UNIVERSITY OF NORTH CAROLINA

SEA GRANT COLLEGE NEWSLETTER

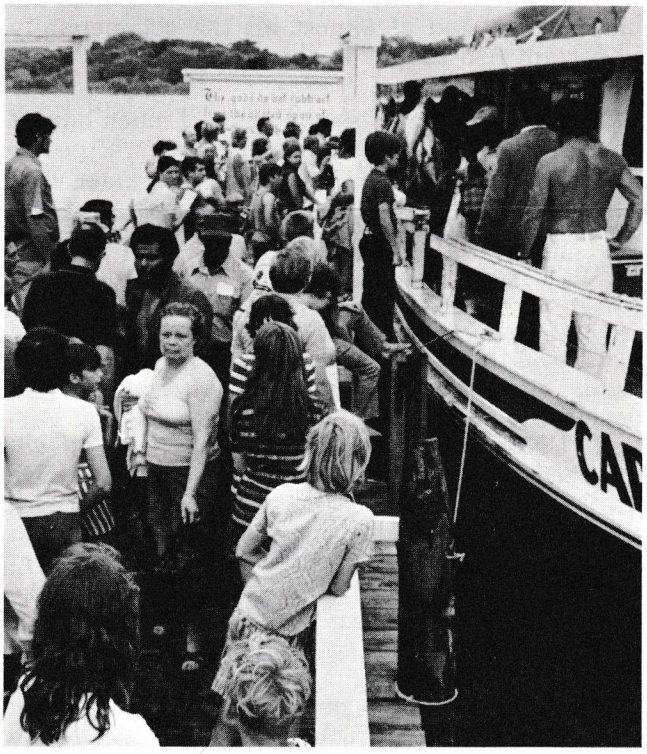
DECEMBER, 1976

1235 Burlington Laboratories
NCSU, Raleigh, N.C. 27607 Tel: (919) 737-2454

The year to come: a look at Sea Grant '77

Minced fish. Frozen fish. Septic tanks. Erosion. Milfoil. Beach access.

Sea Grant's job is to help people get the most use out of their coastal resources without endangering those resources. Every year, scientists, lawyers, economists and other researchers at the campuses of the University of North Carolina take a look at coastal research and advisory needs.



Proposals are made to meet those needs. After careful review, both by state agencies and the Office of Sea Grant in Washington, the University of North Carolina Sea Grant College Program draws up a plan of research, education and advisory services for the coming year.

So, here's our plan for 1977. Come January, researchers will take on erosion, milfoil, beach access and much, much more. It's an exciting year for us because the program, now in its seventh year of federal-state support, is expanding. Then, too, much of the research of the past year or two is wrapping up enabling us to head off in some new directions.

A common scene at the beach—increasing development.

Estuarine studies

North Carolina has 2.5 million acres of estuary. This area where salt water from the ocean mixes with the fresh waters of rivers and streams is the breeding ground of almost all the commercially important fish caught in the state.

The estuaries are also the scene of much human development. As more and more types of people and activities compete for the land and water, conflicts naturally arise. The environment of the estuary—and the economy of the coast—become threatened.

One way to keep track of the environmental health of the coast is through birds, which are easily affected by change. After several years of developing and perfecting their methods, Jim Parnell (UNC-W) and Bob Soots (Campbell College) are ready to make the state's first comprehensive bird census. This base-line data compared with future counts will make any changes apparent and warn state officials of possible serious environmental problems while there's still time to act. The data, including breeding bird populations, will be compiled in an atlas to be published by Sea Grant.

One environmental problem which is already obvious is pollution. About 472,760 acres of North Carolina's estuaries are closed to commercial shellfishing because of pollution and much of the blame is placed on septic tanks. Sea Grant researcher Bobby Carlile (NCSU) plans to continue demonstrating alternatives to conventional septic systems. He'll also identify the basic soil limitations for both conventional and experimental septic systems.

Shellfish waters are now tested for bacterial pollution, but Sea Grant scientist Mark Sobsey (UNC-CH) suspects that the present method doesn't spot viruses like the ones that cause hepatitis or polio. Through work with the State Shellfish Sanitation Lab, he'll learn whether the present testing is adequate. If it's not, he plans to suggest a practical virus test he's developed.

