people & projects 1983

michigan sea grant college program

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ABOUT MICHIGAN SEA GRANT

The Michigan Sea Grant College Program is one of 29 programs across the nation established to promote the understanding and wise use of the Great Lakes and oceans. Through research, education, and advisory services, Michigan Sea Grant helps individuals, local communities, marine businesses, and state and local agencies wisely develop and use the resources of the Great Lakes.

Michigan Sea Grant is a cooperative effort of The University of Michigan and Michigan State University. Other state universities and colleges also work with the program. Sea Grant is funded by the National Oceanic and Atmospheric Administration, supplemented by matching funds from the state, universities, businesses, and other non-federal sources.

Research, education, and advisory services are the three principal functions of the program. In research, Michigan Sea Grant directs interdisciplinary work on the Great Lakes and the lakes' aquatic resources. Researchers have been focusing on the serious problem of toxic substances in the lakes, rehabilitation of the Great Lakes fishery, ways to increase recreational use of the lakes to stimulate Michigan's economy, and understanding the role of coastal wetlands in the Great Lakes ecosystem.

Sea Grant's education programs are designed to provide professional development and in-service training for students, fishers, marina operators, and other members of the marine business community. Recent educational activities have included short courses on shipbuilding, fishery biology, and marina management as well as development of a middle school curriculum on the Great Lakes.

Advisory services is Sea Grant's vital link between its research and education programs and the people who can directly apply information from these programs. Extension agents in coastal communities work with residents, businesses, agencies, and others to determine their needs and provide them with information and assistance. Extension agents also identify new problems in the field that should be addressed by research or education programs. Some recent activities have included helping shoreline residents select economical and effective shoreline erosion protection devices; helping recreational businesses improve their operations; helping coastal communities establish underwater parks to preserve shipwrecks and make them available for divers to explore; helping a Sea Grant researcher interview anglers for a major study on the economics of sport fishing; and training over 1500 persons in the techniques necessary to revive victims of cold water near-drowning accidents.

ADMINISTRATION

Alfred M. Beeton, Director
Michigan Sea Grant College Program
4103 Institute of Science
& Technology Building
The University of Michigan
Ann Arbor, Michigan 48109

Joy Healey, secretary
(313) 763-3515

Niles Kevern, Associate Director
Michigan Sea Grant College Program
Fisheries & Wildlife
7 Natural Resources Building
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East Lansing, Michigan 48824

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(517) 353-0647

Terry Waters, secretary
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Sonya Little, accounting clerk
(517) 353-9568

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Michigan Sea Grant College Program
4105 Institute of Science
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Ann Arbor, Michigan 48109

(on leave until Sept. 1983)

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Michigan Sea Grant College Program
4102 Institute of Science
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The University of Michigan
Ann Arbor, Michigan 48109

Nancy S. Pruitt, Administrative Associate
Michigan Sea Grant College Program
4104 Institute of Science
& Technology Building
The University of Michigan
Ann Arbor, Michigan 48109

Carole Stewart, secretary
(313) 763-1437

ADVISORY SERVICE

The Michigan Sea Grant Marine Advisory Service links people who use the Great Lakes with the program's research and education components. Field extension agents transfer to local communities the knowledge and technology developed through research, helping groups and individuals apply the information to their specific needs. The agents also suggest potential research projects, in response to the problems experienced by coastal residents and businesses. Campus specialists provide the extension agents with in-depth knowledge on specific topics when it is needed.

Eugene F. Dice
(517) 353-9568
(517) 353-3742

Program Leader
Marine Advisory Service
334 Natural Resources Building
Michigan State University
East Lansing, Michigan 48824

CAMPUS SPECIALISTS

Campus specialists develop and keep up to date information needed by advisory agents. Frequently, they help prepare advisory publications.

