



Coastwatch

UNC Sea Grant November/December 1991

Coastal Stewardship

I N C L U D I N G

A Guide to Coastal Advocacy Groups

P L U S

Where Does Government Fit In?

A L S O

66 Ways to Help Clean Our Coast



Coastwatch

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From The Top

Dear Readers,

This month, *Coastwatch* focuses on stewardship.

From the beaches to the sounds and seas, from national seashores to wildlife sanctuaries, we all can claim ownership of coastal resources.

And ownership carries the responsibility to wisely use and help manage these resources. Whether we work alone or seek the strength found in numbers, we can impact everything from local zoning ordinances to federal policies concerning use of offshore waters.

Carla Burgess gives us a rundown of some of the coastal

advocacy groups and their accomplishments and priorities for the future.

C.R. Edgerton takes a look at government's role in protecting the state's coastal resources. His article records the viewpoints of an environmental lobbyist and the director of the state's Division of Environmental Management.

And there's a list of 66 things you can do to help make the coast a more environmentally safe place to live and work.

See you next time,
Kathy Hart

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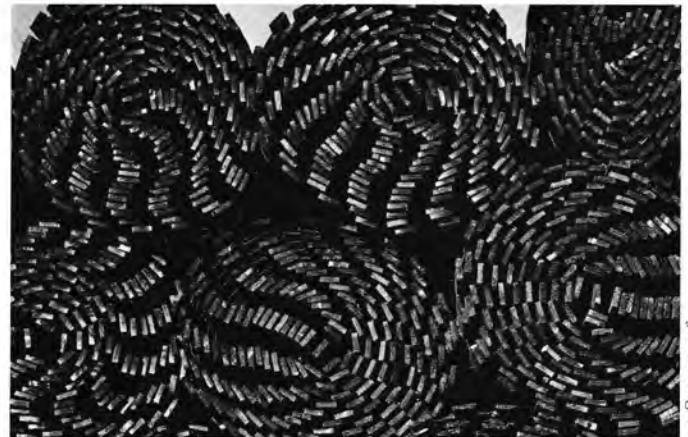


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Strength in Numbers: Pooling Resources to Make an Impact

by Carla B. Burgess

The United States, captured at night by a space shuttle camera, is ablaze with incandescent light. Illuminated towns and cities form an almost perfect outline of our country's coast.

The result is more than just a pretty picture.

It's a graphic illustration of the dense population in our country's coastal plain. Demographers have predicted that by the end of this century, 75 percent of Americans will live within 75 miles of coastal waters. It's a prediction that some think has already come true.

Growth along the North Carolina coast is keeping with the trend. By the year 2000, populations in Dare, Carteret and New Hanover counties are expected to be triple the 1980 count.

With this shift comes an increased pressure on our watery natural resources and a growing concern over how to maintain and preserve them. The issues we face are countless — protection of wetlands, dwindling fresh water supplies, sewage disposal problems, waning fisher-

ies, declining water quality, preservation of habitat. We all have a say in what happens.

"Portions of the coastal environment belong to all of us," says Michael Corcoran of the N.C. Wildlife Federation. "We need to exercise the rights of ownership."

Thousands of individuals are making their voices heard as members of a chorus. Conservationists have banded together to speak out on environmental regulations; developers have grouped to push for balance in economic growth.

No matter what the position, people have found that working together as an organized group increases their effectiveness and their ability to get relevant and accurate information.

Some of these groups are large in scope and familiar in name — Sierra Club, Nature Conservancy, Audubon Society. Others are small but determined.

All play a role in keeping an eye on our coast.

NORTH CAROLINA COASTAL FEDERATION

When a city drainage project clouded the waters of a Wilmington creek with clay last spring, nearby residents were a little concerned. But when a developer proposed a community pier to stretch 350 feet into the waterway, it was time to call a meeting.

"Hewlett's Creek is a small estuary, but it drains a very large area of our city," says Betsey Talley, chairman of the newly formed **Hewlett's Creek Watershed Association**. A primary nursery for shellfish, the creek is shallow — less than a foot in some areas at low tide, she says.

The residents worried about increased traffic and pollution. "There is simply not enough water to support boats, unless it's just a little johnboat," says Talley.

The association won its fight; the plans for the pier were withdrawn. But Talley and the other members didn't disband.

"We became aware of many things that needed our attention and that the residents along the creek needed to be better stewards of the area ourselves — to sort of watch these things and catch them before they happen," she says.





Steve Murray

It sounds like something Todd Miller would say. And with good reason. The N.C. Coastal Federation's executive director was present at that first Hewlett's Creek meeting. He's continued to give advice as the group has worked to influence the county's land-use plan.

"We're trying to get citizens less reactive to a crisis and more involved in helping set the agenda for what happens on the coast," says Miller, who's been with the federation since its beginnings in 1982. "Too often people become aware of problems when it's really too late to do anything about them."

With 55 organizations under its umbrella and 2,800 individual members, the Coastal Federation seems to be everywhere at once: serving up seafood at coastal heritage festivals; joining other environmental groups in a lawsuit to protect remaining wetlands in the East Dismal Swamp; coaching a fledgling environmental group at a neighborhood meeting.

Recently, the federation has worked with citizen groups that want to have input into their local land-use plans. Under the state's Coastal Area Management Act, plans must be reviewed and updated every five years.

"Traditionally people have always relied on the feds or the state to take care of problems," says Miller. "But these local groups are really critical to seeing that adequate safeguards are being taken. Local governments have the power to take care of the coast but generally have not used it.

"We view our role as helping citizens to spend their time wisely if they want to do something to help the coast," he says. "We make sure they don't waste a lot of time barking up the wrong tree."

Pamlico-Tar River Foundation

If it were possible for the Coastal Federation to have a prize pupil, the Pamlico-Tar River Foundation would be a likely candidate.

"We're sort of the prototype of what we would want all the Coastal Federation groups to become," says executive director David McNaught. "The Coastal Federation is extremely valuable to us more as a colleague; we tend to be partners in most ventures."

Formed in 1980 over concerns about degradation of the Pamlico-Tar River watershed, the foundation provides education, advocacy, monitoring of water quality and scientific research. It also offers recreational outings to inspire an appreciation for this natural area.

The watershed, which spans 8,200 square miles, has been plagued in recent years by fish kills, nutrient pollution and nuisance algal blooms. Municipal sewage treatment plants have exceeded their effluent discharge limits; bottom grasses have vanished; commercial catches have declined.

But McNaught says the foundation can claim many victories.

Continued on the next page



Neil Caudle

In its early years, the foundation joined the National Wildlife Federation in successfully suing the U.S. Army Corps of Engineers, winning protection for peat-based wetlands in what is now the Alligator River National Wildlife Refuge.

In 1989, the watershed won a "nutrient sensitive" designation from the state Division of Environmental Management and special protection against nutrient input.

The foundation has worked with other environmental groups, industry and government to develop a new wastewater discharge permit for Texasgulf Inc. in Aurora. The company's proposed wastewater recycling system should reduce its phosphorus discharge into the Pamlico River by 90 percent.