Up in Currituck Sound, Sea Grant researcher Graham Davis (ECU) will tackle the problem of Eurasian watermilfoil, an aquatic weed which is clogging boat motors, breeding mosquitoes, snarling fishing lines and emitting putrid odors when it rots in the fall. There are also questions about how milfoil affects the bass industry, water quality and public health. Davis, along with associates Mel Huish and Leon Abbas at NCSU, will look at the problem from several angles and suggest a solution that is practical and ecologically sound.

Food from the sea

North Carolina's sounds, bays and ocean teem with protein-packed life. About three per cent of the nation's commercial seafood comes from these waters, but processing in the state lags far behind. Researchers Marvin Speck and George Giddings, both of NCSU, are trying to help processors. Speck is looking for ways to increase the shelf life of seafood products and protect the good health of consumers.

Giddings is researching the effects of processing on trace elements and heavy metals in seafoods. His findings will be used to make recommendations on minimizing chemical contamination while assuring the best nutritional value of the product.

Another way to assist North Carolina's seafood industry is by introducing new products. To be successful, the new foods must be liked. So researcher Donald Hamann (NCSU) is looking at how to give new minced seafood products the popular texture of red-meat based foods.

Aquaculture is another logical way to expand North Carolina's seafood industry. Bill Rickards (NCSU) and associates have already shown that eels can be grown here in ponds. They'll continue to refine economic analyses of eel farming and provide technical information and help to potential eel growers and other scientists. They'll also gather biological and nutritional information on eels at the New Bern "farm."

Disease is an obstacle to many aquaculture ventures since it can spread quickly in confined aquaculture ponds and wipe out a "crop" in just a few days. Biologist Chuck Bland (ECU) has been studying fungal diseases affecting aquaculture and has provided some practical advice that saved many cultured shrimp and their growers. He'll continue to study the biology and control of fungal diseases and to help aquaculturists with disease problems.

Heading shrimp for marketing.

Beach access is a growing problem.

Legal studies

North Carolina's beaches are open to the public. But with increasing development, it is increasingly difficult to get to those beaches. "No Trespassing" signs dot beach front houses. Fences spring up.

David Brower (UNC-CH) will tackle the thorny problem by defining, evaluating, testing and presenting the most effective legal tools which may be used by governments to secure public access to coastal beaches.

Coastal studies

North Carolina's coastline stretches over 330 miles. Over half a million people make their homes here. Where people and environment meet, problems sometimes arise. Eroding shorelines and continuing development are an obvious example.

Estuarine shoreline erosion gobbles up an average of two to three feet a year in North Carolina. But losses of 20 feet are not uncommon. Folks just can't afford to wait and see which backyards the land thief will gobble up.

For the past two years, Sea Grant-supported researchers at East Carolina University have been examining how erosion works and the factors that slow it down or speed it up. In 1977, Stan Riggs, Mike O'Connor and Vince Bellis will present local governments and land owners with a classification system of shoreline types and tips on identifying and dealing with those types.

