



OFFICE OF OCEANIC RESEARCH PROGRAMS

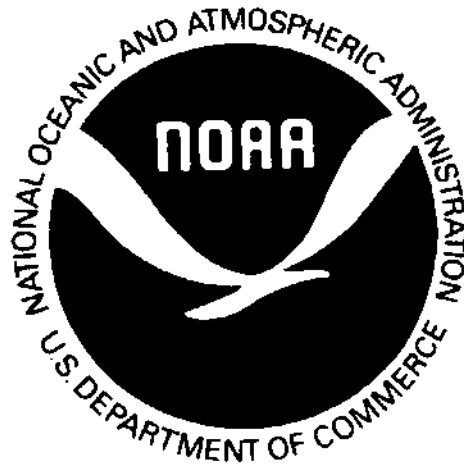
CIRCULATING COPY
Sea Grant Depository

A Director
of the National Sea Grant Office
the National Sea Grant Review Board
the Office of University Research
and the National Coastal Resource
Research and Development Institute
November 1980

National Oceanic and Atmospheric Administration
DEPARTMENT OF COMMERCE

Contents

Section I: The National Sea Grant Office	1
Organizational Chart for the National Sea Grant Office	
Introduction to the National Sea Grant College Program	
National Office Subject Area and Administrative Assignments	
Staff Monitoring and Site Visit Assignments	
Alphabetical Listing of Staff	
Section II: The National Sea Grant Review Panel	29
Introduction to the National Sea Grant Review Panel	
Alphabetical Listing of Panel Members	
Section III: The Office of Undersea Research	35
Introduction to the National Undersea Research Program	
Alphabetical Listing of Staff	
Section IV: The National Coastal Resources Research and Development Institute	43
Introduction to the National Coastal Resources Research and Development Institute	
Alphabetical Listing of Staff	



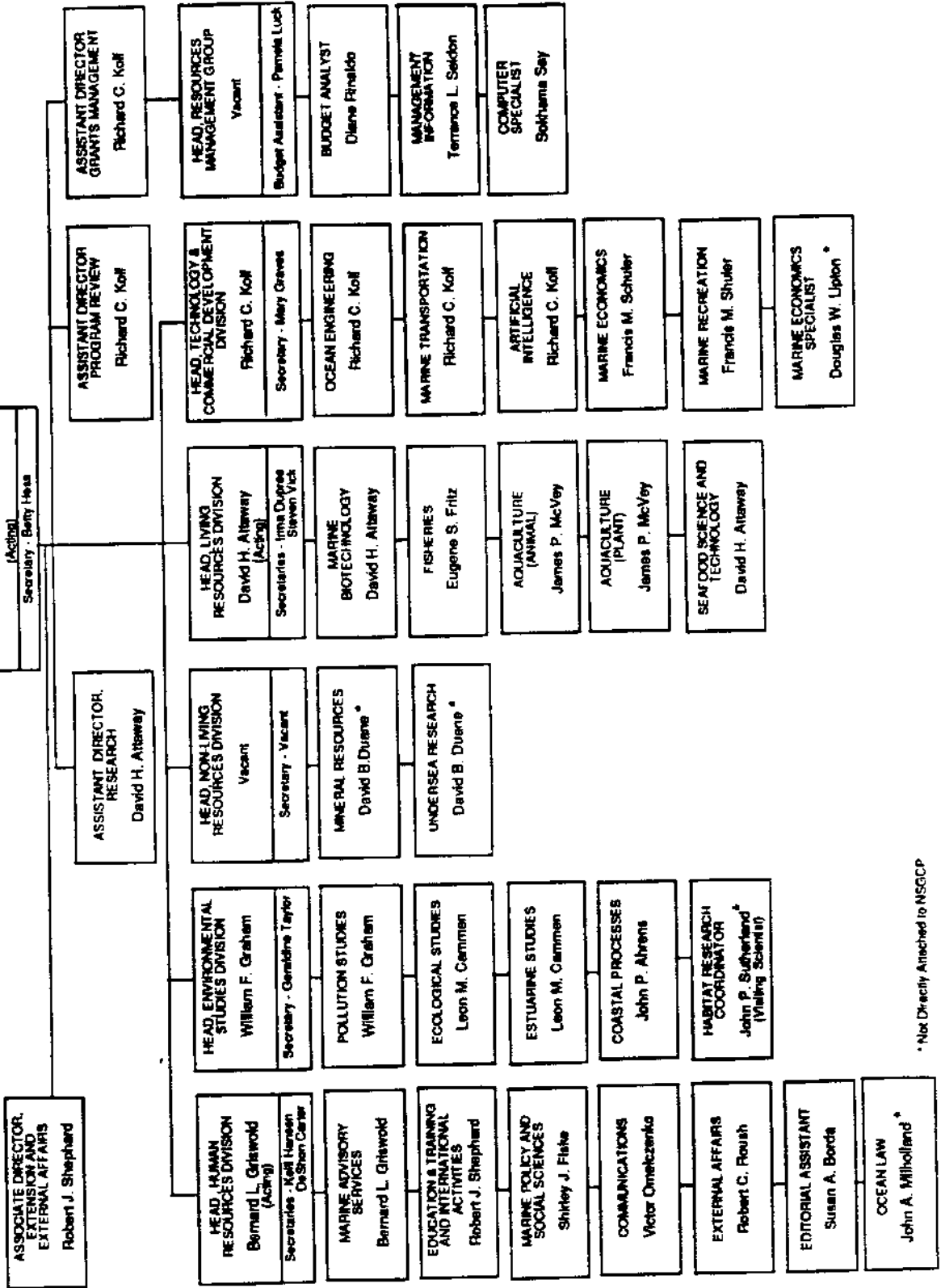
The Office of Oceanic Research Programs

Twenty years ago, the National Oceanic and Atmospheric Administration (NOAA) was created as an agency within the Department of Commerce to improve the nation's understanding, management and conservation of marine and atmospheric resources. Within NOAA is the Office of Oceanic and Atmospheric Research (OAR) which conducts environmental research at numerous federal laboratories and supports university research on national and global problems of the oceans and atmosphere. OAR is home to the Office of Oceanic Research Programs (ORP).

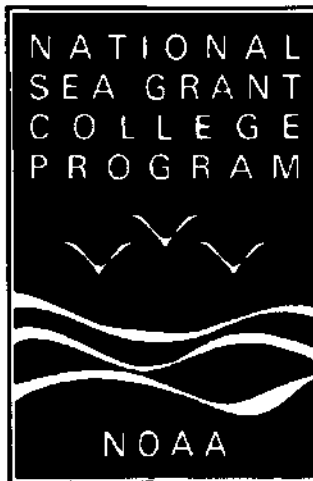
The Office of Oceanic Research Programs is made up of the National Sea Grant College Program, the National Undersea Research Program, and the National Coastal Resources Research and Development Institute. These three programs are diverse yet complementary in their efforts to preserve, develop and wisely use our nation's marine and Great Lakes resources: Sea Grant through university-based research, education and training, and advisory/extension services; Undersea Research through *in situ* investigations in the oceans and large lakes of the world; and the Coastal Resources and Development Institute through its work with rural communities along the coastlines of the United States.

This directory lists the national staff members of these three programs plus the Sea Grant Review Panel, the advisory board to NOAA Sea Grant.

NATIONAL SEA GRANT OFFICE



* Not Directly Attached to NSGCP



The National Sea Grant College Program

The National Sea Grant College Program was conceived as a unique plan to develop and wisely use our nation's marine and Great Lakes resources through university-based research, education and training, and advisory/extension services. At the birth of the program, in 1966, the name "Sea Grant" was chosen to show its relationship to the century-old "Land Grant" program — to point out how the present needs of the nation in the marine environment compare to the needs of the 1860's for developing the nation's agricultural lands.

The Office of Sea Grant, within the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), administers the National Sea Grant College Program. Through a matching fund program, the office provides financial grants-in-aid to colleges, universities and other institutions conducting research and educational projects on marine resources. The Office of Sea Grant receives research and educational proposals that undergo a thorough review, including a site visit by a team of experts. Funds for projects come from federal appropriations as well as from non-federal sources including colleges and universities, private industry, state agencies and legislatures, consumer interest groups, private foundations and individuals.

The core of the National Sea Grant College Program is comprised of 29 Sea Grant Colleges and institutions which encompass a wide network of over 300 other participating universities and marine organizations throughout the nation. Since most marine-resource problems are multifaceted, Sea Grant uses this network of multidisciplinary talent to address identified goals.

Today, Sea Grant's activities cover a wide spectrum of ocean programs that address national priorities. To mention a few, Sea Grant is the principal national source of research and technology transfer for marine aquaculture and marine biotechnology. It is a major source of research and expertise in the areas of fisheries recruitment; underutilized fish species; seafood product improvement, quality and safety; estuarine processes; critical habitat; coastal processes; ocean technology; marine policy; and the fates and effects of toxic pollutants (particularly in the Great Lakes). Sea Grant's Marine Advisory Service is the nation's only marine technology transfer mechanism linking scientists with the users of the nation's marine resources and with other groups concerned with marine issues. And Sea Grant's support of education and training ensures a cadre of professionals trained to solve ocean, Great Lakes and coastal water problems.

