indiana charter captains. Topics included biology updates of the Lake Michigan fisheries (presented by biologists with the Indiana Department of Natural Resources and Illinois Department of Conservation) and a status report of the Sea Grant Salmonid Diet Study.

One captain from the Chicago Sportsfishing Association videotaped the workshop so that he could show excerpts at his association's monthly meetings. Another captain from the Midwest Charterboat Association invited the adviser to teach the session on break-even analysis at one of his association meetings.



Cooperative Extension Service
ILLINOIS - Indiana Sea Grant Marine Extension Project

CHARTER LINES
SUMMER 1985

URGENT WEATHER SERVICE
Around the country the National Weather Service wants to help you. They have weather information and help for their weather service in cooperation. They are working in the Marine Reporting Program on water.

WINDY FLIES
The Illinois Bill, HB 1983, of March 1985, provides for the control of wind-blown debris that may be blown to the shore for the Illinois Bill. Right now the bill is in the Illinois House of Representatives. Call your legislator for more information. Telephone 312-244-2000.

ILLINOIS-INDIANA COOPERATION AGREEMENT
The water quality agreement between Illinois and Indiana was signed by the Governor of Illinois and the Governor of Indiana in 1982. The agreement provides for the control of wind-blown debris that may be blown to the shore for the Illinois Bill. Right now the bill is in the Illinois House of Representatives. Call your legislator for more information. Telephone 312-244-2000.

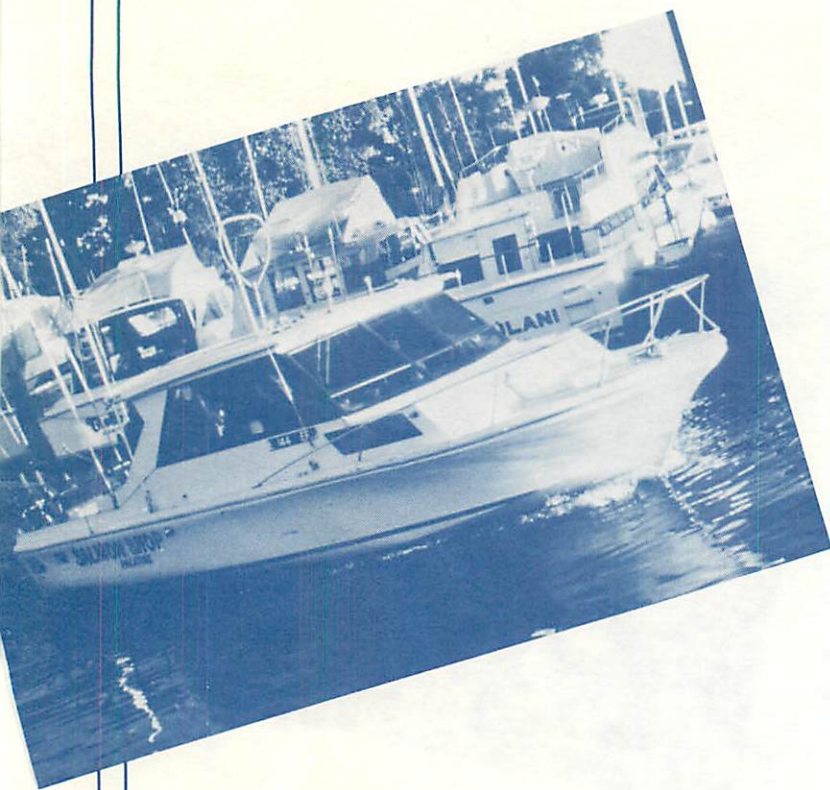
CHARTERBOAT OPERATOR STUDY
The Illinois Department of Natural Resources is conducting a study of charterboat operators. The study will provide information on the number of charterboat operators, the types of charterboats, and the amount of money spent on charterfishing. The study will also provide information on the number of charterboat operators, the types of charterboats, and the amount of money spent on charterfishing. The study will also provide information on the number of charterboat operators, the types of charterboats, and the amount of money spent on charterfishing.

PLEASE MAIL NEW NEWS & SERVICE ADDRESS
as of 10/12/85, 1985
Cooperative Extension Service
1010 North Dearborn Street
Chicago, IL 60610

For more information, call me or write to your question on the response form.

COOPERATIVE EXTENSION SERVICE - UNIVERSITY OF ILLINOIS at URBANA-CHAMPAIGN
ILLINOIS - INDIANA SEA GRANT MARINE EXTENSION PROJECT

COVER PHOTO



The Marine Industry

Most marinas that have developed or expanded in recent years are publicly owned or within existing harbor or port developments. The planned shoreline use patterns along the Illinois and Indiana coasts have prevented the success of the private developer. To help private developers improve their chances for establishing profitable businesses, the Extension staff has held educational workshops and cooperated with the Association of Illinois Marine Enterprises (AIME).

Sea Grant has assisted AIME in the following ways:

- Sponsored a workshop in April 1984 for marine businesses on marketing and risk management in cooperation with AIME. Presentations

covered marketing strategies for various profit centers in a marina operation, assessing risk in an enterprise, and establishing a risk management program.

- Prepared and distributed quarterly AIME newsletters to provide marine-related businesspeople with useful information on managing a successful operation.

- Helped determine a national direction for Sea Grant's boating research and transfer of related information by hosting a joint meeting of the National Marine Manufacturer's Association and Sea Grant Marine Extension personnel. Members of AIME participated in this September 1985 meeting.

Aquaculture

The commercial potential of aquaculture as a direct method of food production is gaining increased recognition in Illinois and Indiana. Realizing the possibilities of this new industry, the Illinois-Indiana Sea Grant Program sponsored an aquaculture research strategy meeting in November 1984. Researchers from Illinois and Indiana institutions, the United States Department of Agriculture (USDA), and Sea Grant examined some of the current problems associated with aquaculture in this climate and discussed research opportunities to address these problems.

This meeting resulted in the introduction of aquaculture legislation to the Illinois General Assembly in early 1985. The legislation called for the creation of an Illinois Aquaculture Council to prepare a statewide aquaculture plan.

In February 1985, a meeting co-sponsored by Illinois-Indiana Sea Grant and the Illinois Department of Agriculture brought together key people and interest groups active in the state's aquaculture industry to discuss long-range implications for aquaculture and to make legislators aware of aquaculture's growing appeal in Illinois.

Impressed by this demonstrated interest in aquaculture, Governor Thompson and legislative sponsors allocated funds to the Illinois Department of Agriculture in the spring of 1986 to begin looking at aquaculture as a viable Illinois industry.

Sea Grant Coordinator, Robert Espeseth, serves on the Illinois Aquaculture Advisory Committee, which provided input to a feasibility study, the first phase of the statewide aquaculture plan. The study, prepared by the Illinois Department of Agriculture, was written by Stephen Waite, Aquaculture Resources Midwest and Bruce Kinnett, International Aquaculture Foundation.

In May 1986, the Illinois-Indiana Sea Grant Program helped distribute this study, titled *The Illinois Aquaculture Industry: Its Status and Potential*, to interested constituents and client groups.

If the feasibility study receives favorable legislative action and additional funding, the advisory committee will continue to work with the Illinois Department of Agriculture on the second phase, developing an Illinois aquaculture plan, and the third phase, creating a detailed aquaculture marketing plan.

COOPERATIVE EXTENSION SERVICE

The Marine Extension staff has worked with other advisers and specialists in the Cooperative Extension Service of both Illinois and Indiana to develop marine-related educational programs for adult and youth audiences.

The 4-H Marine Education Program

To teach young people about their local marine resources, the Extension staff has developed two marine education programs described below.

Wetlands Training Module

Most people do not realize the importance of wetlands in their daily lives, but without wetlands their tap water would probably contain impurities. Wetlands filter most of the water that seeps into the water table, from which many communities draw their drinking water. Furthermore, wetlands along the Great Lakes protect shoreline homes and other coastal structures from floods and storm waves by absorbing the excess waters.