Alden Booren
(517) 355-8453

Food Science and Human Nutrition
100 Meat Laboratory
Michigan State University

Special Projects: Marketing underused fish; sanitation; fish quality, preparation, and preservation

Lynn Corson
(517) 355-0100

Community Development Programs
27 Kellogg Center
Michigan State University

Special Project: Hazardous substance disaster response

Eckhart Dersch
(517) 355-3346

Resource Development
323 Natural Resource Building
Michigan State University

Special Project: Developing training materials on coastal law for local coastal government officials

Lee Jacobs (517) 353-7273	Crop and Soil Science 208 Soil Science Building Michigan State University
Special Project:	Use of fish waste at Ludington as crop fertilizer
Niles Kevern (517) 353-0647	Fisheries & Wildlife 7 Natural Resources Building Michigan State University
Special Project:	Demonstration facility on processing and marketing underused species
Lee Somers (313) 764-0597	Atmospheric & Oceanic Science 1216 Space Research Building The University of Michigan
Specialty:	Diving safety
Stanley Thompson (517) 353-9733	Agricultural Economics 1 Agriculture Hall Michigan State University
Specialty:	Products in Great Lakes transportation

EXTENSION AGENTS

Michigan Sea Grant Extension Agents are Michigan Sea Grant's representatives in communities around the state. They work with residents and organizations on an everyday basis, delivering the results of research and bringing back to the program word of emerging problems that need to be addressed by research and education. Agents are generalists, but each also has special interest areas.

UPPER PENINSULA

Ron Kinnunen (906) 228-4830	U.P. Extension Center 1850 Presque Isle Marquette, Michigan 49855
Interest areas:	Great Lakes fisheries and toxic substances

NORTHWEST MICHIGAN

John McKinney
(616) 941-2256

Governmental Center
400 Boardman Avenue
Traverse City, Michigan 49684

Interest areas: Management of tourism and fishery businesses

SOUTHWEST MICHIGAN

Chuck Pistis
(616) 846-8250

County Extension Office, Room 101
Ottawa County Building
Grand Haven, Michigan 49417

Interest areas: Coastal zone resources, erosion mitigation, Great Lakes transportation, marine law

SOUTHEAST MICHIGAN

Steve Stewart
(313) 469-5180

Cooperative Extension Service
County Building, 9th Floor
Mount Clemens, Michigan 48043

Interest areas: Recreational uses of the Great Lakes, water safety, scuba diving, marine education

NORTHEAST MICHIGAN

Jon Peterson
(517) 362-3449

P.O. Box 599
County Building Annex
Tawas City, Michigan 48763

Interest areas: Community and regional planning and development

COMMUNICATIONS

The role of the communications subprogram is to assist the research and advisory staffs by writing and producing reports, brochures, and a newsletter; developing audio-visual materials; presenting information to the media; distributing publications and materials; organizing conferences, and performing other communication functions.

Communications Coordinator:

Lillian Jarman
(313) 764-1138
4112 Institute of Science
& Technology Building
The University of Michigan
Ann Arbor, Michigan 48109

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(313) 764-1138
Publications Supervisor
& Graphic Artist

Marilyn Eisley
(313) 764-1138
Secretary

Yvonne Boyer
(313) 764-1138
Distribution Clerk

CONFERENCE/WORKSHOP ON THE USE OF ARTIFICIAL REEFS IN THE GREAT LAKES

Three-day conference will draw experts from across the nation to share findings and recommendations on the use of artificial reefs for improving fishing conditions. Will develop a state-of-the-art handbook to guide federal and state agencies in regulating the siting and construction of artificial reefs.

Principal Investigators: Project #A/C-1

Frank M. D'Itri
(517) 353-3744
Fisheries & Wildlife
165 Natural Resources Building
Michigan State University

Niles Kevern
(517) 353-0647
Fisheries & Wildlife
7 Resources Building
Michigan State University

COASTAL RESOURCES

The emphasis in this subprogram has shifted from shoreline protection to coastal wetlands. The research focuses on determining the coastal wetlands' ecological and economic value in order to improve management decisions affecting them.

Subprogram Coordinators:

Patricia L. Weber
(313) 487-4140
College of Business Administration
508 Pray-Harrold Building
Eastern Michigan University
Ypsilanti, Michigan 48197

Harold H. Prince
(517) 355-4477
Fisheries & Wildlife
13D Natural Resources Building
Michigan State University

NUTRIENT CYCLING AND HYDROLOGIC PROCESSES IN GREAT LAKES COASTAL MARSHES

This project is assessing the impact of Great Lakes river mouth marshes on Great Lakes water quantity and quality by quantifying nutrient and hydrologic cycles in these areas.