PTRF's priorities for the future will include implementing a comprehensive management plan for the basin and "maximizing the degree of protection for wetland resources," McNaught says.

LegaSea

When Michael Egan moved to the Outer Banks from Louisiana in 1983, he brought with him more than a love for surfing. He came with some first-hand observations on the nature of the offshore oil drilling business.

"I worked on the cargo vessels that hauled cargo to the oil rigs in the Gulf," Egan says, describing the toxic wastes he saw spilled overboard and seeping from rigs. He says he left behind an area economically devastated by a transient industry and ruined by toxic pollution.

At Cape Hatteras, he found a surfing mecca and an unspoiled stretch of barrier island. But the oil industry was not far behind.

In 1981, the federal government sold 43 10-year leases off the North Carolina coast to major oil corporations for the purposes of drilling for oil and natural gas. In 1988, Mobile Oil Corp. submitted an exploration plan that proposed drilling 38 miles due east of Hatteras Island.

That's when Egan and his surfing friends got busy; LegaSea was born.

"I didn't want to see happen in North Carolina what happened in Louisiana," says Egan. "This is one of the last stretches of beaches that is pristine. There's a vibrant economy based on tourism and fishing, both of which are dependent on clean water and clean beaches.

"We began a process of educating ourselves," he says. Through newsletters and meetings, the group now educates the public, providing background on the issue, updates on legislative activity and information on how to take action.

And the group formulated its position and purpose — to fight offshore drilling until scientific research projects no negative impact on the marine environment or the socioeconomic stability of the coastal zone.

As the issue heats up, LegaSea has expanded beyond its core group of surfers; its 500 members include residents, recreational and commercial fishermen, hotel and motel owners, and real estate agents, Egan says.

In 1990, Congressman Walter B. Jones helped secure passage of the Outer Banks Protection Act, which postponed drilling approval until October 1991 and until the Secretary of the Interior can certify to Congress that the information is adequate. It also created a panel of scientists to review the environmental and socioeconomic impacts of oil exploration off the North Carolina coast.

This panel has released a draft report for peer review, says Donna Moffitt, director of the state's Outer Continental Shelf Office. A final report is expected by the end of the year.

In the meantime, the folks of LegaSea are employing an offensive strategy.

Egan and others are pushing for public support of a National Marine Sanctuary designation that would include the area off Cape Hatteras National Seashore known as "The Point." Under this federal program, established in 1972, unique marine areas receive

special study, considerations and protection. The proposed "Hatteras/Gulf Stream National Marine Sanctuary" would cover 1,000 square miles.

Egan believes that the area meets some of the criteria of sanctuary designation. In this zone, the Outer Continental Shelf drops from 20 to 1,000 fathoms, forming a 6,000 foot undersea cliff, he says.

Nearby, the cold northern waters of the Labrador Current meet the warm Gulf Stream, mixing northernmost and southernmost species of birds, marine mammals and fish.

Ocracoke Committee formed in opposition to a "monstrosity" — a 350-foot dock and pier proposed in August 1990 and now completed — says spokesperson Charles Runyon. Residents were worried about how increased boat traffic would threaten the sound, which supports lush eelgrass and "wonderful clamming," says Runyon.

The group appealed the developer's CAMA permit but was refused a hearing before the N.C. Coastal Resources Commission.

Represented by the Southern Environmental Law Center, the committee won a Superior Court judgment to rescind the permit, but the state is appealing, says the center's director.

The Ocracoke Committee continues to work with the county commissioners on a land-use plan update.

Carteret County Crossroads and its 500-plus members aim to preserve the natural and cultural environment of Carteret County, says president Allyn Powell. The group has invited people from the Corps of Engineers and the Southern Environmental Law Center to help educate their membership on the issue of wetlands preservation and development. They also closely follow the offshore drilling issue and activities of local military bases.

Sunset Beach Taxpayers Association has successfully fought zoning changes and blocked a high-rise bridge through legal action, says spokesperson Minnie Hunt.

Penderwatch and Conservancy monitors stream water quality, attends meetings of the county commissioners and planning board, and stays abreast of issues affecting quality of life in Pender County. Co-vice president Howard Sterne hopes the



Jim Strickland

organization of 800 members looks at issues "not in a 'not in my backyard way,' but in a fairly scientific way."

The Pender group has been a mentor for the newly formed Friends of Black River, who organized to oppose a proposed landfill near the river banks.

Friends of Hatteras Island is a group that fosters stewardship of the sands, air, woods and water of this barrier island.

The group is a voice for the state's largest remaining maritime forest, Buxton Woods. Friends of Hatteras formed in opposition to a large proposed development in the woods, which they saw as a threat to the island's water quality and supply.

Lobbying efforts by the group and a request by the Sierra Club for a state designation of the woods as an "area of environmental concern" prompted the Dare County Board of Commissioners to pass its own protective zoning ordinance.

Almost 500 acres of the woods are now under state control and 1,000 acres are national park land; the remaining 1,500 acres are privately owned.

Friends' secretary Ricki Shepherd hopes the state will acquire at least another 500 acres of the maritime forest.

In the meantime, the group has a lease-purchase agreement for a 10-acre soundside tract of Buxton Woods. They're planning a library and resource center in an existing building and are also constructing nature trails.

Friends of Roanoke Island advocates citizen involvement and empowerment in government and public education. The group holds land-use planning seminars, networks with other groups on wetlands issues and monitors water quality.

NORTH CAROLINA WILDLIFE FEDERATION

Started in 1945 by a group of hunters and fishermen, the N.C. Wildlife Federation has a long history of fighting for enhancement of natural resources statewide. Specifically, it prompted the legislation that created the state's Wildlife Resources Commission, says executive director Michael Corcoran.

Continued on the next page



MJD, Montecat

In the early 1950s, the federation was fighting for stream sanitation laws. Today's 50,000-member organization continues its involvement in protecting the quality of water and surrounding habitats.

Coastal resources preservation is high on the organization's agenda, including intensified political activity on issues such as wetlands and outstanding resource waters, Corcoran says.

"We were very active in petitioning the Coastal Resources Commission not to back off its beach hardening prohibition," says Corcoran, noting that seawalls and groins make public beach disappear.

The organization has spawned another conservation organization, the N.C. Alliance for Conservation Action, a grassroots political lobbying group.

As for its combined bent toward sportsmen's issues and mainstream environmentalism, Corcoran says the Wildlife Federation's "muddy boot ecologists" are comfortable with their feet in both worlds. "While they love to hunt and fish, they're really committed and ardent conservationists," he says.

N.C. ENVIRONMENTAL DEFENSE FUND

If one polluter of a river can't afford to curb its own discharges, could it opt to clean up someone else's pollution instead?

It could under an innovative management plan proposed for the nutrient sensitive Tar-Pamlico watershed.

