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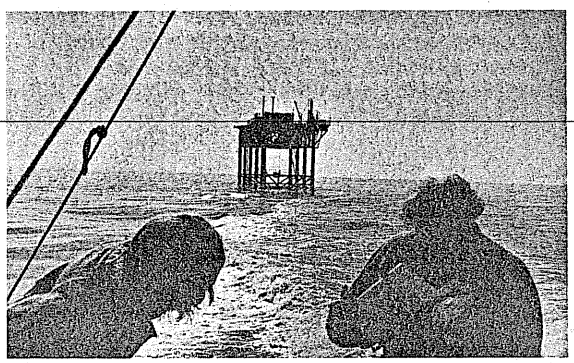

MSRC CONDUCTS STUDIES ALONG GULF COAST

Over the past six months a group of MSRC's scientists and graduate students have traveled to the Gulf Coast to conduct field studies in Corpus Christi Bay (Texas), in Apalachicola Bay (Florida), and in the Gulf of Mexico off the mouth of the Atchafalaya River--a distributary of the Mississippi. These studies are part of a research program designed to: (1) assess the impacts of open-water pipeline disposal on the environment and the biota, and (2) to develop a simple model to predict the plumes of dissolved and suspended constituents released by pipeline disposal of dredged materials in open waters. This approximately $200,000 study is being supported through the Dredged Material Research Program (DMRP) of the U.S. Army Corps of Engineers' Waterways Experiment Station.

For many large dredging projects open-water pipeline disposal is the most economical way of disposing of the dredged material. With this method the "spoil" is pumped through a pipe from the dredge to another open-water site where it is discharged back into the environment. Because of possible undesirable environmental effects--most of which have not been unequivocally evaluated--this method of disposal is opposed in much of the country and more costly methods of disposal are used. The project, directed by J. R. SCHUBEL and H. H. CARTER, also involves R. E. WILSON, A. OKUBO, ANDREW HAMILTON, MONTEITH HEATON, JACK LEKAN and JEFFREY PARKER, all of MSRC; and WILLIAM CRONIN, GRANT GROSS, EDMUND SCHIEMER and RICHARD WHALEY of the Chesapeake Bay Institute.

MSRC AWARDED SEA GRANT PROFESSORSHIP IN SHELLFISH BIOLOGY

Dr. Donald Squires, Director of the New York Sea Grant Institute, announced that the new Sea Grant professorship in shellfish biology has been awarded to the Marine Sciences Research Center. At the end of the initial three year appointment which will be supported by the N.Y. Sea Grant Institute, SUSB will assume the responsibility for continuing the position.

MSRC expects to appoint, by September 1977, a shellfish biologist who will not only develop research programs of excellence, but who will also work closely with the Sea Grant Advisory Service, the Department of Environmental Conservation, and commercial fishermen in resolving problems associated with New York's shellfish industries.

MSRC HOSTS WORKSHOP

From 17-20 January 1977 MSRC hosted a workshop to assess "The Effects of Entrainment by Power Plants with Once-through Cooling Systems." The workshop was sponsored by the New York Energy Research and Development Authority and the New York Sea Grant Institute. The primary goals of the workshop were to make a critical assessment of the cumulative effects of the several stresses--physical, thermal, chemical--experienced by entrained organisms, and to apportion the cumulative effects among the several stresses. Based on this assessment, the workshop participants are developing recommendations for the design and operation of power plants with once-through cooling systems to minimize entrainment losses. The workshop report entitled: "Power Plant Entrainment: A Biological Assessment" which is being edited by J. R. SCHUBEL and BARTON C. MARCY will be published this summer in book form by Academic Press. Workshop participants were: ALAN BECK (Environmental Protection Agency), EDWARD CARPENTER (MSRC), CHARLES COUTANT (Oak Ridge National Laboratory), BARTON MARCY (NUS Corporation), RAYMOND MORGAN (Chesapeake Biological Laboratory), ALAN ROBBINS (MSRC), J. R. SCHUBEL (MSRC), ROBERT ULANOWICZ (Chesapeake Biological Laboratory), and PETER WOODHEAD (MSRC).

