



UNIVERSITY OF NORTH CAROLINA

SEA GRANT COLLEGE

NEWSLETTER

December, 1977

105 1911 Building
NCSU, Raleigh, N.C. 27607 Tel: (919) 737-2454



Sea Grant advisory services

A little help from your friends

Last spring Richard Kepley of Carolina Beach ran into some trouble. Kepley had just gotten his commercial fishing operation, Seafood Farms International, underway. His first boat, the 72-foot *Theodora*, had been completed and was already fishing. But, saddled with a green captain and crew and inadequate rigging, she was having trouble.

Kepley went to Sea Grant's advisory agent in the Wilmington area, Jim Bahen, for help. Bahen turned to the network of Sea Grant advisory agents across the state and nation. Before long, he had Kepley's operation fixed up with an experienced stern trawling captain and more functional rigging.

Bahen is one of Sea Grant's 14-member advisory team. As a fisheries agent, his main job is to work with commercial fishermen. But the team also includes people who are experts in the fields of seafood technology and marketing, eel farming, coastal recreation and land use. Like Bahen, they are dedicated to improving the quality of life on North Carolina's coast. They do that by finding out what the coastal public needs and what they can do to help.

Often that means putting coastal residents in touch with Sea Grant researchers who are studying a particular problem. For instance, Sea Grant advisory (*See "Advisory services," page 2*)

Advisory services: "the vital connector"

(Continued from page 1)

agent Skipper Crow frequently fields questions from landowners in the Morehead City area who are struggling with erosion problems. He refers them to Ernie Seneca and Steve Broome of NCSU who have successfully used grasses to deter erosion.

Sometimes, the agents come up with a problem that serves as the impetus for a new research project. That's how Sea Grant got involved in a study which led to the development of a new and better procedure for detecting enteric viruses in seafood. Owners of crab plants in coastal North Carolina complained to agents at the Seafood Lab in Morehead City about the short shelf life of their canned blue crab meat. Researchers discovered that the reason was a high bacteria level that wasn't being detected by standard methods.

"The connector" is how Sea Grant's director B. J. Copeland describes the advisory service program. It's the link between the people of coastal North Carolina and the researchers on university campuses.

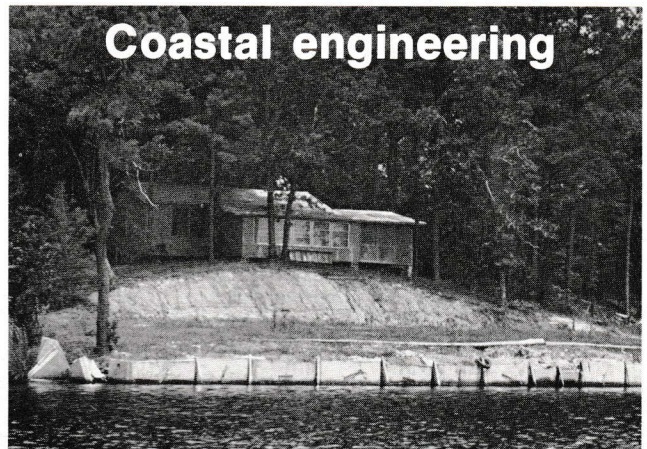
But no advisory service agent sits around waiting for researchers to come up with the answers. As experts in their fields, they've got the knowledge and know-how to tackle a host of problems. Often they seek out the individuals and businesses who could profit from their experience. Agent Hughes Tillett, for example, has helped to make life a little easier for commercial fishermen in the Manteo area. Several years ago he began introducing hydraulic-powered equipment. Now many fishermen have replaced their manual gear with the more efficient hydraulic gear.

The Sea Grant advisory services program is growing. We will be starting off the new year by hiring a full-time director of advisory services.

But advisory agents can't work in a vacuum. Their good work depends upon constant contact with the people who live, work, play and do business in coastal North Carolina. The names, addresses and phone numbers of each member of the team are listed in this newsletter. Give them a call.



Agent Skipper Crow



Parts of North Carolina's coastline are eroding at a whopping rate of 15 to 20 feet per year. That adds up to significant losses for those who own land along our estuaries and ocean. In many cases, though, the landowner doesn't have to sit by and watch his land wash away. Wise use of bulkheads or grass and tree plantings can save property.

