

Coastlines

NEW YORK STATE SEA GRANT PROGRAM AND MARINE SCIENCES RESEARCH CENTER

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MARINE ADVISORY SERVICE

The New York State Sea Grant Advisory Service is now staffed on Long Island with two regional marine specialists, Roger N. Allbee and William S. Walters, and a secretary, Mrs. Mildred Hansen. Roger Allbee received the B.S. degree from the University of Vermont in 1967, majoring in agricultural economics. Recently he obtained the M.S. degree from the University of Massachusetts in resource economics. His M.S. thesis dealt with a decision framework for allocating estuarine resources in a coastal community. Bill Walters is a recent graduate of the Department of Natural Resources at Cornell.

In the first year of operation on Long Island, the Advisory Service is developing a program with both flexibility and direction. The two agents have identified areas with which each will be concerned. Roger Allbee is focusing his attention on marinas and boat businesses, power plant siting, planning boards, commercial fin fishermen, and baymen. Bill Walters is concerned with marine education, shore protection and stabilization, conservation councils, and commercial fishermen also.

First year programs within Allbee's areas of interest are: (1) attendance at local and regional planning board meetings to acquaint members with the services available to them; (2) meetings with commercial fishermen to identify their problems so that effective Advisory Service programs can be developed; (3) appraisal of the economic importance of mariculture operations on Long Island; (4) a winter meeting for marina and boat business operators on dry dock storage, sewage disposal, advertising, and insurance; and (5) work with the Farm Credit Bureau to inform fishermen of financial assistance available to them through the Bureau.

Bill Walters is currently involved in (1) expansion and revision of 4-H Marine Biology programs in Nassau, Suffolk, and Westchester Counties in cooperation with Cooperative Extension staff; (2) developing a wetlands nature education center at Mt. Sinai Harbor in conjunction with the Dept. of Environmental Conservation; (3) identifying interests and problems of charter and party boat operators through individual and group contacts, to formulate a program responsive to their needs; (4) compiling information on dredge spoil management and revegetation so communities and agencies can better stabilize and plant these difficult soils; and (5) expanding public awareness of Sea Grant Advisory Service through dissemination of information at meetings and in selected mailings of Advisory Service brochures.

The Marine Advisory Service office is located at the Marine Sciences Research Center, State University, Stony Brook, telephone (516) 246-7777.

GREAT LAKES ADVISORY SERVICE

The State University College at Brockport has been selected as the most suitable location for the Great Lakes Advisory Service office, after extensive search in the eleven-county area. It is staffed with a regional marine specialist, Richard W. Gross, and a secretary, Mrs. Helen R. Maier.

Dick Gross has a B.S. and M.S. from Rutgers. He has served for over twenty years in state and federal government as a fishery biologist, assistant director and acting director of the New Jersey division of Fish and Game, and regional supervisor and assistant division chief in the Bureau of Outdoor Recreation, Dept. of the Interior.

Among his assignments have been a lake and pond survey program; cold water lake and stream studies; and studies of the Connecticut River, the Hudson River, Federal Power Commission recreation

exhibits, and offroad recreation vehicles. Dick Gross comes to Sea Grant on loan from the Bureau of Recreation under the Intergovernmental Personnel Act of 1970. The Act affords federal, state, and local governments, and institutions of higher learning, an opportunity to exchange personnel.

The Great Lakes Advisory Service will offer assistance in the following counties: Cayuga, Chautauqua, Erie, Franklin, Jefferson, Monroe, Niagara, Orleans, Oswego, St. Lawrence, and Wayne. This region of great resources, some overtaxed and some underutilized, includes a wide assortment of environments from undisturbed natural areas to New York's second largest city, Buffalo.

Great Lakes Advisory Service address: Sea Grant Advisory Service, Hartwell Hall, SUNY, Brockport, telephone (716) 395-2638.

MEETING ON BAY SCALLOPS

A panel discussion on bay scallops was held at the Hampton Bays Legion Hall September 14. The meeting was sponsored by the N.Y. State Sea Grant Advisory Service in cooperation with the Southampton Baymen's Association. Panel members included several representatives from the Dept. of Environmental Conservation: Robert MacMillan, Supervisor of Environmental Control (Coastal Resource Management); Pieter VanVolkenburgh, Associate Aquatic Biologist (Marine); and Donald Zachea, Biologist at the Flax Pond Research Laboratory. Baymen from Southold and East Hampton Baymen's Associations also attended the meeting.