GLACIAL PALEOCEANOGRAPHY

The National Science Foundation has funded a $25,900 research grant in Glacial Oceanography under the direction of Professor PETER K. WEYL. The purpose of the project is to initiate a study to characterize the world ocean of 18,000 years ago during the height of the last ice age. As a result of the International Decade of Ocean Exploration (IDOE) Climate: Long-Range, Investigation, Mapping, and Prediction (CLIMAP) program, our knowledge of the Glacial Ocean has recently been greatly expanded. The new data have largely confirmed a model of glaciation proposed by P. K. Weyl in 1968.

The goal of the current project is to integrate the available information to obtain a detailed description of the Glacial Ocean and to elucidate the mechanisms of climatic change. Unlike the physical sciences, the earth sciences frequently can not make use of controlled experiments, in order to expand our understanding of global processes. Rather we must make use of the natural experiments of the past. We must become historians to increase our understanding to the point where we can predict the future behavior of the system. A study of the Glacial Ocean of 18,000 years before the present is the best way to develop the field of Paleoceanography, the study of the oceans of the past, because we know more about it than about the oceans at any other time in the past.

Because the oceans are so extensive and have a much longer memory than the atmosphere, they play a dominant role in determining climate. Thus a study of the Glacial Ocean should enable us to become better climatologists and help mankind to face the challenge of providing for adequate food and energy supplies under conditions of climatic change.

AWARDS

Professor M. J. BOWMAN received a University Award to initiate a study of "jets, fronts, and phytoplankton patchiness in coastal waters." The purpose of the program is to investigate convergence and entrainment of phytoplankton in coastal fronts and the role of jet currents in producing phytoplankton patchiness in coastal waters. Dr. Bowman also received several grants totaling about $10,000 in support of a spring symposium to be held at MSRC on the role of fronts in coastal processes. Sponsors include the federal Environmental Protection Agency, the Energy Research and Development Administration, the U.S. Coast Guard and the New York Sea Grant Institute.

Professors R. DAYAL, I. W. DUEDALL and H. B. O'CONNORS received an award of $2,500 from the Link Foundation for purchase of equipment and supplies to support their important studies of the behavior of stabilized coal wastes in sea water.

Professor J. L. McHUGH was awarded $49,000 by the National Oceanographic and Atmospheric Administration to support his study on the history and present conditions of coastal fisheries of U.S. and causes of fluctuations and trends in the fisheries.

Professors R. E. WILSON, H. B. O'CONNORS, A. OKUBO and W. E. ESAIAS received a National Science Foundation award of nearly $40,000 in support of an experimental determination of the nature of phytoplankton patchiness in Long Island Sound.

Professor C. F. WURSTER has been granted an additional $22,500 from the Rockefeller Foundation to continue his work on the effects of persistent chemical pollutants in the aquatic environment.

MSRC scientists Akira Okubo (2nd from left), Alan Robbins (3rd from left), Dr. H. C. Chiang (far left) of the University of Minnesota and one of his graduate students, study the swarming and mating behavior of midges, small insects. This research is directed by Drs. Chiang and Okubo and is supported by the National Science Foundation.

SOME RECENT PUBLICATIONS

BIGGS, D. C. 1977. Respiration and ammonium excretion by open ocean gelatinous zooplankton. Limnology and Oceanography 22:108-117.

BOWMAN, M. J., and L. D. WUNDERLICH. 1976. The distribution of hydrographic properties of the New York Bight Apex. Pages 58-68 *in* M. Grant Gross, ed. Amer. Soc. Limnology and Oceanography, Special Symposia Vol. 2, Middle Atlantic Continental Shelf and the New York Bight.

BOWMAN, M. J., and L. D. WUNDERLICH. 1977. Hydrographic Properties. MESA New York

Bight Monograph #1.