Principal Investigator: Project #R/CW-5

Thomas M. Burton
(517) 353-4475
Fisheries & Wildlife
20 Natural Resources Building
Michigan State University

ABUNDANCE, DISTRIBUTION, AND ECOLOGICAL RELATIONSHIPS OF LARVAL AND JUVENILE FISHES IN THE PENTWATER MARSH ON LAKE MICHIGAN

Second year of a two-year project to determine the temporal and spatial changes in species composition and abundance of larval and juvenile fish in the Pentwater Marsh on Lake Michigan and to determine their food habits. Research results will help quantify the value of wetland areas for fish production.

Principal Investigator: Project #R/CW-13

Charles R. Liston
(517) 355-4477
Fisheries & Wildlife
163 Natural Resources Building
Michigan State University

DISTRIBUTION, PRODUCTIVITY, AND ENERGY RELATIONSHIPS OF ADULT FISH IN THE PENTWATER MARSH

This project will identify seasonal and temporal distribution and habitat of adult fish in the Pentwater Marsh on Lake Michigan, and will estimate immigration and emigration of fish to and from the marsh. The research will provide an important link in an overall model of the marsh ecosystem and dynamics.

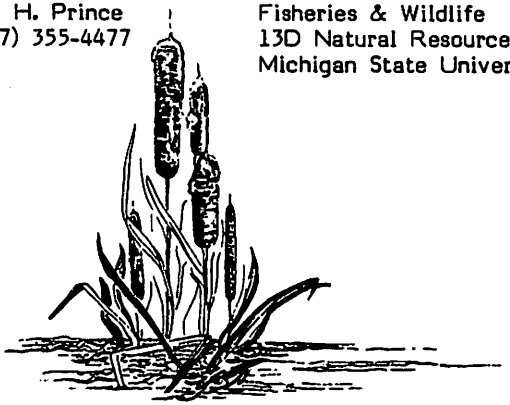
Principal Investigator: Project #R/CW-14
Charles R. Liston
(517) 355-4477
Fisheries & Wildlife
163 Natural Resources Building
Michigan State University

Associate Investigator:
Daniel Brazo
(616) 845-6601
MSU Research Laboratory
S. Lakeshore Drive
Ludington, Michigan 49431

AVIAN RESPONSE TO WETLAND VEGETATIVE CYCLES

Third year of a three-year study to describe the avian community using the Pentwater Marsh on Lake Michigan in the summer; to evaluate the role of coastal wetlands in the life cycle of resident avian species present during the summer at Pentwater Marsh; and to continue study of the short-term wetland habitat cycle and response of avian communities at Shiawassee National Wildlife Refuge. This research will help detail the importance of wetlands for avian production.

Principal Investigator: Project #R/CW-13
Harold H. Prince
(517) 355-4477
Fisheries & Wildlife
13D Natural Resources Building
Michigan State University



EDUCATION

This subprogram's current emphasis is on encouraging economic activity in Michigan through in-service and continuing education programs for industrial, government, and academic users of Great Lakes resources. College courses round out the subprogram.

Subprogram Coordinator:
Paul F. Nowak
(313) 763-4533

School of Natural Resources
Continuing Education
3505 Dana Building
The University of Michigan

DEVELOPMENT AND EMPLACEMENT OF UNIVERSITY-LEVEL EDUCATION PROGRAMS FOR THE PRODUCTION OF WORK BOATS

Second year of a two-year project to analyze U.S. production systems for workboat construction and to incorporate this material into an industrial short course on the state-of-the-art. This short course will be incorporated into the university's naval architecture and marine engineering curriculum.

Principal Investigator:
Howard M. Bunch
(313) 764-6503

Project #E/CCD-4

Naval Architecture & Marine Engineering
216 Naval Architecture
& Marine Engineering Building
The University of Michigan

GREAT LAKES SEMINAR

Third year of a university-level seminar for water resources students to increase their interest, knowledge, and awareness of the Great Lakes and current Great Lakes issues. Some classes produce videotapes with potential for use by Sea Grant and other public information programs.