The information obtained through Sea Grant assistance has already proved of great benefit to the persons who make use of the seas and oceans. In the future, the program will play an even more important role in helping those individuals who must make decisions about the future use of our marine resources.

National Sea Grant College Office Subject Area and Administrative Assignments

John P. Ahrens

Coastal Processes
Physical Oceanography
NOAA's Coastal Ocean Processes Physical Impact, Observation and
Predictions Program (for NOAA/Office of Oceanic & Atmospheric
Research [OAR])
National Science Foundation Coastal Ocean Processes Program (for
NOAA/OAR)

David H. Attaway

Marine Biotechnology
Seafood Science and Technology
Strategic Research Program
Management by Objective
Revised Procedures for Review of Sea Grant Proposals

David B. Duane

Marine Mineral Resources, Undersea Research
Venting, Ridgecrests, et al. (for NOAA/OAR)
EEZ Coordination (for NOAA/OAR)

Leon M. Cammen

Marine Ecology
Biological Oceanography
Chesapeake Bay Toxics and Hypoxia Programs
National Ocean Pollution Policy Office Ecological Monitoring
Work Group
Technical Advisory Committee - Environmental Protection Agency,
Gulf of Mexico Program

Shirley J. Fiske

Marine and Coastal Policy, Social Sciences
Marine Affairs and Resources Management
Committee on Arctic Social Sciences (Interagency Research
Policy Committee)
Coastal Policy and Management Team (NOAA Coastal Ocean Program)
Human Dimensions of Global Change Task Force (Committee on Earth
and Environmental Sciences)

Eugene S. Fritz

Fisheries Science
Recruitment Fisheries Oceanography (with NOAA)
Marine Mammals
Sea Grant Retreat and Annual Report
Liaison with Pacific International Council for Exploration of the Seas
(PISCES)
Co-chairman, Coastal Fisheries Ecosystem Theme of NOAA's Coastal
Ocean Program
Representative to Ecosystem Response Program of NOAA's Global
Climate Change Program (for NOAA/OAR)

William F. Graham

Environmental Quality
Marine Chemistry
Marine Pollution
OAR Representative for NOAA Coastal Ocean Program
Program Office Task Force
Member, Program Management for Coastal Ocean Habitat and
Nutrient Programs

Bernard L. Griswold

Marine Advisory Services
Great Lakes Programs (Interagency & NOAA)
Marine Debris/Plastic Pollution (with NOAA)
Global Change Education (Interagency)
Coastal Ocean Program Information Dissemination (NOAA)
Sea Grant Fellows Program Alternate Monitor

Richard C. Kolf

Grants Management and Information Systems
Ocean Engineering, Marine Transportation, Artificial Intelligence
Monitoring Assignments, Events Calendar
Sea Grant College Designation and Recertification
Annual Guidance Document and Long Range Plans
Small Business Innovation Research
National Coastal Resources Research and Development Institute Monitor
Liaison with the Navy

James P. McVey

Animal and Plant Aquaculture, Artificial Reefs, Coral Reef Ecology
Liaison with USDA, Department of Interior, et al. on Aquaculture
Technical Assistance to NURP on Aquaculture
Technical Exchange with Japan and China on Aquaculture
Serve on Joint Committee for Aquaculture Resources Development
Serve on United States/Japan Committee on Natural Resources

Victor Omelczenko

Technical Communications
Liaison with NOAA Public and Constituent Affairs
Sea Grant Depository
Sea Grant Abstracts quarterly
Exhibits and Displays
NOAA Habitat Restoration Committee (for OAR)

Robert C. Roush

Marine Advisory Services
OAR Liaison with Office of NOAA Corps Operations
Ship Operations
Vessel Safety
Assistance to Coastal Processes and Non-living
Marine Resources
Sea Grant Directory

Francis M. Schuler

Marine Economics
Marine Recreation and Tourism
Sea Grant Procedures Manual ("Green Book")
Liaison on Economics with Sport Fishing Institute, American
Fisheries Society, NOAA/NMFS

Robert J. Shephard

Acting Deputy Director
Education and Training
Sea Grant Fellows
Sea Grant Review Panel
Liaison with Council of Sea Grant Directors
Liaison with Sea Grant Association
Technical Liaison for Legislative Affairs
Liaison with all NOAA Line Offices for Outreach Programs

John P. Sutherland

· Research Coordinator - Coastal Ocean Program Habitat Investigations
Scientific Advisory Committee - Habitat Investigations
National Ocean Policy Program Office Habitat Loss Work Group
NOAA Habitat Strategy Team

Robert D. Wildman

Liaison with Council of Sea Grant Directors
Marine Resources and Engineering Coordination Committee of US/Japan
Natural Resources Program
NOAA Marine Program Modernization
NOAA Human Capital Development

Staff Monitoring and Site Visit Assignments

<u>Program</u>	<u>Monitor</u>	<u>Associate</u>
Alaska	McVey	Graham
California	Kolf	Cammen
Connecticut	Fritz	Shephard
Delaware	Shephard	Fiske
Florida	McVey	Graham
Georgia	Fiske	McVey
Hawaii	Griswold	Attaway
Illinois-Indiana	Roush	Shephard
Louisiana	Graham	Cammen
Maine-New Hampshire	Fritz	Kolf
Maryland	Omelczenko	Griswold
Michigan	Griswold	Attaway
Minnesota	McVey	Fritz
Mississippi-Alabama	Attaway	Omelczenko
MIT	Attaway	Ahrens
New Jersey	Kolf	Fiske
New York	Attaway	Fiske
North Carolina	Graham	McVey
Ohio	Fritz	Kolf
Oregon	Kolf	Ahrens
Puerto Rico	Fiske	Shephard
Rhode Island	Fiske	Griswold
South Carolina	McVey	Attaway
Southern California	Kolf	Cammen
Texas	Fritz	Attaway
Virginia	Graham	McVey
Washington	Fiske	Fritz
Wisconsin	Griswold	Roush
Woods Hole	Attaway	Ahrens

John P. Ahrens

Program Director for Coastal Processes

Mr. John Ahrens is a physical scientist who joined the National Sea Grant Office in August 1990. As Program Director for Coastal Processes, he is responsible for ensuring the relevance, quality and timeliness of Sea Grant research projects in coastal processes and coastal engineering. In addition, he participates in the physical oceanographic and physical impacts portions of NOAA's Coastal Ocean Program.

Mr. Ahrens started his professional career with the federal government in 1965 as an oceanographer for the Army Corps of Engineers' Coastal Engineering Research Center (CERC). During 25 years of service with CERC, he conducted extensive research on the design of coastal structures and the response of the shoreline to wave action. He is the author of numerous papers, reports, and articles relating to the design of coastal structures.

Mr. Ahrens received a B.S. in physics from Marietta College (Ohio) in 1962 and an M.S. in physical oceanography from Texas A&M in 1965. In 1968, he received a diploma in hydraulic engineering from the International School in Delft, the Netherlands. Mr. Ahrens is a member of the American Society of Civil Engineers, American Geophysical Union, American Shore and Beach Preservation Association, and American Association for the Advancement of Science.

David H. Attaway

Assistant Director for Research and

Program Director for Biotechnology and Seafood Science

Dr. David Attaway's goals are to: (1) be highly informed about problems and opportunities in research that will contribute to enhancing the seafood processing industry and to developing biotechnology based on marine resources; (2) communicate these problems and opportunities to the academic community so that projects of excellence in research that will advance both technology and marine science are proposed; (3) encourage inter-institutional and cross-disciplinary research and industrial collaboration in these projects where desirable; and (4) assess benefits and accomplishment in ongoing and completed research. In addition to addressing these goals, Dr. Attaway monitors four state or regional Sea Grant College programs and assists in management of the National Sea Grant College Program; he serves on the senior staff and has major responsibility for strategic research and for management by objective.

Dr. Attaway has been with the National Sea Grant Office since 1972. During that time, he spent a year as a Congressional fellow working with the U.S. House of Representatives Committee on Science and Technology. Prior to joining Sea Grant, Dr. Attaway participated in chemical oceanographic research on petroleum pollution with the U.S. Coast Guard in Washington, D.C., and he supervised the geochemistry section and organic geochemical research on oil shales with the State Geological Survey at the University of Kansas. While a postdoctoral fellow with the Marine Sciences Institute of the University of Texas, Dr. Attaway conducted organic geochemical research on marine sediments and studied steroids and hydrocarbons in marine plants and animals. With the U.S. Naval Oceanographic Office in Washington, D.C., Dr. Attaway did physical oceanographic studies of coastal areas and development work on *in situ* measurement of oceanic radioisotopes.

Dr. Attaway received his B.S. in chemistry and his Ph.D. in chemistry (biochemistry major) from the University of Oklahoma. His postgraduate biochemical research was on natural organic toxins in tropical marine invertebrates.