But it takes know-how to construct an adequate bulkhead. Too often landowners, the victims of inadequate information, put money into poorly designed bulkheads, which actually increase the erosion problems on their property.

Good, affordable engineering advice is hard to come by in coastal North Carolina. That's where Spencer Rogers comes in. Rogers will join the Sea Grant staff as a specialist in coastal engineering in early March 1978. He has a graduate degree in coastal and oceanographic engineering and is an old hand at working with erosion control structures. Once he's settled in his headquarters at the Marine Resources Center at Fort Fisher, (919/458-5498), he'll be ready to lend a hand to landowners and businesses.

As Rogers sees it, public education is the first real step in solving coastal engineering problems. Ideally, buyers should know something about the erosion potential of their land before they sink a lot of money and hopes in it. Some areas, such as land adjacent to inlets, are known to be danger spots, and Rogers thinks people should be aware of that. He also believes they should know about the special problems of designing construction on the coast. Builders who don't take extra precautions to protect against storms, winds and flooding are asking for trouble.

Private landowners aren't the only ones who have trouble building for the coast. Sedimentation and pollution are currently plaguing dozens of small coastal marinas. The reason: the marinas aren't designed for proper waste circulation. That causes sediments, oil and waste from the boats to get trapped in the basins. Fortunately, there are ways to modify marinas to make them work better.

Rogers will also be available to consult with officers who administer the state's dune protection act and those who will grant permits for development in areas of environmental concern, as recently designated by the Coastal Resources Commission.

Fisheries agents: masters at hat-switching

It doesn't state anywhere in the job description that an advisory agent must know a little about a lot. But if you've worked with marine advisory agents Jim Bahen, Skipper Crow or Hughes Tillett, then you know it's a prerequisite. Although each of the agent's work focuses on the activities of commercial fishermen, they're there to help whoever they can. As a result their job routines are as changeable and unpredictable as the winds.

On a given morning you might find Jim Bahen down on the fishing docks at Carolina Beach helping a fisherman learn how to work a new trawl design. Or you might find Hughes Tillett at Ocracoke helping a clam farmer install some new pens, while Skipper Crow is arranging a meeting between a fish dealer in Morehead City and a wholesaler in Omaha.

By afternoon, Bahen will be handing out new tax law information to fishermen, while Tillett is working on a new hydraulic winch system, and Crow is answering questions over the phone about wild eel harvesting.

Nothing is typical about an advisory agent's day. Hat-switching is the name of the game. According to field supervisor Jim McGee, "In a single day they'll have several roles to play."

It takes a special person to be an advisory agent to North Carolina fishermen. The agent has to know where the fisherman's greatest problems are and how to anticipate his needs. In a sense, the agent is like an

information clearinghouse. If he doesn't have the answer to a problem or question right at his finger tips, he'll direct you to someone who does. And if no one else has the answers, then he'll take it upon himself to find out why.

Covering the more than 300 miles of North Carolina coast is no easy task. The thousands of nooks and crannies which characterize the coast make travel time consuming. But travel is extremely important if each agent is to gain the level of visibility that he needs to be effective.

Jim Bahen began his work as fisheries agent last spring. Since then, he's come a long way to gain the respect and confidence of area fishermen. Bahen is headquartered at the Marine Resources Center at Fort Fisher (919/458-5498) and is responsible for the southern portion of the state. A man of many interests, his primary attention has been focused on gear development and looking at North Carolina fisheries for black sea bass and rock shrimp. Bahen will go to any length to get the information he needs. In the fall he traveled to Oregon for a workshop on the new Loran C navigation system conversion. During the summer he joined forces with the state Department of Commerce to take a group of North Carolina boat builders to Alabama for some stern trawler rigging demonstrations.

Since 1973, Skipper Crow has been a valuable part of Sea Grant's advisory work. He's located at the