Principal Investigator:
Jonathan W. Bulkley
(313) 763-5068

Project #E/GLE-7

Civil Engineering
105 Engineering 1-A Building
The University of Michigan

UNDERWATER TECHNOLOGY EDUCATION

Second year of a two-year project to provide professional training in the technological aspects of manned and unmanned underwater work systems by developing new university courses and working with industry to promote technological development.

Principal Investigator:
Lee Somers
(313) 764-0597

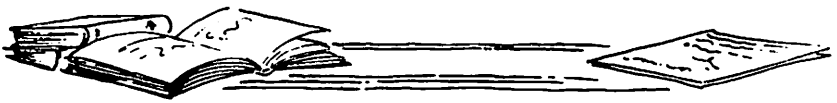
Project #E/CCD-5
Atmospheric & Oceanic Science
1216 Space Research Building
The University of Michigan

DISTINGUISHED LECTURE SERIES

A series of outstanding lectures on marine-related topics by scientists, educators, government officials, and industrialists for the faculty and students of Michigan universities and the public. Lectures will stimulate and maintain interest in marine research, allow for interaction among the universities in conducting marine research, and increase the visibility of Michigan Sea Grant. Lectures will be compiled in a publication.

Principal Investigator:
Alfred M. Beeton
(313) 763-1437

Project #E/GLE-8
Michigan Sea Grant College Program
4103 Institute of Science
& Technology Building
The University of Michigan



GREAT LAKES FISHERIES

The current focus of this subprogram is on basic fishery biology and its relationship to the development of management policies for Michigan's commercial and recreational fisheries.

Subprogram Coordinator:
Niles Kevern
(517) 353-0647
Fisheries & Wildlife
7 Natural Resources Building
Michigan State University

EXAMINATION OF SPAWNING & INCUBATION REQUIREMENTS, & REPRODUCTIVE BIOLOGY OF LAKE TROUT IN RELATION TO REESTABLISHMENT OF SELF-SUSTAINING STOCKS IN THE GREAT LAKES

Second year of a two-year project to evaluate causes of reproductive failure in lake trout, to document lake trout use of artificial substrates for spawning, and to characterize ideal lake trout habitat for spawning and incubation. Results will be used in lake trout management and reestablishment programs and to monitor lake trout reproductive behavior.

Principal Investigators:
Project #R/GLF-11

David J. Jude
(313) 764-2420
Great Lakes Research Division
3107 Institute of Science
& Technology Building
The University of Michigan

John A. Dorr, III
(313) 763-4730
Great Lakes Research Division
M4961 Institute of Science
& Technology Building
The University of Michigan

EVALUATION OF AN ARTIFICIAL REEF AS A FISHERY MANAGEMENT METHOD FOR LAKE MICHIGAN

This project is designed to determine the value of artificial reefs for spawning, with special emphasis on their use by lake trout. Project is measuring number, size, species, and feeding habits of fish on these reefs, determining the extent of colonization by periphyton and benthic organisms, and estimating sportfishing success in reef areas at specific locations. The State of Michigan is planning to use the final results of this study to help develop guidelines for additional reefs.

Principal Investigator:
Niles Kevern
(517) 353-0647

Project #R/GLF-13
Fisheries & Wildlife
7 Natural Resources Building
Michigan State University

WHITEFISH STOCKS IN NORTHERN LAKE MICHIGAN

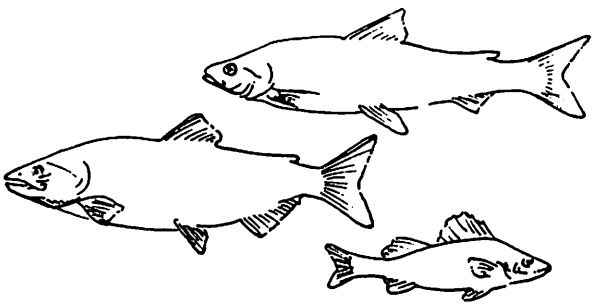
Third year of three-year study to analyze the vital statistics of the lake whitefish fishery in northern Lake Michigan, with special emphasis on natural and fishing mortality rates, survival, growth, population size, and biomass. Results will be used to improve management of this fishery.