For example, a wastewater treatment plant might not be able to meet its discharge limits for nutrients without costly capital improvements. But under this plan, the plant could opt to invest in better agricultural practices on nearby farms, thus reducing nutrient-rich runoff in the watershed.

This alternative strategy, also called "pollution reduction trading," was developed by the N.C. Environmental Defense Fund and other environmental groups in cooperation with a coalition of dischargers in the basin.

"The philosophy behind our organization is creative problem solving, using legal, scientific and economic strategy," says EDF senior scientist Doug Rader.

EDF works closely with the Pamlico-Tar River Foundation and the N.C. Coastal Federation. Along with those groups and others, EDF helped develop a permit by which Texasgulf will reduce its phosphorus input into the Pamlico River, Rader says. It has also defended North Carolina's dioxin standards against assaults by the pulp-and-paper industry.

The organization's coastal agenda includes water quality protection and wetlands preservation, especially the unregulated conversion of forested wetlands to tree farms, Rader says.

NATURE CONSERVANCY

If environmental groups don't like the way land is treated, why don't they just buy it and manage it themselves?

That's exactly what the Nature Conservancy does. But the group isn't full of money. "We try to get it (property) as gifts; we



Clay Nolen

take it free too," says Katherine Skinner, director of the state office.

The Nature Conservancy owns 31,000 acres in North Carolina and protects another 336,000 through conservation easements or ownership by a state or federal entity.

"Up and down the coast, we have some pretty interesting success stories," says Skinner, citing the donation of 118,000 acres now known as the Alligator River National Wildlife Refuge.

"Our mission is to protect endangered and threatened species and their natural communities," she says. "One of those communities is maritime forest."

The Nature Conservancy owns 420 acres in Nags Head Woods, its only staffed preserve in the state, and manages another 300 acres of the woods for the Town of Nags Head. Together, the town and the conservancy recently purchased another 389 acres of the forest.

Beech trees, big hickories and red oaks give Nags Head Woods a unique feel, says preserve director Jeffrey Smith.

"Most maritime forests in North Carolina are dominated by evergreen species that can withstand the harsh conditions along the coast, such as salt spray and lack of fresh water," he says. "Nags Head Woods is surrounded by a system of high dunes, so a very lush deciduous forest has grown up on this island right next to the ocean."

Thanks to the Nature Conservancy, this precious piece of nature has been preserved for future generations.

"The town of Southern Shores has been developed on what once was a maritime forest like Nags Head Woods," says Smith.

The Nature Conservancy is 600,000 members strong internationally; it counts 16,000 members in the Tar Heel State. The organization is tight-lipped about its future projects; such a disclosure could make land prices soar, Skinner says.

THE SIERRA CLUB AND THE AUDUBON SOCIETY

These established conservation groups also count coastal caretaking among their diverse priorities.

National flood insurance reform, offshore drilling, maritime forests, wetlands and water quality keeps N.C. Sierra Club coastal issues chair Ray Lee jumping.

The Audubon Society keeps an eye on 10 seaside sanctuaries from Southport to Ocracoke, says Walker Golder, manager of N.C. Coastal Islands program.

The program protects and manages this critical habitat — the primary nesting and feeding sites for 16 species and 13,000 nesting pairs of colonial waterbirds. 

ECONOMIC ALLIANCE OF NORTH CAROLINA

There are plenty of groups to represent the pocosins and the piping plovers, but who speaks for the developer, the banker and the homebuilder?

"Someone has to create a voice that can strike the balance," says Ken Stewart, director of the Economic Alliance of North Carolina.

While environmental watchdogs are guarding the coast, the alliance is watching the watchdogs. And when the Environmental Management Commission, Corps of Engineers and Coastal Resources Commission meet, the alliance is there too.

Stewart says many environmental groups are "extreme" in their positions. The alliance, he says, figures compromise and leniency into its stance from the beginning. "We take the middle ground and fight for it tooth and nail," he says.

"We're not opposed to oceanfront setbacks or strong limits on oceanfront (shoreline) hardening structures," says Stewart, who is a former director of the state's Division of Coastal Management. "What we are opposed to is excessive regulations of any of these things that don't have technical foundation, that don't consider the effects on private property rights and economic development."

The alliance names among its members Weyerhaeuser and the developers of Landfall and Bald Head Island. But Stewart says there are many developers who "would not be welcome" in the organization.

N.C. MARINA ASSOCIATION

Construction of new marinas is often the catalyst for the

creation of citizen advocacy groups opposing development.

The N.C. Marina Association is a voice for the other side.

"The Marina Association is strongly in favor of a good environment," says executive director Susan Hebert. "But we also think regulations shouldn't kill small business."

The association keeps abreast of proposed policies and regulations governing marinas and seeks to represent and promote the marina industry.

Hebert says marinas probably get picked on by environmentalists "because they are highly visible and they border on industrial."

SOUTHERN ENVIRONMENTAL LAW CENTER

The natural resources of North Carolina and five other southern states have a legal leg to stand on, thanks to the Southern Environmental Law Center.

A substantial portion of this non-profit, public-interest law firm's legal resources is dedicated to coastal work, says Lark Hayes, director of the North Carolina office.

"Our relationship with coastal groups has enabled us to play an active role in most of the important coastal issues, including wetlands protection, maritime forest preservation, coastal water quality and offshore oil drilling," says Hayes.

The center is the pro bono counsel for the environment. Sometimes this means simply giving advice and counsel about strategies. Other times, "it means taking on a major legal battle to protect a special area or to get an important issue of coastal law resolved," she says.

SELC has 1,900 individual members and relies on foundation grants for sustenance. 



Our story includes only a sampling of the established environmental, conservation and development groups in North Carolina. Many of them have literature and newsletters to keep the public apprised of coastal issues. Below are the contacts and numbers for the ones we mentioned:

N.C. Coastal Federation, Todd Miller, 919/393-8185
Hewlett's Creek Watershed Association, Betsey Talley, 919/791-4103
Pamlico-Tar River Foundation, Dave McNaught, 919/946-7211
LegaSea, Michael Egan, 919/473-5888
Ocracoke Committee, Charles Runyon, 919/928-5811
Carteret County Crossroads, Charles Runyon, 919/728-8769
Sunset Beach Taxpayers Association, Minnie Hunt, 919/579-2124
Penderwatch and Conservancy, Howard Sterne, 919/270-9733
Friends of Hatteras Island, Ricki Shepherd, 919/986-2703
Friends of Roanoke Island, Sybil Basnight, 919/473-6365
N.C. Wildlife Federation, Michael Corcoran, 919/833-1923
N.C. Environmental Defense Fund, Doug Rader, 919/821-7793
Nature Conservancy, Katherine Skinner, 919/967-7007
Sierra Club, Ray Lee, 919/830-0312
Audubon Society, Walker Golder, 919/256-9783
Economic Alliance of N.C., Ken Stewart, 919/256-2881
N.C. Marina Association, Susan Hebert, 919/249-0200
Southern Environmental Law Center, Lark Hayes, 919/967-1450 

Making Government Work For You

by C.R. Edgerton

Some folks think the government is the last place to go for answers to coastal environmental problems.

