



V. Abolins

SUSB President John H. Marburger III and MSRC Director J. R. Schubel congratulate Noyes Fellows John Ellsworth (left) and Jonathan Kramer (right).

JESSIE SMITH NOYES FELLOWS

John Michael Ellsworth and Jonathan Gary Kramer have been selected as the Jessie Smith Noyes Fellows for the 1980-81 academic year. The Noyes Fellowships, established in 1975 under a grant from the Jessie Smith Noyes Foundation, are awarded each year to support outstanding graduate students who are working on environmental problems in coastal waters.

John Ellsworth is from Brentwood, NY. He completed his Bachelor of Science degree in May, 1978 at the University of New York at Rochester, and majored in biology and geology. Mr. Ellsworth spent the fall term of his senior year on an independent research project at the St. Croix Marine Laboratory in the West Indies. He is presently working under Prof. Henry Bokuniewicz on a study of the sources of sediments to the Hudson estuary.

Jonathan Kramer, from Springfield, MA, is an honors graduate of the University of Massachusetts at Amherst where he completed his Bachelor of Science degree in May 1979 with a major in Environmental Sciences. During the spring term of his junior year, he held an internship with the Smithsonian Institution at the Chesapeake Bay Center for Environmental Studies and participated in a U.S. Geological Survey study of the benthic infauna of the Potomac River estuary. At MSRC, Mr. Kramer is investigating the biochemical pathways of photosynthetic carbon fixation and how these pathways are affected by light and nutrients in a brown seaweed. His advisor is Dr. Bud Brinkhuis.

IS EXTENDED JURISDICTION WORKING?: AN ANALYSIS OF THE SURF CLAM AND OCEAN QUAHOG FISHERY MANAGEMENT PLAN—MARGARET LOUNSBURY

In 1976, the Fishery Conservation and Management Act (FCMA) became law. Under this Act, the United States established a fishery conservation zone extending 200 miles outward from its coasts and assumed responsibility for managing all species of fish in the designated area, except for highly migratory species such as tuna.

Eight regional fishery management councils were also established and given the responsibility of developing fishery management plans. Four years have passed since the Act went into effect. Have we been successful in our management efforts?

To begin to answer this question, I conducted a study of the Mid-Atlantic Fishery Management Council. The study was aimed at uncovering the successes and failures of the Council and focused on one management plan: the joint plan for surf clams and ocean quahogs. Both of these fisheries are domestic fisheries, devoid of foreign participation, and the surf clam industry is one of the major commercial fisheries in the Mid-Atlantic region.

Surf clams, as the name implies, are concentrated in the surf zone to a depth of about 120 feet. Ocean quahogs live in deeper water (75-100 ft.) and are believed to be slow-growing and long-lived. Both species are used in clam products such as chowders, fried clams, and minced clams rather than being consumed directly from their shells. There is competition between these two types of clam in the commercial market, but surf clams are the preferred species.

Surf clams have been subject to overharvesting. The fishery peaked in the mid-1970's when surf clam landings reached 96×10^6 lbs., well in excess of the estimated maximum sustainable yield of 50×10^6 lbs. A high demand for clam products, coupled with a decrease in the supply of surf clams, resulted in high prices. This in turn attracted new investments into the already crowded fishery. Ocean quahogs, on the other hand, have historically been an underutilized species. However, in recent years the demand for these clams has risen, in part due to the decrease in the availability of surf clams.

When the Mid-Atlantic Council was created, it was faced with the task of developing a plan which would protect the surf clam resource from further overharvesting and provide for restoration of the stocks. The Council also needed to prevent the overharvesting of ocean quahogs, an equally vulnerable resource, in the face of increased demand.

To achieve these biological objectives, the Council instituted annual quotas, restrictions on fishing time, and a measure providing for the closure of areas to harvesting where large amounts of small clams are located. Under the FCMA, the Council is also required to consider economic and social factors in developing management plans. In keeping with this requirement, the Council put into effect a moratorium on the entry of vessels into the surf clam fishery. This measure was aimed at freezing the number of boats in the fishery and thereby preventing the economic collapse of the industry.