Principal Investigators:
William Taylor
(517) 355-4477

Project #R/GLF-16
Fisheries & Wildlife
10D Natural Resources Building
Michigan State University

Niles Kevern
(517) 353-0647

Fisheries & Wildlife
7 Natural Resources Building
Michigan State University



POPULATION DYNAMICS AND YIELD POTENTIAL OF LAKE SUPERIOR PINK SALMON (Onchorhynchus gorbuscha)

Second year of a proposed six-year project to determine the population dynamics and yield potential of the pink salmon in Michigan tributaries to Lake Superior. This data will be useful in determining the importance of this salmonid in Lake Superior and its potential for commercial and sports fisheries.

Principal Investigator: Project #R/GLF-15
William W. Taylor
(517) 355-4477
Fisheries & Wildlife
10D Natural Resources Building
Michigan State University

MOVEMENT, GROWTH AND MORTALITY OF YELLOW PERCH IN SAGINAW BAY

This project will determine the movement patterns of the perch; assess proportional perch mortality due to sport and commercial fishing; and analyze the growth and feeding of perch. The results can be used by the State of Michigan to determine commercial fishing license policy and fishery management procedures.

Principal Investigator: Project R/GLF-17
James Diana
(313) 763-5834
School of Natural Resources
164 Dana Building
The University of Michigan

DEVELOPMENT OF A MANAGEMENT MODEL FOR LAKE SUPERIOR LAKE HERRING STOCKS

This study, begun in 1982, will continue to obtain data on lake herring stocks during the 1983 breeding season. The data is being used to develop a population dynamics model of lake herring and to predict the effect of commercial fishing effort on population dynamics. The model is expected to provide a basis for rehabilitation and management of Lake Superior lake herring.

Principal Investigator: Project #R/GLF-14
Stephen H. Bowen
(906) 487-2025
Biological Sciences
231 Mechanical Engineering
& Engineering Mechanics Building
Michigan Technological University
Houghton, Michigan 49931

GREAT LAKES TRANSPORTATION

This subprogram focuses the knowledge and skills of Michigan's academic community on the technical problems of the marine transportation industry.

Subprogram Coordinator:

Michael Parsons
(313) 764-6407
Naval Architecture & Marine Engineering
216 Naval Architecture
& Marine Engineering Building
The University of Michigan

Paul Nickel
(517) 353-3414
Resource Development
323 Natural Resources Building
Michigan State University

MULTIVARIABLE CONTROL OF DIESEL/CONTROLLABLE PITCH PROPELLER PROPULSION SYSTEMS

This project will analyze the feasibility and advantages of using microprocessor-based multivariable controllers for propulsion control of Great Lakes bulk carriers. Expected advantages are improved control through narrow locks and channels and improved fuel economy.

Principal Investigator: Project #R/T-15

Michael Parsons
(313) 764-6407
Naval Architecture & Marine Engineering
216 Naval Architecture
& Marine Engineering Building
The University of Michigan

AN INVESTIGATION OF LOW SPEED OCEAN ENGINEERING EXPERIMENTS CONDUCTED IN TRADITIONAL TOWING TANKS

This project will attempt to develop a procedure for testing scale models in restricted towing tanks that will yield more accurate results. The project results should aid the offshore industry in evaluating experimental results and will be used to improve ocean engineering courses at The University of Michigan.

Principal Investigator: Project #R/T-16

Armin W. Troesch
(313) 764-9138
Naval Architecture & Marine Engineering
212 Naval Architecture
& Marine Engineering Building
The University of Michigan

NEW APPLICATIONS

The purpose of this subprogram is to fully develop the use of Great Lakes fishery resources through aquaculture and improved processing and marketing of underused fish species and other commercial fish species.

AQUACULTURE DEVELOPMENT PROGRAM FOR MICHIGAN

This project will strengthen research and advisory efforts in fish culture through a cooperative problem-solving approach designed to benefit both public and private fish hatcheries and fish culturists. The project will coordinate the efforts of Michigan Sea Grant aquaculture research activities with the other programs in the Great Lakes Sea Grant Network and with state agencies.