To educate 4-H members on this important marine resource, the Extension adviser developed two project guides titled *Wetlands Are Wonderlands*. One is designed for 4-H members and students and the other for 4-H leaders and teachers.

During 1984-85, 54 teachers and 4-H leaders used the Wetlands Training Module to instruct 256

youths (grades 6-12) and 4-H members. In 1985-86, 110 more teachers and 4-H leaders were trained in how to use this module to teach their students and members.

To meet the great demand for this information, the Chicago Board of Education reprinted 2,000 copies of a revised version of the wetlands youth guide in the fall of 1985. From 1984-86, 2,700 member/ youth guides and 400 leader/teacher guides were distributed.

Two 4-H clubs in southern Cook County, Illinois worked with the wetlands module as a club project in 1985. As a result, two of their members won ribbons at the county fair for their wetlands project. In Lake County, Indiana the active involvement of a 4-H adviser helped several 4-H members win ribbons for their wetlands projects at the Lake County Fair.

The adviser promoted the wetlands project in May 1984 and November 1985 on WBEZ, the Chicago public radio station. After listening to the May broadcast, a Sea Explorer Scout leader requested copies of the wetlands guide for use in his troop's activities.

The Great Lakes Heritage Module

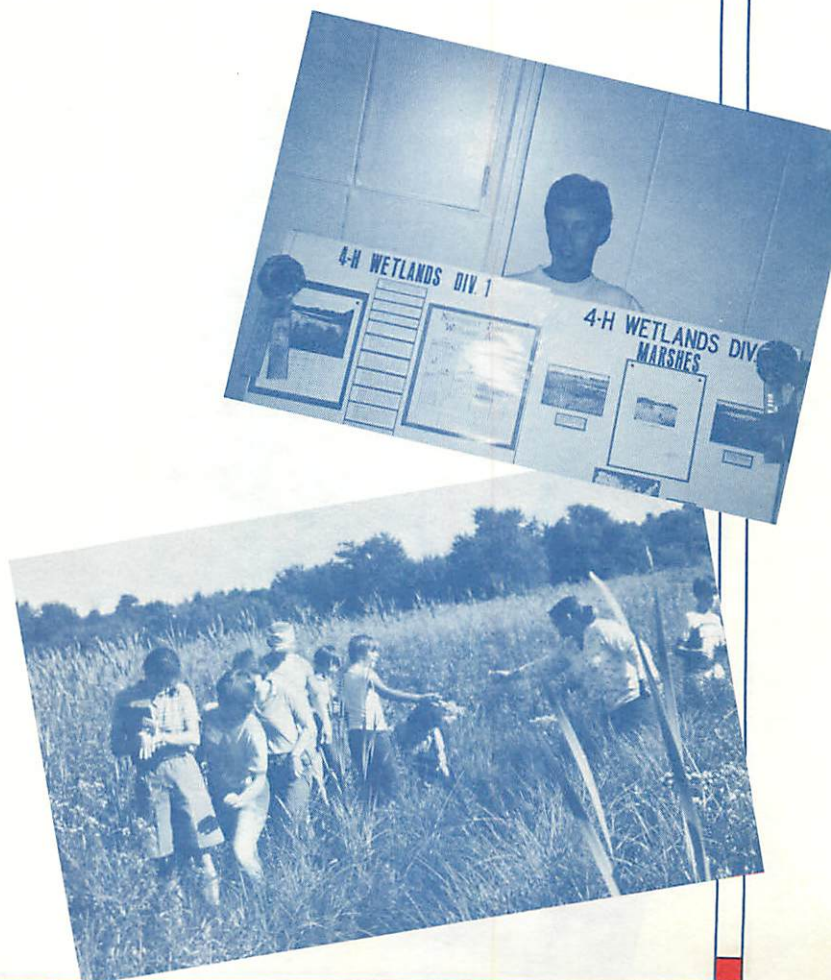
The projects outlined in this guide have helped students appreciate the heritage of the Great Lakes in terms of recreational activities, culture and history, environmental attributes and concerns, and economic aspects of these water bodies.

The first part of the guide suggests activities for learning about our Great Lakes heritage. The second part contains lists of references, such as books, pamphlets, films, and videotapes, that relate to the suggested activities and to Great Lakes heritage in general.

In 1985 a draft of the *Great Lakes Heritage Guide* was field tested by

Dick Becker, Extension agent in Lake County, Indiana. Becker gave this resource guide to a teacher in the Hammond Junior High School for use in his sixth, seventh, and eighth grade classes. The teacher felt that the *Heritage Guide* was a worthwhile teaching tool, and the feedback from his students was enthusiastic. Becker is currently encouraging similar use of the module in a 4-H advisory group.

In 1986 the guide's activity and reference sections were revised to identify more current printed and audio-visual resources that readers could refer to as they participate in the suggested activities.



Aquatic Weed Management

Because of the toxicity of many aquatic herbicides, the state of Illinois requires that commercial applicators be licensed. To help reduce the high failure rates on the license exam, the Illinois Cooperative Extension Service has developed an aquatic weed training program to better prepare commercial applicators trying to receive their license.

The Extension adviser updated a CES slide program in 1984 on alternative methods for aquatic weed control in conjunction with two Illinois CES colleagues, who were developing other areas of the aquatic weed control training program.

During 1985 three aquatic weed control training programs were held in Illinois at which 89 applicators were trained. As a result of these training programs, there were over 50% more passing grades than in previous years. In 1986 two training sessions were held in Illinois for 55 applicators.

In 1986 the adviser revised the "alternative methods of weed control" section of the *Illinois Pesticide Applicator Training Manual—Aquatic Weed Control*, which will be published in 1987.



Seafood Utilization

Many people are now choosing fish and seafood as healthy alternatives to red meat. Besides being low in cholesterol and high in protein, seafood, with its unique fatty acids, can actually reduce the amount of saturated fat in a person's body. As part of its Extension activities, Illinois-Indiana Sea Grant encourages the consumption of this flavorful and healthy food source in family diets.

In May 1985 the Extension staff had the opportunity to reach hundreds of low-income families with information on seafood nutrition. It sponsored a workshop on seafood nutrition and preparation for Extension paraprofessionals in the Expanded Food and Nutrition Education Program (EFNEP) and the Consumer and Homemaking Education Program (CHEP), and for Extension home economists. Each of the nearly 60 EFNEP and CHEP advisers works with dozens of low-income families to better their standard of living through education.

Almost all of the attendees who filled out evaluation surveys indicated that they had gained a great deal of new information, which they could use in their own seafood education workshops.

A mini-grant was awarded to the Lake County (Indiana) 4-H Club Program in May 1985 to conduct a workshop on Lake Michigan seafood nutrition. Program assistants with the Purdue University Cooperative Extension Service toured a local fish market and observed demonstrations on fish preparation.

Dick Becker, 4-H Extension agent, Lake County, Indiana, estimated that the workshop participants could reach approximately 700 low-income families using knowledge gained through the workshop.

The grant was also used to fund seafood nutrition education in the 4-H Day Camp program sponsored by Lake County 4-H in the summer of 1985. The children learned about the nutritional benefits of seafood, especially the high protein levels and low levels of cholesterol.



COASTAL AWARENESS

Creating a greater awareness of coastal assets and problems in the Illinois and Indiana region is another primary goal of this Sea Grant Program. The Program's efforts to address shoreline issues would have little success without the support of public officials, businesspeople, and local residents. To gain their interest and backing, Sea Grant employs various means to educate these groups on coastal matters and to market the Program's products and services.

Area Marine Extension Advisory Committee

One of the Extension component's most valuable resources for promoting coastal issues is its Area Advisory Committee. Through its marketing role, this Committee helps to increase coastal awareness in the region. By expanding from 14 to 20 members, from 1984-86, new talent, expertise, and differing viewpoints have been added to Advisory Committee meetings. (See

appendix for a listing of members.)

Over the last two years, six meetings have taken place at various locations in Illinois and Indiana to accommodate brief educational tours and speakers from both states. Topics discussed at these meetings have included plan-of-work ideas, implementation strategies for specific programs such as Legislative Day and Great Lakes Week, and evaluation of Illinois-Indiana Sea Grant accomplishments.