Although the Council encountered problems such as information gaps in its biological data base and limited enforcement resources, it has been successful in meeting the immediate management needs of the two fisheries. The economic collapse of the surf clam industry was prevented and recent studies indicate that the surf clam resource is stable. But the Council has failed to produce a long-term management plan, and is divided on the issue of whether or not to institute a permanent limited entry scheme. Failure to resolve this issue has hindered the Council's progress in making a commitment to a long-term management strategy.

The Council now needs to answer the general question of how deeply it should get involved in economic regulation. Through my own observations, I have concluded that the Council must strive to keep regulations simple, place biological goals ahead of economic and social considerations, and avoid becoming too involved in economic regulation.

The Council's work thus far shows promise, but there is much that needs to be done in order to meet the challenge of making the new system of fishery management really work.

Margaret Lounsbury is a graduate student at MSRC. The study described here is part of her M.S. degree research. Her advisor is J. L. McHugh.

PEOPLE AND MEETINGS

Graduate students MINDY ZIMMERMAN, JOHN ELLSWORTH, BETSY BASS, and RAOUL CASTENADA attended the fall meeting of the New England Estuarine Research Society in Bangor, ME.

Prof. MALCOLM BOWMAN visited Dr. Robin Pingree of the Institute of Ocean Sciences in Plymouth and Dr. John Simpson of University College of North Wales this summer to discuss mutual research in tidal mixing and plankton growth. Bowman also visited the National Oceanic and Atmospheric Administration's National Environmental Satellite Service and the NASA Goddard Flight Center, to discuss arrangements for real-time remote imaging from NOAA-6 and NIMBUS-7 satellites to coincide with his 1981 research cruises in Long Island Sound and the Cook Strait, New Zealand. In October, he served on a National Science Foundation review panel for multidisciplinary oceanographic research proposals.

Dr. T. F. Zimmerman of the Netherlands Institute for Sea Research at Denberg, The Netherlands visited Profs. HARRY CARTER, AKIRA OKUBO and ROBERT WILSON at MSRC in October. Under discussion was a collaboration between the Institute for Sea Research and MSRC scientists in a North Sea study scheduled for 1982.

Prof. J. R. SCHUBEL presented the keynote address at the New Jersey Marine Sciences Consortium Ocean Dumping Symposium. He was selected as a member of the new NASA science working group for the National Oceanic Satellite System.

Profs. EDWARD and MARTHA BAYLOR attended the Gordon Conference on Aerobiology held in August at Woods Hole.

Prof. IVER DUEDALL presented an invited paper at a symposium in Montreal, Canada on the cycling of nutrients and pollutants in the marine system. In October he presented a paper at the Flue Gas Desulfurization meeting in Houston, TX.

Prof. MARY SCRANTON served as a chief scientist aboard the U.S. Navy's Research Vessel BARTLETT on its cruise from Naples, Italy, to Roat, Spain, while carrying out her study of the role of cyanobacteria in the marine hydrogen cycle.

Prof. BUD BRINKHUIS has been selected to serve a one-year appointment as Associate Editor of the Journal of Phycology. In addition, he will serve as a member of the editorial board through 1983. He was also appointed to the Peer Review Committee for the State of New Jersey's Oil and Hazardous Substances Research Fund.

Dr. Toshiro Saine, a marine biochemist from the Univ. of Tokyo, visited Prof. E. J. CARPENTER in October. Dr. Saine is a member of the joint U.S.-Japan program on the biology of *Trichodesmium*. Prof. Carpenter spent two weeks in Costa Rica at the Organization for Tropical Studies field station studying nitrogen fixation by epiphytic blue-green algae in a tropical rain forest.

Prof. PATTY LAPENNAS attended the Congress on Oceanography: The Future, held at Woods Hole in September.

Graduate student DAVID SAROKIN was chosen as a Graduate Scholar by the New York State Assembly and will be leaving MSRC in January for a nine-month internship in Albany. Mr. Sarokin, who will put his scientific training to use in helping formulate public policy, will be working with State legislators on a variety of New York's environmental problems.

