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Pacifi**C** Northwest Environmental Research La

Nati**O**nal Marine Water Quality Laboratory

Gulf B**R**eeze Environmental Research Laborat

Arctic En**V**ironmental Research Laboratory

Southe**A**st Environmental Research Laboratory

Nationa**L** Ecological Research Laboratory

Nationa**L** Water Quality Laboratory

Grosse **I**le Laboratory

Robert **S.** Kerr Environmental Research Labora

# Foreword

The National Environmental Research Center (NERC) at Corvallis, Oregon, one of four National Centers reporting to the U. S. Environmental Protection Agency's Office of Research and Monitoring, has responsibility for a broad range of research programs on the ecological effects of pollution.

Ecological knowledge, however, is not an end in itself. The findings and accomplishments of NERC-Corvallis and its nine Associate Laboratories are of little more than academic value if they are not put to practical use in protecting and restoring our natural environment.

With that in mind, we have written this booklet to acquaint potential users with the kinds of ecological research data and technical assistance they may obtain through NERC-Corvallis. To help guide the user to the appropriate source, we have prepared a section on each of our Associate Laboratories, including the names of the Directors, their mailing addresses, and their telephone numbers.

Since the most frequent users of our information and services are EPA's Regional Offices, this booklet is designed primarily as a reference for the Agency's Regional Administrators and their staffs. However, we believe the information also will be useful to other groups and individuals sharing our common goals and interests in ecological research.

Please do not hesitate to contact me, personally, or members of my staff if we may be of assistance in any of the areas outlined in this booklet.

A. F. Bartsch
*Director*
*NERC-Corvallis*

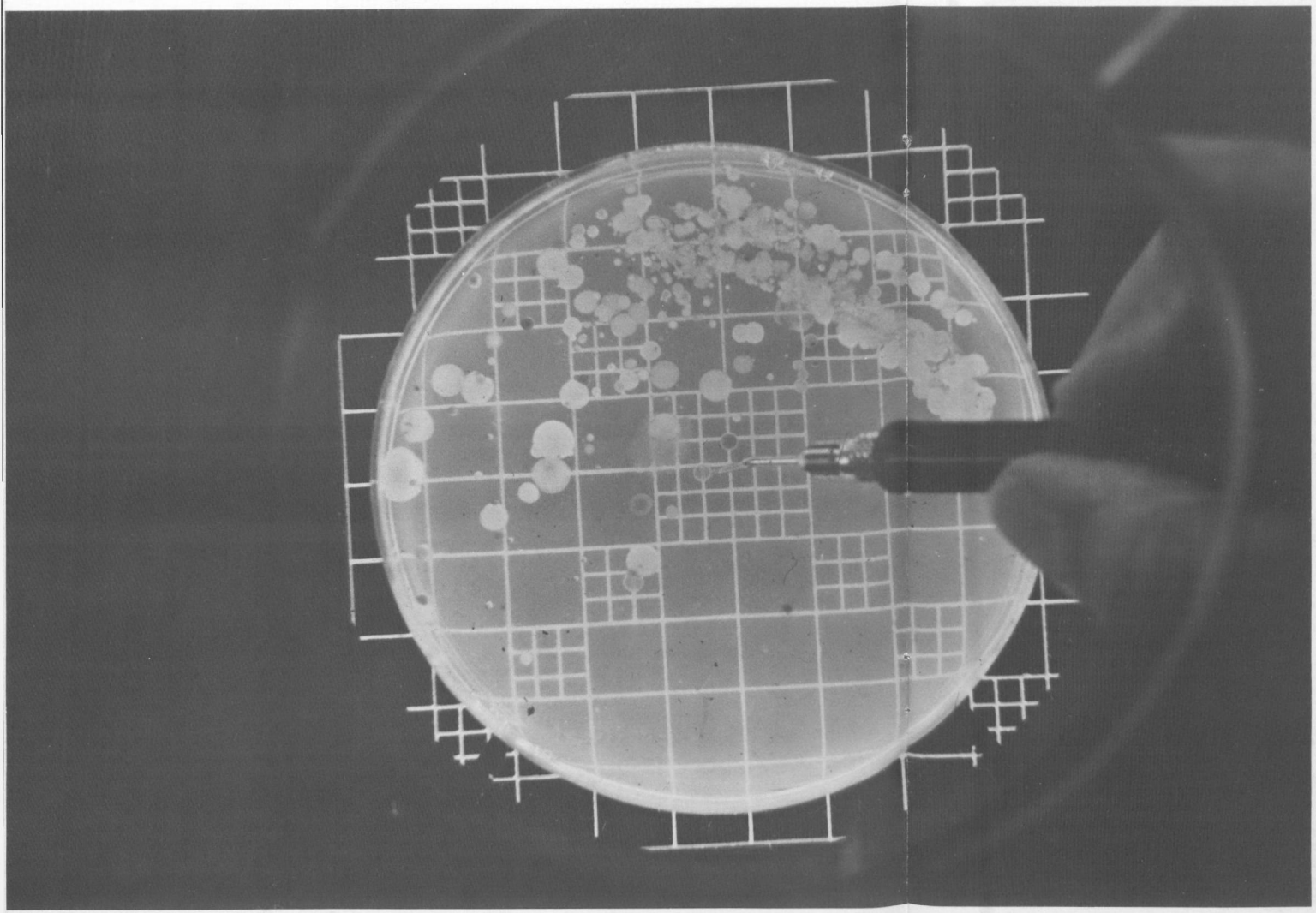
# NERC-Corvallis Report

*A Guide for Potential Users*
*Of Technical Support Services*

May, 1973

# Contents

*NERC-Corvallis is responsible for research on the ecological effects of pollution, ranging from the smallest microorganisms up the chain to, but not including, man.*



# Missions of NERC-Corvallis

EPA is a new and dynamic Agency. Regardless of how carefully its long-range plans are made, rapid developments in environmental protection compel every arm of the Agency to continually adjust its plans to meet changing conditions and demands. The new water law is but one example of challenges to which EPA must respond as quickly and as effectively as possible.

The research arm of EPA is in no way isolated from these demands. Because longer lead time usually is required for mission attainment in the research field, as compared with the operational field, the Office of Research and Monitoring (OR&M) must anticipate changes in policies and programs to a greater degree than do other segments of the Agency.

In keeping with the objectives of OR&M, NERC-Corvallis is eager to respond to the problems facing EPA. Because EPA is a 'regulatory' agency and NERC-Corvallis is but a support arm of it, our work must be as relevant as possible to the overall mission of the Agency.