Congressional Immersion Day

One of the most successful coastal awareness efforts undertaken by the Advisory Committee was an event called "Congressional Immersion Day." The setting for the July 1984 event was the Burnham Harbor Yacht Club in Chicago.

A total of twelve congressmen or congressional staff members, representing seven Illinois and four Indiana offices were the primary audience. The event heightened congressional awareness of various Lake Michigan issues by providing them with an on-site experience of the Lake.

First, the attendees enjoyed Lake Michigan salmon while listening to a luncheon presentation given by the superintendent of the Indiana Dunes National Lakeshore. During the luncheon, the congressional staff members sat at small tables, which gave them each the opportunity to speak with an Advisory Committee member, a news reporter, and a designated Lake Michigan expert on a topic that interested them.

During the second half of the program, 11 charterboat captains took each table of four out for an afternoon of fishing to further discuss Lake Michigan issues. The day ended at the yacht club where awards for the day's catch were presented. Altogether over \$4,000 in food preparation, charterboat excursions, and fishing prizes were donated for Congressional Immersion Day.



The congressional office staff and media representatives were impressed by the amount of new information they gained as a result of this event. Many participants commented that they had not been fully aware of the tremendous recreational and commercial resources offered by Lake Michigan. They also appreciated meeting well-informed people who they could call upon in the future when requiring information concerning the Lake.

In a letter of commendation, Illinois Senator Charles Percy expressed his desire to be kept informed on coastal issues and offered his assistance in future Sea Grant activities.

Shoreline Erosion Control

Recent record high water levels on Lake Michigan have caused severe damage to shoreline property. The worst erosion is occurring south of the Wisconsin state line where up to six feet of shoreline is swept away annually by high winds and heavy storms.

The Extension staff received many requests for advice on shoreline erosion problems throughout the biennium. In response to these requests, several site visits were made to areas with severe erosion damage to assist homeowners in establishing the best erosion control measures for their situations.

During 1984-86, the Extension staff visited communities in Lake Bluff, Illinois, Porter Beach, Indiana, and Ogden Dunes, Indiana where high lake levels were threatening shoreline structures. Based on the individual circumstances, the Extension staff recommended protection measures ranging from terracing to beach nourishment. The measures that were carried out by these communities have worked well to date.

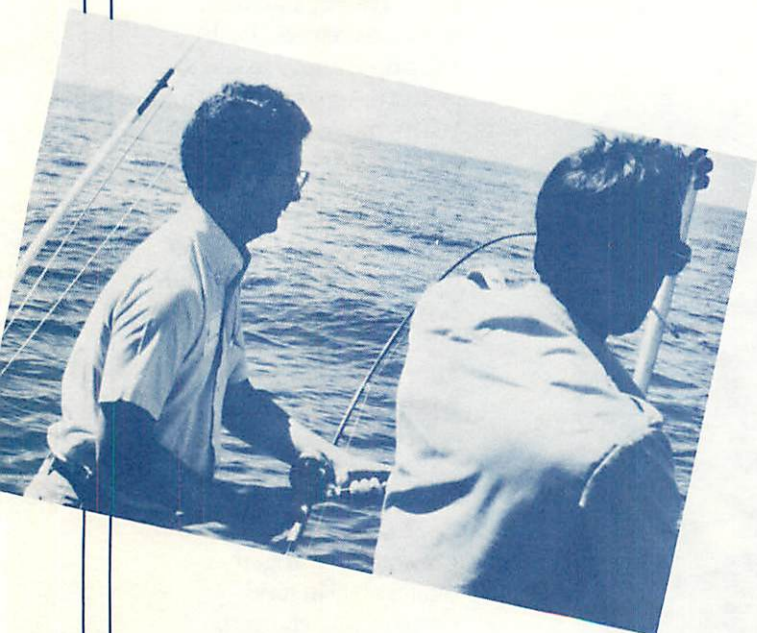
Other shoreline assistance provided by the Illinois-Indiana Sea Grant Program included:

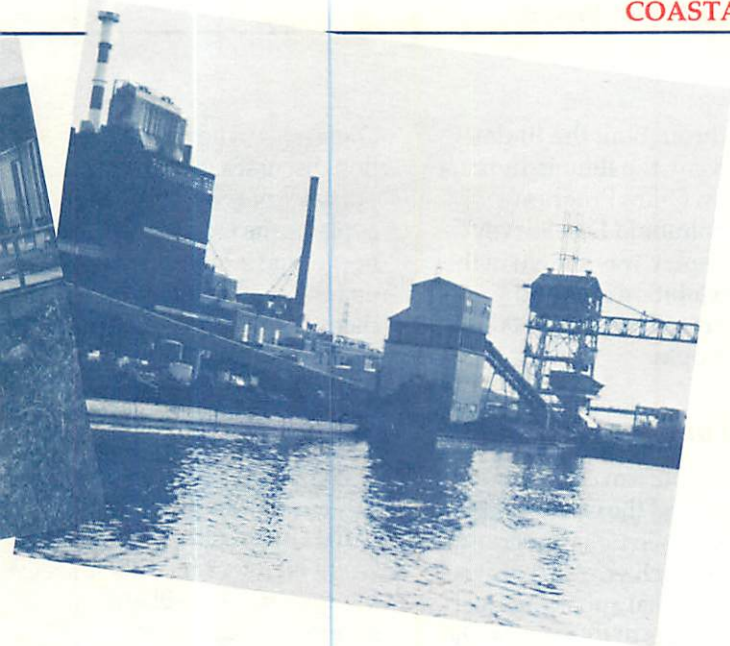
- Providing erosion-related literature to the Lake County (Illinois) Planning Department for an erosion control workshop in the summer of 1984.
- Gathering information on the effectiveness of a new erosion protection device called "artificial seaweed." After several months of investigation it was concluded that the "seaweed" does not work in unprotected areas of the Great Lakes.

- Modifying the slide program, "Coastal Erosion and Real Property Values," to more accurately reflect the situation in Illinois and Indiana. The presentation, originally produced by the New York Sea Grant Institute, will be used in an Illinois workshop for property appraisers and realtors.

Water Quality

Water is the most important natural resource associated with Lake Michigan. Over the years this resource has been profoundly affected by the human and industrial needs of Illinois and Indiana. The basic problem in this region is **water quality** not **water quantity**. The important near-shore area has been especially degraded. Although the most ecologically and recreationally active portion of the lake, it has also been subjected to the highest level of discharged waste by heavy industry.





Illinois-Indiana Sea Grant determined early on that the Lake Michigan toxic contaminant problem should be the primary focus of its water quality programming. The Extension staff has concentrated its efforts on the human health impacts of eating Lake Michigan fish, based on recommendations from the Great Lakes Sportsfishing Council, the Sea Grant Area Marine Extension Advisory Committee, and interested clients.

To educate the public on this toxic contaminant issue, the Extension Program publicized "Cleaning Great Lakes Fish" (a large plastic poster) and "Eating Lake Michigan Fish," (a fact sheet), both produced by the Wisconsin Sea Grant Institute. The waterproof yellow poster has been used to indicate the safest methods for cleaning fish and has been displayed at Lake Michigan fish-cleaning areas. The fact sheet has been very helpful in answering questions about the risks of eating Great Lakes fish.

The adviser developed a feature article for the winter 1985 issue of *The HELM*, titled "Putting PCBs in Perspective," which discussed the risks of eating Lake Michigan fish in relation to life's other daily risks. This article was the first in a series of toxic contaminant features that the adviser will write for *The HELM*.

Indiana Waterfront Revitalization Efforts

Waterfront revitalization is a national trend, particularly in urban waterfront areas where industrial shoreline uses have diminished. Because of the many delapidated waterfront areas in Illinois and Indiana and the growing importance of the tourism industry, revitalization efforts have become critical to the region's economy.

In October 1984, the Extension staff assisted the Indiana Planning Association with a revitalization workshop titled, "Water: Indiana's Greatest Resource," by

obtaining two speakers for the workshop and leading a bus tour along the Indiana Lake Michigan shoreline.