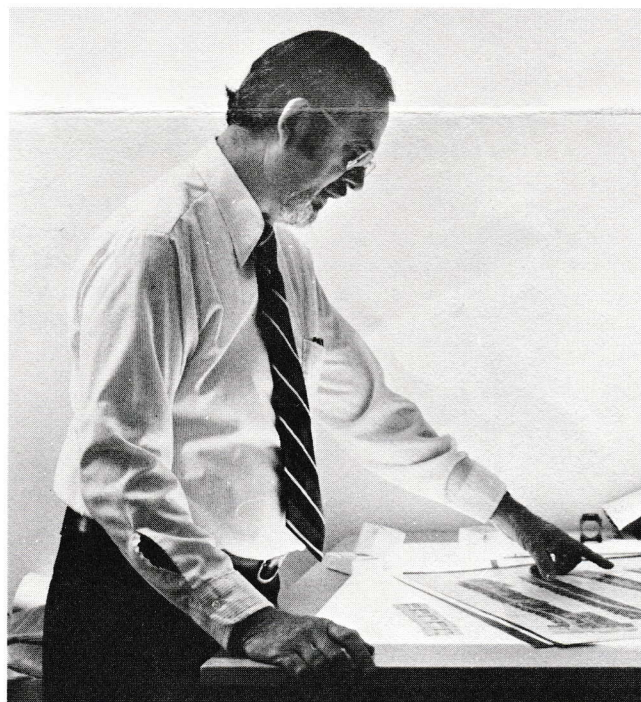
Land use planning: key to the wise development of

Land use planning for our coastal areas is not the kind of academic issue that is better left to the politicians. It's essential to the everyday life of all communities. Only good planning will assure a healthy balance of unpolluted recreation space and sufficient land for orderly development.

In short, it's everybody's business. That's why Simon Baker, Sea Grant's land use specialist, has recently turned his attentions to public education. Baker believes that if people are to help make wise decisions, they need to know something about the environmental and economic issues at stake.

Last year Baker and graduate student Les Thornbury produced a 30-minute color documentary film designed to do just that. "An Act To Protect" examines the landmark Coastal Area Management Act and the problems which led to its passage in 1974. So far, it has been presented over the UNC-TV network twice. Copies of the film are now available for viewing by individuals and groups. If you're interested, call or write Baker at the Sea Grant headquarters on the N. C. State University campus (919/737-2454).

Baker also helped to design a poster on the state's commercial fisheries for North Carolina's school



Marine Resources Center at Bogue Banks (919/726-0125) and works with fishermen along the central section of the coast, including Morehead City. Along with his many other advisory activities, Crow shows a flair for business management and understanding market mechanisms. He's a real asset to fishermen who need help in tapping new markets, some as far away as Memphis and Kansas City, and learning about the potential for underutilized species.

For Hughes Tillett, exposure is not a problem. Tillett is a well-seasoned agent whose early years as a commercial fisherman make his face a familiar site at the docks. Tillett is based at the Marine Resources Center in Manteo (919/473-3937) and covers the entire northern section of the coast, including the Outer Banks. Like all Sea Grant agents, he dabbles in a number of projects. But Tillett is particularly well versed in clam and oyster culture, hydraulics, and pot and trap development. If he's not answering the barrage of requests for information, he's in the field helping small-time fishermen install hydraulic pot pullers, demonstrating the versatility of the floating pound net, or updating a hang log which will eventually cover the entire North Carolina coast.

Our fisheries agents make up a pretty incredible team. We think they're hard to stump. If you have a question or a problem you think they can help with, don't hesitate to give them a call.

our coast

children and authored "A Citizen's Guide to North Carolina's Shifting Inlets." This book of aerial photographs tells the story of the migration of our 23 active inlets.

An expert in aerial photography, Baker just put his skills to work on a project that could prove crucial in the aftermath of a major coastal storm. Working with the Raleigh squadron of the Civil Air Patrol, he took a series of 440 oblique angle slides of all 320 miles of North Carolina's coastline. By comparing these slides with those taken right after a coastal storm, the staff of the Division of Civil Preparedness in Raleigh will be able to make speedy assessment of damage. That could mean that aid will get to the stricken area sooner.

During 1978 Baker is going to try to bring the problems of the coast to the attention of those who live in inland areas. That's because he's convinced that some of the major users of the coast live in other sections of the state most of the year. Headlining his plans is a series of two-day coastal film festivals which will be presented on university campuses all over the state.



Walt Jones (left) explains eel feeding techniques

Down on the eel farm

Down on the farm in New Bern, the eels are getting fatter and tastier by the year. That's what the experts said when Sea Grant's cultured eels were submitted to taste tests in two Japanese restaurants in New York this year.

It was just one of many encouraging signs that Walt Jones, John Foster and Bill Rickards got on the operation of their experimental eel farm. Now in its fourth year, the eel farm was established to see if the American eel could be profitably raised in eastern North Carolina. So far, the prospects look good. These skinny fish are in demand in the Orient and Europe, where they are considered real delicacies.