The purpose of this report is to acquaint you with NERC-Corvallis and to establish a better basis for integrating our efforts.

## Our Mission

As a support arm of EPA, our major function is to produce, through research, answers to questions faced by the Agency. Our major effort is, and must continue to be, devoted to this. While our research and development efforts frequently are costly and lengthy, they provide a vitally important base for EPA's program.

Environmental standards must be supported by sound, defensible data, and pollution control technology must be available and demonstrated if National and Regional enforcement programs are to be successful.

## Needs System

In addition to conducting research, OR&M has the two vitally important related responsibilities of insuring that the highest priority questions receive the first attention and that the answers are fed back as quickly as possible to those who need them.

To insure that our efforts are directed properly, OR&M has developed the 'needs' system with which

you no doubt are familiar. The success of this system is dependent to a great extent on the quality of the needs submitted by the operational arms of EPA.

The Regions will get better response from NERC-Corvallis and the other NERC's by putting more effort into development of their needs. One of the major functions of the OR&M representatives in the Regions is to insure that your needs provide us with as good a basis for action as possible.

## Response System

In the past, research has not provided an adequate 'feedback' system. For years we relied heavily on final reports for specific projects-- reports which were too long and too specialized for the average potential user. Consequently, Headquarters has developed a semi-automatic system to respond to the sponsors of specific needs.

To complement this system, NERC-Corvallis has initiated a series of research highlight newsletters. These newsletters are designed to provide you and other operational arms of the Agency with current information on a wide range of subject areas, with our programs, and with a means of communication.

## Technical Expertise

In addition to actually carrying out research, NERC-Corvallis serves as a pool for technical expertise which can be put to a variety of uses by other parts of the Agency. For example, we frequently are called by the Regional Offices for consultation on particular pollution problems, either to determine the causes or to suggest possible treatment or other remedial alternatives.

*Services available through NERC-Corvallis and its nine Associate Laboratories range from routine studies and analyses to special field surveys and technical support for enforcement actions.*

Or, we may be called to strengthen an enforcement action by providing specialized analyses of a discharge or by providing 'expert testimony.' NERC-Corvallis encourages this type of technical assistance to other parts of EPA. In fact, we program our resources for it.

One-fifth of our researchers' time is programmed for technical assistance and environmental impact review. We will be happy to provide you with these or any similar technical assistance services if they are within our competency and our available resources.

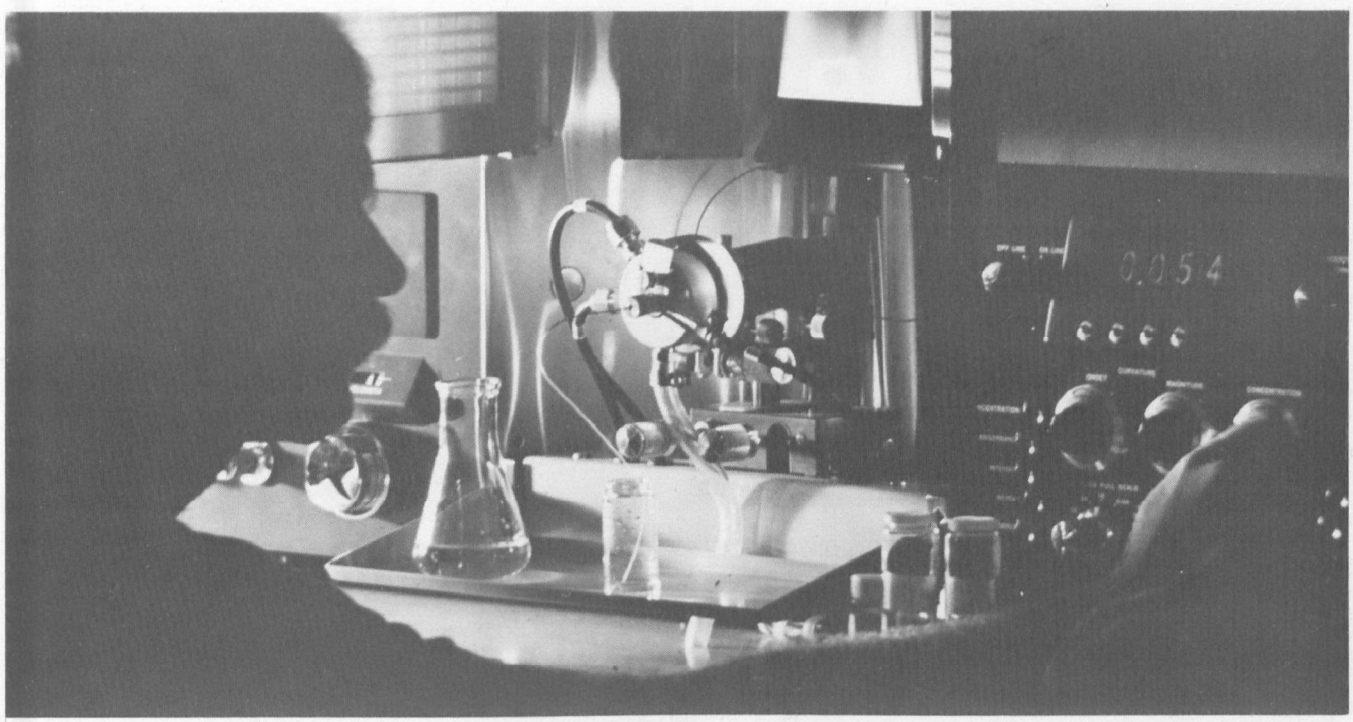
## What Is NERC?

NERC-Corvallis is one of the four National Environmental Research Centers established by OR&M to help consolidate the many varied research programs inherited by EPA. Each of the NERC's has an assigned research 'theme.' The theme at NERC-Corvallis is ecology.

While the assigned themes provide a framework for the future development of programs at the Research Centers, NERC-Corvallis is responsible for some programs that do not fall into the area of ecological research. NERC-Corvallis programs include:

- Research for the establishment or support of water quality standards;
- Studies on the transport and fate of pollutants in fresh surface waters, ground waters, and coastal waters;
- Special studies on the Great Lakes;
- Investigation of thermal pollution and eutrophication;
- Research to determine the ecological impact of air pollutants and pesticides;
- Cold climate research;
- Development of technology to control pollution from industrial and agricultural sources.