CARPENTER, E. J., and C. C. PRICE. 1977. Nitrogen fixation, distribution, and production of *Oscillatoria (Trichodesmium)* ssp. in the western Sargasso and Caribbean Seas. Limnology and Oceanography 22:60-72.

DUEDALL, I. W., H. B. O'CONNORS, J. H. PARKER, R. E. WILSON, and A. S. ROBBINS. 1977. The abundances, distribution and flux of nutrients and chlorophyll *a* in the New York Bight Apex. Estuarine and Coastal Marine Science 5:81-105.

HARDY, C. D. 1976. A preliminary description of the Peconic Bay Estuary. Special Report 3 of the Marine Sciences Research Center, Reference 76-4, 65 pp.

MURTHY, C. R., and A. OKUBO. 1977. Interpretation of diffusion characteristics of oceans and lakes appropriate for numerical modeling. Pages 129-135 *in* Symposium on Modeling of Transport Mechanisms in Oceans and Lakes. Manuscript Report Series No. 3, Marine Sciences Directorate, Department of Fisheries and the Environment, Ottawa, Canada.

OKUBO, A. 1976. Remarks on the use of "diffusion diagrams" in modeling scale-dependent diffusion. Deep Sea Research 23:1213-1214.

OKUBO, A., H. C. CHIANG, and C. C. EBBESMEYER. 1977. Acceleration field of individual midges, *Anarete Pritchardi* (Diptera: Cecidomyiidae), within a swarm. Canadian Entomologist 109:149-156.

PARKER, J. H., I. W. DUEDALL, H. B. O'CONNORS, and R. E. WILSON. 1976. Raritan Bay as a source of ammonium and chlorophyll *a* for the New York Bight Apex. Pages 212-219 *in* M. Grant Gross, ed. Amer. Soc. Limnology and Oceanography, Special Symposia Vol. 2, Middle Atlantic Continental Shelf and the New York Bight.

SCHUBEL, J. R., and H. H. CARTER. 1976. Suspended sediment budget for Chesapeake Bay. Pages 48-62 *in* M. Wiley, ed. Estuarine Processes, Vol. 2, Circulation, Sediments and Transfer of Material in the Estuary. Academic Press, N.Y.

MSRC ASSOCIATES

The MSRC Associates welcome your participation. For information contact Mrs. Jeri Schoof at (516) 246-6543.

NEW GRADUATES

Sixteen students were awarded the Master of Science degree through our Marine Environmental Sciences Program during 1976. The names of the students, the titles of their theses, and the principal advisors are listed below.

BRIAN DOYLE, Lateral Dynamic Balance in the Sandy Hook to Rockaway Point Transect (Professor R. E. WILSON).

MICHAEL GAERTNER, Seasonal Migration of Fishes of Importance to New York State (Professor J. L. McHUGH).

ROY HAJE, The Effects of the New York State Tidal Wetlands Act Moratorium Phase (Professor O. W. TERRY).

BARBARAJEAN KAUFMAN, The Effects of Chlordane and Heptachlor on the Marine Dinoflagellate, *Exuriella Baltica*, Lohmann (Professor C. F. WURSTER).

MICHAEL KLEIN, Some Factors Affecting the Distribution of the Benthos in Port Jefferson Harbor, New York (Professor E. J. CARPENTER).

JOHN LEKAN, Spatial Variability of Phytoplankton Biomass in the Surface Waters of Long Island (Professor R. E. WILSON).

JEFFREY LESLIE, Wind Induced Currents in Shallow Coastal Waters (Professor R. E. WILSON).

GERALD LYNCH, Fishery Cooperatives in Theory and in Practice (Professor J. L. McHUGH).

KATHLEEN McDONOUGH, A Benthic Index of Environmental Quality for the New York Bight Apex and Raritan Bay (Professor J. S. O'CONNOR).

PETER MOHR, Marine Sport Fisheries of New York State (Professor J. L. McHUGH).