Discussion centered on culturing scallops, shellfish management, and water temperature and water quality as they affect scallops. Some of the questions considered were: What is the temperature range that scallops can live in? Can scallops be hatched and broadcast into the bays? Can eelgrass be planted as this seems to increase scallop yield? Can State and town laws on harvesting seasons be made to coincide?

The bay scallop harvest in New York has represented a sizeable crop both pound and dollar wise in past years. Prior to 1932, annual landings exceeded one million pounds of meats. Landings declined after that date. In the early 1960's there was some increase again; 1962 landings were 987,000 pounds. 1967 marked an abrupt decline in the bay scallop harvest with only

164,000 pounds. This recent decline may have been caused by overfishing, whereas the decline after 1932 was attributed to destruction of eelgrass beds by disease.

Scallops are a common property resource. On a non-commercial basis anyone has free access, depending on the town law, to harvest up to one-half bushel per person per day. With the consistently high scallop prices, more people are apt to engage in harvesting with overfishing of the resource as a result. Current prices at the Fulton Fish Market (wholesale) in New York City are around \$2.62 per pound of meats for North Carolina bay scallops. (The Long Island season opens the third Monday in September.) Such high prices may bring about new entries into the scallop harvesting operation this year.

SEA GRANT FILM

The 16 mm sound and color film on the New York State Sea Grant Program had its informal premiere before the National Sea Grant Panel and principal investigators from the New York Program in Brockport, N.Y., September 19. Revisions suggested then will be incorporated in the final version released in November.

The film stresses the varied and complex uses of New York's marine and Great Lakes environments, for industrial, commercial, agricultural, residential, and recreational purposes.

Scenes were shot on Long Island, Lakes Erie and Ontario, and the St. Lawrence. On Long Island, emphasis was placed on the value of protecting wetlands, the importance of commercial fishing, and the ever-present threat of development with adverse effects on the coastal environment.

Scenes on Lake Erie illustrate the decline of the commercial fishing industry, and the many uses of Lake water in and around Buffalo.

For Lake Ontario stress was on the role of power plants, the burgeoning outdoor recreation industry, problems of fish dieoffs and algal blooms, and the importance of freshwater wetlands.

The St. Lawrence River scenes show how one of New York's major recreation areas is being affected by transportation, shoreline development, and water utilization for industry.

"Actors" in the marine portion of the film include John Poole of the Dept. of

Environmental Conservation, Churchill Smith of the National Marine Fishery Service, and commercial fishermen.

Great Lakes talent includes Richard Mayer, Director of Lake Erie Environmental Studies, SUC Fredonia; Robert Sweeney, Director of Great Lakes Lab, SUC Buffalo; and William Tyson, St. Lawrence-Eastern Ontario Commission.

The campuses of Suffolk, Oswego, and Stony Brook were featured.

The twenty-minute color film, produced by Cornell University Audio Visual Dept. under the direction of Dick Turner, will be available from four locations including the regional Advisory Service offices at Stony Brook and Brockport. It should be especially useful to Principal Investigators who wish to explain Sea Grant to an audience prior to describing their particular research projects.

MERCURY DETECTION

The problem of mercury contamination of fin fish and shellfish has become a major issue to the sport and commercial fisheries of New York and many other coastal states. High mercury levels have been found in most fish and shellfish from New York's marine region as well as in fish from the Great Lakes. In some cases levels were found to be well above the 0.5 parts per million limit established.

Reliable chemical analysis of mercury in the environment is an essential prerequisite to success of any effort aimed at a fundamental understanding and monitoring of the hazards posed. Most studies to date have been concerned with the amount of mercury found in fish, other foods and body tissues. Several analysis procedures, although quite involved, do measure the mercury found in these substances. A method is needed, however, to detect the very low levels of mercury in water. The method should be relatively rapid as well as accurate. This would permit monitoring of water for mercury contamination and detection before a great deal of mercury was concentrated in the food chain.

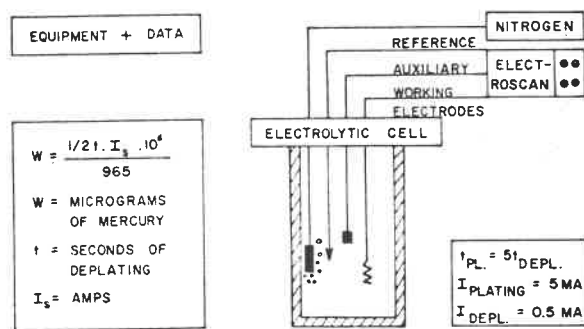
Arjen Teitsma and Anthony Van Geet of the Chemistry Department, State University College, Oswego, have been carrying out Sea Grant research toward the development of an automatic analyzing method that would directly determine the total mercury in lake water. The method possibly could also be used for other heavy metals such as cadmium and arsenic.