To carry out these programs, NERC-Corvallis has been authorized 487 permanent employees and a budget of approximately $25 million. About half of this budget is for grants and contracts to support extramural research projects, many of which are



*The NERC-Corvallis Associate Laboratories provide EPA with a broad selection of ecological research capabilities and scientific knowledge.*

directed toward development and demonstration of new pollution control technology.

## Nine Associate Labs

NERC-Corvallis research programs are directed and carried out by the Center's nine associate laboratories:

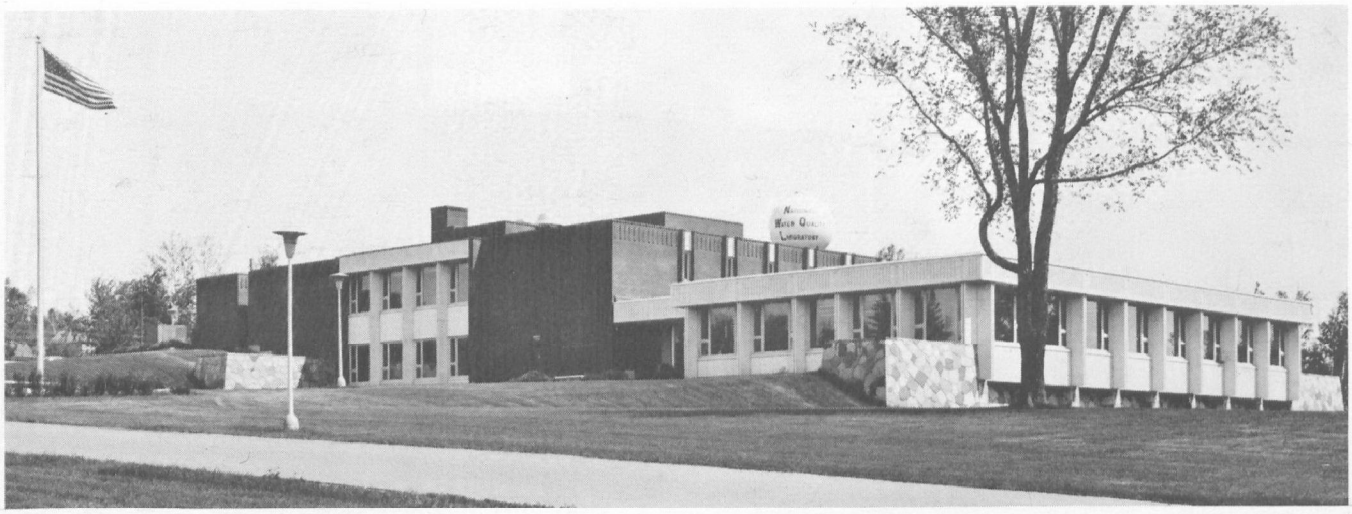
- National Water Quality Laboratory, (NWQL), Duluth, Minnesota;
- National Marine Water Quality Laboratory, (NMWQL), West Kingston, Rhode Island;
- Southeast Environmental Research Laboratory, (SERL), Athens, Georgia;
- Robert S. Kerr Environmental Research Laboratory, (RSKERL), Ada, Oklahoma;
- Pacific Northwest Environmental Research Laboratory, (PNERL), Corvallis, Oregon;
- Grosse Ile Laboratory, (GIL), Grosse Ile, Michigan;
- Arctic Environmental Research Laboratory, (AERL), College, Alaska;
- Gulf Breeze Environmental Research Laboratory, (GBERL), Gulf Breeze, Florida;
- National Ecological Research Laboratory, (NERL), Corvallis, Oregon.

Seven of these laboratories were inherited from the Federal Water Quality Administration (FWQA). The two exceptions are the Gulf Breeze Environmental Research Laboratory, which formerly was part of the Bureau of Commercial Fisheries, and the National Ecological Research Laboratory, which was an outgrowth of the National Air Pollution Control Administration.

Although the NERC-Corvallis research programs remain heavily slanted in the direction of water pollution control, the addition of these two laboratories is part of our movement toward a broader research program that encompasses all environmental media--air and terrestrial, as well as aquatic.

The NERC-Corvallis Headquarters staff is a small one, consisting of 18 permanent employees who provide program coordination and overall management for the nine associate laboratories.

To give you a better idea of our competencies and what types of research results and technical assistance we can provide, the following pages contain a short description of each of our associate laboratories, its programs, and its key personnel.



*Approximately 85 research and support personnel are assigned to the National Water Quality Laboratory*

# National Water Quality Laboratory

Duluth, Minnesota

The National Water Quality Laboratory was authorized by Congress as a special purpose laboratory. Its major mission is to provide data and pertinent information for the establishment of criteria that will provide a sound scientific basis for water quality standards for freshwaters.

Major projects include:

- Biological studies for enforcement support or 'fire-fighting' activities (such as PCB's, NTA, chlorine in sewage);
- Development of biological test methods and of short-cut methods to determine toxicant criteria;
- Determining the effects of heavy metals on freshwater aquatic life;
- Biomonitoring of effluents;
- Determining the effect of hazardous synthetic organics on freshwater aquatic life;
- Temperature and dissolved oxygen requirements for freshwater organisms;
- Effect of nitrogen supersaturation on several species of fish.

In addition to its research projects, the National Water Quality Laboratory is one of the most active in NERC-Corvallis in terms of the technical assistance it provides.

The very nature of NWQL's research mission involves the laboratory in a large number of legal actions. The staff frequently is called upon to provide expert testimony in hearings on water quality standards or in enforcement conferences. NWQL has been heavily involved, for example, in the Lake Michigan Enforcement Conference and in the Reserve Mining Case.

An area in which NWQL's skills could be of great assistance to the Regional Offices is the application of bioassay and biomonitoring activities for monitoring complex industrial effluents.

In addition to its facilities in Duluth, NWQL operates two field stations:

- Newtown Fish Toxicology Station, Newtown, Ohio.
- Western Fish Toxicology Station Corvallis, Oregon.

## For Assistance, Contact:

Dr. Donald I. Mount, Director, National Water Quality Laboratory, U.S. Environmental Protection Agency, 6201 Congdon Boulevard, Duluth, Minnesota 55804.

Phone: 218-727-6548.
TWX: 901-561-2535.
FAX: 218-727-6539.

# Grosse Ile Laboratory

Grosse Ile, Michigan

The Grosse Ile Laboratory currently conducts research in two major areas:

- Movement and ultimate fate of pollutants in large lakes;
- Development of water pollution control technology for the steel, metal finishing, and machinery industries.