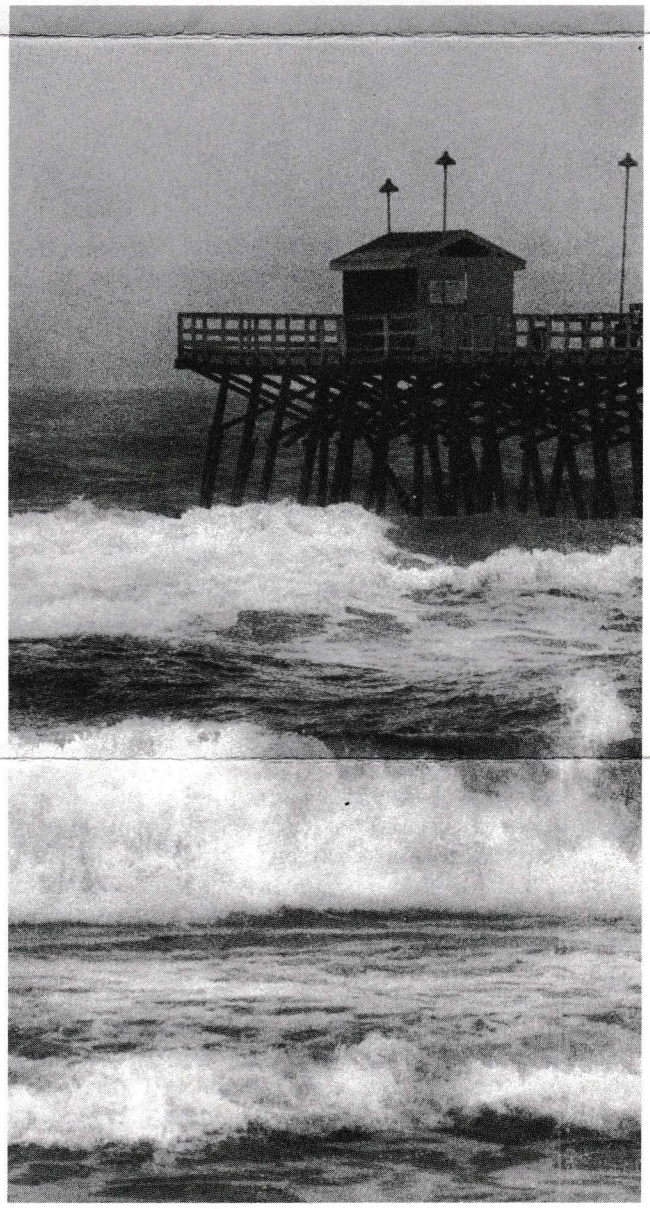
There's more good news on estuarine erosion. Scientists working at North Carolina State University have proven that in some cases marsh grasses can be planted to slow and, sometimes, even reverse erosion. The problem is, the researchers can't readily predict where their grasses will and won't work. So, this year, Ernest Seneca and Steve Broome (NCSU) are teaming up with NCSU physical oceanographer Ernie Knowles in an effort to establish the physical and biological parameters affecting establishment of marsh vegetation.

Of course, nature takes her toll on the barrier islands as well. Besides erosion, the barrier islands are faced with periodic oceanic overwash—when the sea rushes over the land. Bill Cleary and Paul Hosier (UNC-W) will map areas that experience overwash in varying degrees and explore whether and how vegetation can be a key to identification of potentially hazardous washover areas.

A close cousin to the washover, the inlet, will get a once-over by NCSU's Jerry Machemehl. He'll be developing predictive models for inlet behavior to help coastal engineers design inlets and predict the effects of man-made changes.

Another problem connected with increasing coastal development is sewage disposal. To tackle the problem, some people look to the sea for ocean outfall of treated wastes. Len Pietrafesa (NCSU) has been examining the circulation patterns off our southern—and rapidly developing—coast in Onslow Bay to predict where sewage dumped offshore might go. In 1977, John Bane (UNC-CH) and Pietrafesa will broaden the work to include the more northern—and very different—Raleigh Bay as well. Their research is part of work being done to solve this high priority problem by combining funds from the N.C. Office of Marine Affairs, the Energy Research and Development Administration, and the National Atmospheric and Space Administration.

Related work, to be done by Yates Sorrell (NCSU), will establish engineering criteria and define the site data necessary for the evaluation of a proposed outfall design. This, too, is part of the overall ocean outfall study.



The quirks of ocean currents are being explored to judge the effects of ocean dumping contemplated for the future.

Advising at the coast. Left to right, Lawrence Lee Austin talks with advisory agents Hughes Tillet and Sumner Midgett about clam gardening.

Advisory services and education

A program like Sea Grant can't live in an ivory tower. Research findings have to be delivered to the people who can use them. And those same people play a key role in pointing out research needs. It's a two-way street.

Key to a smooth ride on that street are Sea Grant's advisory agents and specialists. Their job is to help the coastal public in any way they can. Advisory services in 1977 include:

Fisheries—Agents Sumner Midgett, Hughes Tillet (Manteo, 473-3937) and Skipper Crow (Morehead City, 726-7341) specialize in keeping fishermen informed of advances in equipment and business opportunities. They've worked with hydraulics, boat insulation, floating trap nets, clam and oyster "gardening," and the state's new eel fishery, among other things. A fourth agent, working out of Wilmington, will join them after the first of the year.

