M A R I N E S C I E N C E S R E S E A R C H C E N T E R N E W S L E T T E R
State University of New York Stony Brook, N.Y. 11790

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FACILITIES

GROUND BREAKING FOR SUFFOLK COUNTY COMMUNITY COLLEGE'S NATURAL MARINE PRODUCTS LABORATORY will soon get under way at Southold, L.I., resulting from the County Supervisors' recent approval of a $550,000 grant for its construction. According to Prof. Walter Smith, head of the Marine Science and Technology program at the College, the laboratory will be used for studies related to the discovery, culturing, harvesting and processing of the sea's economically useful plant and animal materials. A primary function of the facility will be to give second-year marine tech students unparalleled practical experience in these areas. It is also proposed that the MSRC will eventually utilize a portion of the lab for aquacultural studies, thus making opportunities to work and study at the Southold laboratory available to students and faculty from many SUNY campuses.

The awarded construction funds, 50% of which will be reimbursed by New York State, will finance the planning, building, landscaping and partial equipping of a proposed 9,000-sq. ft. laboratory, which will be developed in modular form to allow for future expansion. The building will occupy a 46-plus acre site on Cedar Beach, Little Peconic Bay, previously deeded to the College by the County and, thus, also 50% reimbursible based upon current evaluation. Completion is targeted for 1972.

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MSRC's 39-FOOT VESSEL MICMAC IS AVAILABLE FOR CHARTER by qualified SUNY research teams, classes and collecting groups. A $75/day charter fee covers the use of the vessel with captain; some specialized collecting gear can be provided at a slight additional charge. The MICMAC accommodates 6-8 persons and can be cruised within a 100-mile radius of Port Jefferson, L.I., its home port. All reservations must be made not less than 30 days prior to intended date of utilization. For further information, contact Mr. Fred Roberts, MSRC.

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THE GREAT LAKES LABORATORY, BUFFALO COLLEGE, HAS ACQUIRED A 66-FOOT T-BOAT fully modified for water pollution research on the Great Lakes. The ship, loaned through the Corps of Engineers, is available for the use of other SUNY units by arrangement with Dr. Robert Sweeney, Director of the Laboratory.

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RESEARCH ROUND-UP

Long Island Sound eutrophication revealed. Long Island Sound is rapidly being victimized by sprawling urbanization, according to Prof. Charles D. Hardy, visiting investigator at the MSRC. Three surveys of the Sound at different seasons made by Prof. Hardy, who is on sabbatical leave from Suffolk County Community College, and a MSRC research team, have shown the Sound roughly from New York City to New Rochelle to be in a state approaching eutrophication.

The situation reflects the enormous amounts of nutrients discharged into the Sound as sewage and storm drainage, much of which is insufficiently treated. In the New York metropolitan area levels of phosphate, mostly by-products of

synthetic detergents, were abnormally high (see the Newsletter, Spring, 1969) and, as Prof. Hardy put it in an interview, "were found to have at least doubled since the early 1950's when the Sound was surveyed by a team from Yale." etergents, oils and proteinaceous substances may reduce the ability of water to absorb oxygen from the air by 20-30%, Prof. Hardy noted. Also contributing to the problem are extremely high levels of nitrates derived from discharged excrement, runoff of suburban "¼-acre grass farms" and other urban metabolites. Their year-round availability supports continuous blooms of phytoplankton that normally occur only during the warmer months. Random measurements made by the MSRC group revealed levels of chlorophyll a, an indicator of plankton, as high as any recorded in estuaries: 60 mg/m^3.

While deterioration of water quality in the New York City environs is not surprising, two unexpected findings of the MSRC team warn that contamination of the Sound is spreading: a dramatic "oxygen sag" emanating from the Connecticut River and extending westward for 25 miles, and an untimely "red tide" observed in October off New Haven. Thus, the entire body of water may be threatened with a reduction in environmental quality unless pollution abatement programs are instituted.

Prof. Hardy's data are published as Technical Report No. 4 of the MSRC. Copies may be obtained upon request.

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Discovery Bay team studies Acanthaster plague. Joining an international research effort concerned with the devastation of Pacific coral reefs by Acanthaster planci, the "crown-of-thorns" starfish, was Dr. Thomas Goreau and six associates from the Discovery Bay Laboratory in Jamaica. With a grant from the Office of Naval Research (ONR), which is cooperating with the Dept. of the Interior in assessing what one eminent scientist has termed "an ecological disaster," Dr. Goreau last summer headed a team investigating damage to the reefs bordering the island of Saipan, Micronesia. Sizable infestations of the 16-armed animal, which was once so rare that few museums have specimens, have been reported as well from Fiji, New Guinea, Malaya, Borneo and Guam; over 250 square miles of Australia's Great Barrier Reef had been destroyed by the voracious creatures by summer, 1969. Such destruction threatens not only the food supply of many islands but also their very existence, due to loss of protection from waves.

"In Saipan, we found very serious damage of the fringing reefs by Acanthaster," Dr. Goreau told the Newsletter. "Most of the coral on the western side of the island had been killed within the previous three to 12 months. At the time of our survey the starfish population was concentrated in two swarms about five miles apart, one of which was estimated to contain between 10,000 and 20,000 individuals in an area 300 feet long by about 200 feet wide. These starfish were 12 to 24 inches in over-all diameter and so crowded that they were crawling all over each other--the reef was literally black with them. In the area of the swarms the living coral was being rapidly consumed, the freshly killed colonies standing out stark white."