Principal Investigator:
Don Garling
(517) 355-7493

Project #R/A-1
Fisheries & Wildlife
9 Natural Resources Building
Michigan State University

EFFECTS OF DIETARY STEROID HORMONE SUPPLEMENTS IN RAINBOW TROUT CULTURE

This project will evaluate the potential of using steroid hormone supplements in the diets of intensively cultured rainbow trout. A growth accelerator would enable rainbow trout grown in Michigan's cold waters to reach a marketable size sooner.

Principal Investigator:
Don Garling
(517) 355-7493

Project #R/A-2
Fisheries & Wildlife
9 Natural Resources Building
Michigan State University

RECREATION AND TOURISM

The current emphasis in this subprogram is to quantify economic impacts of tourism and recreation on state and local economies and to assist the local communities and the state in promoting tourism, principally through effective information dissemination.

Subprogram Coordinators:

Kenneth Polakowski
(313) 764-9315
School of Natural Resources
1066 Dana Building
The University of Michigan

Daniel J. Stynes
(on sabbatical)
(517) 353-5190
Park & Recreation Resources
131 Natural Resources Building
Michigan State University

Joseph Fridgen
(serving while Daniel Stynes on sabbatical)
(517) 353-0823
Park & Recreation Resources
131 Natural Resources Building
Michigan State University

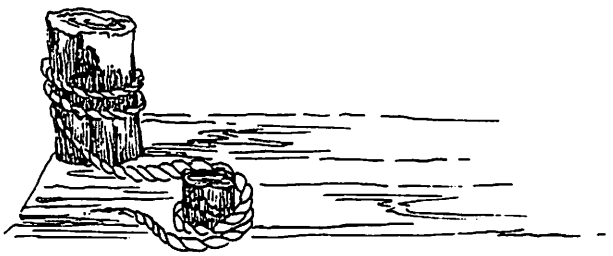
ECONOMIC IMPACT OF ANGLING FOR GREAT LAKES FISH IN MICHIGAN

Continuation of a project begun in 1982 to estimate the economic impacts on local economies in Michigan of angling for Great Lakes fish. The project is estimatng existing and developing economic impacts and improving current estimates of angler travel cost and economic impacts. The project's results will assistthe state and communities in making fishery management decisions.

Principal Investigator:

Daniel Talhelm
(517) 355-7493
Fisheries & Wildlife
10C Natural Resources Building
Michigan State University

Project #R/R-5



INFORMATION NETWORKS & GREAT LAKES RECREATION: IMPLICATIONS FOR INCREASING TOURISM IN MICHIGAN

Second year of a two-year project to assess and identify how people currently receive information about the Great Lakes as a recreational resource and the types and kinds of information they receive. Results of the project will include recommendations on ways to improve the promotion and marketing of the Great Lakes as a recreational resource.

Principal Investigator:
Maureen H. McDonough
(517) 353-5190

Project #R/R-6
Park & Recreation Resources
131 Natural Resources Building
Michigan State University

IMAGES & PERCEPTIONS OF THE GREAT LAKES: IMPLICATIONS FOR TOURISM IN MICHIGAN

Second year of a two-year project to define and document how tourists perceive the Great Lakes and Michigan coastal communities and how these perceptions influence travel decisions and recreational preferences. The goal of the project is to develop recommendations for improved marketing and promotion of tourism in Michigan.

Principal Investigator:
Joseph Fridgen
(517) 353-0823

Project #R/R-7
Park & Recreation Resources
131 Natural Resources Building
Michigan State University

TOURISM MARKET SEGMENTATION

This project will identify the size and importance of the different segments of the tourism market in Michigan; evaluate alternative methods for segmenting tourism markets; and recommend ways for businesses, communities, and state travel offices to use segmentation research to help with tourism planning and development.

Principal Investigator:
Daniel J. Stynes
(517) 353-5190

Project #R/R-8
Park & Recreation Resources
131 Natural Resources Building
Michigan State University

TOXIC SUBSTANCES

This subprogram stems from concern about the effects of toxic substances in the Great Lakes on human health and aquatic and wildlife resources. The research emphasizes the fate and distribution of toxic substances in the Great Lakes and their effects on aquatic resources.