Current projects include the development of nutrient control, dredging control, and thermal control guidelines for large lakes, including the Great Lakes; and the development of predictive models.

Because of the laboratory's special expertise on large lakes, it has been heavily involved during the past year's International Field Year for the Great Lakes. It also has devoted a considerable amount of effort toward fulfilling the joint U. S.-Canadian Great Lakes Agreement.

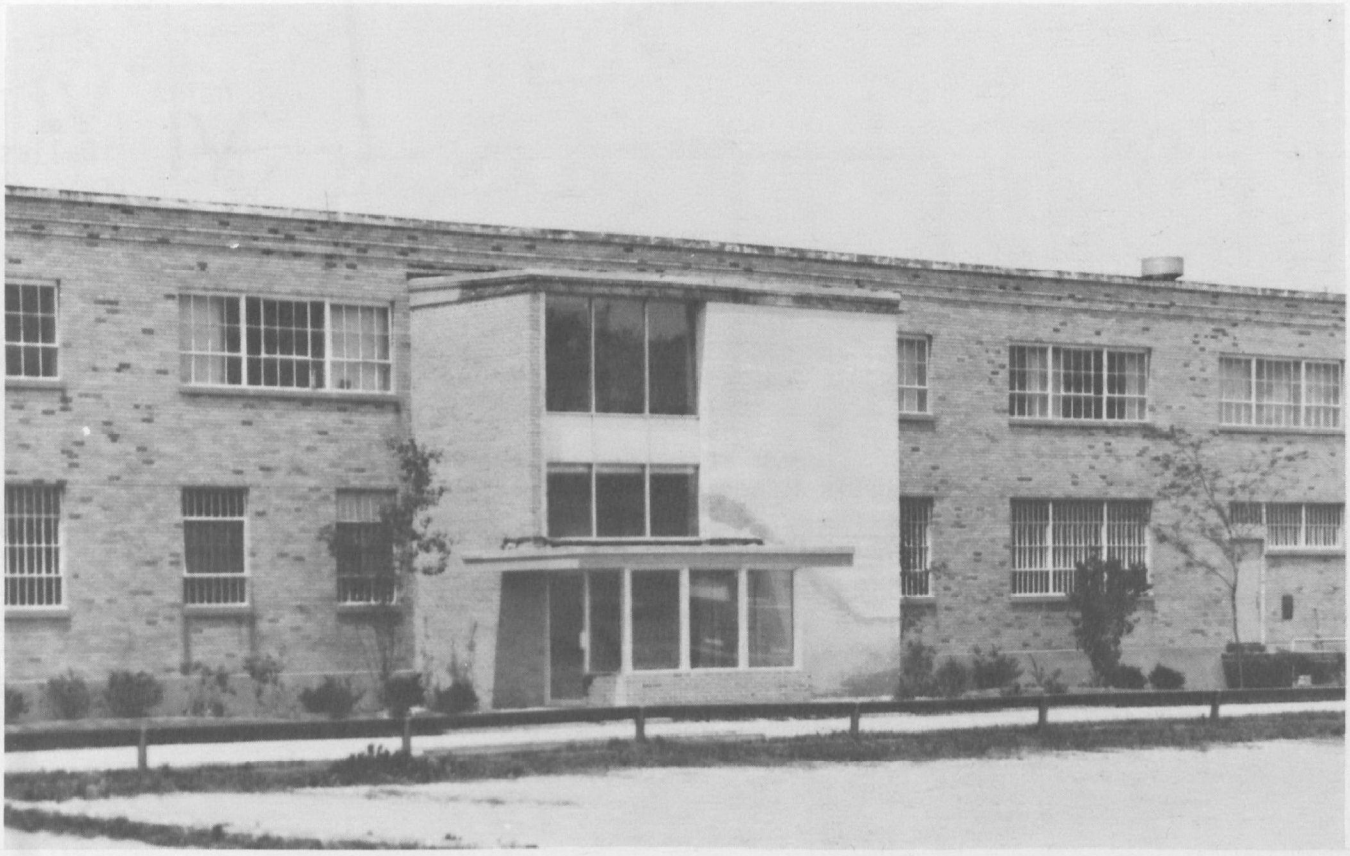
The technology development program for the steel, metal finishing, and machinery industries is primarily an extramural effort. Major emphasis is being devoted to the development of advanced waste treatment and closed-loop systems.

In addition, the laboratory has provided a considerable amount of assistance to the Office of Water Programs in the development of effluent guidelines for these industries.

### For Assistance, Contact:

Dr. Tudor Davies, Director, Grosse Ile Laboratory, U.S. Environmental Protection Agency, 9311 Groh Road, Grosse Ile, Michigan 48138.

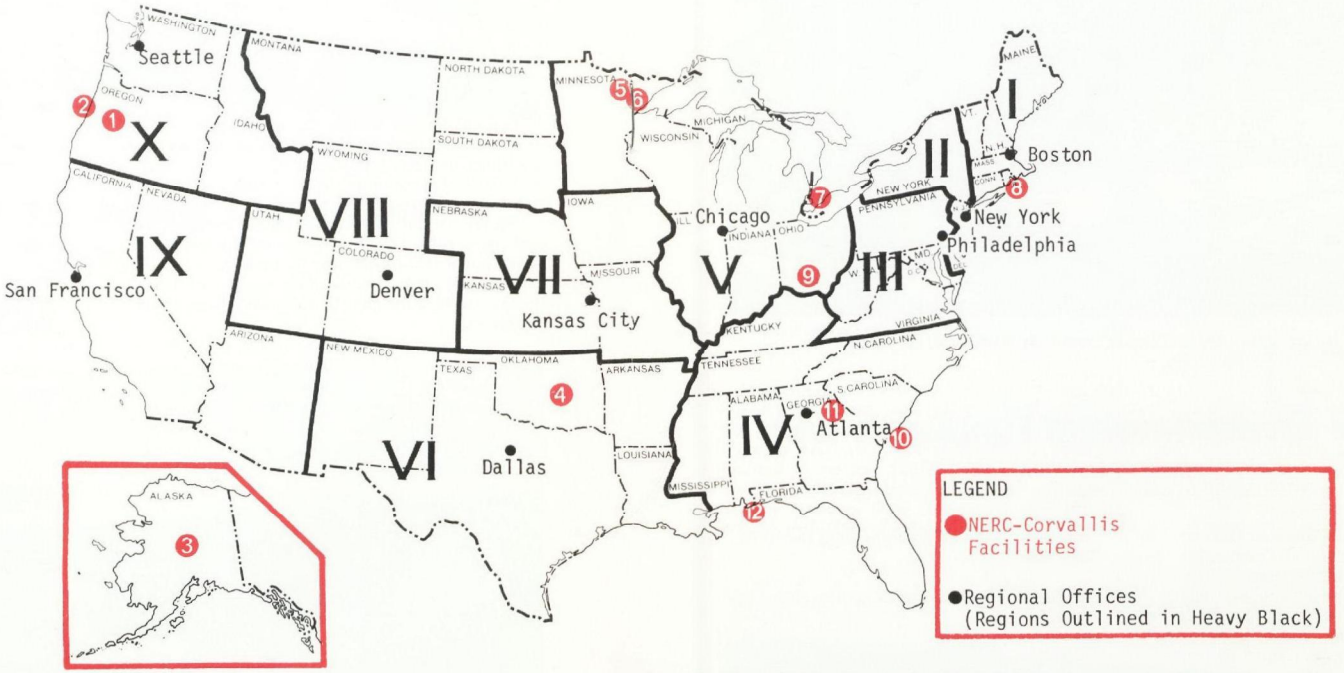
Phone: 313-226-7554.
TWX: 810-231-7184.
FAX: 313-676-6500.