Seafood—Ted Miller, Joyce Taylor, Dave Hill and Keith Gates at Sea Grant's Seafood Lab in Morehead City (726-7341) take seafood the next step. They work with fish houses and processors on handling, plant design, product quality, new products and much more.

Land use management—Simon Baker (NCSU, 737-2578) specializes in assisting coastal governments with such diverse needs as planning, storm damage assessment, and aerial photography for delineation of coastal wetlands.

Recreation—New to our program in 1976 is Leon Abbas (NCSU, 737-2578). Abbas, an economist, is working on recreational business problems, marine recreation planning and policy.

Engineering—In 1977, a new and much needed specialist will join Sea Grant to help coastal governments and property owners with development and construction. This will include such engineering problems as bulkhead design.

Another way Sea Grant spreads the word and helps keep the public informed is through education.

Because the state is facing increasing legal questions Tom Schoenbaum of the UNC-CH law school will be developing an ocean and coastal law program for the school. This will provide an opportunity for selected students to conduct legal research on particularly pressing problems as well as train future lawyers for the state.

The University of North Carolina Sea Grant College Newsletter is published monthly by the University of North Carolina Sea Grant College Program, 1235 Burlington Laboratories, Yarborough Drive, North Carolina State University, Raleigh, N.C. 27607. Vol. 3, No. 12. December, 1976. Dr. B. J. Copeland, director. Written and edited by Karen Jurgensen and Johanna Seltz. Second-class postage paid at Raleigh, N.C. 27611.

Update: extended jurisdiction

With implementation of the new Fishery Conservation and Management Act of 1976 coming this spring, the South Atlantic Regional Fishery Council—which will oversee extended jurisdiction off North Carolina—is hard at work. The Act, commonly called the 200 mile limit, will limit foreign fishing off United States coasts.

Meeting earlier this month in the Pine Knoll Shores N. C. Marine Resources Center, the group heard reports on research being done by the National Marine Fisheries Service—which is to provide major technical backup for the fisheries management plans.

Mike Street, of the N. C. Division of Marine Fisheries, explained preliminary plans drawn up by the Northeast offices of the National Marine Fisheries Service. Those plans which would affect the southeast are: Atlantic herring, 35 million pounds allocated to foreigners; squid, 83 million pounds allocated to foreigners; hake (silver and red), 280 million pounds allocated to foreigners; Atlantic mackeral, 100 million pounds for foreigners; other finfish (including river herring, trout, croaker, spot, king mackeral, Spanish mackeral, porgy, snapper, grouper), 134 million pounds for foreigners.

Street explained that plans were only done on those species which the government would even consider allowing foreign fishermen to take. Haddock and cod were not done, for example, because no foreign permits are expected to be issued.

Additionally, Street said there were some problems with the plans, partially because, unlike northern fisheries, there is no good stock data available for most southeastern fisheries. Another problem, Street felt, was the lack of gear restrictions which could lead to increased by-catch. The council agreed to review the plans and make recommendations.

The council also considered a number of other questions ranging from the need for a flounder management plan, to limited vessel time for research work, to procedures for public participation in drawing up final management plans, to budget ($857,000 for 1977), to the council's assignment to draw up a billfish management plan.

Five nations, including the Soviet Union, have now signed Governing International Fisheries Agreements with the United States under the new 200 mile limit. By signing, those nations agree to go along with the act and their fishermen will pay fees for fishing in U. S. waters.

The Council will open an office in January in Charleston, S. C. (the region includes North Carolina, South Carolina, Georgia and Florida). Also, an executive director is expected to be named next month.

One of the ways we try to keep people informed of Sea Grant activities is through this newsletter. Another way is through our annual report. The 1975 annual report outlines advances made by Sea Grant researchers and advisers last year (the 1976 report, of course, isn't at the printers yet).

If you'd like to receive our monthly newsletter or our annual report (they're both free), just fill in the form below.

Name _____

Address _____

_____

Coastal interests _____

Newsletter _____ Annual Report _____

University of North Carolina
Sea Grant College Program
1235 Burlington Laboratories
North Carolina State University
Raleigh, N.C. 27607

Second-class postage paid at Raleigh N.C. 27611

Dr. A. C. Menius, Dean
School of Physical Sciences and
Applied Mathematics
Raleigh, N. C. 27607