Examples of Dr. Attaway's publications are: Attaway, D.H., 1989. Biotechnology in the National Sea Grant College Program: Status and Opportunities, in *Current Topics in Marine Biotechnology*, S. Miachi, I. Karube, & Y. Ishida (Eds.), Japanese Society for Marine Biotechnology, Tokyo, pp. 37-40; Strategic Marine Research: New Sea Grant Initiative, *Sea Technology* 30, 33-34.

Dr. Attaway is a member of several honorary and professional societies, including the American Chemical Society, American Association for the Advancement of Science, Marine Technology Society, Institute of Food Technologists, and American Geophysical Union.

Susan A. Borda

Editorial Assistant

Mrs. Susan Borda is the editorial assistant for the National Sea Grant Office. She assists the public affairs specialist with communication projects to inform the public, private sector, and other government agencies about Sea Grant research, education and training, and advisory and extension activities. Currently, she is involved in developing desktop publishing capabilities in the National Office. Prior to joining Sea Grant in 1988, Mrs. Borda was a meeting consultant to the Association of General Merchandise Chains.

Mrs. Borda graduated from the University of Colorado in Boulder with a B.S. in secondary education. After graduation, she taught ninth-grade English at Meritt Hutton High School in Thornton, Colorado. Before that, she worked for the *Times-Democrat* newspaper in Davenport, Iowa.

Leon M. Cammen

Program Director for Environmental Studies

Dr. Leon M. Cammen is responsible for research in the areas of marine ecology, estuarine studies and marine pollution. He oversees the evaluation of Sea Grant proposals in these subject areas and the coordination of Sea Grant environmental research with the actions of other agencies and organizations. Dr. Cammen is also closely involved with NOAA's Chesapeake Bay Toxics Program as well as NOAA's Coastal Ocean Program.

Prior to joining Sea Grant in 1990, Dr. Cammen was a research scientist at Bigelow Laboratory for Ocean Sciences in Boothbay Harbor, Maine. His research interests while at Bigelow included benthic ecology, the "microbial loop," respiratory physiology, benthic-pelagic coupling, and ecosystem modeling. He also served on the board of the Association for Research in the Gulf of Maine, a regional consortium of research organizations.

Dr. Cammen received his B.S. from Brown University and M.S. and Ph.D. degrees in Zoology from North Carolina State University. His postdoctoral research was done at the Bedford Institute of Oceanography, the Institute of Ecology and Genetics of Aarhus University in Denmark, and at Skidaway Institute of Oceanography. In addition, he has been a visiting scientist at Odense University in Denmark and a visiting professor at Aarhus University.

A member of the Estuarine Research Federation, the American Society of Limnology and Oceanography, the American Association for the Advancement of Science, and the International Association of Meiobenthologists, Dr. Cammen has authored over 30 publications in the fields of marine ecology and biological oceanography.

Shirley J. Fiske

Program Director for Marine Policy and Social Science

Dr. Shirley Fiske is a cultural anthropologist with the National Sea Grant Office. As Program Director for Marine Policy and Social Science, her goal is to focus the attention of the social and policy sciences on issues of marine resource use and development. This commitment stems from the conviction that developments in marine ecology and technology ultimately derive from or become human and policy issues as well. Too often, we fail to use the theories and methods from the social and policy sciences to influence our actions in these areas.

Prior to joining Sea Grant in 1986, Dr. Fiske was senior policy analyst with the Office of Policy and Planning at NOAA. Earlier, she held faculty positions at the Los Angeles and Washington, D.C., campuses of the University of Southern California's School of Public Administration. She was chosen in 1981 to be faculty fellow for the National Association of Schools of Public Affairs and Administration. Dr. Fiske received her undergraduate degree from the University of California/Davis and her Ph.D. from Stanford University in 1975.

Dr. Fiske recently co-edited with Francis Schuler a special issue of *Ocean and Shoreline Management* that brings a cross-disciplinary social science perspective to understanding our responses to change in marine resources (April 1990). She has co-authored *Anthropological Praxis: Translating Knowledge into Action* (1987: Westview Press) which highlights the work of anthropologists solving public and private sector problems outside of academia. She has published articles on fisheries literature, cognition and sociolinguistics, and contemporary American culture and has done field work in Mexico and the United States.

Dr. Fiske is president-elect of the National Association for Practicing Anthropology, the fourth-largest unit of the AAA, and the only unit oriented to developing a professional arm of anthropology. She has been president of the Washington Association of Professional Anthropology, and is on the executive boards of the Society for Applied Anthropology and the Coastal Society. In addition, she serves on the editorial board of *Public Administration Review*, the journal of the American Society for Public Administration.

Eugene S. "Gene" Fritz

Program Director for Fisheries

Dr. Eugene Fritz is the National Sea Grant Office's fisheries specialist. As the manager of its fisheries program, he is responsible for research activities in fisheries biology, management and technology. He is also responsible for OAR and Sea Grant research activities associated with recruitment fisheries oceanography and is the co-chair for the coastal fishery ecosystem theme area of NOAA's Coastal Ocean Program. Since coming to Sea Grant, he has emphasized research on improving man's ability to accurately predict the abundance of fishery resources. This emphasis is based on recognition that many existing forecasting methods are inadequate, particularly in regard to long-time scales and radical population changes. Present inadequacies undermine commonly used fishery management schemes and exacerbate the dislocations so characteristic of fisheries.

Before coming to Sea Grant in 1981, Dr. Fritz was employed by the Department of Interior's U.S. Fish and Wildlife Service, first as a research fisheries biologist at the Great Lakes Fisheries Laboratory and later as an aquatic ecologist with the Office of Biological Services. He began his federal employment as a fisheries biologist with NOAA's National Marine Fisheries Service. Dr. Fritz earned a Bachelor's degree at Boston University; a Master's at California State College, Long Beach; and a Ph.D. at Dalhousie University, Halifax, Nova Scotia. He also was a postdoctoral fellow at the University of Delaware.

Dr. Fritz served as editor-in-chief of the international fisheries journal, *Fisheries Research*, during its start-up period. He has managed or conducted research programs on impact assessment of electric power plants, acid precipitation, and coastal wetland functions and modifications. He has also published articles on proper techniques for studying complex ecological issues. Dr. Fritz also is a member of both the American Fisheries Society and the Canadian Society of Zoologists.

William F. Graham

Head, Environmental Studies Division

Dr. William Graham is a chemical oceanographer with the National Sea Grant Office. As the Head of the Environmental Studies Division, Dr. Graham oversees the Division's activities in the areas of marine ecology, marine pollution, and estuarine studies. He also serves as the National Office's representative for NOAA's Coastal Ocean Program. Prior to his current assignment, Dr. Graham served as Associate Program Director for Environmental Studies. In 1982-83, Dr. Graham was selected by the Commerce Department to serve as a fellow on the staff of the Science and Technology Committee of the U.S. House of Representatives. During his fellowship, Dr. Graham worked on issues relating to the National Science Foundation, science education, biotechnology, and Arctic research.

Before joining Sea Grant in 1977, Dr. Graham was associated for five years with the Graduate School of Oceanography at the University of Rhode Island (URI), where he received his Ph.D. in chemical oceanography. He conducted research into the phosphate chemistry of the marine atmosphere and developed the first complete atmospheric cycle for the element phosphorous. During 1958-1972, he was a process development project engineer and subsequently a group leader with the Procter and Gamble Company. He and his groups were responsible for the development of new detergent products and the start-up of new manufacturing operations worldwide.

Dr. Graham is a member of the American Association for the Advancement of Science, the American Chemical Society, the American Geophysical Union, the Estuarine Research Federation, and Toastmasters. He has been elected into the Sigma Tau, Tau Beta Pi, and Phi Lambda Upsilon Honorary societies, is a URI fellow, and has received the Corliss Prize in Chemical Oceanography at URI.

Bernard L. "Bud" Griswold

*Acting Head, Human Resources Division and
Program Director for Marine Advisory Service*

As Acting Head of the Human Resources Division, Dr. Bernard Griswold is broadly responsible for Sea Grant's outreach functions including education and training, communications, marine policy and social sciences, and marine law. Trained as a fishery scientist, he provides national support and guidance to Sea Grant Marine Advisory Service and administers the development of NOAA research activities in the Great Lakes. Dr. Griswold's research background, centered on questions related to practical fishery science, has been motivated by his interest in addressing real management needs which have resource management application. He carries this philosophy forward in his work with the Sea Grant Marine Advisory Service where research applications are made available to users through education and technology transfer.