That workshop was a contributing factor in the April 1985 formation of the Lake Michigan Marina Development Commission (LMMDC) by the Indiana legislature. Because the mayors of East Chicago, Hammond, Gary, Portage, and Michigan City, each hold positions on the Indiana LMMDC, the Commission is key to the revitalization of Indiana's shoreline. Its purpose is to provide a united front supporting the need for state funding to build the infrastructure necessary for marina development.

By gathering fee information from other southern Lake Michigan marinas and providing Sea Grant-related information and contacts, the Extension staff helped the LMMDC develop their marina feasibility study. Some of the information provided was derived from the Sea Grant publication, *State and Federal Regulations Related to Boating on Lake Michigan*.

The LMMDC commended the Extension staff for its efforts in a letter of appreciation and plans to consult Sea Grant in its future waterfront redevelopment efforts.

Other Coastal Awareness Efforts

By working through a variety of outlets the Extension staff has provided many people with facts about Lake Michigan's

attributes and problems. Approximately 2,000 people have been assisted through these efforts, which include:

- Introducing a group of 20 Indiana commercial fishermen to larger commercial fishing groups in Wisconsin and Michigan to obtain information on gaining financial support;
- Providing Sea Grant water quality and health research findings to a key representative of the Lake County (Indiana) Fish and Game Protection Association. This information provided information upon which a decision was reached not to build a confined disposal facility in East Chicago on Lake Michigan;
- Organizing a meeting to discuss the possibilities of establishing a NOAA Great Lakes Service Center in Chicago. This Center would supply regional NOAA marine weather information, Great Lakes water level data, navigational charts, and other NOAA products and services;
- Presenting information on marine careers to heighten the awareness of over 100 Chicago area high school students; and
- Introducing the Program's quarterly newsletter to 207 members of the Cook County and the Lake County (Illinois) Cooperative Extension Councils to educate them on the environmental concerns of Lake Michigan, for their use in policy-making decisions.



THE GREAT LAKES SEA GRANT NETWORK

The Great Lakes Sea Grant Network was formed to collaborate on issues common to all five lakes. Many of the Illinois and Indiana Marine Extension projects and activities are carried out in cooperation with other Great Lakes Sea Grant programs. These regional efforts are vital to the Illinois-Indiana Sea Grant Program's Extension, Research, and Communications components. Our small staff relies on the many human and information resources provided by the Network, as described on this page.

Salmonid Diet Study

Several of the Great Lakes Sea Grant Programs have been cooperating in a study of the feeding habits of Lake Michigan salmonids. In April 1984 Illinois-Indiana Sea Grant researchers associated with the "Salmonid Diet Study" presented preliminary findings to charterboat operators on stocking programs and potential resource management implications.

Once the 1985 research findings were made available, the adviser presented the information at a December meeting of the Great Lakes Sportfishing Council attended by 40 people from various Great Lakes states.

The adviser also presented two reports on the "Salmonid Diet Study" at Illinois and Indiana charterboat workshops during the 1986 Chicagoland Sportsfishing, Travel, and Outdoors Show.

Throughout the 10-day event, the Illinois-Indiana Sea Grant Program's "Salmonid Diet Survey" display was shown in the exhibition area and viewed by over 5,000 people.

Tourism Workshop

Tourism centered around the Great Lakes brings in billions of dollars each year. To discuss the social and economic impacts of tourism on the shoreline areas, Great Lakes Sea Grant Network agents and advisers and concerned clients participated in a community tourism workshop in April 1984. As a result of this workshop, the Illinois-Indiana Sea Grant Program developed a series of hospitality and tourism awareness training sessions.

Tourism/Hospitality Publication

The coordinator of the Illinois-Indiana Sea Grant Program served on the network committee that produced a publication on tourism and hospitality titled *Courtesy is*

Contagious. The publication discusses the importance of hospitality, explains the tourist's needs, and suggests ways on how best to satisfy them.

Other Network Activities

- The Extension adviser increased visibility of the Great Lakes Sea Grant Network by exhibiting a Network display at several well-attended conferences and trade shows. (This display was produced by the New York Sea Grant Institute.)
- At the Great Lakes Sea Grant Network Workshop for advisers in September 1984, the Extension adviser gave a presentation on the Network's involvement in erosion education.
- The Program also assisted the Network by helping to develop Network "plans of work" in various areas, contributing to the Network's congressional briefing sheets and slide program, and by serving as a reviewer for marine advisory proposals of other Network programs.



RESEARCH

The Illinois-Indiana Sea Grant Program initiated a research component in 1984 to address several problems related to the Lake Michigan fishery, recreation, and tourism. The purpose of the research is to benefit those who use Lake Michigan's abundant resources.

To guide the research effort, a Research Advisory and Review Committee was established in 1986. (See appendix for a list of members.) The Committee will help formalize the review process and set research priorities. Current areas of priority are:

The Great Lakes Fishery—Research is needed in this area to address many problems faced by fisheries managers in sustaining the fish populations for continued harvest by commercial and sportfishermen.

Recreation and Tourism—Southern Lake Michigan provides water-based recreation for millions of people in Illinois and Indiana. There are many unanswered questions related to the economic, social, and environmental effects of this population on the lakeshore which have important managerial implications.

Aquaculture—Because aquaculture has great commercial potential for food production in the midwest, it is an important research area. Existing sources of waste heat may provide opportunities for greater involvement in this production industry. In the future, biotechnology and genetic engineering may have a great impact on the development of aquaculture in non-agricultural settings.

Environmental Processes—The marine resources of Lake Michigan and the other Great Lakes are affected by many aspects of the environment. Research is needed to help solve the public policy problems related to the Great Lakes and ocean resources.

Since the initiation of the research program, six research projects, two of them ongoing, have been conducted. These projects are described in the following pages.

THE GREAT LAKES FISHERY

Food Habits of Lake Michigan Salmonids in Illinois Waters

Food Habits of Salmonids in Indiana Waters of Lake Michigan

In 1984, two three-year studies were initiated to determine the food habits of salmonids in the Illinois and Indiana waters of Lake Michigan. Researchers from Loyola University of Chicago and Ball State University in Indiana took part in this regional Great Lakes Sea Grant Network project.

By determining the diet composition of salmonids on a seasonal and locale basis and examining the relationship between predator size and prey size for the various salmonids, the studies will contribute to a better understanding of salmonid food habits and provide useful information to fisheries managers.

Prey Handling Times for Lake Michigan Salmonids

A study on the prey handling times for Lake Michigan salmonids was undertaken in 1984 by researchers from Loyola University of Chicago, Department of Biology. The objectives of the study were to determine the handling time curves of salmonid predators for various Lake Michigan forage fishes and to determine what prey size is relatively immune to salmonid predation. Research results have been helpful to several university scientists in interpreting stomach analysis data from Lake Michigan salmonid studies.

Analyses of the Behavioral Bases for Changes in Salmonid Diets

Researchers from Loyola University are also conducting a study on salmonid diets to find out why salmonids continue to forage heavily on alewives despite a decline in the alewife population. The researchers are testing their hypothesis that salmonid foraging behaviors determine prey selection. By understanding what keeps salmonids from seeking other prey species, scientists and fisheries managers should be able to make more realistic judgments on salmonid stocking.



RECREATION AND TOURISM

Southern Lake Michigan Sportfishery: Angler Profiles and Specialization Model

The objective of this study, begun in 1984 by a researcher from the University of Illinois, Department of Leisure Studies, was to develop an angler classification system that would measure an angler's motivation to fish. The results of the study will help fisheries managers meet the differing needs of the various southern Lake Michigan angler groups.

Factors Affecting Participation in Water-based Recreation on Southern Lake Michigan

A researcher from Purdue University, Department of Forestry and Natural Resources, is studying how the characteristics of a recreation site affect participation in water-based recreation on Indiana's southern Lake Michigan shore. The survey results, based on a random sample of 3,000 area residents, will provide an information base on recreation site use. Decision-makers can then consult this information when formulating policy on Indiana's role in water-based recreation.