But Bill Holman, a "green" lobbyist, and George Everett, one of state government's top environmental watchdogs, say the legislature is the best route to travel when protecting the state's natural resources.

Holman, a lobbyist for the Conservation Council of North Carolina and the N.C. Chapter of the Sierra Club, believes in solving environmental problems through legislation. It's the only sure way of guaranteeing your agenda, he says.

"The state's legislature is fairly representative of the people of North Carolina," he said. "And most of them take being a legislator seriously. That's why input from a lobbyist or input from citizens can make an impact."

Changing laws that may have an adverse affect on the environment takes time and effort. "It takes persistence and a long range goal," he says.

Sometimes you win. Sometimes you lose.

Here's an example.

Last year, Rep. Bruce Etheridge introduced a bill that would provide what Holman calls "modest" protection to the state's freshwater wetlands.

The bill was referred to the House Environment Committee and from there to a subcommittee. The subcommittee held informal hearings, inviting experts to comment on the bill.

"It was highly controversial," Holman says. "And it was strongly opposed by the forestry industry, the Homebuilders Association and the Martin Administration."

Opponents and proponents of the bill contacted supporters in their respective legislative districts. Because of the large volume of people against the bill, no vote was ever taken. It never left the subcommittee.

"The problem was that we (the proponents) got outworked and outspent by our opponents," Holman says. "But Etheridge used a parliamentary trick to keep the bill alive until the 1992 short session of the legislature. You can bet there'll be another major fight on the floor at that time."

In the case of the Etheridge bill, the environmentalists lost. Sometimes, the tables are turned.

"Some people, the Town of Topsail Beach in particular, thought the state's policy against constructing seawalls needed changing," Holman says. "And these people had been able to get the ear of the Coastal Resources Commission."

The CRC is a commission appointed by the governor to make decisions regarding regulations associated with the Coastal Area Management Act.

Hearings on the seawall policy were held in July and at that hearing — and in the mailboxes of CRC members — there was

overwhelming public support for maintaining the seawall ban.

"In this case, private citizens were able to sway the commission," Holman says. "It showed that working through the proper channels, through the government's own guidelines, you can make a difference."

Another important element in the success of the anti-seawall group was the fact that several environmental groups joined forces.

"Usually environmental groups work in coalition," he says. "It's easy to get frustrated and cynical, and change is often slow. You can do much if you work together."

There is strength in numbers, but sometimes the most successful work is done by an individual like Holman who, as a lobbyist, has one of the loneliest jobs in Raleigh.

"My job is to provide information to legislators," he says. "To educate them on why the Sierra Club, for example, supports a wetlands bill. I also inform environmentalists throughout the state



Steve Murray



Scott Taylor

about what's going on in the legislature in order for them to participate."

He believes in what he calls "the heat and light theory."

"I provide information as "light" to the legislators," he says. "But there must be some heat with the light. You see, if they don't get the heat, they won't see the light."

"The information by itself won't convince them. They have to hear from their constituents. The letters people write, the phone calls they make, the public hearings they attend. All of it matters."

Walter Clark, Sea Grant's ocean and coastal law specialist agrees.

"I've seen citizens turn things around," Clark says. "And the more people you have, the better chance you have of being listened to."

Clark says not enough people know about the Administrative Procedures Act, a law that requires public hearings when regulations are being considered for change and that allows citizens to present petitions to amend, adopt or repeal any regulation.

"It is used by some groups, but it could be used more," he says. (For more about Clark's role in coastal environmental issues, see story on page 16).

Holman often urges his clients and fellow environmentalists to use every weapon at their disposal in what he calls "the fight."

Most legislators want to "do the right thing," Holman says. "When a politician is convinced that the majority of his or her constituents really care, he or she will be moved."

"We don't give up. The environmental community is persis-

tent. We win a lot of battles, but sometimes it seems we're losing the war. We need to win over the legislators. That's the only way to win in the long run."

While Holman and others like him can take sides in the war over the environment, there are others who can't plant their flags in either camp. Their jobs depend on being as neutral as possible.

Such is George Everett, director of the state's Division of Environmental Management. His branch of government administers and oversees the laws and regulations affecting the state's environmental well-being.

"People can come to us if they see something they don't like going on," Everett says. "For example, if someone sees an industry discharging an unusual amount of waste into waterways, we're the ones to call."

Environmental Management has offices in Wilmington, Morehead City, Washington and Elizabeth City. "So there's always someone from our department nearby," Everett says.

But calling on state-level government isn't always the most effective way to change things for the better on the coast, Everett says. Sometimes action has to be taken before the state gets involved.

"The best tool I've seen is the Division of Coastal Management's land-use planning statute," he says. "This allows local governments to determine zoning and other land-use practices. So, when the development is first proposed, private citizens can get involved in what will happen."

Continued on the next page

"Sometimes, we're not the one to call when you see something you don't like," he says. "These things need to be addressed much earlier, when the land-use plan for the county is being developed."

After the local decisions are made, the Coastal Resources Commission usually "goes with the lead" of local government. The local decisions are where most people can be the most effective.

"We don't want to be seen as the bully trying to tell people what to do," Everett says. "That's why the coastal planning statute was established."

Bully or not, state government is often seen as either the bad guy or as the genie in the lamp, Everett says. The challenge of his department is to stay neutral while protecting the state's natural resources.

It's a difficult row to hoe, especially when you're caught in the middle of the interests of a growing state that's already 10th in population in the nation.

"First, there's the environmentalists who, at the extreme end, don't want any more growth," he says. "And then there are those who want more growth and more jobs and a higher standard of living."

Can the technology of government and private sectors keep up with the growth?

"The growth will come and the improvements in how to handle it will come," Everett says. "What you hope is that they'll be close enough together so the environmental impacts are minimal." 🌱



C.R. Edgerton

When you see what you might consider an environmental violation on the coast, who you gonna call?

Pollution busters!

The following federal and state government agencies will take your calls on issues that relate to violations within their jurisdictions.

N.C. Department of Environment, Health and Natural Resources. On general environmental matters, this agency should be your first contact. There are offices in Wilmington, Morehead City, Washington and Elizabeth City (see DCM listing below for telephone numbers). The number for the main office in Raleigh is 919/733-2314. The regional offices will have personnel in a variety of sections. Depending on the nature of your concern, ask for air quality, water quality, groundwater or land resources.

N.C. Division of Marine Fisheries. DMF handles complaints about misuse or mistreatment of the state's fisheries. They have a toll-free hotline number: **1-800-682-2632**. In Washington, the number is 919/946-6481. In Morehead City, the number is 919/726-7021. If you have concerns about inland or freshwater waterways, contact the state's **Wildlife Resources Commission** in Raleigh at 919/733-3391 (see additional WRC listing below).