Dr. Griswold received a B.S. in fish and wildlife management from Iowa State University, an M.S. in zoology from the University of Maine, and a Ph.D. in fisheries science from the University of Minnesota. He began his career as a fishery research biologist for the National Marine Fisheries Service in Woods Hole, Massachusetts. From there, he moved to Ohio State University as leader of the Ohio Cooperative Fishery Research Unit, part of a unique partnership among the U.S. Fish and Wildlife Service (USFWS), universities around the country, and state fishery management agencies. While a federal employee at Ohio State, Dr. Griswold was still a bonafide member of the graduate faculty at the associate professor level. After seven years at Ohio State, he assumed the position of national leadership for the Fishery Research Unit Program in Washington, D.C. He then became director of the USFWS' Great Lakes Fishery Laboratory in Ann Arbor, Michigan, before returning to Washington, D.C., to join Sea Grant.

Dr. Griswold has received agency awards and recognition for his research management leadership. He has been involved in several committees and task forces related to research and management policy and was technical adviser to the 10th Michigan U.S. District Court on issues related to Indian treaty fishing rights in the Great Lakes. His research, which has been published regularly, has centered primarily on questions related to the health and well-being of fish populations, and on mechanisms, both natural and man induced, which control that well-being.

Richard C. Kolf

Assistant Director for Program Review

*Head, Technology and Commercial Development Division
and Assistant Director for Grants Management*

Dr. Richard Kolf received his B.S., M.S., and Ph.D. degrees in civil engineering from the University of Wisconsin. As a graduate student, he was a member of the hydraulics and sanitary engineering group at the university, where he developed his interest in safe and environmentally sound resource development.

Prior to his federal career, Dr. Kolf served on the faculties of the University of Wisconsin, Marquette University, and Loyola University of Los Angeles where he was Dean of the College of Engineering. He came to Washington, D.C., in 1968 as program director for undergraduate instructional programs at the National Science Foundation. Two years later, he transferred to the Office of Interdisciplinary Research at the National Science Foundation, and shortly thereafter to the Division of Environmental Systems. The objective of these moves was to pursue his growing interest in interdisciplinary solutions to complex societal problems.

Dr. Kolf joined the staff of the National Sea Grant Office in 1974. As Assistant Director for Grants Management, he is responsible for the office's administrative functions: including grants processing, budget and fiscal administration, management information system operation, and general office procedures. His duties include implementation of uniform review procedures within the office, and oversight of ocean engineering and marine transportation studies. During the academic year 1983-84, he was on leave of absence as visiting professor of ocean engineering at the Massachusetts Institute of Technology. Recent activities include a term on the board of directors of the American Society for Engineering Education, and two publications, *Sewage Related Wastes and Oceans - a Problem?* and *Predicting Marine Soil Strength*.

Douglas W. Lipton*Marine Economics Specialist*

Dr. Douglas W. Lipton will be working in the National Office for nine months until July of 1991 as a Marine Economics Specialist. A Class of 1979 Sea Grant Fellow, he holds a joint appointment with the University of Maryland's Department of Agriculture and Resource Economics and the Maryland Sea Grant Extension Program.

Before his joint assignment in 1988, Mr. Lipton held positions with NOAA's National Marine Fisheries Service: as a fishery biologist with the Office of Science and Environment and the Office of Resource Investigations, and as an economist with the National Economics Program.

Dr. Lipton received his B.S. degree from SUNY at Stony Brook, and his M.S. from the Virginia Institute of Marine Science (College of William and Mary), where as a research assistant he worked on an anadromous fish project. He received his Ph.D. in resource economics from the University of Maryland.

James P. McVey

Program Director for Animal and Plant Aquaculture

Dr. James P. McVey is a fisheries biologist with the National Sea Grant Office. As Program Director for Aquaculture, he is responsible for managing the office's aquaculture research program and for maintaining coordination with other federal and state agencies regarding their aquaculture programs. Dr. McVey is also active in developing research and developmental programs for the Pacific Islands and in working with other countries to develop technical exchange in aquaculture.

Prior to joining the Sea Grant Program in 1984, Dr. McVey received his B.S. degree from the University of Miami and his Master's and Ph.D. from the University of Hawaii. He then served seven years as the fisheries biologist for the Trust Territory of the Pacific where he designed and managed a major marine science research center on the island of Palau. The center specialized in aquaculture of marine fish, giant clams, freshwater shrimp, and tropical oysters. He then spent five years at the Galveston laboratory of the National Marine Fisheries Service as aquaculture division chief for the Southeastern United States. This assignment provided further experience in marine fish culture and marine shrimp culture. He then was chosen by U.S. AID to participate in a development project for freshwater shrimp hatcheries on the island of Java in Indonesia. After two years in Indonesia, he accepted his present position with Sea Grant. Dr. McVey has worked with the International Executive Service Corps as a volunteer in Panama and Egypt.

Dr. McVey has published over 30 scientific and popular articles and a best selling book on crustacean culture which he is revising for the CRC Press, Inc. A second book for CRC on marine fish culture is now complete. Dr. McVey was also final editor for a CRC volume on mollusk culture.

Since joining Sea Grant, Dr. McVey has served on the Joint Federal Subcommittee for Aquaculture, the Joint Committee for Aquacultural Resources Development, U.S. Japan Committee on Natural Resources (Aquaculture Program Chairman), and Small Business Innovative Research review committees for USDA, NSF, and DOC. He has represented DOC on a fact-finding trip to Micronesia and represented NOAA at professional meetings around the country and internationally pertaining to aquaculture. Recently, he was elected to the Board of Directors of the World Aquaculture Society. He presently serves as DOC liaison to the Aquaculture Panel for the Marine Board of the National Academy of Science and is involved in the planning and coordinating of a major effort to reestablish the East Coast oyster industry.

John A. Milholland

Senior Counsellor, NOAA Office of General Counsel

Mr. John Milholland is the legal advisor to the National Sea Grant Office. He is responsible for monitoring the direction and quality of individual legal programs at Sea Grant institutions as well as for advising the National Office on legal issues connected with its administration of the program as a whole. He also advises NOAA's Office of Oceanic and Atmospheric Research and the National Environmental Satellite, Data, and Information Service.

Mr. Milholland has worked in the General Counsel's Office since 1975, primarily in the area of coastal zone management. He was responsible for reviewing and approving many of the state coastal zone programs submitted for federal approval and for defending the program from legal attack during the formative years of implementation. He was also responsible for developing the legal framework for the marine sanctuary program during this period.

Prior to coming to NOAA, he was engaged in private practice with Thacher, Proffitt, Prizer, Crawley & Wood, in New York City, particularly in the area of admiralty, and with FitzPatrick, Bennett, and Trombley in Elizabethtown, New York, where he specialized in land use law and was the town attorney.

Mr. Milholland received his B.A. from Williams College and his LL.B. from Columbia University. In 1975, he received an LL.M. in law and marine affairs at the University of Washington. This program stressed the importance of an interdisciplinary approach to marine issues, an approach Mr. Milholland has followed at NOAA and particularly at Sea Grant. A major interest at Sea Grant at this time is investigating the extent to which the legal structure in various states may be holding back the development of the aquaculture industry.

Victor Omelczenko

Program Director for Communications

Mr. Victor Omelczenko is the public affairs specialist for the National Sea Grant Office where he manages the technical communications program. This program supports projects that disseminate the results of Sea Grant research, education and training, and advisory/extension efforts. He is also monitor for both the National Sea Grant Depository, the network's archive and lending library, and for the quarterly *Sea Grant Abstracts*, a nationally-distributed document that provides abstracts of all Sea Grant-generated publications. In addition, he serves as liaison with public affairs offices at other federal agencies and coordinates displays and exhibits at events and conferences such as Sea Grant Week, Earth Day, MTS '90, and Coastal Zone '91. He now also serves as OAR's representative to NOAA's Habitat Restoration Committee.

Mr. Omelczenko's efforts are aimed at providing both the public and private sectors with useful information resulting from Sea Grant projects that foster the wise use and development of the nation's ocean and Great Lakes resources. Before joining Sea Grant in March 1984, he held public affairs positions with the U.S. Department of Agriculture's Food and Nutrition Service in Chicago (1978-84) and with the National Endowment for the Humanities in Washington, D.C., (1975-78). A 1972 journalism graduate of the University of Michigan, Mr. Omelczenko has also worked as a general assignment writer at *Nation's Business* and *Popular Science* magazines.

Diane Rinaldo

Budget Analyst

Mrs. Diane Rinaldo is the budget analyst with the National Sea Grant Office. She is responsible for reviewing, monitoring and tracking the grants and supporting financial obligations of the National Sea Grant College Program and the National Undersea Research Program. Currently, Mrs. Rinaldo has assumed the responsibilities of the Chief for Resources Management until the position is filled.

Prior to joining Sea Grant, Mrs. Rinaldo was a program assistant with the National Advisory Committee on Oceans and Atmosphere where she researched and wrote issue papers on acid rain, nuclear winter, and operational satellites.

Mrs. Rinaldo is a native Washingtonian. She is an active member of the Montgomery County PTA and has participated in many fund raisers for education and charities.

Robert C. Roush

Deputy Director for Marine Advisory Services

As Deputy Director for Marine Advisory Services in the National Sea Grant Office, Captain Robert Roush reviews Sea Grant MAS proposals and is involved in external/constituent affairs. He also provides liaison with other NOAA line offices and assists Sea Grant researchers in acquiring shiptime on NOAA vessels. Sea Grant programs concerning vessel safety are of special interest to him.