The eels are frequently harvested from outdoor ponds to be tested and weighed. With the special diet and feeding techniques developed at the farm, the eels have consistently reached a marketable size of one-quarter to one-half pounds in an average of 18 months. In the wild, that kind of growth takes about four to five years. Each spring the ponds are restocked with young eels or elvers which Jones and Foster trap in nearby rivers.

During 1978 the researchers will be trying to find out how much fishing of adult eels or elvers can be done without endangering the population. This study is especially important because of the development of an eel fishing industry in North Carolina over the past several years. With the help of Sea Grant advisory agents, it has become lucrative part-time work for about 350 fishermen.

The eel farm is a demonstration project, so Jones and Foster welcome visitors. If you'd like to see how the operation works, give them a call in New Bern 919/633-0414. Rickards, director of the project, also serves as associate director of the Sea Grant Program. He can be reached at 919/737-2454 on the N. C. State University campus.

Seafood agents

Upgrading North Carolina's industry

Until just a few years ago, the most sophisticated fish processing house in North Carolina did nothing more than ice and box fresh fish in the round. For the most part these simple operations were conducted in ramshackle wooden buildings.

The North Carolina seafood industry has come a long way since then. Now there are at least ten plants on the coast where fish filleting is routine. That means more jobs for residents and more money for processors. And the work is done in modernized plants with refrigerator rooms and concrete floors.

Sea Grant has been part of that change. At the Seafood Lab in Morehead City, Sea Grant agents and specialists have consistently explored new technology for marketing and processing that they can pass on to the seafood industry. The staff at the Seafood Lab already has quite a track record for helping the industry. Agent Dave Hill has helped processors to make multi-million dollar design changes in their plants which mean more efficient, sanitary service. At the same time, agent Joyce Taylor has worked to amass an extensive seafood information center, full of technological information for fishermen and processors.

Packaging seafoods

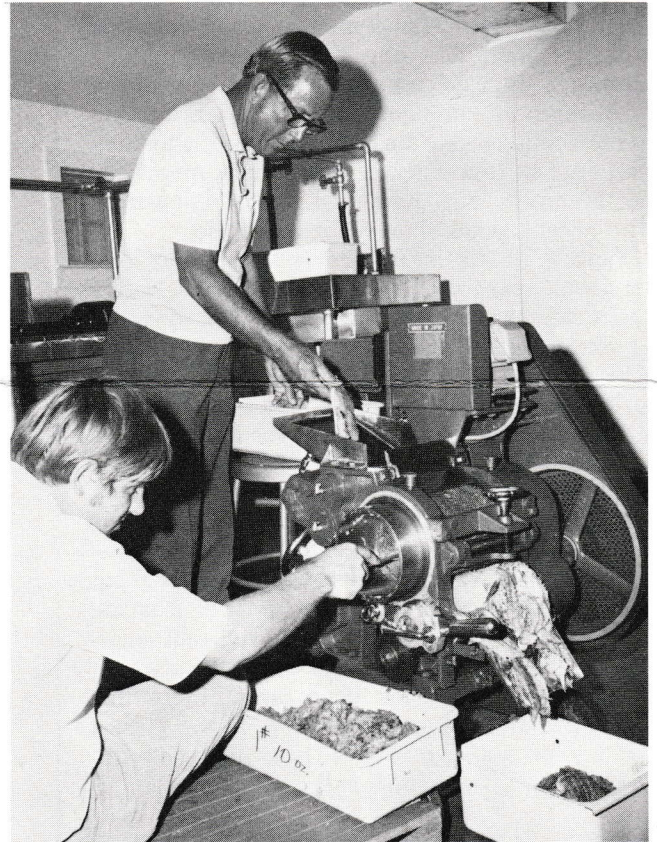
The folks at the Seafood Lab have also done extensive work on packaging techniques that may help in the marketing of seafood. Vacuum packaging and family-size packages of frozen seafood for tourists are just two ideas that have caught on with the state's processors and retailers.