N.C. Division of Coastal Management. If you have questions regarding what you may consider a violation of land-use regulations, call DCM. In Raleigh, the number is 919/733-2293. DCM has offices in Washington (919/946-6481), Morehead City (919/726-7081), Elizabeth City (919/264-3901) and Wilmington (919/395-3900).

U.S. Army Corps of Engineers. Questions regarding wetland disturbances should be directed to the Corps of Engineers. In Raleigh, they can be reached at 919/847-1707. On the coast, the Corps has offices in Wilmington (919/343-4720) and in Washington (919/975-3123).

N.C. Wildlife Resources Commission. Concerns about wildlife or waterfowl should be directed to the WRC. Their number in Raleigh is 919/733-7291. There are regional offices on the coast, but they are often difficult to reach. **The U.S. Fish and Wildlife Service** also maintains an important enforcement presence on the coast. Call them at their regional office in Washington at 919/946-3361.

*(Information in this article was taken from **A River of Opportunity**, ©1991 by the Pamlico-Tar River Foundation, Inc. P.O. Box 1854, Washington, NC 27889. 919/946-7211.)* 🌱

Clean Up Your Act and Care for Your Coast

by Kathy Hart

When it comes to protecting, caring for and determining how to develop our coastal environment, you can't expect government or advocacy groups to do all the work.

Proper stewardship of our coastal lands and waters begins with you, the individual who works, plays or lives by the sea.

Below is a list of 66 action tips for a better coastal environment. Take a minute and read through them. The suggestions are simple and easy to apply to your lifestyle.

Even if you do not live along the sound or sea, your activities still have an effect. Undoubtedly, you live in the watershed of a river that eventually makes its way to the ocean.

IN YOUR HOME...

1. Recycle everything you can: newspapers, cans, glass, aluminum foil and pans, motor oil, scrap metal and plastics. Contact your local Keep America Beautiful coordinator, recycling manager or solid waste agency to find out what can be recycled in your area.

2. Save your kitchen scraps (no meat) for the compost pile, and avoid use of a garbage disposal because it can add too many solids to an already overloaded home or municipal sewer system.

3. Use reusable containers for storing food instead of plastic wraps and foil.

4. Turn off the water when it's not actually in use — while brushing your teeth, shaving, washing dishes and cleaning foods. A gallon of water can run out of your faucet in less than 60 seconds.

5. Fix leaks. A dripping faucet can waste 20 gallons of water per day; a leaky toilet, 200 gallons per day. To test your toilet for a leak, add a few drops of food coloring to the tank water. Color will show up in the bowl if there is a leak.

6. Install a water-conserving showerhead. They are inexpensive and reduce flow by at least 25 percent.

7. Place a plastic jug filled with water in the toilet tank to reduce the amount of water flushed.

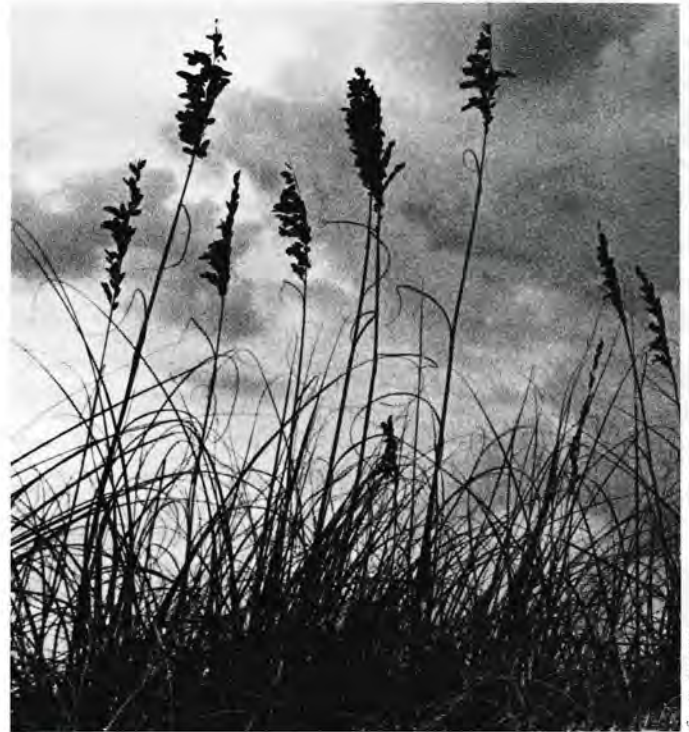
8. Wash only full loads in washing machines and dishwashers.

9. Be sure faucets are completely off to eliminate dripping.

10. Buy a suds-saver washing machine when you need to buy a new machine.

11. Check for leaks outside. Faucets, hoses, hose connectors and sprinklers can leak.

12. Don't put hazardous household substances — paint thinner, paint, furniture polish, pesticides — down your drain or in your trash. These products can pollute groundwater supplies, surface water or the air. Save these items for the special hazardous waste collection days sponsored by city and county governments.



Steve Murray

13. Choose household cleaners carefully by reading the label. Use the least toxic product available, and buy only what you need. Products labeled with "caution" are considered the least toxic. Those with "warning" are moderately toxic, and highly toxic chemicals are marked with the skull and crossbones. Be sure to keep the labels on products so you can properly identify and dispose of them.

14. Clean with non-toxic substances such as baking soda, salt, vinegar, ammonia and elbow grease instead of bathroom and kitchen cleaners.

15. Use sink baskets to prevent clogs, and plungers to fix them.

Continued on the next page

SEPTIC SYSTEMS...

16. If your home is serviced by a septic system, be sure the system is in proper working order. Malfunctioning septic systems can pose health, pollution and contamination problems, particularly if they are located near estuaries and inland waterways.

17. Know the location of all components of your septic system, and keep heavy vehicles away from the system.

18. Don't plant trees or shrubs near drain lines. Roots can clog them.

19. Distribute your laundry chores throughout the week to avoid overloading the system on any given day.

20. Don't use toilets as trash cans.

21. Have your septic tank inspected each year and pumped out every three to five years to remove solids.

22. Do not build swimming pools near your septic system.

23. If you're installing a septic system and encounter soils unsuitable for waste treatment, such as sand or clay, consider alternative septic treatment — the low-pressure pipe and mound waste systems. (Sea Grant has a manual available for designing and installing each system. To receive a copy of either manual, write UNC Sea Grant. Each costs \$3. These manuals have allowed thousands of homeowners to install properly working septic systems in areas unsuitable for conventional treatment.)

IN YOUR YARD...

24. Landscape with groundcover, trees and shrubs to minimize runoff. Plants help to prevent erosion, moderate summer heat and filter rainwater from downspouts and driveways.

25. When landscaping, choose permeable surfaces such as wooden decks, porous pavement, bricks or stones rather than solidly paved surfaces to allow for better absorption of water into the soil.