Prof. J. L. McHUGH attended the monthly meeting in Philadelphia of the Mid-Atlantic Fishery Management Council's Scientific and Statistical Committee.

Prof. HENRY BOKUNIEWICZ and graduate student JAY TANSKI presented a paper on coastal erosion on the north shore of Long Island at the Second Symposium on Coastal and Ocean Management held in November at Hollywood, FL. Bokuniewicz also presented a paper with graduate student MICHAEL ZEITLIN on the groundwater flow in Great South Bay at the fall meeting of the Geological Society of America in Atlanta, GA. In addition, Prof. Bokuniewicz and graduate students JAMES LIU gave a paper on managing sediments in New York Harbor at the Maritime Administration's Basic Research Forum in New York City.

AWARDS

Prof. Bud Brinkhuis received a grant from the National Science Foundation for a study of the effects of mercury on *Gracilaria*, a Chilean seaweed harvested commercially for the production of agar. Prof. Brinkhuis also received funding from the General Electric Co. for his project on the feasibility of using seaweed to harvest solar energy.

Prof. Mary Scranton received a grant from the Office of Naval Research to study the role of cyanobacteria in the marine hydrogen cycle. Prof. Scranton was also awarded a grant from NSF for her work on the hydrogen cycle in an anoxic marine environment.

With funding from NOAA, Prof. Charles F. Wurster will develop bioassay systems to evaluate impacts of chemical pollutants on planktonic communities.

Prof. Robert E. Wilson received NOAA support to examine long-term records of sea level, freshwater river input, and meteorological records for the New York Harbor area. The objectives are to establish the exchange of water among segments of the harbor, between the harbor and Long Island Sound, and between the harbor and the New York Bight. He is also studying tidal and low-frequency wind-induced currents in Central Long Island with funding from the Long Island Lighting Company.

Graduate students Mark Alexander and Mary Gibbons were awarded Sigma Xi grants in support of their research. Mr. Alexander is working on management implications of sequential hermaphroditism in black sea bass. Ms. Gibbons is investigating factors influencing predation on juvenile hard clams.

Prof. Douglas Capone was awarded a NOAA grant to examine the effects of persistent pollutants on the microbial biomass in sediments.

Mr. David J. Hirschberg is studying major sources and sedimentary sinks of five trace metals in Great South Bay. With funding from the New York Sea Grant Institute, he will attempt to construct a simple geochemical budget for these elements.

Prof. Harry Carter conducted a dye diffusion study in Great South Bay with funding from Suffolk County. The aims of the study are a better understanding of and ability to predict the circulation of the waters, salinity distribution, and dispersal of clam larvae in Great South Bay.

Prof. Edward J. Carpenter received NOAA support for a study of the recovery processes in an eutrophic estuary. His work will focus on the nitrogen cycle and plankton populations as measures of recovery from heavy nutrients accumulated over decades in the Carmans River estuary.

HUDSON RIVER CRUISE III

The third annual Hudson River Instructional Cruise took MSRC's Research Vessel ONRUST, its crew and a staff of instructors on a 12-day round trip to Albany. Ten classes of up to 20 students each from SUNY colleges along the Hudson River Valley spent a day aboard the ONRUST as it made overnight stops at Tarrytown, Newburg, Norrie Point, Coxsackie and Albany.

ONRUST captain H. C. Stuebe served as MSRC's host for the visiting classes. Staff member Clifford Jones headed a rotating team of MSRC graduate students who demonstrated some of the Center's research projects.



C.R. Jones
MSRC students Glynis Nau-Ritter and Lee Arnold instructing observers aboard the ONRUST.