*The Grosse Ile Laboratory is devoting special attention to fulfillment of the joint U.S.-Canadian Great Lakes Agreement.*

# National Environmental Research Center • Corvallis

**(Complex Includes NERC Headquarters, 9 Associate Laboratories, 5 Field Stations)**




1 NERC-Corvallis Headquarters, Corvallis, Oregon
1 Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon
1 National Ecological Research Laboratory, Corvallis, Oregon
1 Western Fish Toxicology Station, Corvallis, Oregon
2 Newport Field Station, Newport, Oregon
3 Arctic Environmental Research Laboratory, College, Alaska
4 Robert S. Kerr Environmental Research Laboratory, Ada, Oklahoma
5 Ely Field Station, Ely, Minnesota
6 National Water Quality Laboratory, Duluth, Minnesota
7 Grosse Ile Laboratory, Grosse Ile, Michigan
8 National Marine Water Quality Laboratory, Narragansett, Rhode Island
9 Newtown Field Station, Newtown, Ohio
10 Bears Bluff Field Station, Johns Island, South Carolina
11 Southeast Environmental Research Laboratory, Athens, Georgia
12 Gulf Breeze Environmental Research Laboratory, Gulf Breeze, Florida

*Pesticides research is a specialty of the Gulf Breeze Environmental Research Laboratory.*

# Gulf Breeze Environmental Research Lab.

Gulf Breeze, Florida

The Gulf Breeze Environmental Research Laboratory, formerly part of the Bureau of Commercial Fisheries, specializes in pesticide-related research. It is charged with developing information to support the registration and labeling of pesticides used in or near the marine environment and with developing legally defensible criteria for marine life, particularly in the area of pesticides and other toxic organics.

The laboratory's specific areas of expertise include bioassays on pesticides and chronic laboratory experiments on the effects of sublethal concentrations of chemical contaminants on estuarine organisms.

Although it is relatively unknown to most of the rest of the Agency, this laboratory already has contributed significantly to enforcement actions. It has:

- Collected and analyzed most of the supporting data relative to Escambia Bay;
- Analyzed oysters from Louisiana in connection with water pollution problems along the Mississippi River;
- Conducted extensive studies on the effects of Mirex.

GBERL's experience with the identification of pesticide residues makes it a particularly valuable resource for a wide range of Regional enforcement actions.

## For Assistance, Contact:

Dr. Thomas Duke, Director, Gulf Breeze Environmental Research Laboratory, U.S. Environmental Protection Agency, Sabine Island, Gulf Breeze, Florida 32561.

Phone: 904-377-5268.
TWX: 501-730-7631.
FAX: 904-377-5268.

# National Marine Water Quality Laboratory

West Kingston, Rhode Island

The National Marine Water Quality Laboratory, like its sister facility, the National Water Quality Laboratory, was authorized by Congress as a special purpose laboratory. Its major mission is to provide pertinent information and data for the establishment of criteria that will provide a sound scientific basis for water quality standards for marine and estuarine waters.

Major projects include:

- Development of biological techniques for criteria development;
- Determination of ecological requirements for the protection of estuarine and marine life;
- Determination of the effects of chlorine and chlorinated compounds on selected marine organisms;
- Development of heavy metals criteria for estuarine and marine waters.

In addition to these research projects, the National Marine Water Quality laboratory provides considerable technical assistance to other arms of EPA. For example, in the Florida Power and Light Case and in the Houston Power and Lighting Case, the laboratory provided extensive phytoplankton and zooplankton bioassay analyses. The laboratory's extensive experience in this type of bioassay can be put to good use in determining the toxicity of specific industrial effluents.

NMWQL also is experienced in histopathological examinations of fish. These examinations can be applied either to the investigation of fish kills or be used to determine the impact of an industrial discharge. For example, the laboratory recently completed a histo - pathological examination of salmon which had been exposed to pulp mill effluent.

The National Marine Water Quality Laboratory also has had a great deal of experience in assessing the impact of power plant discharges in coastal waters. NMWQL's expertise can be of use to you in the permit program and in connection with power plant siting and design.

The Laboratory maintains a satellite facility, the Bears Bluff Field Station, at Johns Island, South Carolina.

### For Assistance, Contact:

Dr. Eric Schneider, Acting Director, National Marine Water Quality Laboratory, U.S. Environmental Protection Agency, P. O. Box 277, West Kingston, Rhode Island 02892.

Phone: 401-528-4372.
TWX: 710-387-1529.
FAX: 401-528-4370.

*The National Marine Water Quality Laboratory provides data for establishing water quality standards for marine and estuarine waters.*

# Robert S. Kerr Environmental Research Lab.

Ada, Oklahoma

The Robert S. Kerr Environmental Research Laboratory is a multipurpose laboratory responsible for research in four major subject areas:

- Ground water pollution problems;
- Control of pollution from the petroleum and petrochemical industries, including related mining activities;
- Control of pollution from agricultural activities, including feedlots and irrigation;
- Non-conventional methods of enhancing water quality, such as flow augmentation.