26. Divert rain from paved surfaces onto grass to permit gradual absorption.

27. Choose appropriate plants, shrubs, trees and grasses for the soil in your area. Karl Graetz, a renowned coastal horticulturist, says many new beachfront homeowners try to landscape their yards with the same plants, grasses and trees they used at their former inland locations. Many of these plants simply won't survive the more harsh oceanfront environment or require copious amounts of water. It's better, Graetz says, to use native plants. (Consult your local nursery or write to Sea Grant for a copy of Graetz's *Seacoast Plants of the Carolinas*. The cost is \$4.50.)

28. Test your soil to determine proper applications of fertilizers and lime for your lawn and shrubs. Consider using

organic fertilizers, such as manure, to boost plant growth and condition your soil.

29. Don't overwater your lawn.

30. Pull weeds instead of using herbicides.

31. Learn about natural insect controls as alternatives to pesticides.

32. Use pest-resistant flowers and shrubs whenever possible.

33. If you use pesticides, herbicides or fungicides, don't throw leftovers in the trash, down your drain or into a storm sewer. Properly dispose of all hazardous waste.

34. Compost your leaves and yard debris. Burning them creates air pollution and putting them out with the trash is a waste of landfill space.

35. Use mulch to conserve water in your garden and around your shrubbery.

ALONG THE SHORE...

36. Remove obstructions from your creek, marsh or stream.

37. Keep people, cars and grazing animals away from the edge of the water.

38. Avoid heavy loads on the top of stream banks or shorelines.

39. Control rainfall runoff through proper landscaping or engineered controls.

40. Plant and protect vegetation on the slopes and adjacent areas of the shoreline.

41. Consult an engineer about structural solutions for controlling erosion. (Sea Grant's coastal engineer Spencer Rogers has written a how-to booklet for one method of controlling shoreline erosion. *A Homeowner's Guide to Estuarine Bulkheads* describes how to properly construct a bulkhead for use along estuaries, sounds, bays and tidal rivers. Write to Sea Grant for a copy; the cost is \$1. Rogers is also examining another method of shoreline erosion control — breakwater-marsh, which combines small wooden breakwaters with planted marsh grasses. For more information about shoreline erosion controls, call Rogers at 919/458-5780.)

ALONG THE BEACH...

42. Don't walk or drive on the dunes. Dune vegetation is fragile and can't withstand constant trampling. Foot and vehicle traffic can wear openings in the dunes that weaken their defensive ability against storm erosion.

- 43.** Build crosswalks over the dunes to avoid foot traffic.
- 44.** Repair, restore or build dunes using sand fences and vegetation. (Send for Sea Grant's *Building and Stabilizing Coastal Dunes With Vegetation*. The cost is \$1.50.)
- 45.** Don't leave your litter behind after a day on the beach. Litter can kill aquatic life.
- 46.** Don't use the beaches as an ashtray. Instead use one of the portable ashtrays developed by R.J. Reynolds Tobacco Co. for outdoor use. If you're a smoker 21 years old or older and would like a portable ashtray, write R.J. Reynolds Tobacco Co., Portable Ashtray Offer, P.O. Box 2959, Winston-Salem, NC 27102. In your request, please state your date of birth. Allow four to six weeks for delivery. One ashtray will be provided per request.

IN YOUR CAR...

- 47.** A single quart of motor oil can contaminate 250,000 gallons of water — more than 30 people will drink in a lifetime. Never dump motor oil, antifreeze, transmission fluid or other automobile chemicals into road gutters, storm drains or catch basins.
- 48.** Store waste oil in a container, and do not mix with gasoline, solvents or other liquids. This contaminates the oil, which may be reused, increases the volume of the waste and may form a more hazardous chemical.
- 49.** Find out if your local service station or car care center accepts waste oil.
- 50.** Many car detergents, like fertilizers, contain phosphate. When you wash your vehicle, use non-phosphate detergents.
- 51.** Wash one section of the car at a time and rinse quickly. Use a hose that is high pressure, low volume and has a pistol-grip nozzle.
- 52.** Recycle your old tires or dispose of them properly. Do not toss them into our waterways.
- 53.** Keep a trash bag in your car. Don't litter.


ON YOUR BOAT...

- 54.** Use onshore restrooms and pump-out facilities. Never release raw sewage into coastal waters. (Sea Grant has two free publications that can help boaters properly dispose of their raw sewage. *The \$10 Holding Tank* describes the materials needed and procedure for building a low-cost, onboard holding tank for use on small boats. *A Portable Transfer Tank for Boat Waste* lists materials and step-by-step instructions for constructing a low-cost tank for transferring sewage from boats with holding tanks to a marina's disposal system.)

- 55.** Go slow in your boat near banks where your wake can erode. Observe posted marine speed limits.
- 56.** Keep a garbage receptacle on board, keep it covered and make sure everyone uses it.
- 57.** Make it a rule that no trash goes overboard, including old fishing line.
- 58.** Make sure your motor does not leak gas or oil into the water. Do not drain engine fluid into the water. Be careful not to spill when adding oil to your engine.
- 59.** Place a bilge pillow in your bilge to remove oil from your bilge water.
- 60.** High phosphate soaps, toxic polishes and paints, stain removers, antifouling compounds and other similar maintenance products should not be used on or near the water, on boat ramps or in adjacent areas. Bottom scrapings are particularly toxic and should be not be allowed to enter the water.

TAKE A STAND...

- 61.** Promote wise land use. Attend public hearings held by local planning and zoning boards about development projects.
- 62.** Know the names of your elected officials at all levels of government. Correspond with them about issues that affect the quality of life in and around coastal waters.
- 63.** Read the legal notices in your local paper. Attend hearings on water issues and regulations in your area.
- 64.** Support efforts to preserve tidal wetlands, maritime forests and other natural coastal assets. Join a waterway cleanup effort such as The Big Sweep or join a Streamwatch group. Streamwatch groups choose a portion of a stream, creek, river or estuary and act as active stewards for these water bodies. They monitor water quality, remove litter and observe aquatic life. (To learn more about the N.C. Streamwatch program, contact state coordinator George Norris at 733-4064.)
- 65.** Lobby for prompt replacement of aging sewer lines and pumping stations and the improvement of sewage treatment plants in your area.
- 66.** Teach your children to respect and to value the environment. Take your children to one the N.C. Aquariums or the N.C. Maritime Museum. Or join next year's Big Sweep statewide waterway cleanup set for Sept. 19. It provides a hands-on education about litter in the aquatic environment.

(Sources for this story include: *WCBS News 88 Earth Guide* written by the New Jersey, New York and Connecticut Sea Grant Programs; *Sound Advice* written by WRAL-TV5 and the N.C. Coastal Federation; and *100 Ways You can Help Save Our Environment* compiled by the National Aquarium in Baltimore.) 



Is There Enough Nature to Go Around?

Natural resources come in two types — those that are renewable, such as trees and fish, and those that are limited, such as coal and oil. People need to manage both so that we can continue to use them as long as we need them. Different methods can be used to manage resources.

In the Pacific Northwest, salmon are valuable fish. Fishermen catch salmon either in the ocean or in the rivers. To keep the salmon from being overfished, regulations allow only certain people to catch the fish at certain times.