MSRC ASSOCIATES

We welcome Dr. and Mrs. Donald Pritchard and Mr. and Mrs. Sanford Soll as new MSRC Associates and as continuing members:

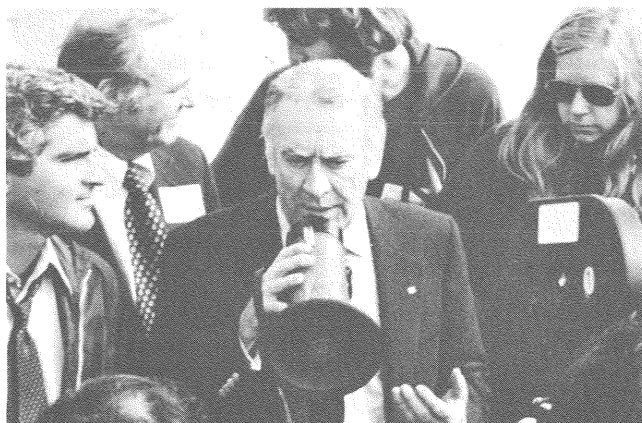
Marie Barrett
John Burness
Gerald and Lawrence Cohen
Ronald and Jeri Schoof
Saul Seiff
Anne Williams
Harry Carter.

Dr. and Mrs. Sidney Gelber were elected honorary lifetime MSRC Associates.

ARTIFICIAL REEF CREATED

New York State Governor Hugh Carey and Chairman James Larocca, New York State Energy Research and Development Authority, were among those present on 12 September 1980 when 500 tons of stabilized coal wastes were dropped from a bottom-opening barge onto the Atlantic continental shelf to form an artificial fishing reef. The reef, situated 2.5 miles off Long Island's south shore, was created as part of an ongoing research effort begun three years ago by MSRC scientists Iver Duedall and Peter M. J. Woodhead. Their objective is to test the environmental acceptability of the use of by-products of coal-fired electric power generating plants as a potentially valuable resource.

The coal wastes, a mixture of fly ash and scrubber filter cake, were compacted into 8" x 8" x 16" blocks. It is hoped that the blocks will provide a habitat for fish and crustaceans. Many species have already inhabited a similar, smaller reef constructed in 1977 in Conscience Bay on the north shore of Long Island. A three-year monitor of the new reef is scheduled to determine what, if any, changes occur in its structure, and how well it supports marine life. As Prof. Woodhead states, "We may create an environmental plus from what would otherwise be a negative."



C.A. Schwartz

New York State Governor Hugh Carey and Chairman James Larocca, New York State Energy Research and Development Authority, at creation of artificial fishing reef on 12 September 1980.

SOME RECENT PUBLICATIONS

- BOKUNIEWICZ, H. J. and C. FRAY. 1979. Volume of sand and gravel resources in the Lower Bay of New York Harbor. MSRC Special Rept. 32.
- BOKUNIEWICZ, H. J. and M. ZEITLIN. 1980. Characteristics of groundwater seepage into Great South Bay. MSRC Special Rept. 35.
- BOWMAN, M. J. 1980. M₂ tidal effects in Greater Cook Strait, New Zealand. J. Geophys. Research 85:2728-42.
- CAPONE, D. G. and B. F. TAYLOR. 1980. N₂(C₂H₂) fixation in the rhizosphere of *Thalassia testudinum*. Can. J. Microbiol. 26:998-1005.
- CAPRIULO, G. and E. J. CARPENTER. 1980. Grazing by 35 μm to 202 μm microzooplankton in Long Island Sound. Marine Biology 56(4):209-211.
- McHUGH, J. L. 1980. History and management of weakfish fisheries. In Proceedings, Red Drum and Seatrout Colloquium, Gulf States Marine Fisheries Commission.
- WILSON, R. E. and A. OKUBO. 1980. Effects of vertical and horizontal coupling on the horizontal distribution of chlorophyll *a*. J. Plankton Research 2:33-47.

BOKUNIEWICZ DISTINGUISHED TEACHER

Prof. Henry J. Bokuniewicz was selected by graduate students of the MSRC to receive the MSRC Associates' Distinguished Teaching Award for the 1979-80 academic year. This was the second straight year that Bokuniewicz has won the award. He joined the Center's faculty in 1977, and teaches its core course in geological oceanography and seminars in sediment transport and seminar preparation.



Stony Brook, New York 11794

NON-PROFIT ORG.
U.S. POSTAGE
PAID
STONY BROOK, N.Y.
PERMIT No. 65