COMMUNICATIONS

The Communications component provides an essential link between marine researchers and Extension clientele groups who rely on the information supplied by the Program. Through news releases, displays, newsletter articles, and other media, Robin Goettel, the communications specialist, disseminates research findings, increases public awareness of the Illinois-Indiana Sea Grant Program, and helps the public better understand Lake Michigan's abundant resources.

Media Strategies

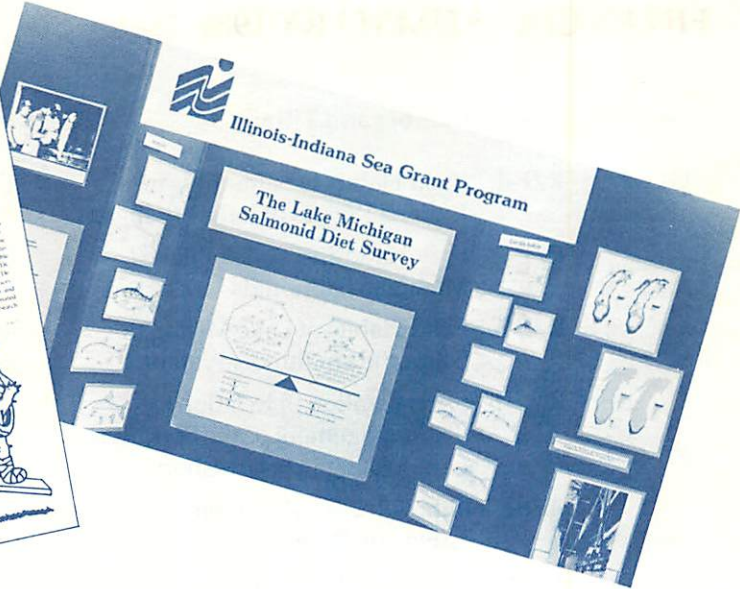
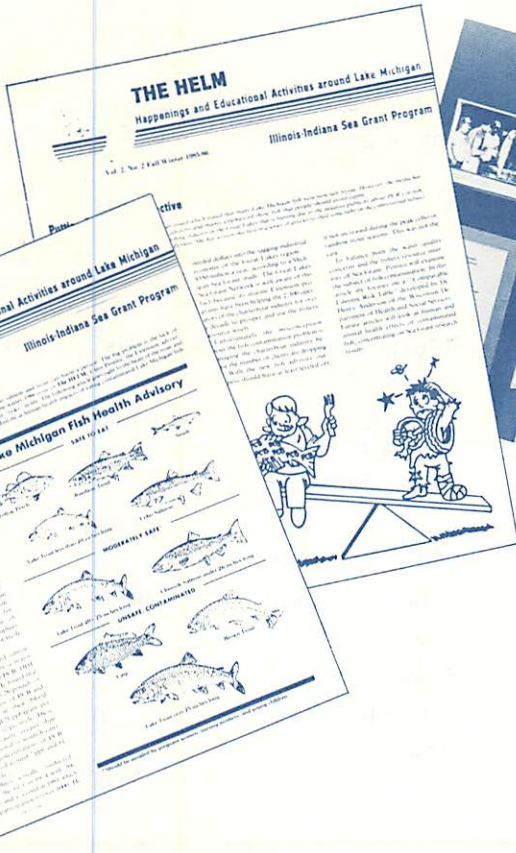
The communicator develops and maintains contacts with media personnel in newspaper, radio, and television to inform them of the latest developments in the Illinois-Indiana Sea Grant Program. As an example, the Program received television news coverage of its Salmonid Diet Study fish cleaning activities from contacts made by the communicator to several Chicago stations.

The current media strategy is to establish key contacts with Chicago area reporters, writers, and broadcasters to create a greater awareness of the Program's activities and related services. Since news releases are an important tool in channeling information to the media, the communicator is exploring ways to best package the news releases so that they will be used by the urban media.

Publications

The editing and production of Program publications is a primary responsibility of the communicator. (A listing and description of publications can be found in the appendix.) A great deal of time is dedicated to writing and editing the quarterly newsletter, *The HELM*, which is mailed to about 1,200 people. Feature articles have addressed subjects such as shoreline erosion, water safety, seafood nutrition, and the human health effects of eating Lake Michigan fish.

A well-received report, *Aquaculture: A New Industry for Illinois and Indiana*, was widely distributed throughout the midwest in response to area news releases and newsletter articles describing its content.



News Releases

By sending timely news releases to the Illinois and Indiana media, the communicator promotes the Program's workshops, research projects, and publications and informs the public on important marine issues. News releases during the 1984-86 period have promoted Sea Grant workshops/events and have heightened public awareness on issues such as shoreline erosion, water-based recreation and safety, aquaculture, and waterfront revitalization.

Displays

Use of displays have been very effective in educating and informing different Sea Grant audiences on many of our programs. The communicator has worked with an

aquaculture consultant and graphic designer to create an aquaculture display, "Seafood from the Prairie." The display was first shown at the Illinois State Fair in August 1985 where it was viewed by more than 4,000 people. Since then it has been exhibited at meetings of agencies such as Illinois Soil and Water Conservation Districts, Farm Bureau District Offices, and the Illinois Cooperative Extension Service.

The development of the "Great Lakes Heritage--The Canal Era" display in 1984 was guided by the Program coordinator's expertise in this subject. Exhibition sites included the public gallery of the *Chicago Sun Times* building and an historical festival in Joliet.

The "Lake Michigan

Salmonid Diet Survey" display was developed by the communicator with the help of the Extension adviser and researchers to illustrate the background and objectives of the "Salmonid Diet Study."

The display has been shown at:

- Salmonid Diet Survey research sites near the Illinois and Indiana Lakeshore
- A Governor's Conference on Lake Michigan
- The Lake County (Indiana) Sportsman's Rendezvous
- The Chicagoland Sportsfishing, Travel, and Outdoors Show
- Chicago's Shedd Aquarium
- The University of Illinois Agriculture Library

Radio Broadcasts

Interviews with the program coordinator were aired by 50 radio stations throughout Illinois. The interviews, conducted by the OACEE broadcast media specialist for her program, "Illini Consumer Report," covered such topics as:

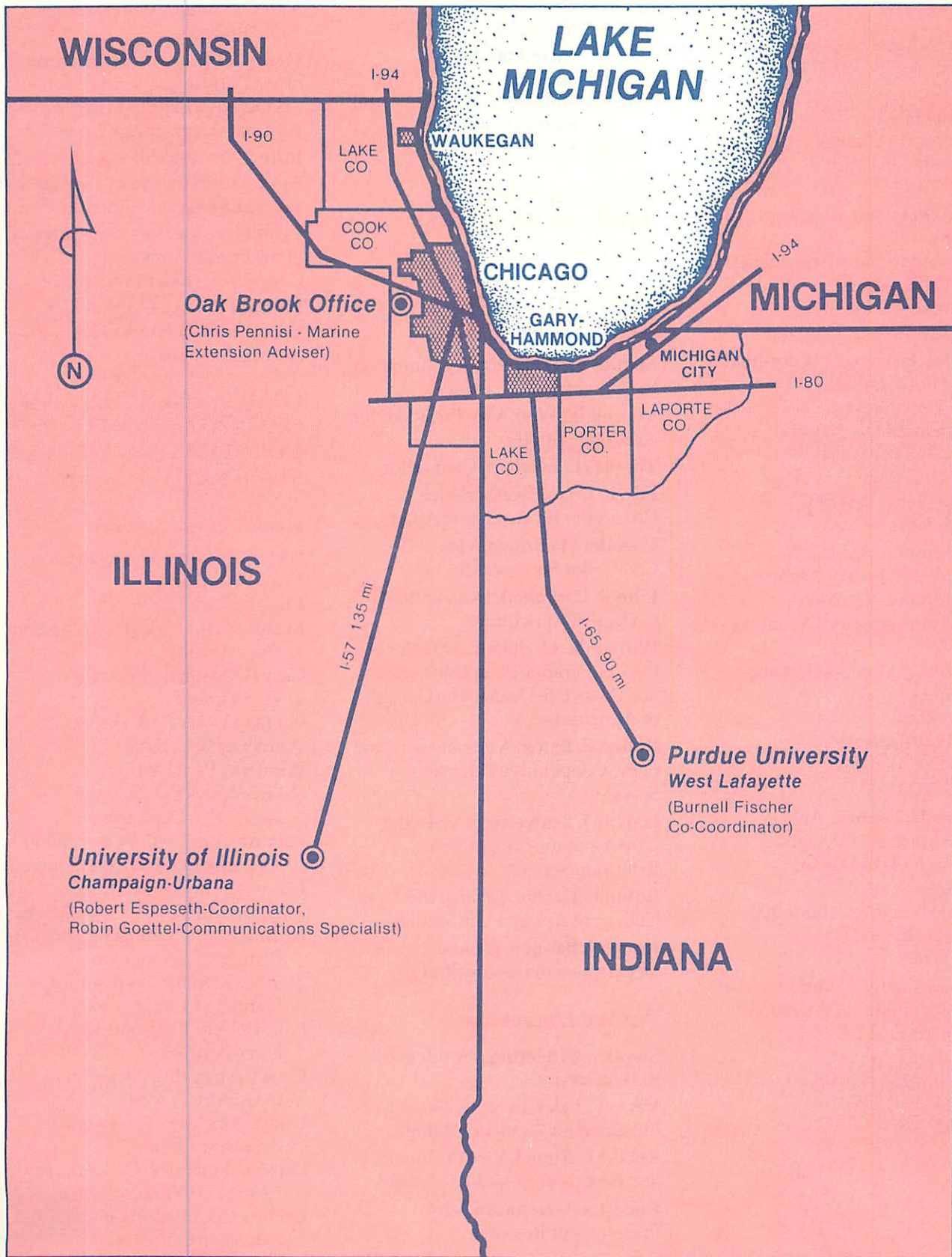
- "Spring Fishing on Lake Michigan"
- "Bed and Breakfast: Just Like 'Home' for Tourists"
- "Eating Seafood for the Health of It"
- "Swimming Safety"

FINANCIAL SUMMARY 1984-1986

Year	Project Number and Title	Investigators	Sea Grant Funds	Grantee Funds
1984-85	R/F-1 Food Habits of Salmonids in Indiana Waters of Lake Michigan	Thomas S. McComish	\$7,700	\$6,900
	R/F-2 Prey Handling Time of Lake Michigan Salmonids	Jan Savitz John Janssen	\$2,100	\$5,000
	R/F-3 Food Habits of Lake Michigan Salmonids in Illinois Waters	John Janssen Jan Savitz	\$5,500	\$5,700
	R/C-1 Specialization in Relation to the Management of the Southern Lake Michigan Sportfishery	James Absher Stanley Black	\$27,900	\$18,000
	A/SE-1 Illinois-Indiana Sea Grant Extension Program	Robert Espeseth Christine Pennisi	\$75,000	\$33,100
	M/P-1 Program Management	Robert Espeseth James Peterson	\$18,900	\$9,600
	M/C-1 Communications	Robin Goettel	\$18,100	\$-0-
	M/P-2 Program Development	Robert Espeseth James Peterson	\$2,800	\$6,700
TOTAL			\$158,000	\$85,000

Year	Project Number and Title	Investigators	Sea Grant Funds	Grantee Funds
1985-86	R/F-1 Food Habits of Salmonids in Indiana Waters of Lake Michigan (Continued)	Thomas S. McComish	\$12,200	\$8,600
	R/F-3 Food Habits of Lake Michigan Salmonids in Illinois Waters (Continued)	John Janssen Jan Savitz	\$8,700	\$6,400
	R/F-4 Analysis of the Behavioral Bases for Changes in Salmonid Diets	John Janssen Jan Savitz	\$21,600	\$15,400
	R/C-2 Factors Affecting Participation in Water-Based Recreation on Southern Lake Michigan	Joseph T. O'Leary	\$41,500	\$35,400
	A/SE-1 Illinois-Indiana Sea Grant Extension Program (Continued)	Robert Espeseth Christine Pennisi	\$77,500	\$35,300
	M/P-1 Program Management (Continued)	Robert Espeseth James Peterson	\$19,300	\$13,100
	M/C-1 Communications (Continued)	Robin Goettel	\$-0-	\$21,200
	M/P-2 Program Development (Continued)	Robert Espeseth James Peterson	\$9,200	\$8,000
TOTAL			\$190,000	\$143,400

LOCATION OF SEA GRANT PERSONNEL



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OFFICIALS AND ADMINISTRATORS (1984-86)

University of Illinois at Urbana-Champaign

Stanley O. Ikenberry, President of the University

Morton W. Weir, Vice President for Academic Affairs

Thomas E. Everhart, Chancellor

Edwin L. Goldwasser, Vice Chancellor for Academic Affairs

Theodore L. Brown, Vice Chancellor for Research

John R. Campbell, Dean of the College of Agriculture

William R. Oswald, Director of the Cooperative Extension Service and Associate Dean of the College of Agriculture

Robert P. Bentz, Associate Director of the Cooperative Extension Service

Harvey J. Schweitzer, Assistant Director of the Cooperative Extension Service

Robin E. Herron, Dean of the College of Applied Life Studies

Joseph J. Bannon, Head of the Department of Leisure Studies

Purdue University

Stephen C. Beering, President of the University

Varro E. Tyler, Executive Vice President for Academic Affairs

Robert L. Ringel, Vice President and Dean of the Graduate School

Robert A. Greenkorn, Vice President for Research

Kenneth J. Yost, Director of the Division of Sponsored Programs
Karl G. Brandt, Acting Dean of Agriculture

Henry A. Wadsworth, Jr., Director of the Purdue University Cooperative Extension Service and Associate Dean of Agriculture

Billy R. Baumgardt, Director of the Agriculture Experiment Station and Associate Dean of Agriculture

Lynn D. Busse, Associate Director of the Purdue University Cooperative Extension Service

William R. Byrnes, Head of the Department of Forestry and Natural Resources

OTHER AGENCIES AND ORGANIZATIONS COOPERATING WITH SEA GRANT

Local/Regional Agencies

Ports of Indiana, Michigan City, and Waukegan
Chicago Park District
Evanston (IL) Park and Recreation Department
Gary (IN) Park and Recreation Department
Highland Park Park District
Wilmette Park District
Winnetka Park District
Lake County (IN) Park and Recreation Department
LaPorte County (IN) Convention, Tourism and Recreation Bureau
Lake County (IN) Tourism, Convention and Visitor Bureau
Northwestern Indiana Regional Planning Commission
Northeastern Illinois Regional Planning Commission
Lake County (IL) Cooperative Extension Office
Cook County (IL) Cooperative Extension Offices
Lake County (IN) Cooperative Extension Office
Porter County (IN) Cooperative Extension Office
LaPorte County (IN) Cooperative Extension Office

Chicago Board of Education
 Lake County (IL) Planning
 Department
 DuPage County Forest Preserve
 District
 Little Calumet River Basin
 Development Commission
 Northern Lake County (IL)
 Chamber of Commerce
 Metropolitan Sanitary District of
 Greater Chicago

State Agencies

Indiana Department of Natural
 Resources
 Illinois Department of Conservation
 Illinois Department of
 Transportation, Waterways
 Division
 Illinois Department of Agriculture
 Wisconsin Department of Health
 Illinois Department of Public
 Health
 Michigan Department of Health
 Illinois Natural History Survey
 Illinois Geological Survey

Federal Agencies

National Park Service
 U.S. Army Corps of Engineers
 U.S. Weather Service
 U.S. Environmental Protection
 Agency
 NOAA External Affairs Office
 U.S. Fish and Wildlife Service
 U.S. Soil Conservation Service