In North Carolina, clams are a valuable resource. To manage them, regulations allow fishermen to use highly efficient mechanical harvesters only for short periods of time and only in certain areas. At other times, fishermen must use less efficient rakes or tongs to harvest these mollusks. The use of rakes and tongs prevent too many clams from being harvested.

Regulations also limit the size of clams that can be caught. Fishermen must throw clams less than 1-inch thick back into the estuary. Resource managers want clams to get large enough to reproduce, or spawn, future generations before they are harvested.

Almost all popular fish caught in North Carolina have restrictions that limit their capture. Scallops are harvested only for a few weeks each year. Blue crabs can't be captured from certain areas marked as crab spawning sanctuaries. Red snapper must be 12 inches long to assure that these fish reach maturity and spawn baby fish.

Resource managers also use fishing gear limitations to prevent overharvest. Most fishing nets have mesh size restrictions. This means that the holes in the mesh must be sized to catch only adult fish and not the youngsters.

And now Sea Grant fishing specialists are developing special types of nets that capture only certain things, such as shrimp. These nets have deflectors and openings that allow other young fish that the fishermen don't want to escape.

To learn more about resource management, get your teacher, scout leader or 4-H adviser to perform the following exercise with your group. You will need a bowl and three bags of goldfish crackers.

Assign the participants the following roles: First generation: grandma, grandpa. Second generation: son =1, son =2, daughter =1, daughter =2. Third generation: grandchild =1, grandchild =2, grandchild =3, grandchild =4, grandchild =5, grandchild =6, grandchild =7, grandchild =8.

Tell everyone that each generation wants to make a living fishing. Then begin the exercise.

Pour the contents of one goldfish bag in the bowl.

Let each grandparent fish from the bowl by scooping up a handful of fish. Let the grandparents decide if this is enough fish for them.

Let the second generation fish in the same way.

Let the third generation fish the same way too. Probably there will be no fish left for them.

What has been forgotten? Fish reproduce. Repeat the exercise, but add fish. After the first generation fishes, add two handfuls of fish to the bowl. After the second generation fishes, again add two handfuls of fish. Repeat after the third generation. You will probably still run out of goldfish before all of the grandchildren get a chance to fish.

Now ask the group these questions.

- Who did not get enough fish? Why?



- How could the fish be conserved for each generation?
- Would you limit the number of people who could fish?
- Would you change the fishing method to allow use of only the thumb and forefinger?
- Would you allow a shorter time to fish?
- Would you set a limit for the number of fish that could be caught?

There are really no right answers to these questions. But the exercise does show how resources can be depleted and how complex resource management solutions can be.

(Source: *Coastal Capers: A Marine Education Primer* written by Lundie Spence and Vivian Coxe. This booklet contains 20 exercises designed to introduce elementary grade students to the marine environment. *Coastal Capers* is available from Sea Grant for \$3.50.)



From Sound To Sea

Natural Wonders of the Coast

A Howling Success

On a still night their howls pierce the air like arrows.

Red wolves freely roam the 120,000 acres of the Alligator River National Wildlife Refuge on the mainland of Dare County.

They can be found in only a handful of places in the world. But their future in North Carolina is hopeful.

A native to North Carolina, the red wolf (*Canis rufus*) once freely roamed the Tar Heel coastal plain and the rest of the American Southeast.

The red wolf is smaller than the gray wolf (*Canis lupus*) but larger than the common coyote (*Canis latrans*). It is a tall and lanky animal, and its fur has coloration ranging from cinnamon red to charcoal gray. The colorings and body type are ideally suited for hunting in Southeastern habitats.

A creature of forests and bottomlands, the red wolf was eradicated from our state in the late 1930s. Humans were responsible for most of the red wolf's retreat. The government once offered bounties for their hides. And logging companies decimated their forest range.

In the 1960s, there were few red wolves left in the United States. A small area of marshland in Louisiana and Texas had become their home. But these animals were sick, and some had mated with native coyotes, resulting in a hybrid breed.

In 1986, new hope was born for this small wolf in North Carolina. Four pairs of wolves were taken from a captive breeding program in Tacoma, Washington and released into the Alligator River National Wildlife Refuge.

Later, others were released. They were fed by U.S. Fish and Wildlife Service biologists until they were able to fend for themselves.

Even the bottomlands of this remote wildlife refuge weren't enough to protect these wolves from the influence of humans. Two of the red wolves released into the refuge were killed by passing motorists.

Nature took its toll also. Some wolves died of disease; others fell victim to accidents.

But biologists aren't gauging the success of the North Carolina red wolf project by the number of animals that survive. They're watching for breeding successes. In 1989, two litters of two pups each were recorded, with one pup from each litter surviving.

And this spring, four litters were documented. One of those litters was born to a female who had been born in the wild.

"It's the first time we've had second-generation red wolves in the refuge," says refuge biologist Michael Morse.

The red wolf is considered extinct in the wild and is one of the most endangered carnivores in the world, with its population



hovering at about 130 animals, Morse says.

If the Tar Heel project is successful, the Alligator River National Wildlife Refuge may become one of only three refuges in the country where this canid will once again roam the wild.

Today, there are about 25 red wolves at Alligator River, the limit for the refuge's ability to support wolves.

"If the population grows consistently, surplus animals will have to be captured and kept in pens or taken to other sites," Morse says.

One such site is the Cades Cove area in the Great Smoky Mountains National Park, where four red wolves were released this year.

For now, the future of the red wolf is uncertain. With more and more of the wolves' natural habitat falling prey to the lumberman's axe and the developer's shovel, choice reintroduction sites will diminish.

Their only hope, Morse says, is the salvation of large areas of habitat like that found along the Alligator River.

C.R. Edgerton

Marine Advice



Extending Knowledge to the Coastal Community

Taking the Middle Road

When you think of protecting the coastal environment, it's hard not to take sides.

But to Walter Clark, Sea Grant's ocean and coastal law specialist, not taking sides is a special calling.

Clark is an expert whose job demands that he maintain a middle-of-the-road posture.

"I can give people information on the law, what the law says about public trust, riparian rights, things like that," Clark says. "But I can't represent them."

Clark, one of the few Sea Grant coastal law specialists in the nation, is always in demand as a purveyor of information. And most of that is in the form of advice.

"I always tell people to get involved in the lawmaking process," he says.

In North Carolina, various commissions are charged with adopting and modifying regulations. During the process of changing these regulations, public hearings must be held. These hearings are an ideal place for an individual to affect change and to be heard, Clark says.



I always tell people to get involved in the lawmaking process.



"The best thing a person can do in this situation is to do their homework," he says. "They should go into a hearing prepared. They should follow the procedures set up by the commission that's holding the hearing. And they should make their point calmly and clearly and back up their point with information."

In what coastal issues are people getting involved?

Clark sees at least four major issues affecting North Carolina's shoreline: the quality of coastal water, the increasing conflict between users of the state's waterways, wetlands protection — particularly freshwater wetlands — and increasing pressures on oceanfront development from eroding shorelines.