ROBERT OLSON, Spatial and Temporal Variations in the Abundance and Distribution of Nutrients and Phytoplankton in Western Long Island Sound (Professor H. B. O'CONNORS).

JEFFREY PARKER, Nutrient Budget in the Lower Bay Complex (Professor I. W. DUEDALL).

SUSAN ROBBINS, An Interdisciplinary Study of Stony Brook Harbor as a Natural Resource (Professor P. K. WEYL).

JOSEPH SALVO, The Fate of Hydrocarbon Runoff in Two Recharge Basins on Long Island, New York (Professor C. F. WURSTER).

PETER UNDERWOOD, The Spatial Distribution of Phytoplankton Biomass in the Surface Waters of the New York Bight from April to September 1975 (Professor W. E. ESAIAS).

LEWIS WUNDERLICH, The Hydrographic Features of the New York Bight Apex (Professor M. J. BOWMAN).

SUSB DENTAL SCHOOL AIDS MSRC IN PROBING THE OCEAN'S SECRETS

Dr. MORTIMER SHAKON, Director of the Program Information Systems of the SUSB Dental School, has been collaborating with Professor R. DAYAL and D. HIRSCHBERG in determining the small scale structures of sediment cores collected from the Atlantic Ocean's continental rise off New Jersey, and from the upper Chesapeake Bay. To the naked eye, and under the microscope, most of the cores from these areas appear to be homogeneous, devoid of any sedimentary structures that give clues as to how the sediments were transported and deposited. Using the dental school's X-ray unit, Professors Dayal and Shakon, and Mr. Hirschberg have shown that many of the cores have complicated small scale structures that can be used to help unravel the sedimentary histories of these two very different areas.

LONG ISLAND SOUND BOOK PUBLISHED

The results of many years of studies of Long Island Sound by the Marine Sciences Research Center and the Nassau-Suffolk Regional Planning Board have just been published. The book, *The Urban Sea: Long Island Sound*, by LEE E. KOPPELMAN, PETER K. WEYL, M. GRANT GROSS and DEWITT S. DAVIES, published by Praeger Publishers, N.Y. considers both the environmental and the economic-political aspects of this important body of water. Part One deals with the regional setting, the nature of the sediments and the shore-lines, and with the physics and the chemistry of the water that fills the Sound. Part Two deals with how man uses the the Sound, governs it, and increasingly depends on regional planning to increase the benefits derived from future utilization. The richly illustrated book represents a synthesis of what is known about Long Island Sound based on published and new information.

Distinguished scientific photographer and Adjunct Professor with MSRC, Fritz Goro, demonstrates the fine points of camera technique to SUSB students.

SEMINAR SCHEDULE

April		
14	4:00	The Chemistry of the Hot Springs at the Galapagos Spreading Center; Preliminary Discussion of the ALVIN Program of Feb.-Mar. 1977 Dr. JOHN EDMOND, M.I.T.
21	4:00	Fishery Management and the General Welfare: Implications of the New Structure Dr. GIULIO PONTECORVO, Columbia University
26	4:15	Spectral View of the Kierstead - Slobodkin - Skellam Critical Size for Phytoplankton Bloom: Non-mathematical Presentation Dr. AKIRA OKUBO, MSRC
28	4:00	Numerical Modeling of Thermal Jets Dr. J. J. McGURIK, University of Karlsruhe, West Germany
May		
2	4:00	Oceanography at the University of Hawaii: Plans and Programs Dr. E. D. STROUP, University of Hawaii
5	4:00	Status of Commercial Fish Stocks in the Northwest Atlantic Mr. RICHARD HENNEMUTH, Northeast Fisheries Center, Woods Hole
10	4:30	Dr. JAN NAIDU, Brookhaven National Laboratory, and MSRC
12	4:00	Uptake and Regeneration of Silicic Acid in Diatom Cultures and Natural Phytoplankton Populations Dr. DAVID NELSON, Woods Hole Oceanographic Institute

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