The approach taken was to search out available methods and techniques most worthy of further investigations. The electroanalytical approach seemed to meet the criteria of low detection

levels and rapid analysis. Even though the field represented a multitude of possibilities, Van Geet and Tietsma found that the most practical and successful techniques so far was anodic stripping.

In this process, the element of interest (in this case mercury) is deposited electrochemically on an electrode at a specific current level. The formed deposit is then dissolved electrochemically or stripped by reversing the current. The amount of electricity required to strip the material from the electrode determines the amount present.

The goal of the researchers is to extend the detection limit of this process into the range needed for direct determination of total mercury in natural water. By varying different aspects of the method, they are rapidly approaching the low levels of detection required. In addition, the total procedure now takes only slightly over four minutes to perform. Van Geet and Tietsma have illustrated their process in the diagram below.



ON THE DELAWARE

Sea Grant Advisory Service and Cooperative Extension staff visited the Delaware Sea Grant Advisory Service headquarters at Lewes recently as part of a continuing program to exchange information and keep New York up to date on other Advisory Service efforts. Bruce Wilkins, Advisory Service Program Leader; Bill Walters, regional marine specialist; Robert Brewster, Suffolk County Cooperative Extension agent; and Walter Adrosco, Westchester County agent, attended the two-day session. They toured mariculture facilities for oysters, and sand stabilization projects; and discussed the Delaware project of building artificial fishing reefs in conjunction with party boat captains. The Delaware experience in choice of media for communicating on marine topics was also explained by Kent Price, Director of Advisory Services in Delaware, and his field staff. New Yorkers

will maintain close liaison with eastern seaboard states and other Advisory Service programs with similar programs.

WETLANDS REPORT

The comprehensive study "The Marine Wetlands of Nassau and Suffolk Counties," by Joel S. O'Connor and Orville W. Terry of the Marine Sciences Research Center under contract to the Nassau-Suffolk Regional Planning Board, is now available from the Marine Resources Council, Nassau-Suffolk Regional Planning Board, Hauppauge, N.Y. 11787. In an editorial commenting on its timeliness, the New York Times termed the April 1972 report "the first serious study of Long Island's wetlands in 34 years."

Drs. O'Connor and Terry document a loss of about 25 percent of Suffolk County's wetlands since 1964. (Most of Nassau's remaining wetlands were already owned by some level of government.) The risk to Suffolk's 12,000 or so acres of wetlands is acute because well over one-third are still in private hands.

The report emphasizes the overall importance of wetlands and the cumulative effect of their destruction which is more important than the significance of individual wetlands. Maps of all the tidal salt marshes in the two counties include information on dominant vegetation, ownership and access.

WETLANDS CONFERENCES

In response to growing public understanding of the importance of our dwindling wetlands and concern for their conservation, a Long Island Wetlands Management Symposium was held at Stony Brook August 16, sponsored by the Long Island Environmental Council in cooperation with the New York State Sea Grant Advisory Services. The meeting was attended by representatives of Long Island town governments and conservationist groups.

Some already existing management tools available to the towns were discussed. They include possible acquisition by the Bureau of Sport Fisheries and Wildlife, Dept. of the Interior, for migratory bird refuges or fish and wildlife conservation; use of negative easements by the towns to a private owner under which he might be compensated for not filling in his wetlands; and the Long Island Wetlands Agreement Act which makes available State Funds for joint management by the Dept. of Environmental Conservation and the town that enters into such an agreement.

Other tools are on the November ballot or will be proposed next year in the State Assembly: the Suffolk County shoreline

review charter amendment, the Environmental Bond issue, and a wetlands preservation bill.

Speakers were Anthony Taormina and George Humphreys, Dept. of Environmental Conservation, Gary Rankel, Sport Fisheries and Wildlife Division, Kemp Hannon, Nassau County Attorney's Office, Thomas F. Harrison, Environmental Protection Bureau, D. W. Bennett, American Littoral Society, and Louise Strassenburg, Suffolk County League of Women Voters. Roland Clement, National Audubon Society, was moderator. Proceedings will be available in mimeograph from the Sea Grant Advisory Service Office at Stony Brook.