If the outbreaks are to be understood and controlled, biologic studies of the animal, few of which have ever been done, are essential, says Dr. Goreau (The ONR Grant supported only a survey of starfish populations and reef destruction). He and other scientists believe that the larval life history of Acanthaster may hold the key to understanding the epidemic. Studies are also needed to clarify "the relation of the outbreaks to the planet-wide activities of man, including the pollution of the world ocean with trace contaminants such as DDT," Dr. Goreau said. In addition, he warned of the necessity to establish "whether there is a danger that a sea-level canal across the isthmus of Panama

could allow the spread of Acanthaster to the coral reefs of the Caribbean where it does not now occur, and, if so, what should be done to prevent such a catastrophe."

Eileen A. Graham, Judith C. Lang and Peter D. Goreau participated in the Saipan study. Jeremy Woodley, Yehoshua Neumann and David Barnes, also associated with the Laboratory, surveyed the Truk Atoll.

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RANDOM NOTES. . .

Maritime College grad makes Northwest Passage voyage. A 1968 graduate of the State University Maritime College, Fort Schuyler, has shared in an adventure that Western man has dreamed of for centuries--conquest of the Northwest Passage. Charles D. Hahn of Bolivar, N.Y., made the historic voyage last fall from the Atlantic coast to Alaska and back as Third Officer aboard the Standard Oil Co. (N.J.) tanker "Manhattan," the first commercial vessel to negotiate the fabled waterway. The youngest of the 54 officers and crew of the 150,000-deadweight ton tanker, 24-year-old Hahn was well prepared to participate in the voyage: at Maritime he majored in Meteorology and Oceanography, finishing at the top of his class, in addition to pursuing the regular curriculum in Maritime Transportation leading to his license as Third Mate. After graduation Mr. Hahn joined the Humble Oil and Refining Co., parent company of Standard Oil, which, after selecting him for the trip on the basis of his Maritime record, sent him for special training in aerial ice observation to the U.S. Navy Oceanographic Office, Suitland, Md.

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U. Buffalo ocean engineer studies, lectures in Hawaii. Dr. Richard P. Shaw, Professor of Engineering and Applied Sciences, SUNY/Buffalo, is currently at the University of Hawaii studying tsunami phenomena as the recipient of an ESSA postdoctoral research associateship with the Joint (ESSA-UH) Tsunami Research Effort. At Hawaii since January, 1969--his one-year award followed a semester's sabbatical there--Dr. Shaw has lectured extensively: as part of the University's "Ocean Engineering Visiting Distinguished Lecturer Series," (Three of Dr. Shaw's lectures will be published in a forthcoming book, Topics in Ocean Engineering, II); and as guest lecturer in an NSF-sponsored summer institute on ocean engineering. In addition, Dr. Shaw presented a seminar for the Hawaii Institute of Geophysics and gave a paper, "The response of narrow-mouthed harbors to tsunamis," (with G.F. Carrier) at the IUGG meeting in Honolulu in October.

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MSRC scientists testify at water-quality hearings. Drs. M. Grant Gross and Peter Weyl of the MSRC joined a roster of conservation experts and public officials from southern New York State in testifying before the Joint Legislative Committee on Environmental Management and Natural Resources at Mineola on October 23. After a statement of Dr. Donald F. Squires, Director of the Center, was presented, the two scientists outlined problems related to pollution of the marine environment by, respectively, waste solids and thermal effluents. The Committee requested that the Center submit at a later date recommendations for proposed changes in the State's legislation on dumping in coastal waters.

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RECENT PUBLICATIONS

Weyl, P.K. Oceanography: an Introduction to the Marine Environment, New York: John Wiley & Sons, Inc., 1970, 560 p. Price: $12.50. Dr. Weyl is Senior Research Oceanographer, MSRC, and Professor of Oceanography, Dept. of Earth and Space Sciences, SUNY/Stony Brook.

The book is the only up-to-date college-level text that covers all aspects of oceanography. Using recent research results throughout, it examines such topics as how the interaction between the ocean, atmosphere, land and biosphere has stabilized the surface environment of the earth to permit the origin, evolution and continuity of life; and the effect of industrial man upon the marine environment. A chapter on coral reefs is based largely upon the work of T. Goreau of the Joint SUNY-U. West Indies (Discovery Bay) Laboratory in Jamaica and contains many underwater photos taken in the area.

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Hechtel, G.J., Ernst, E.J. and Kalin R.: Biological Effects of Thermal Pollution, Northport, New York. MSRC Technical Report No. 3, January, 1970. The authors are visiting investigators at the Center.

Hardy, C.D.: Hydrographic Data Report: Long Island Sound, 1969. MSRC Technical Report No. 4, January, 1970. (see also Research Round-up)

Both Technical Reports are available upon request from the Center.

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Sweeney, R.A.: Survey of Benthic Macroinvertebrates and Analysis of Water and Sediments from the Buffalo River. Great Lakes Laboratory Special Report No. 2, December, 1969.

Copies may be obtained by writing to Dr. Sweeney who is Director of the GLL, SU College at Buffalo, 5 Porter Ave., Buffalo, N.Y. 14201.

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Siler, W.: Near- and Farfields in a Marine Environment, J. Acoustical Soc. Amer. 46:483, Aug. 1969. Mr. Siler is Chairman of the Medical Computer Science Program, Downstate Medical Center, Brooklyn.

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The Newsletter would like to receive newsworthy items related to SUNY's marine program. Such material might include reports of new marine-related courses or research projects, faculty appointments, grants, meetings, publications, etc. This material, subscription requests and miscellaneous inquiries should be addressed to Mrs. Judy Smith of the MSRC.