## Ground Water Program

The state of knowledge relating to ground water pollution is still rather elementary. The Ground Water Pollution Program, under Jack Keeley, is attempting to determine the scope and nature of ground water pollution problems in this country.

In addition, its efforts are directed toward:

- Establishing scientific criteria for waste disposal site selection;
- Determining the effects of surface pollution on ground water quality;
- Developing water quality monitoring methods;
- Developing management technology for the protection and improvement of the subsurface environment.

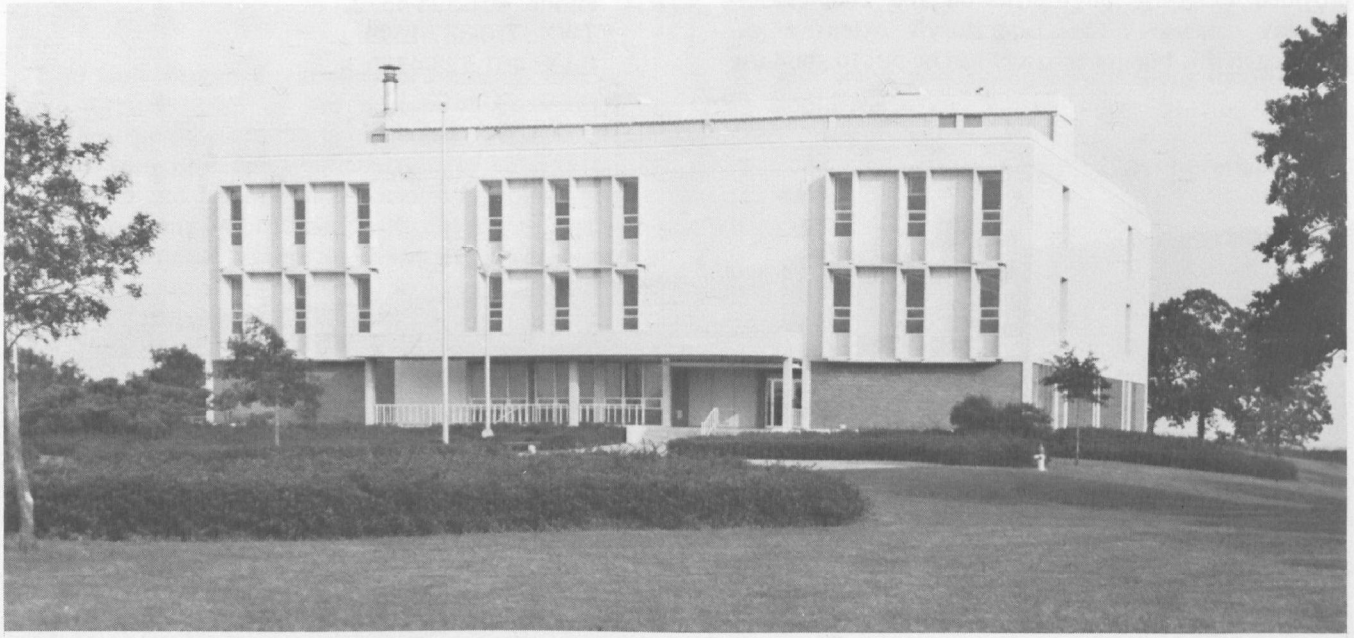
As the Agency becomes more concerned with ground water problems, the expertise found in this program will be an even more valuable resource.

## Petroleum and Petrochemical

The research on petroleum and petrochemical industries is directed by Marvin Wood. Present program emphasis is on the development of closed- loop systems. A major effort during the past year has been the development of effluent standards in conjunction with the permit program.

## Agricultural Pollution

The Agricultural Pollution Control Program, also under the direction of Marvin Wood, is responsible for developing methods and management techniques for



*The Robert S. Kerr Environmental Research Laboratory conducts research in four major subject areas: groundwater pollution, the petroleum industry, agricultural waste and runoff, and non-conventional methods of enhancing water quality.*

abatement and control of pollution from irrigation return flows and animal feedlot operations relating to cattle and swine production.

Major program efforts are directed toward:

- Defining the nature, extent, and effect of pollution from these sources;
- Development of mathematical models and improved agricultural practices to reduce the pollution;
- Development of criteria on guidelines for the design and operation of control procedures.

### Water Quality Control

The Water Quality Control Research Program, under the direction of Curtis Harlen, is responsible for conceiving, developing and field testing methodology for the improvement of water quality by means other than conventional waste treatment.

Efforts are devoted to:

- Development of process and product modification as an alternative to treatment;
- Management of waste discharges to minimize their impact;
- Utilization of soils for the treatment of liquid wastes.

The last is particularly significant in light of the spirit of the new amendments to the Federal Water Pollution Control Act.

### For Assistance, Contact:

Mr. William Galegar, Director, Robert S. Kerr Environmental Research Laboratory, U.S. Environmental Protection Agency, P. O. Box 1198, Ada, Oklahoma 74820.

Phone: 405-253-2224.
TWX: 910-830-6748.
FAX: 405-253-2220.

# Pacific N.W. Environmental Research Lab.

Corvallis, Oregon

The Pacific Northwest Environmental Research Laboratory is a multipurpose laboratory responsible for carrying out research in five major areas:

- Eutrophication;
- National Eutrophication Survey;
- Thermal Pollution;
- Movement and fate of pollutants in coastal waters;
- Development of control technology for 'soft' industries, including food and paper production.

### Eutrophication

The ultimate objective of the Eutrophication Research Program, under Thomas E. Maloney, is development of eutrophication controls and restoration procedures for lakes and impoundments. Sub-objectives include:

- Development of an understanding of the eutrophication process with emphasis on the role of plant nutrients in aquatic systems; nutrient cycling among water, sediments and biota; and nutrient effects on plant growth;
- Development and demonstration of technology to control or reverse eutrophication;
- Development of methods for monitoring eutrophication and for predicting the impact of nutrient sources on water bodies.

One of the major projects is carried out at a new advanced waste treatment plant in Ely, Minnesota, at Shagawa Lake. By operating a treatment plant and monitoring the receiving lake, our scientists will be able to determine precisely the time scale and effectiveness of treatment in reversing man-caused eutrophication.

In addition to carrying on an extensive research program, the Eutrophication staff provides considerable consulting assistance to the Regional Offices on local eutrophication problems.