Associations

Association of Illinois Marine
 Enterprises
 Michigan City Charterboat
 Association
 Portage (IN) Charterboat
 Association
 Midwest Charterboat Association
 Chicago Sportfishing Association
 National Marine Manufacturer's
 Association
 Great Lakes United Coalition
 League of Women Voters
 Chicago Yachting Association
 Indiana Planning Association
 Lake Michigan Federation

Universities

University of Illinois at Urbana-
 Champaign
 Purdue University, West Lafayette,
 Indiana
 Participating programs of the Great
 Lakes Sea Grant Network
 operated through universities in
 Minnesota, Wisconsin, Michigan,
 Ohio, and New York
 Loyola University of Chicago,
 Illinois
 University of Illinois at Chicago
 Southern Illinois University at
 Carbondale
 Ball State University, Muncie,
 Indiana
 Purdue University, Calumet,
 Indiana
 Indiana University, Hammond,
 Indiana
 Indiana University, Bloomington

Private Businesses

Chicago Fish House
 Burnham Harbor Yacht Club
 Michigan City Yacht Club
 Chicago Tribune
 Hammond Times
 Michigan City News Dispatch
 Waukegan News-Sun
 Midwest Yachts
 Northern Indiana Public Service
 Utility
 Weber, Cohn and Riley, Inc.
 Charter Industry Services, Inc.
 Pepsi-Cola General Bottlers

Other Organizations

Chicago Academy of Sciences
 National Fisheries Institute
 Northwest Indiana Forum
 Shedd Aquarium

**SEA GRANT MARINE
 EXTENSION ADVISORY
 COMMITTEE**

Drusilla Banks, Home Economics
 Adviser
 University of Illinois Cooperative
 Extension Service
 Chicago, Illinois (1984-86)

Dick Becker, Youth Extension Agent
 Purdue University Cooperative
 Extension Service
 Crown Point, Indiana (1984-86)
Edward Bowles, Director of Area
 Development
 Northern Indiana Public Service
 Company
 Hammond, Indiana (1985-87)
Dan Brazo, Lake Michigan Fishery
 Biologist
 Indiana Department of Natural
 Resources
 Michigan City, Indiana (1985-87)
Arnie Cohn, Private Citizen
 Zion, Illinois (1985-87)
Dale Engquist, Superintendent
 Indiana Dunes National Lakeshore
 Porter, Indiana (1985-87)
Don Enright, Owner
 D-E Marine Charter
 Oak Lawn, Illinois (1984-86)
Lionel Eubanks, Owner/Operator
 Midwest Yachts
 Blue Island, Illinois (1984-87)
Jim Fizzell, Horticultural Adviser
 University of Illinois Cooperative
 Extension Service
 Rolling Meadows, Illinois (1984-87)
Dan Gardner, Executive Director
 Little Calumet River Basin
 Development Commission
 Highland, Indiana (1985-87)
Mary Goodley, 7th Grade Teacher
 Benny Junior High School
 Chicago, Illinois (1984-87)
Bill Harris, Commissioner
 Department of Building and Zoning
 of Cook County
 Chicago, Illinois (1985-87)
Dick Heupal, Executive Director
 Northwest Indiana Forum
 Merrillville, Indiana (1985-86)
Dan Injerd, Lake Michigan Program
 Coordinator
 Division of Water Resources
 Illinois Department of
 Transportation
 Chicago, Illinois (1984-86)
Bill Jansen, Chief Conservation
 Engineer
 Illinois Department of Conservation
 Springfield, Illinois (1985-87)

Jim Lubner, Field Agent
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Milwaukee, Wisconsin (1984-86, Ex
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Marc Michaelson, Vice President,
Public Relations
Weber, Cohn and Riley
Chicago, Illinois (1984-87)

Merv Pillotte, Director
Lake County Area Vocational
Center
Waukegan, Illinois (1986-87)

Wes Scharlach, Area Community
Development Agent
Purdue University Cooperative
Extension Service
Hammond, Indiana (1984-87)

Lew Timberlake, Director
Michigan City Port Authority
Michigan City, Indiana (1984-86)

Marge Vinzant, Lake County
Community Development
Committee
Hobart, Indiana (1985-87)

SEA GRANT RESEARCH REVIEW COMMITTEE (1985)

Jack Kelly (Chairman), Professor,
Department of Leisure Studies

Robert D. Espeseth, Coordinator
of the Illinois-Indiana Sea Grant
Program (Ex-Officio)

Burnell C. Fischer, Co-Coordinator
of the Illinois-Indiana Sea Grant
Program (Ex-Officio)

Robert Gorden, Head of the
Aquatic Biology Section, Illinois
Natural History Survey

Edwin E. Herricks, Associate
Professor of Environmental Biology,
Department of Civil Engineering,
University of Illinois

Steve Holland, Research Staff,
Illinois-Indiana Sea Grant Program
(Ex-Officio)

Carol Shearer, Associate Professor
of Plant Biology, Department of
Biology, University of Illinois

SEA GRANT RESEARCHERS

*Lake Michigan Salmonid Food Habits
in Illinois Waters, Prey Handling
Times for Lake Michigan Salmonids,
and Analysis for the Behavioral Bases
of Changes in Salmonid Diets*

John Janssen and Jan Savitz
Department of Biology
Loyola University of Chicago
6525 North Sheridan Road
Chicago, Illinois 60620
312/274-3000

*Lake Michigan Salmonid Food Habits
in Indiana Waters*

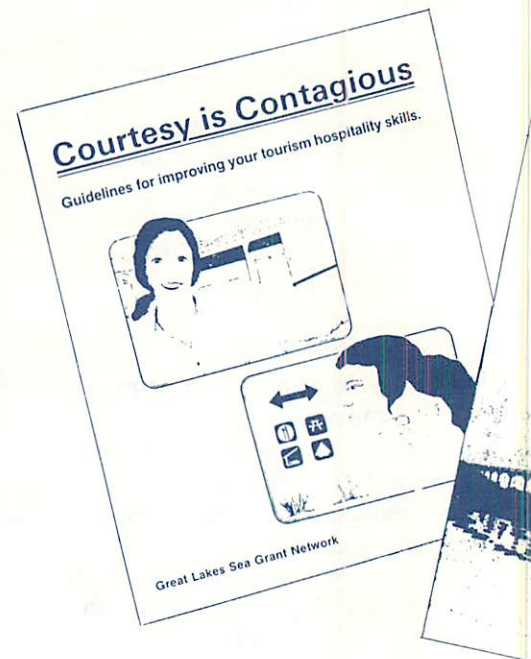
Thomas S. McComish
Department of Biology
Ball State University
Muncie, Indiana 47306
317/285-8845

*Southern Lake Michigan Sportfishery:
Angler Profiles and Specialization
Model*

James Absher (formerly of the
University of Illinois, Department
of Leisure Studies)
University of Georgia
#1 Peabody Hall
Athens, Georgia 30602
404/542-4334

*Factors Affecting Participation in
Water-based Recreation on Southern
Lake Michigan*

Joseph T. O'Leary
Department of Forestry and
Natural Resources
Purdue University
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317/494-3622