Captain Roush has over 20 years of work experience as a commissioned officer in the NOAA Corps, eight of which have been spent at sea. Prior to his assignment to Sea Grant in September 1988, he was executive officer on the NOAA ship *Mt. Mitchell* conducting hydrographic surveys in southeast Alaska and the Gulf of Mexico. He served as commanding officer of *Townsend Cromwell* conducting marine fisheries investigations and other oceanographic research in waters off the northwest Hawaiian Islands, southern California, Mexico, Guam, and the northern Marianas Islands. He also commanded *Murre II* in support of fisheries projects throughout southeast Alaska. As operations officer on *Surveyor*, he facilitated the accomplishment of multidisciplinary field projects sponsored by NOAA's Outer Shelf Environmental Assessment Program in the Gulf of Alaska, Bering Sea and Chukchi Sea. His first sea assignment was on *Pathfinder*, conducting hydrographic surveys in Hawaii and Alaska.

Ashore, Captain Roush served as chief of the program planning group at NOAA's Pacific Marine Center (PMC) ship base in Seattle, Washington. By providing liaison between the fleet and prospective vessel users, the planning group sought to ensure the most effective and efficient utilization of shiptime resources. He was staff member of both the New York Bight and Puget Sound Project Offices of the Marine Ecosystems Analysis (MESA) program. Both projects provided an understanding of the regional marine ecosystems and of the impact of multiple and often conflicting uses of the resources of those ecosystems. Earlier in his NOAA career as a member of the marine geology and geophysics mapping group, Captain Roush collected and reduced marine geophysical data from the west coast continental margin for use in a series of bathymetric, geological and geophysical maps published by NOAA.

Because of his involvement administratively and operationally in a wide variety of NOS, OAR and NMFS programs within NOAA, Captain Roush considers himself to be a "generalist" within the organization. Before joining the NOAA Corps, Captain Roush received his B.A. degree with a geology major from Monmouth College (Illinois) and his M.S. degree in geological oceanography from Oregon State University.

Sokhama Say

Computer Specialist

Miss Sokhama Say is a computer specialist in the Grants Management Division. She is responsible for facilitating the operation of the Sea Grant Network Information System by editing and updating the database and generating custom reports when requested. Her duties include developing a desktop publishing work station and responding to computer problems in the National Office.

Before coming to Sea Grant, Miss Say worked for the Vitro Corporation as a data processing assistant where she was involved with projects requiring data processing services utilizing both IBM mainframe and networked personal computers. Prior to her job at Vitro Corporation, she worked for Calculon Corporation as a technical assistant. Her duties there included maintaining a computerized database of energy-related information photographic images of Department of Energy sponsored projects.

Miss Say received her A.A. degree from Anne Arundel Community College. She also has a certificate as a data processing computer specialist from Yorktowne Business Institute.

Francis M. Schuler

*Program Director for Marine Economics and for
Marine Recreation and Tourism*

Dr. Francis Schuler is an economist in the National Sea Grant Office. He administers the marine economics program which supports research to advance the development of marine resource-based industries and to promote the efficient allocation of marine resources. He also directs the marine recreation and tourism program where research is focused on the goal of increasing the opportunities available for participation in coastal recreation.

Before joining Sea Grant in 1978, Dr. Schuler served as staff economist for NOAA's Office of Policy and Planning and for NOAA's Office of Marine Resources. He conducted economic and policy analysis for the implementation of the Fisheries Conservation and Management Act and for the seabed mining and living marine resource provisions of the Law of the Sea treaty negotiations.

Dr. Schuler received a B.A. degree in economics from Catholic University in 1967 and a Ph.D. degree in resource economics from the University of Rhode Island in 1974. He is a member of several professional groups, including the American Economics Association and the Association of Environmental and Resource Economists. He chairs the annual meeting of marine economists held in conjunction with the American Agricultural Economics Association. Dr. Schuler has written on the use of economic incentives to allocate fish stocks and on the economics of marine recreation. He recently co-edited with Shirley Fiske a special issue of *Ocean and Shoreline Management* that brings a cross-disciplinary social science perspective to understanding our responses to change in marine resources (April 1990).

Dr. Schuler, as part of a Department of Commerce Science and Technology Fellowship, is on assignment to the staff of the House Committee on Science, Space, and Technology. He will be working as a special assistant to Staff Director Robert Palmer until July 1991.

Terrance L. "Terry" Seldon

*Chief of Information Resource Management and
Management Information Systems Coordinator*

As the Chief of Information Resource Management, Mr. Terrance Seldon is responsible for database management systems and all aspects of computer service and support for the National Sea Grant Office. As Management Information Systems Coordinator, he represents Sea Grant on several committees for the exchange of publication information and is the technical reference for automatic data processing procurements of the Office of Oceanic and Atmospheric Research. Mr. Seldon has over ten years experience in automatic data processing, five involving data and voice communications and database design and development.

Prior to joining Sea Grant in 1989, Mr. Seldon was involved in the development and management of four computer companies, including his own. One of the companies he managed built the litigation database for the AT&T divestiture and the factual database for listings on the Vietnam Memorial in Washington, D.C.

For seven years, Mr. Seldon worked for the Department of Treasury where he assisted in developing seven optical character reader treasury sites. While at Treasury, he also helped develop a data processing system to track disbursement of the federal government payroll.

Mr. Seldon has attended Montgomery College, the University of the District of Columbia and George Washington University.

Robert J. Shephard

*Acting Deputy Director and
Associate Director for Extension and External Affairs*

Mr. Robert Shephard is a marine and electrical engineer with the National Sea Grant Office. As Associate Director for Extension and Extramural Affairs, he is responsible for technically interfacing with NOAA, DOC, Congress, other agencies, associations, and industry to ensure that the Sea Grant Program is fulfilling its mandated role.

Since January 1989, Mr. Shephard has served as Acting Deputy Director of the National Sea Grant Office. In that capacity, he participates in policy decisions concerning the National Office and, when required, assumes the duties of Acting Director.

Prior to joining Sea Grant in 1975, Mr. Shephard spent 20 years in the private sector associated with Westinghouse Electric Corporation, Trident Engineering Associates and Quanta Systems Corporation. He served as president of Quanta's wholly-owned subsidiary, Washington Technological Associates.

Mr. Shephard received his undergraduate degree from Massachusetts Maritime Academy in 1954 and served in the U.S. Navy aboard a destroyer as engineering officer. He also served for two years as an industry staff member for the President's Commission on Marine Science Engineering and Research. This commission addressed the state of oceanography in the United States and set forth recommendations for a more uniform implementation of set goals. As a result of this commission, NOAA was formed in 1970.

During his tenure in the National Sea Grant Office, he has been competitively awarded a LEGIS Fellowship to Congress and served in the Office of Senator Claiborne Pell as a legislative aide focusing on marine affairs and education.

John P. Sutherland

Habitat Research Coordinator

Dr. John Sutherland is a marine benthic ecologist with the National Sea Grant Office. He is the coordinator of the Coastal Ocean Program's Estuarine Habitat Program and is helping develop the NOAA Strategic Plan for Coastal Habitat Conservation.

Dr. Sutherland is on sabbatical from Duke University where he is a professor of zoology (marine ecology) teaching courses in biological oceanography and marine ecology at the Marine Laboratory in Beaufort, North Carolina. Before joining Duke University in 1969, Dr. Sutherland received his B.S. at the University of Washington in 1964 and his Ph.D. at the University of California, Berkeley, in 1969. He has served as a panelist for the National Science Foundation (Biological Oceanography 1973-1975; Science and Engineering Education 1989), as a reviewer for scientific journals and granting agencies, and as an editor for *Ecology/Ecological Monographs* (1982-1986). Currently, he is serving on the Discipline Advisory Committee for Life Sciences of the Fulbright Scholar Program and is also a member of the Ecological Society of America.

Until 1980, Dr. Sutherland's research focused on processes regulating the structure, organization and stability of subtidal epibenthic (fouling) communities. More recently, he has studied recruitment limitation and demographic variation in barnacle populations on tropical, rocky shores. During the past 15 years, he has spent sabbatical years in Venezuela (1976) and Costa Rica (1983), and has also worked in Brazil and Chile.

Robert D. Wildman

*Director, Office of Oceanic Research Programs
and the National Sea Grant College Program*

Mr. Wildman began his government career with the U.S. Atomic Energy Commission (AEC) in 1960. He served in several positions with the AEC's Richland, Washington, office. He then joined the newly created Office of Sea Grant Programs in the National Science Foundation where he served until Sea Grant was transferred to the National Oceanic and Atmospheric Administration in 1970. He became Sea Grant's Associate Director for Operations in 1975 and its Deputy Director in 1978. In 1978-79 and 1989-90, Mr. Wildman served as the Acting Deputy Assistant Administrator of NOAA's Office of Oceanic and Atmospheric Research. He was named Director of the Office of Oceanic Research Programs and the National Sea Grant College Program in 1990.