One laboratory procedure developed by the program, the algal assay, has been particularly useful to the operating arms of the Agency. The algal assay

procedure makes it possible to identify the controlling nutrient in a given sample, to determine how much of that nutrient is present, and to predict the effect of the addition of other nutrients.

## National Survey

The National Eutrophication Survey Program, under the direction of Dr. Jack Gakstatter, is carried out jointly with the National Environmental Research Center at Las Vegas. The objective of this program is to identify lakes and impoundments in the United States that have a potential or actual eutrophication problem due to phosphorus received from municipal sewage treatment plants, and therefore might benefit from control of phosphorus input.

This program's most obvious contribution will be the determination of benefits phosphorus removal would provide for specific bodies of water. It could result in substantial savings for all levels of government by identifying cases in which treatment plants would contribute only minor improvements to lakes with pollution problems stemming from other sources.

## Coastal Pollution

The Coastal Pollution Program, under the direction of Dr. Donald Baumgartner, is focused on providing a scientific basis for predicting the fate of pollutants discharged into marine waters, and on developing techniques for the improvement of the marine environment. The relevance of this work to the programs of the seven coastal Regions is obvious. Much of the research deals with providing a basis for establishing criteria for marine disposal site selection, and with developing methods for monitoring waste disposal operations.

The Coastal Program routinely provides consultation to Regions in which ocean dumping and ocean outfalls are a problem. This program offers more expertise and has had more experience than any other EPA group in determining acceptable discharge locations and permissible levels of pollution. The group has made significant contributions toward preventing potential problems, and it continues to provide excellent support in legal actions.

## Waste Treatment Research

The Waste Treatment Research Program, under the direction of James R. Boydston, has as its objective the development and demonstration of waste treatment technology to control pollution from the 'soft' industries. Included in this category are pulp and paper mills and food processing plants.

Because of the requirements of the new amendments to the Federal Water Pollution Control Act, major emphasis is being devoted to developing the technology necessary to achieve closed-loop systems for water reuse.

The very nature of the program dictates that its personnel spend a good portion of their time assisting the Regional Offices. Assistance rendered in the past few months has ranged from sugar mills in Hawaii to pulp mills in New England.

## Thermal Pollution

The Thermal Pollution Research Program, under the direction of Frank H. Rainwater, is concerned with determining the movement and fate of heat discharged into the aquatic environment and with the development of controls to prevent such discharges.

With the increasing number of large fossil-fueled and nuclear power plants being constructed, the expertise of this program is in constant demand. This group already can point to significant achievements, such as cooling towers on the Columbia River. Thermal Program Personnel also are actively involved in two major enforcement actions: the Florida Power and Light Case and the Houston Lighting and Power Case.

The Thermal Pollution Program has developed predictive models that are potentially of great use to Regional Office staffs. Because its own staff is limited (8 permanent employees), the group has been attempting to teach personnel from other parts of EPA how to apply these models. A thermal modeling seminar held last summer was extremely successful and may be repeated.

A significant portion of the staff's time is spent in assisting the Office of Federal Activities on the review of environmental impact statements in connection with AEC licenses.

## Two Field Stations

In addition to its facility in Corvallis, PNERL operates two field stations:

- Ely Field Station, Ely, Minnesota (National Eutrophication Research Program).
- Newport Field Station, Newport, Oregon (National Coastal Pollution Research Program).

## For Assistance, Contact:

Dr. Norbert Jaworski, Director, Pacific Northwest Environmental Research Laboratory, U.S. Environmental Protection Agency, 200 S.W. 35th Street, Corvallis, Oregon 97330.

Phone: 503-752-4572.
TWX: 510-590-0687.
FAX: 503-752-4379.


In addition to serving as the NERC-Corvallis Headquarters, this building houses the Pacific Northwest Environmental Research Laboratory and the National Ecological Research Laboratory.

# National Ecological Research Laboratory

Corvallis, Oregon

The National Ecological Research Laboratory is the newest of the nine NERC-Corvallis associate laboratories. It was transferred recently from Research Triangle Park. In the past, this laboratory was concerned almost exclusively with the effect of air pollution on plants, including ornamental shrubs and crops. Much of its work has been devoted to supporting the secondary air quality standards.

With the move to NERC-Corvallis, the laboratory will assume a broader mission: that of determining the impact of pollutants on terrestrial ecosystems. NERL is built around three separate branches:

- Plant Ecology Branch--Investigates the effects of air pollutants, heavy metals, and other materials on vegetation, including lower plant life, forests, crops, and ornamental plant species.
- Animal Ecology Branch--Studies the effects of air pollutants, heavy metals, and vegetational changes on wildlife and domestic animals up to, but not including, humans.
- Ecosystems Analysis Branch--Integrates research, data, and projects of the other two branches. In addition, the Ecosystems Analysis Branch provides statistical, mathematical, and computer skills required for experimental design, data analysis, and predictive and simulation modeling.

In addition to its past work in support of the air quality standards, NERL has provided considerable assistance to the regional offices and the office of enforcement. For example, the laboratory has developed data showing the adverse impact of fluorides in Montana and of power plant discharges in Florida and West Virginia.

Once the transfer to Corvallis has been completed, NERL will continue to be available to provide this type of assistance to the operating arms of the Agency.

**For Assistance, Contact:**

Dr. Norman Glass, Director, National Ecological Research Laboratory, U.S. Environmental Protection Agency, 200 S.W. 35th Street, Corvallis, Oregon 97330.

Phone: 503-752-4362.
TWX: 510-590-0687.
FAX: 503-752-4379.

# Arctic Environmental Research Laboratory

College, Alaska

The Arctic Environmental Research Laboratory was established to study environmental problems which are unique to extreme cold climate areas and to develop technology to deal with these problems.

One major program has been the development of new sanitation systems for Alaska's Native villages. This project is nearing completion. In addition, the laboratory has been heavily involved in studies on such treatment-related problems as the effectiveness of conventional treatment systems under extreme climate conditions.