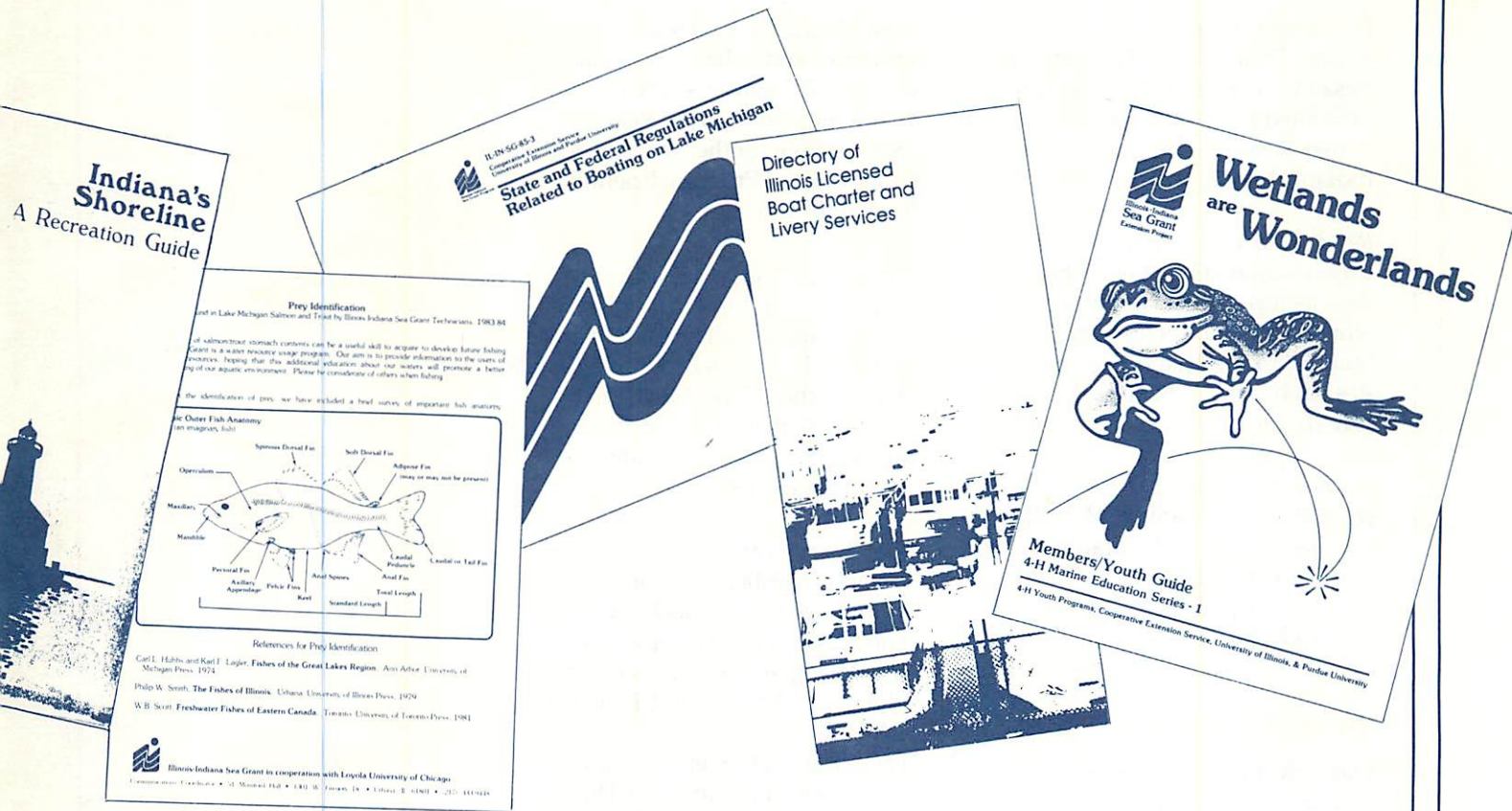


PUBLICATIONS OF THE ILLINOIS-INDIANA SEA GRANT PROGRAM

Extension Reports

*Courtesy is Contagious – Guidelines
for improving your tourism hospitality
skills.* A Sea Grant network
publication describing the
importance of the tourism industry
and providing tips on improving
hospitality skills, by Chad P.
Dawson and Great Lakes Sea Grant
Network Committee, Illinois-
Indiana Sea Grant Program,
September 1986, 11 pp.

*State and Federal Regulations Related
to Boating on Lake Michigan.* A state-
by-state description of pertinent
regulations governing recreational
boating on Lake Michigan, by
Douglas Musser and Steve Smidley.
Illinois-Indiana Sea Grant Program,
October 1985, 39 pp.



A Report on the Illinois-Indiana Sea Grant Program: April 1, 1982-March 31, 1984. The first biennial report on the activities and accomplishments of the Illinois-Indiana Sea Grant Program, February 1985, 16 pp.

Aquaculture: A New Industry for Illinois and Indiana. A report describing the potential for aquaculture in Illinois and Indiana, by Stephen W. Waite and Margaret R. Grossman. Illinois-Indiana Sea Grant Program, November 1984, 10 pp.

Wetlands Are Wonderlands. 4-H marine education guides describing many aspects of the wetland ecosystem, one for 4-H leaders and teachers and one for 4-H members and youth. Illinois-Indiana Sea Grant Program, May 1984, Leader/Teacher Guide, 23 pp. and Members/Youth Guide, 27 pp.

Indiana's Shoreline - A Recreation Guide. A brochure designed to inform visitors of the wide array of public recreational facilities and activities available along Indiana's shoreline. Indiana Department of Natural Resources, with funding from the Illinois-Indiana Sea Grant Program, September 1983, 21 pp.

Directory of Illinois Licensed Boat Charter and Livery Services. A handbook providing information on services offered by sportfishing, pleasure cruise, and other charter businesses in Illinois. Also described are the types of boats allowed and additional equipment and services provided by boat liveries in Illinois. Illinois Department of Conservation, Illinois Department of Commerce and Community Affairs, and the Illinois-Indiana Sea Grant Program, July 1983, 113 pp.

Journal Articles and Presentations Resulting from Sea Grant Research Projects

Ciguatera type toxins: Bioassay using crayfish nerve cord. Donald M. Miller, Donald R. Tindall, and Brian Tibbs. Federated American Societies for Experimental Biology. St. Louis, Missouri, April 16, 1986.

*Purification and assay of two ciguatera toxins from the dinoflagellate, *Prorocentrum concavum*.* Donald R. Tindall and Donald M. Miller. Second American Symposium on Animal, Plant, and Microbial Toxins. International Society on Toxicology (American Section). Tempe, Arizona, May 22, 1986.

Assay on ciguateric fish extracts utilizing the guinea pig ileum preparation. Donald M. Miller, Donald R. Tindall, William Davin, and Edward Regalis. Second American Symposium on Animal, Plant, and Microbial Toxins. Tempe, Arizona, May 22, 1986.

Factors affecting participation at Indiana Dunes National Lakeshore. Susan Wallace and Joseph O'Leary. Presented at the First Indiana Dunes Research Conference. Gary, Indiana, May 2, 1986.

Research on toxic dinoflagellates in the Virgin Islands. Donald R. Tindall. Two lectures and a laboratory workshop for the School for Field Studies, Virgin Island Ecological Research Station. St. John, USVI, July 18, 1986.

Assay and physiological effects of ciguatera toxins. Donald M. Miller. Two lectures and a laboratory workshop for the School of Field Studies, Virgin Island Ecological Research Station. St. John, USVI, July 19, 1986.

Newsletters

Charterboat Business (formerly *Charterlines*). A quarterly newsletter written by the Extension adviser helping charter captains manage their businesses more effectively, winter 1985-present. (7 issues)

The HELM. A newsletter published quarterly by the Illinois-Indiana Sea Grant Program providing information to people in the public and private sectors on various coastal issues and events in southern Lake Michigan, summer 1984-present. (10 issues)

Fact Sheets

"The Illinois-Indiana Sea Grant Program" (Three fact sheets providing a program overview for the years 1984, 1985, and 1986)

"The Communications Program of the Illinois-Indiana Sea Grant Program" (Used in the Sea Grant Communicators Resource Book, 1985)

"The Illinois-Indiana Sea Grant Program" and "Charterboat Fishing Industry Provides Significant Economic Return to the Region" (Both written for the National Sea Grant College Program Briefing Book, 1985-87)

"The Illinois-Indiana Sea Grant Program" and "Illinois-Indiana Sea Grant Helps to Enhance Tourism Industry, Improves Economic Stability in Southern Lake Michigan Region" (Both written for the National Sea Grant Program Briefing Book, 1987-93)

"Prey Identification"

"List of Lake Michigan Forage Fishes Important to the Fisherman"

"The Major Biota of Deepwater Lake Michigan--Who Eats Whom"

"Identifying Salmon and Trout Prey Fish"

(These four fact sheets were used as handouts for the Salmonid Diet Study conducted from 1983-86)

"What Aquaculture Is All About"

(Used as handout material and to accompany Sea Grant aquaculture display, "Seafood from the Prairie," 1986)

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