In 1972, he chaired a national conference on coastal zone management for the Marine Technology Society (MTS) and was named a fellow of the Society in 1976. He served as a member and officer of the U.S./Japan Natural Resources Program's (UJNR) Aquaculture Panel from 1970 to 1987. In 1987, he was named chairman of the UJNR's Marine Resources and Engineering Coordinating Committee. In 1976, Mr. Wildman completed the seven-week senior executive education program at the Federal Executive Institute. He was elected a member of the board of directors of the World Mariculture Society (WMS) in 1978 and was its vice-president in 1979. He has also served as the vice-chairman and chairman of the Federal Government's Joint Subcommittee on Aquaculture. He has been awarded the Department of Commerce silver and gold medals for his work in the development and management of the National Sea Grant College Program and for his leadership in the field of aquaculture.

Mr. Wildman received his B.S. Degree from Upper Iowa University and did graduate work in marine biology at the Scripps Institution of Oceanography, UCLA, and the University of California, Berkeley. In 1966, he was awarded a National Institute of Public Affairs fellowship for a year's graduate study in science, technology, and public policy at Indiana University.

Mr. Wildman has authored or co-authored a number of publications on the ecology, culture and use of marine algae (seaweeds), aquaculture, and radioactivity in aquatic environments, and he has given numerous speeches at conferences and symposia. He is a member of the Marine Technology Society, WMS, and the Phycological Society of America.



The National Sea Grant Review Panel

The National Sea Grant Review panel is composed of distinguished citizens appointed by the Secretary of Commerce to advise the Secretary, the Administrator of the National Oceanic and Atmospheric Administration (NOAA), and the National Sea Grant Director on scientific and administrative policy. Panelists participate in onsite reviews of university Sea Grant proposals, evaluate progress and potential, and meet at least twice a year to address opportunities facing Sea Grant. Panelists are appointed to three-year terms, and, as a group, elect a Chairman and a Chair-Elect to one-year appointments.

National Sea Grant Review Panel Members

Richard B. Allen (Chairman)

Wakefield, Rhode Island

Mr. Richard Allen, a fisherman with broad experience in Atlantic Coast commercial fisheries, is Chairman of the Sea Grant Review Panel. He currently serves as the vice president of the Atlantic Offshore Fishermen's Association and as a member of the New England Fishery Management Council. Mr. Allen is also a commissioner on the Atlantic States Marine Fisheries Commission and the editor of the *Atlantic Fisherman's Handbook*. He was previously an assistant professor at the University of Rhode Island, and has served as a fisheries consultant on national fisheries development, offshore oil's impact on the fishing industry, and the U.S.-Canada fisheries boundary case. He holds a B.S. and an M.A. from the University of Rhode Island.

Ronald C. Baird

Worcester, Massachusetts

Dr. Ronald Baird is director of corporate relations at Worcester Polytechnic Institute where he is also an adjunct associate professor in the Department of Biology and Biotechnology. He currently serves as director and president of the Schuster Corporation, an investment and manufacturing holding company, of which he was formerly vice president and executive vice president. Dr. Baird spent eight years as a faculty member of the University of South Florida's Marine Science Institute where he is now an adjunct professor of marine science. He received a B.S. from Yale University, an M.A. from The University of Texas at Austin, and a Ph.D. from Harvard University.

Wayne V. Burt

Corvallis, Oregon

Dr. Wayne Burt is professor emeritus at Oregon State University where the oceanography building complex is named Wayne V. Burt Hall. He served as science attache for oceanography and meteorology at the American Embassy in New Delhi, India, from 1986–1987. Dr. Burt, a charter member of the President's National Advisory Committee on Oceans and Atmosphere, has published over 160 scientific papers and articles and over 50 technical reports. He received his B.S. from Pacific College (now George Fox College), and his M.S. and Ph.D. from the University of California's Scripps Institution of Oceanography.

Maumus F. Claverie, Jr.

New Orleans, Louisiana

Mr. Maumus Claverie is an attorney and a lifelong recreational fisherman. He has served in various fishery organizations, most prominently the Marine Fisheries Advisory Committee to the Secretary of Commerce and the Gulf of Mexico Fisheries Management Council. He also serves or has served on the Louisiana Governor's Task Force on Saltwater Finfish, the Louisiana Department of Wildlife and Fisheries Marine Finfish Panel, the Louisiana State University's Coastal Fisheries Institute Advisory Panel and College of Agriculture's Fishery and Aquaculture Advisory Panel, the United Sports Fishermen's International Convention for the Conservation of Atlantic Tunas Subcommittee (ICCAT), and the Advisory Committee to the U.S. Delegation to ICCAT. A recipient of the Louisiana Outdoor Writers Association award for lifetime dedication to conservation, Mr. Claverie is currently on the boards of the Nature Conservancy of Louisiana, the International Game Fish Association, the Coastal Conservation Association, the Louisiana Gulf Coast Conservation Association (GCCA), the National Coalition for Marine Conservation, the Louisiana Universities Marine Consortium Foundation, and the Billfish Foundation. He is chairman of the Louisiana GCCA cooperative marine fish tagging program. He has practiced law in the private sector since receiving his law degree from Tulane University in 1961 and served as judge of the traffic court of New Orleans in the 1960's.

William F. Cochrane

Beaufort, South Carolina

Mr. William Cochrane is a corporate executive and real estate expert who is currently president of ALCOA South Carolina, Inc. Mr. Cochrane has served as executive vice president of Data Management Company, Inc., vice president for special projects with the National Homes Construction Corporation, Northeast regional representative for the Housing Corporation of America, and vice president for planning and marketing of Jonathan's Landing, Inc. He helped to establish the Coastal Zone Management Program in Florida and later served on the program's board. He received his B.A. from the University of Denver and has continued his education through management and real estate courses and through workshops and seminars on environmental concerns.

Marne A. Dubs

New Canaan, Connecticut

Mr. Marne Dubs is a private consultant to clients in oil, chemical, mineral and industrial products industries. His particular expertise is in evaluating and managing technology and new ventures. Mr. Dubs has served as a member of the National Advisory Council on Oceans and Atmosphere and as an expert with the United States delegation to the Law of the Sea Conference. Currently, he is a member of the Advisory Council on Marine Affairs to the president of the University of Rhode Island. Mr. Dubs received his B.E. from Johns Hopkins University.

Peter M. Dunbar

Tallahassee, Florida

Mr. Peter Dunbar, an attorney who has specialized in real estate law, is now General Counsel and Director of Legislative Affairs to the Governor of Florida. He served as chairman of the Sea Grant Review Panel from 1987-88. A member of the Florida House of Representatives from 1978-1989, Mr. Dunbar was the primary sponsor of legislation creating the state's Marine Fisheries Commission in 1983. Committees on which he served in the Florida House included: natural resources; finances and taxation; and criminal justice. He received both his B.A. and his J.D. from Florida State University.

Otto Klima

Jamesville, Virginia

Mr. Otto Klima, a former Sea Grant Review Panel member from 1967-1975, is a retired vice president and division general manager of the General Electric Company. He has had 35 years of diversified executive experience in high-level technology, large-scale production and new-venture business operations in the United States and overseas. Mr. Klima previously served for 20 years on NASA's Research and Advisory Committee and as a presidential appointee to the National Advisory Committee on Oceans and Atmosphere from 1978-1980. He received his B.S. from Rensselaer Polytechnic Institute.

Arthur Eugene Maxwell

Austin, Texas

Dr. Arthur Maxwell is director of the Institute for Geophysics and professor in the Department of Geological Sciences at The University of Texas at Austin. Previously, Dr. Maxwell held positions at Woods Hole Oceanographic Institution as provost, director of research, and associate director, and with the Office of Naval Research in Washington, D.C. as head of the geophysics branch and head oceanographer. A former American Geophysical Union president, he is also a charter member of the Marine Technology Society and served as its president from 1981-1982. A previous Sea Grant Review Panel member from 1982-1985, Dr. Maxwell received his B.S. from New Mexico State University and his M.S. and Ph.D. from the University of California's Scripps Institution of Oceanography.

Stanley R. Murphy

Seattle, Washington

Dr. Stanley Murphy is a physicist who retired as director of the Applied Physics Laboratory at the University of Washington in Seattle where he held the rank of professor in the Mechanical Engineering and Oceanography Department. He served as director of the Washington Sea Grant College Program from 1968-1980 and was president of the Sea Grant Association in 1976. Dr. Murphy was a member of the Oceanographic Commission of Washington from 1968-1981 and served as its chairman from 1973-74. He is also a past member of the Oceanographic Institute of Washington State. Dr. Murphy graduated from Fresno State College and earned his Ph.D. in physics from the University of Washington.

Benjamin F. Rathbun, Jr.

Noank, Connecticut

Mr. Benjamin Rathbun is a charter boat fishing owner and waterman who served as Chairman of the Sea Grant Review Panel from 1989–1990. An operator of charter fishing boats since 1958, Mr. Rathbun founded his own charter company in 1978. He has been an advisor to the Northeast Fishery Council, a member of the State Advisory Committee to the Connecticut Sea Grant Program, and president of the Connecticut Boatsman's Association.