Subprogram Coordinators:

Clifford Rice
(313) 764-2420
Great Lakes Research Division
3113 Institute of Science & Technology Building
The University of Michigan

Robert K. Ringer
(517) 355-8414
Pesticide Research Center
132 Anthony Hall
Michigan State University

THE INVESTIGATION OF OCULAR AND NEURAL LESIONS OBSERVED IN RAINBOW TROUT (Salmo gairdneri) FOLLOWING EXPOSURE TO SELECTED ORGANOPHOSPHATE ESTERS

Second year of a two-year project to determine the toxic effects on rainbow trout and other aquatic species of chronic sublethal exposures to organophosphate agrochemicals. The project will provide information that safety and regulatory agencies can use in applying guidelines for the use of these compounds.

Principal Investigator: Project #R/TS-19

Jack R. Hoffert
(517) 353-0836
Physiology
222 Giltner Hall
Michigan State University

STUDIES ON THE COMPOSITION AND PHOTOCHEMISTRY OF THE POLYCHLORINATED COMPONENTS OF TOXAPHENE IN THE GREAT LAKES

This project will improve analytical procedures for identifying toxaphene residues in Great Lakes water, sediments, and biota, and will study how sunlight affects the composition of toxaphene.

Principal Investigator: Project #R/TS-25

Matthew J. Zabik
(517) 353-6376
Pesticide Research Center
204B Pesticide Research Center
Michigan State University

LYSOSOMAL ENZYME RELEASE ASSAY AS A MEASURE OF STRESS IN FISH

Second year of a project to develop an assay to measure chronic stress in fish caused by chemical contaminants, such as cadmium, zinc, and anthracene, before the contaminants reach a level that causes mortality. The ability to measure sublethal effects would aid regulatory agencies in setting and enforcing standards to reduce negative effects on reproducton, growth, and resistance to stress.

Principal Investigator: Project #R/TS-21

John P. Giesy
(517) 353-9420
Fisheries & Wildlife
201 Pesticide Research Center
Michigan State University

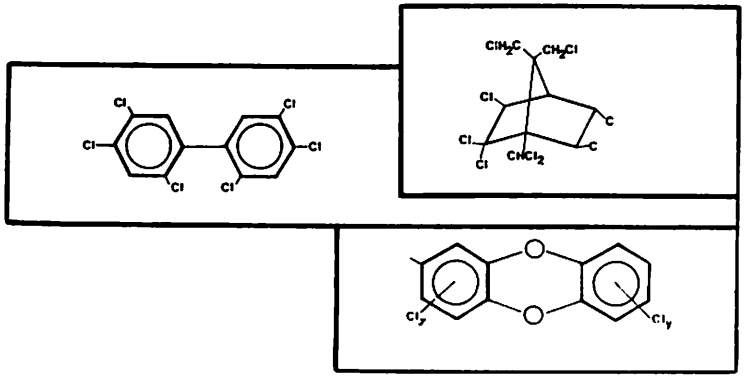
TRANSFER MECHANISMS OF PAHs IN GREAT LAKES ZOOPLANKTON

Second year of a two-year study to determine transfer rate coefficients describing the kinetics of anthracene and tetrachloroprophene within and between representative Great Lakes zooplankton and water volume. Results of this research will assist EPA and NOAA in constructing predictive models of PCB and PAH dynamics in the Great Lakes.

Principal Investigators: Project #R/TS-22

James Bowers
(313) 763-5184
Great Lakes Research Division
1070 North University Building
The University of Michigan

Clifford Rice
(313) 764-2420
Great Lakes Research Division
3113 Institute of Science
& Technology Building
The University of Michigan



DEVELOPMENT AND REFINEMENT OF STANDARD METHODS FOR WILDLIFE TOXICOLOGY

This project will develop standards for dietary and reproductive tests in mink to assess the hazards presented by toxic chemicals. It will also determine the feasibility of using short-term dietary tests on mallards and quail for comparative toxicologic assessment of various chemicals.

Principal Investigator: Project #4/TS-16

Robert K. Ringer
(517) 355-8414
Pesticide Research Center
28A Anthony Hall
Michigan State University

STUDIES ON THE TOXICOLOGICAL SIGNIFICANCE OF TOXAPHENE RESIDUES IN THE GREAT LAKES ECOSYSTEM

This project will analyze toxaphene residues in Great Lakes fish and assess the extent of metabolic and other environmental changes caused by toxaphenes. The research will clarify the hazards of eating toxaphene-contaminated fish and help to determine the extent of toxaphene contamination in the Great Lakes.