Sometimes it's necessary to back up advisory services work with scientific experiments. The staff of the Seafood Lab has worked hand in hand with scientists at the Food Science Department of N.C. State University to develop some new products that put to use trash or underutilized fish. They hope that the developments will eventually mean more profit for fishermen and processors and high protein, low fat products for consumers. So far, most of the products they have developed are based on croaker - a fish that is caught in abundance off our coast but traditionally brings a low price for fishermen. On the new product list are fish luncheon loaf, sea pups (fish hot dogs), fish spread and fish jerky.

Decreasing bacteria

This year the folks at the Seafood Lab will be working hard to improve sanitation on commercial fishing boats and in processing plants. They will be trying to find inexpensive ways of reducing bacterial levels. They'll also be helping fish processors to bring their plants in line with new federal regulations on discharge of wastes.

There's another unique project that Sea Grant is sponsoring this year. Steve Otwell of the Food



Agent Dave Hill (right) works with fish deboning machine

Science Department at NCSU and advisory agent Skipper Crow will be trying to find a solution to an old problem that nags fishermen: skates and rays. These creatures are notorious for tearing up fishermen's nets and for destroying shellfish beds. Crow and Otwell will be working with the staff of the N.C. Division of Marine Fisheries and a group of fishermen to see if it's feasible to catch and sell skates and rays for food. In Europe, they're considered delicacies.

Joyce Taylor and Dave Hill will be joined by a new specialist at the Seafood Lab in Morehead City early in 1978. They'll all be glad to answer questions anytime. Give them a call at (919/726-7341).

The University of North Carolina Sea Grant College Newsletter is published monthly except October by the University of North Carolina Sea Grant College Program, 105 1911 Building, North Carolina State University, Raleigh, N.C. 27650. Vol. 4, No. 11, December, 1977. Dr. B. J. Copeland, director. Written and edited by Mary Day Mordecai and Virginia Worthington. Second-class postage paid at Raleigh, N.C. 27611.



Recreation

Recreation is big business along the North Carolina coast. The state's unique system of barrier islands, coastal wetlands, sandy beaches and expansive sounds brings thousands of visitors to its shores every year. Today, coastal recreation is one of the fastest growing industries in North Carolina.

While such growth can provide a healthy boost to the state's economy, it can also pose some serious management problems. And that's where Sea Grant specialist Leon Abbas and agent Dennis Regan enter the picture. Both are trained in recreation management. Both want to make sure that recreational development along the North Carolina coast doesn't follow the same thorny path it has in other, more developed states. In essence, they want to help the state maximize its recreational use of the coast, while minimizing the damages these uses can have on a highly sensitive system.

If that sounds like a mouthful that's because it is. "Marine recreation is a function of the natural resource, in this case, the coastal zone" observes Abbas. As a result, there is enormous potential for competition and conflict between uses. According to Regan, the coastal zone is like any other natural resource. If too many demands are placed on it, then the result is over-use and eventual abuse.

Abbas and Regan hope to avoid some of the mistakes made by other states in their coastal development. For one thing, they're spending a lot of time learning about the marine recreation industry of North Carolina and the unique needs of its suppliers and users.

An economist by training, Abbas is interested in the economic profile of the recreation industry. He has just completed a descriptive survey of all the coastal marinas in the state and is beginning work on a similar study of the charter boat industry. This spring, Abbas has lined up a series of recreational lectures that are guaranteed to whet anyone's appetite for a visit to the coast. They include such topics as birdwatching, sailing and salt water fishing.

Regan is the most recent addition to the Sea Grant advisory team. His focus is on recreation and the many unexplored opportunities that can be found in the coastal zone. For example, he's working with community residents in planning a bicycle trail along the Outer Banks. And he's developing a directory of SCUBA diving sites in North Carolina, studying the financial feasibility of dry stack boat storage and laying the groundwork for a boating safety and navigation workshop in the spring.

When they're not busy planning a workshop or conducting a survey, Abbas and Regan are hard at work preparing recreational guides to the North Carolina coast. Two guides are already in the works: a series of sports fishing maps and a seasonal weather guide.

Like the entire Sea Grant team, Abbas and Regan are interested in people. They're happy to answer any questions you might have. And if you have an idea about coastal recreation, give them a call. They're excellent sounding boards. Abbas is located at the Sea Grant office in Raleigh (919/737-2454) and Regan is headquartered at the Marine Resources Center in Manteo (919/473-3937).

University of North Carolina
Sea Grant College Program
105 1911 Building
North Carolina State University
Raleigh, N.C. 27607

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