The Marine Resources Council of the Nassau-Suffolk Regional Planning Board in cooperation with the Office of Sea Grant, National Oceanic and Atmospheric Administration (NOAA), held a Wetland Management Seminar in Hauppauge, September 15. John V.N. Klein, Suffolk County Executive, introduced the seminar with a plea for bridging the "language gap" between scientists and elected officials. Sessions were chaired by Edward C. Stephan, Chairman of the Council, and Robert Abel, Director, Office of Sea Grant.

Speakers from NOAA, Corps of Engineers, and Environmental Protection Agency discussed aspects of wetland management at the federal level. Sea Grant-funded research on wetlands and coastal zone management in Florida and Puget Sound, Wash., pressing research needs, the success of Massachusetts wetlands legislation, and the Pennsylvania experience in bringing legal action at the local level were among the topics covered. Proceedings will be published by the Planning Board.

THE SOUTH SHORE RIPOFF

Although we have spent many millions of public and private dollars in a vain effort to stabilize the rapidly eroding south shore beaches of Long Island, we still do not have the information necessary to make intelligent management decisions about this magnificent resource. We do not know enough about the erosion and deposition processes that affect the coastal corridor, man's involvement in and alteration of these processes, and the amount of change occurring.

Geomorphologists from SUNY Binghamton, with Sea Grant support, have been working on problems of erosion, stabilization, and utilization of south shore beaches for over a year, as part of a five year environmental study. They are using a systems and equilibrium approach, looking at the full range of processes and their interaction. Scientists who

have worked heretofore on these problems have been "mission-oriented," interested in one aspect of the problem, primarily engineering or sedimentology.

The Binghamton team led by Drs. Donald Coates and Marie Morisawa, is applying to the coastal corridor knowledge gained from river studies, treating the Long Island seashore with its westward littoral drift as one half of a river system, a river with one bank.

They are making an inventory of the coastal terrain forms, and looking at the shoreline changes in time, whether caused by abnormal storms, normal processes, or induced by man. Air photos have been taken since 1938 and, by lucky chance immediately before, during and after the extraordinary high tides which caused so much damage in 1962.

Beginning with the western section of Fire Island in the first year, Drs. Coates and Morisawa selected several projects for graduate thesis research, designed to provide quick solutions to environmental problems crucial to the Fire Island community and public domain.

Working closely with the National Park Service, they identified critical areas of accelerated erosion on the bay-side of Fire Island. Comparing the areas of accelerated erosion with others not eroding as rapidly, using detailed topographic analysis, botanical and sediment studies, they have narrowed down the reasons for the acceleration to man-made damage by picnickers, winter ice-shove which undercuts dunes, and vegetation differences. Another researcher is determining the nature and extent of man's impact on Great South Bay through building marinas and bulkheads and dredging ferry channels.

"As geomorphologists," says Dr. Coates, "we are interested in man as an agent of change, transforming the landscape." A third project deals with the effects of man's interference with the natural system in the fragile environment of Fire Island, and seeks to determine the natural constraints on human occupancy there: terrain, water resources, sanitation facilities, etc.

A fourth project is examination of the man-made dune stabilization process, relating the Fire Island dune system to dune investigations in other regions such as Rhode Island and Cape Hatteras. Literature exists, but not for Long Island, on seeding, windrows, fences, and the whole range of physically piling up materials. This study includes other aspects of dune stabilization such as laws, ordinances, and

planning procedures. For example, soon to be tested in the courts is a Town of Islip zoning ordinance stating that you must build at least 100 feet behind the dunes.

All this program is being planned in close cooperation with federal agencies and local groups, including the National Park Service, Corps of Engineers, Geological Survey, State Park Commission, Nassau-Suffolk Regional Planning Commission, and Town of Islip. Because much of the problem is a public information problem, the research group plans a series of conferences and meetings, public information pamphlets, brochures and reports in cooperation with Sea Grant Advisory Services. They will provide data, descriptive analysis, and extension service suggestions and alternatives for planning and action in the coastal environment to the general public and special interest groups.

An indication of their interest in broadly disseminating information on the coastal region was the third annual symposium on Coastal Geomorphology, held at SUNY Binghamton September 29-30.