Principal Investigators: Project #R/TS-14

Fumio Matsumura
(517) 353-9430
Entomology
107 Pesticide Research Center
Michigan State University

TOXAPHENE COMPARTITION AND RECYCLING IN LAKE MICHIGAN

This project will provide the first information on toxaphene levels in a plankton-mysid-amphipod food web, including information on trophic transfer, bioaccumulation, and metabolism. The study will document the extent of toxaphene contamination in Lake Michigan and will provide information on temporal variability in inputs, transport routes from surface inputs to sedimentary sinks, resuspension, and sedimentary recycling.

Principal Investigators: Project R/TS-26

Marlene Evans
(313) 764-6540
Great Lakes Research Division
M4850 Institute of Science
& Technology Building
The University of Michigan

Clifford Rice
(313) 764-2420
Great Lakes Research Division
3113 Institute of Science
& Technology Building
The University of Michigan

WATER QUALITY AND QUANTITY

In response to the growing awareness that economic growth in the Great Lakes region is closely tied to abundant and clean water resources, this subprogram will address critical water quality and water quantity issues. This year the subprogram will focus on water quality.

Subprogram Coordinators:

A. M. Beeton
(313) 763-3515
Michigan Sea Grant College Program
4103 Institute of Science
& Technology
The University of Michigan

Darrel King
(517) 353-3742
Institute of Water Resources
344 Natural Resources Buillding
Michigan State University

DOCUMENTATION OF THE EFFECTS OF WATER QUALITY CHANGES IN WESTERN LAKE ERIE

This project will determine the benthic populations in western Lake Erie and correlate them with available chemical and biological data. The results will help to develop a long-term trend analysis of biotic response to changes in water quality.

Principal Investigator:

John H. Judd
(313) 763-1437
Great Lakes Research Division
4105 Institute of Science
& Technology Building
The University of Michigan

Project #R/ER-14

CHARACTERIZATION OF PARTICULATE FLUX IN SOUTHEASTERN LAKE MICHIGAN

The first year of this two-year study will characterize the chemical composition and role of zooplankton in particulate flux and the resuspension of sedimentary matter. The study will elucidate processes by which nutrients, organic carbon, and chlorophyll are transferred to deeper lake regions and will aid research on the fate and transport of toxic substances.

Principal Investigators: Project #R/ER-16

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STUDY OF THE EFFECT OF A RURAL CLEAN WATER PROJECT IN THE SALINE VALLEY

This project will monitor the effects on water quality of an experimental program in land use practices and animal waste control. The project will develop a monitoring program, establish baseline conditions, and gather data on benthic and diatom communities, sediment load, and the impact of major storms. Results will help determine the feasibility of controlling phosphorus inputs to the Great Lakes from diffuse sources.

Principal Investigator: Project #R/ER-12

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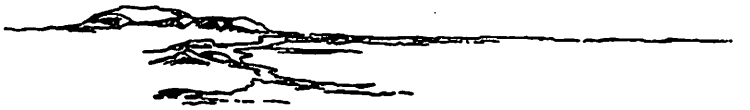

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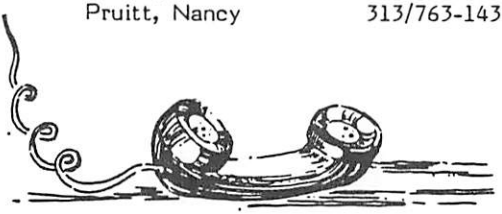

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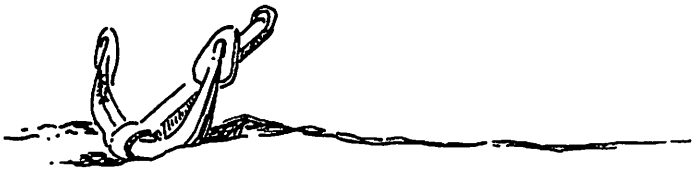


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