Saul B. Saila

Narragansett, Rhode Island

Dr. Saul Saila is a fisheries biologist and biometrician who retired in June 1988 after 32 years with the University of Rhode Island as professor of oceanography and chief scientist for the university's marine programs office. He has also been a biologist with the New York State Conservation Department, a research associate with the Indiana Lake and Stream Survey, and a fishery biologist with the Rhode Island Department of Environmental Management. He is a member of the International Council for the Exploration of the Sea Committee on Demersal Fisheries and a member of the Rhode Island Marine Fisheries Council. Dr. Saila received his B.S. from the University of Rhode Island and his M.S. and Ph.D. from Cornell University.

Mr. Carl H. Savit

Houston, Texas

Mr. Carl Savit is a consultant and an adjunct professor of geology and geophysics at Rice University. After 38 years with the Western Geophysical Company of America, Mr. Savit retired as senior vice president in 1986. From 1970–1971, Mr. Savit served on the White House staff as assistant for earth, sea and air sciences to the President's science advisor. Since 1988, he has served as a member on the proposed NOAA survey of the United States' Exclusive Economic Zone. Mr. Savit received his B.S. and M.S. from the California Institute of Technology. He has been issued 41 U.S. patents with 124 corresponding patents in other countries.

Mr. Eugene Francis Shiels

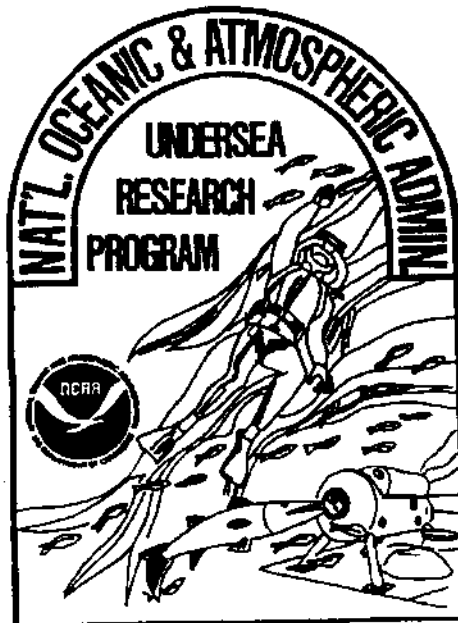
Houston, Texas

Mr. Shiels is an engineer and a consultant to the Zapata Corporation, the Urban Investment and Development Corporation, and Reading and Bates Drilling Company. From 1946–1966, he worked for Dresser Industries in capacities such as design engineer, technical services manager, and vice president. Joining the Zapata Corporation in 1966, Mr. Shiels served as marketing vice president and senior vice president before retiring in 1981 as executive vice president and director. He received his B.S. in electrical engineering from Texas A&M University.

Roger Thomas

Sausalito, California

Mr. Roger Thomas is a commercial passenger fishing vessel owner/operator. He serves as a member of the Pacific Fishery Management Council, vice chair to the California Citizen Advisory on Salmon and Steelhead, and California charter advisor to the Pacific Marine Fisheries Commission. Mr. Thomas is also director of the Coastal Fisheries Foundation and is president of the Golden Gate Fisherman's Association.



National Undersea Research Program

N OAA's Undersea Research Program (NURP) supports *in situ* investigations in the oceans and large lakes of the world. The program seeks to place investigators safely undersea to conduct manipulative experiments not possible within the limitations of traditional laboratory and ship-based research.

Research activities are aimed at increasing our knowledge of the structure and processes of the global ocean. With an understanding of how physical, chemical, biological, and geological processes control marine environments important to the nation, informed decisions can be made to improve the wise use of our marine resources.

Proposals are solicited from qualified investigators and peer reviewed through a competitive, national process. Support is awarded to investigators with scientifically meritorious projects. Specific program areas of undersea investigations are: 1) biological productivity and living resources, 2) coastal oceanic and estuarine processes, 3) pathways and fate of material in the ocean, 4) global and oceanic processes, 5) ocean lithosphere and mineral resources, 6) ocean technology, and 7) diving safety and physiology.

As part of the diving safety program, NURP supports research on diving physiology and hyperbaric medicine in cooperation with the U.S. Navy, U.S. Coast Guard, and recognized academic centers of excellence in these fields. Science activities in the ocean technology category include development of the tools required to facilitate undersea research.

Major, integrated undersea programs now underway in the other five categories listed above include the processes governing seafloor venting, geochemical cycling of pollutants in the Great Lakes, ecology of seamounts, and the factors controlling primary productivity and nutrient cycling in diverse ecosystems ranging from the subarctic to tropical environments.

Program activities are supported with a wide array of advanced undersea sampling and sensing platforms including manned submersibles, remotely operated vehicles, and saturation habitats. Examples of this technology are the "ALVIN" and "PISCES V," two of the deepest diving submersible platforms available to the scientific community today, and the "AQUARIUS," a mobile deep-diving saturation habitat.

NURP is managed by the Office of Undersea Research in NOAA's Office of Oceanic Research Programs. The research community gains access to the program through six Undersea Research Centers. These are located at the Universities of Alaska, Connecticut, Hawaii, and North Carolina (Wilmington), Fairleigh Dickinson University, and the Caribbean Marine Research Center (Riviera Beach, FL).

NURP provides the focal point for meeting the undersea research requirements of government, academia, and industry. Support provided by the program is generally accompanied by co-funding from traditional granting agencies such as the National Science Foundation, Office of Naval Research, National Sea Grant College Program, and the business community.

Kim L. Charles*Computer Systems Analyst*

Ms. Kim Charles is the computer analyst for the National Undersea Research Program. She provides computer system design and existing software applications by monitoring and modifying various application systems in support of NURP's database requirements. Ms. Charles is also responsible for providing computer support to the Office of Oceanic and Atmospheric Research in the capacity of software training, hardware maintenance and network administration.

Prior to joining NURP, Ms. Charles was employed as an administrative assistant for Vitro Corporation. There she helped develop computer programs in support of non-tactical information systems management for the U.S. Navy Strategic Program Office.

Marcia Collie

Editor

Mrs. Marcia Collie is an editor with the National Undersea Research Program. In this capacity, she edits various publications including science reports, technical reports, symposium proceedings of NURP-supported research, and papers from NURP-sponsored workshops. At the present time, she is heavily involved in the revision of the *NOAA Diving Manual*, which is the Government Printing Office's best seller.

She has been with NURP since 1983. Prior to this assignment, she was an editorial assistant with NOAA's Environmental Science Information Center where she worked on publications such as the *Monthly Weather Review*, a meteorological journal now published by the American Meteorological Society.

She is a graduate of Strayer Business College in Washington, D.C., and has been extensively involved in editing and preparing government publications since joining the Coast and Geodetic Survey in 1966.

David B. Duane

Director, National Undersea Research Program

Dr. David Duane is a marine geologist, who graduated with a B.A. degree from Dartmouth College and earned a Ph.D. in geology from the University of Kansas.

Prior to his assignment to NURP, he served as Head of the Non-Living Resources Division in the National Sea Grant Office. There, he managed multi-project grants at several of the 29 institutions in the Sea Grant network and helped determine and maintain the quality of the research as well as relevance of the projects to target user communities. In subject area specialties, (marine geology and coastal processes) he had similar responsibilities, but throughout the network.

As a Department of Commerce Science and Technology Fellow in 1979-80, Dr. Duane had a 10-month assignment as legislative assistant for marine related issues to U.S. Senator Lowell Weicker, Jr. (the 96th Congress). Following that assignment, he returned to Sea Grant to resume his previous responsibilities and activities.

Prior to joining NOAA/Sea Grant in 1974, Dr. Duane's experience was focused on development of geologic resources, first with the Mobil Oil Company as an exploration geologist (oil and gas) and then with the U.S. Army Corps of Engineers (sand and gravel). As Geology Branch Chief with the Corps, he conducted and managed research on geological processes affecting erosion and deposition along coastlines and on the floor of the Great Lakes and continental shelf. He also helped organize and operate SCUBA groups at the Corps' Lake Survey District (now NOAA's Great Lakes Environmental Research Laboratory) and later at its Coastal Engineering Research Center where he was certified at the advanced scuba level and was diving officer.

Dr. Duane has more than 30 research publications to his credit as well as several chapters in books. He was an organizer and co-editor of the book *Shelf Sediment Transport* (1972), and was organizer and editor of a two-volume theme issue of the journal *Marine Mining* (1988) concerning marine sand and gravel mining. Current research interests are metallogenesis at seafloor spreading centers; mineral resources of the continental shelf; use of the sea floor for disposal of waste materials; sediment movement under the influence of extreme events; and marine geo-political issues.