SUNY RESEARCH & TEACHING AT DISCOVERY BAY LABORATORY

Discovery Bay Marine Laboratory in Jamaica, a joint facility of the State University and the University of the West Indies, sponsored in August a major undersea cooperative research effort involving biologists and geologists from Jamaica, Britain, Canada, and the United States.

The project, which received a \$36,000 grant from NSF, used a two-man submersible with depth range of 1,000 feet and battery-powered dive duration to six hours. The research sub, called NEKTON, has an arm with claws controlled from inside, for specimen collecting and operating special types of gear. The reefs at Discovery Bay, already some of the best known scientifically in the world, have now been explored in a new dimension, below Scuba limits.

Biological studies in the project included growth forms and skeletization of deep corals, deep distribution of calcareous algae and of the sediments derived from them; ecology and taxonomy of deep reef fishes, the cryptic crevice fauna; and sponges at depth. Geologists worked on characterization of the lithified steep scarp and, using dynamite to "dissect" part of the scarp to obtain inner samples of the reef rock, to estimate the rate of growth of the reef at depth.

Principal scientist for the project was Dr. Lynton S. Land, University of Texas at Austin. All participants assisted in mapping and photographing the reef escarpment.

In addition to the usual summer session in Tropical Botany and Zoology of SUC/Oswego, there was a marine biology workshop held at the Lab by Rockland Community College. The course included field explorations around the coasts of Jamaica, discussions and seminars.

Among the SUNY researchers at the Lab this summer were Dr. H. Lyman, working on chloroplasts of the sea-slug Tridachia crispata, P. Dustan on physiological ecology and population dynamics of the reef coral Montastrea annularis, P. Sammarco on the shellfish Tellina, and B. H. Brinkhuis on grazing behavior of Tridachia crispata, all from Stony Brook; and Drs. W. Siler, E. E. Suckling and P. H. Cahn of Downstate Medical Center, on low frequency vibration emitted by fish movement, its effects on fish behavior and schooling, and recording of this vibration from reef fish.

Arrangements to do research at the Lab are made through the Director, Peter M. J. Woodhead, Discovery Bay Marine Laboratory, P.O. Box 35, Discovery Bay, Jamaica, West Indies.

STONY BROOK ARMADA

On September 23, when the Hudson River is at or near its minimum flow, the MSRC conducted its second study to determine the exchange of pollutants between the Hudson and the Long Island Sound through the East River. The Sea Grant-supported effort, supervised by Dr. Malcolm Bowman, oceanographer at the MSRC, and David Jay, a student in the Marine Environmental Studies Program, used 13 boats and shore facilities lent by federal, state, and city agencies and colleges. Over 80 student volunteers stationed from the Narrows to Execution Rock measured salinity, and temperature, dropped current drifters to estimate tidal velocities, and took water samples throughout the 12-hour tidal cycle.

The water samples will be analyzed for salinity at the MSRC and for heavy metals by the Port Authority of New York. A similar study was carried out in April, when the Hudson is at peak flow. Results from both efforts will be integrated in the Sea Grant-sponsored management model of western Long Island Sound initiated by Dr. Peter K. Weyl.

One puzzling question still to be resolved after the armada is the source of food supply for a colony of rats apparently thriving on Mill Rock, a bleak uninhabited outpost in Hell Gate south of Wards Is. and northeast of Gracie Mansion.

CONSERVATION FILMS

Nearly 200 films on a broad range of subjects including pollution abatement, natural history, outdoor recreation, environmental education, and careers in conservation and forestry have been prepared by the SUNY College of Environmental Science and Forestry at Syracuse, and are available on loan free of charge (except for postage and insurance) to any public or private school, college, civic organization or other group in New York State. A catalogue may be obtained by writing: Film Librarian, State University of New York College of Environmental Science and Forestry, Syracuse, N.Y.

WOMEN'S LIB AT SUNY MARITIME

SUNY Maritime College has accepted the first woman in its 98-year history. The New York Civil Liberties Union dropped a suit against the State University after the College at Fort Schuyler admitted Marjorie M. Murtagh for study beginning in September.

Ms. Murtagh, an honor student who completed two years toward an engineering degree at Rockland Community College, will study naval architecture in the college's daytime academic program which does not require participation in the cadet corps and the program leading to a merchant marine license.

Coastlines is available free of charge by writing to : Ellen Arel, Editor, New York State Sea Grant Program, J-143, Marine Sciences Research Center, State University, Stony Brook, N.Y. 11790