An effort is now underway to broaden the scope of the laboratory's program. Current research includes:

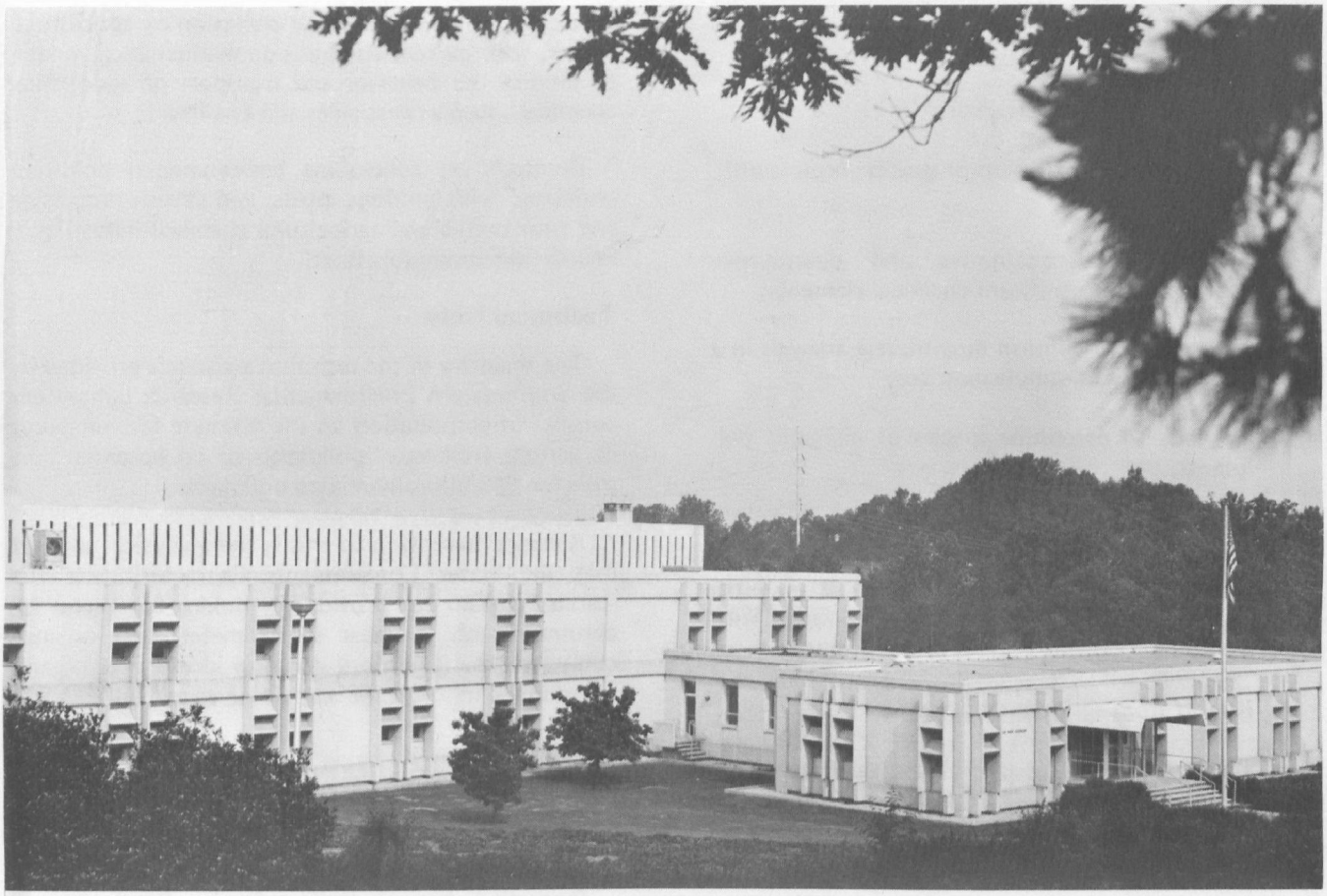
- Air pollution control in the arctic;
- The ecological impact of oil discharged in the arctic;
- An ecological evaluation of natural and disturbed watersheds in arctic and subarctic regions.

**For Assistance, Contact:**

Mr. Richard Latimer, Director, Arctic Environmental Research Laboratory, U.S. Environmental Protection Agency, College, Alaska 99701.

Phone: 206-442-0150, Ask for 907-479-2251, Ext. 239.
FAX: 206-442-0150, Ask for 907-479-2251, Ext. 212.

*Pollution problems unique to cold climates are the interest of the Arctic Environmental Research Laboratory.*



*The Southeast Environmental Research Laboratory specializes in research on the fate of pollutants, water contaminants characterization, and agricultural and industrial pollution.*

# Southeast Environmental Research Laboratory

Athens, Georgia

The Southeast Environmental Research Laboratory is a multipurpose facility for research in three major subject areas:

- Transport and fate of pollutants in fresh surface waters;
- Development of new instrumentation and applications of existing instrumentation;
- Development of pollution control technology for agricultural sources and agriculturally-related industry.

## Fate of Pollutants

The Fate of Pollutants in Fresh Surface Waters Program, under Dr. Walter Sanders, is responsible for developing a scientific basis for predicting and assessing the fate and impact of pollutants entering freshwater ecosystems.

Program emphasis is on the chemical and biological degradation of various pollutants and the development of predictive models which relate the concentration and form of pollutants to the size, character, composition and location of their sources.

## Water Contaminants

The Water Contaminants Characterization Research Program, under Dr. William Donaldson, is developing and evaluating new and improved methods for identification and measurement of environmental pollutants and is demonstrating the applicability of recommended

techniques so that other EPA laboratories can adopt them efficiently.

Major areas of current effort are:

- Qualitative identification of specific organic pollutants;
- Simultaneous qualitative and quantitative analysis for all significant chemical elements;
- Techniques to confirm quantitative analysis in a broad variety of sample matrices;
- Methods to determine species of inorganic pollutants.

## Agricultural and Industrial

The Agricultural and Industrial Pollution Control Program, under Dr. Page Nicholson, is concerned with research on the following sources of pollution:

- Runoff from agricultural lands;
- Manufacture of agricultural chemicals and textiles;
- Production of poultry and catfish;
- Processing of poultry, and catfish;
- Phosphate mining.

The major inhouse research effort is devoted to developing controls for water pollution by agricultural runoff, with current emphasis on mathematical models to predict the behavior and transport of agricultural chemicals, such as pesticides and fertilizers.

Research on controlling environmental pollution associated with poultry, citrus, and catfish processing and with textile and agricultural chemical industries is mainly an extramural effort.

## Technical Help

The majority of the technical assistance provided by the Southeastern Environmental Research Laboratory consists of consultation on the ultimate fate or source of various freshwater pollutants or on potential controls for agriculturally-related pollutants.

A major exception to this is the analytical support that the Water Contaminants Characterization Research Program can provide. By linking together a gas chromatograph, a mass spectrometer, and a small computer, the laboratory can now identify the organic compounds in a specific sample of water within a few hours.

## For Assistance, Contact:

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