A.N. Kalvaitis

Engineering Manager and Operations Director

Mr. A. Kalvaitis is Engineering Manager and Operations Director for the National Undersea Research Program (NURP). As such, he is responsible for providing technical support and guidance on undersea platforms to the NURP Director and the National Undersea Research Centers. A primary goal is to ensure that NOAA's undersea research mission objectives and operations are technically feasible, cost effective and efficient. In addition, Mr. Kalvaitis serves as a project officer responsible for the technical monitoring of several university-based National Undersea Research Centers.

Prior to joining NURP, Mr. Kalvaitis was a program engineer with NOAA's Special Projects Office. He was responsible for managing several projects associated with the Ocean Thermal Energy Conversion (OTEC) program that explored the ocean as a renewable power resource. One of his OTEC projects was nominated by the American Society of Civil Engineers as an outstanding civil engineering achievement in 1984. Earlier, he was an engineer with NOAA's Engineering Support Office where he designed, tested and evaluated instrumentation systems and platforms for oceanographic and meteorological measurements. Mr. Kalvaitis received his BSME from the University of Maine, Orono.

Mr. Kalvaitis has published articles on remote operated vehicles, research habitats, OTEC developments, data quality assurance and instrumentation. He is a member of the Marine Technology Society's Undersea Vehicles/ROV Committee and the Current Measurement Technology Committee of the Institute of Electrical and Electronics Engineers (IEEE).

David L. Stein

Associate Program Director for Biological Sciences

Dr. David Stein is a marine biologist with NURP. He received his B.A. degree from California State University at Humboldt, and M.S. and Ph.D. degrees in biology from Oregon State University.

Before joining NURP, Dr. Stein was an oceanographic technician, research associate, and assistant professor (senior research) at Oregon State University's College of Oceanography. In those positions he spent over three years total time at sea on about 60 research cruises, most as field party chief or chief scientist. He is a National Association of Underwater Instructor certified scuba diver.

As a technician, Dr. Stein worked on the distribution of continental shelf benthic fishes, biology and behavior of deep scattering layer organisms, and taxonomy of fishes of the continental slope and abyssal plain. After receiving his Ph.D in 1982, he conducted research on deep sea fishes down to 6000 meters, development of deep sea large net trawling methods, taxonomy of snailfishes, and fisheries biology of Pacific grenadier. He has also used submersibles for multi-year studies of upper subduction zone methane vents and of deep bank fishes off Oregon.

Dr. Stein has published over 30 research papers and has been an author or co-author of several book chapters. His current research interests are the taxonomy and natural history of snailfishes and deep-sea fishes, and the fisheries biology of continental slope fishes.



The National Coastal Resources Research and Development Institute*

Congress established the National Coastal Resources Research and Development Institute (NCRI) in 1984 in response to concerns about economic stress in the nation's nonmetropolitan coastal areas. The slow recovery of these areas from the 1979-82 recession was exacerbated by changes in the rural economy due to the national shift from goods-producing and resource-based industries to service industries. Today, most urban coastal communities have recovered, but many rural communities remain economically stressed due to the continuing decline of natural resource sectors, in-migration causing unprecedented growth, and economic isolation.

In establishing NCRI, Congress perceived a need to develop strategies that encourage a stable and sustainable coastal economy. NCRI is committed to using its resources in support of efforts that have the greatest positive impact on the future economic and public well-being of coastal communities along U.S. seaboards and the Great Lakes. As such, NCRI is

- a development-oriented program that translates scientific and technological advances into environmentally responsible economic gain in the coastal U.S. and provides demonstration programs to enable coastal communities to solve problems, and

*NCRI staff are employees of the Chancellor's Office of the Oregon State System of Higher Education. NOAA's Office of Oceanic Research Programs provides federal oversight of NCRI.

● a center for scientific entrepreneurship and technology transfer that continually spurs innovation in coastal industries, particularly small companies less able to support research and development.

NCRI occupies a unique position, providing the bridge between applied research and private sector or community application of innovative ideas. This niche is fully complementary to other federal and federally-supported institutions, such as the National Science Foundation and the National Sea Grant College Program, that sponsor basic and applied research.

NCRI solicits and awards grants on a competitive basis. Specific program areas designed to foster coastal economic development and diversification are: 1) aquaculture development; 2) coastal business and community economic development; 3) coastal tourism and recreation; 4) commercial fisheries; 5) marine technology and product development; 6) ports, harbors, and waterfront development; and 7) seafood technology.

A Board of Governors sets NCRI policy and an Advisory Council provides technical oversight for proposed projects. Several factors are considered in evaluating each proposal submitted to NCRI. Of these, the most important are: 1) the degree to which the proposed work is innovative and applied to an immediate, coastal, economic problem or opportunity; 2) the potential for the work to produce a direct measurable economic effect at the commercial and/or community level; 3) the likelihood for the project results to be immediately adopted and implemented by the public or commercial sector; and 4) the degree to which the results can be applied at a regional and preferably national level. Proposed projects are not funded if they consist of basic research, long-term programs, or projects not having a clearly defined and direct relationship to coastal economic development and diversification.

Jan Auyong
Deputy Director

Dr. Jan Auyong is Deputy Director of the National Coastal Resources Research and Development Institute where she oversees for NCRI-sponsored research, demonstration projects, outreach, and communications. She provides principal analytical support for program development and implementation covering both topical and regional issues. Responsibilities include preparing requests for proposals, managing the proposal review and evaluation system, serving as technical liaison with contractors and Institute advisory groups, tracking project progress, and evaluating project impacts. She also administers the Coastal Zone Management Interstate Grant Program for the Northeast Pacific Ocean Region.

Prior to joining NCRI in late 1989, Dr. Auyong was the assistant director of the University of Hawaii Sea Grant Extension Service. In this position, she supervised administrative activities and technical coordination of subject matter programs. As the service's ocean recreation specialist, she also directed the marine recreation and coastal resources program which provides technical assistance in the areas of marine recreation industry development, coastal and marine resources conservation, and user satisfaction and safety. Her research and teaching activities encompassed marine resources management both in the U.S. and tropical Pacific islands.

From 1975 to 1983, Dr. Auyong conducted graduate and postgraduate work in environmental research; coastal zone management programs; marine recreational fisheries; and marine parks, reserves, and sanctuaries. She also monitored environmental impacts of discharges from the San Onofre, California nuclear power station on populations of sand crabs as part of a larger program studying the overall impacts of the station on the nearby marine and coastal ecosystem. She has also served as environmental specialist with the western regional planning team for the National Park Service and as ocean and coastal zone policy analyst in the Office of the Secretary, Department of the Interior, Washington, DC.

Earle N. Buckley

Director

Dr. Earle N. Buckley, as Director of the National Coastal Resources Research and Development Institute, provides administrative and scientific leadership for NCRI's ongoing program development, project monitoring, and technology transfer activities. He oversees the implementation of Institute policies established by the NCRI Board of Governors, evaluates NCRI proposals with the Institute's national Advisory Council, and analyzes and reviews project implementation and results through program evaluation and periodic monitoring. He is responsible for coordinating NCRI activities with other federal and state agencies, university-based marine and coastal programs and their faculties, and local coastal community and business leaders to ensure the continuing relevance of the Institute's efforts to priority coastal economic needs and to encourage multidisciplinary, public institution-private sector partnerships for projects to address these needs.

Prior to joining NCRI as Deputy Director in 1986, Dr. Buckley was the director of the Office of Resource and Environmental Management for the South-East Consortium for International Development, a not-for-profit, international development assistance institution composed of 33 universities and colleges in the southeastern United States. In this position, he supervised administration and technical coordination of U.S. Agency for International Development technical assistance projects in East and West Africa and Asia. Dr. Buckley personally directed an AID collaborative technical assistance project which established environmental training and integrated resource management programs with institutions in and participants from 26 African countries.

From 1973-1980, Dr. Buckley conducted graduate and postdoctoral research at the Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill. His dissertation research included *in situ* and laboratory experiments to directly measure the effects of petroleum hydrocarbons on community composition of suspended heterotrophic salt marsh bacteria and the microbial metabolism of marsh cord grass-derived organic carbon. He was a member of the scientific party on the NOAA ship *Researcher* to the IXTOC-I oil well blowout in the Bay of Campeche, Mexico, and conducted impact studies in Brittany, France, following the *Amoco Cadiz* oil spill. He received a B.S. degree in biological sciences from Florida State University, where he participated in studies to survey species diversity of estuarine fish populations.

Becky Voelkel

Grant and Contract Officer

Becky Voelkel is grant and contract officer of the National Coastal Resources Research and Development Institute where she is responsible for grant planning, coordinating and monitoring. She represents NCRI to negotiate and clarify contract issues and to ensure contract project performance. Ms. Voelkel also provides technical assistance to NCRI staff regarding grant and contract issues and methods to meet legal requirements and agency objectives.

Prior to joining NCRI, Ms. Voelkel worked for Oregon State University Extension/Sea Grant in Newport as the assistant to the director of public education for the Hatfield Marine Science Center. She was previously in the budget and planning department at Washington State University, Pullman, Washington.