The best thing a person can do in this situation is to do their homework.



"Water quality is the number one issue," he says. "And there's particular interest in identifying non-point sources of pollution."

"Over the years, we've gotten a fairly good handle on point-source, but the non-points are harder to deal with. Solutions to the non-point source problem will include stricter regulations on land-use practices."

"Then there's the public trust issue," he says. "As the coast gets more crowded, tension develops between users of the public waters — fishermen, boaters, swimmers — and owners of private property adjacent to the public waters. New rules and regulations will likely be enacted."

As for oceanfront development, Clark sees greater activity as more development becomes endangered by eroding shorelines. This will test the strength of our coastal management program's oceanfront regulations, he predicts.

"The wetlands issue is very important," Clark says. "In North Carolina, we have developed a management program for identifying and protecting saltwater wetlands. We are struggling now with doing the same thing for freshwater wetlands."



Walter Clark

K.D. Zoller

Finding a balance with these and other issues is difficult, but seeking ways to achieve the balance is Clark's job.



People in government and academia aren't supposed to be influenced by one side or the other. We're in search of the truth.



"People in government and academia aren't supposed to be influenced by one side or the other. We're in search of the truth," he says.

Sometimes that truth may support a particular point of view, Clark says. Still, he must walk a straight line and not get personally involved.

"At times," he says, "it's a hard line to walk."

C.R. Edgerton



Field Notes

Insights into Current Sea Grant Research

Stalking a Dangerous Bacteria

When Jim Oliver has a bushel of oysters delivered to his Charlotte address, his mind isn't on eating the delectable mollusks. Far from it.

These oysters are destined for intense probing in a university laboratory as this Sea Grant researcher tries to unravel the mysterious behavior of a deadly bacteria sometimes carried by the mollusks.

The bacteria, *vibrio vulnificus*, can be deadly for people who suffer from liver ailments or immune deficiency diseases if they eat infected oysters raw or partially steamed. Properly cooked, the infected oysters pose no threat even to people with underlying illnesses, says David Green, Sea Grant's seafood technology specialist.

Even healthy individuals should consider cooking their shellfish to an internal temperature of 160 F, Green says. Consumption of any raw meat or seafood can pose some health risks.

Vibrio vulnificus is part of a larger family of bacteria known simply as vibrio. Thirty species of vibrio have been counted, and 10 are known human pathogens, Oliver says.

These species of vibrio that affect humans act as gastrointestinal pathogens that cause food-poisoning symptoms — cramps, diarrhea and vomiting. *Vibrio cholerae* is responsible for the recent outbreak of cholera in South America.

Not all oysters carry *vibrio vulnificus*, although the bacteria is a common pathogen found in estuarine and ocean waters along the Atlantic, Gulf and Pacific coasts. But even those shellfish contaminated with the bacteria are not always infectious.

It's all of these ifs, ands and buts about *vibrio vulnificus* that has researchers such as Oliver at the University of North Carolina at Charlotte and Sea Grant scientist Gary Rodrick at the University of Florida trying to find some answers.

So far, most of the illnesses and deaths resulting from this bacteria have been traced to oysters harvested from waters warmer than 68 F. And people can contract the bacteria directly from the water through open wounds.

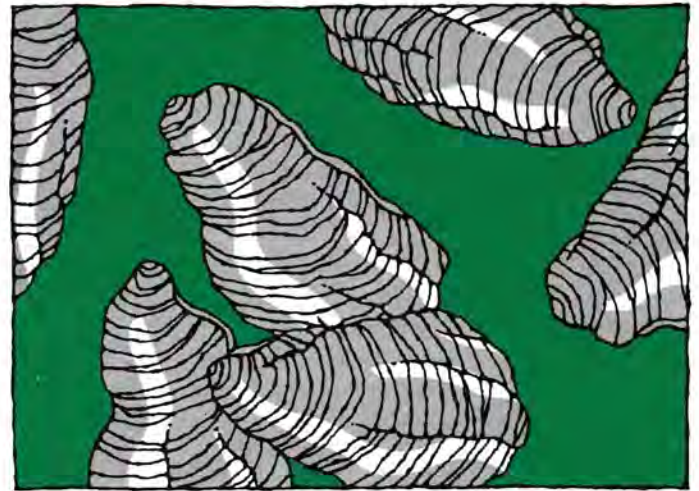
It affects mostly men over 40 years old who have a pre-existing disease, commonly cirrhosis of the liver.

Unfortunately, when *vibrio vulnificus* strikes, it strikes fast.

The onset of symptoms — fever, chills, nausea, vomiting and secondary lesions — can begin in as little as seven hours after consumption of contaminated shellfish, Oliver says. And it is not uncommon for patients to die two to four hours after admission to a hospital.

But if diagnosed quickly, victims are treatable, Green says.

The good news is that reports of *vibrio vulnificus* infections



are not common — only one per 200,000 people per year.

And Oliver would like to make them even rarer, better still, nonexistent.

He has been examining ways to rid contaminated oysters of this potentially deadly pathogen.

It was once thought the disease was more prevalent in oysters that were transported for long distances and sometimes allowed to get too warm. But Oliver's recent Sea Grant studies proved that temperature did not affect the growth of this bacteria in shellfish.

Also, scientists believed that the threat of this vibrio could be reduced through depuration. This means that oysters would be placed in clean water void of the bacteria and allowed to purge themselves.

Depuration worked for oysters that were infected with the bacteria in the laboratory, Oliver says. But it didn't faze oysters that were contaminated naturally.

Despite this grim news, Oliver says that there is new hope in the discovery of two strains of *vibrio vulnificus*. One strain is infectious; the other is not.

Oliver and other scientists are now looking for the genetic switch that would allow them to convert the infectious strain of this vibrio to the non-infectious form.

But for now, for those at risk, the only sure way to eat oysters is to have them well-cooked.

Meanwhile, the Food and Drug Administration and other seafood experts are doing their best to warn those who are susceptible while allaying the fears of those who aren't.

Kathy Hart

The Aft Deck



A Bulletin Board

of Updates and Events

"Search" Looks at Sea Grant

Sea Grant researchers and agents will be featured on a television program set to air in January.

"Search," a series produced by N.C. State University's Broadcast Services for N.C. Public Television, is designed to focus attention on scientists and researchers from schools in the UNC system and elsewhere in the state.

During the 30-minute program dedicated to Sea Grant, coastal engineer Spencer Rogers discusses breakwater-marsh as a means of erosion control, marine advisory agent Skip Kemp talks about clam breeding and shellfish management, and marine agent Wayne Wescott relays his crab shedding expertise.

Also featured are Sea Grant's seafood technology specialist David Green, researcher Steve Broome and Sea Grant Director B.J. Copeland.

Features from the "Search" series are packaged for distribution and are often re-aired nationally and internationally.

The series is tentatively scheduled to air four Tuesdays in January. Check your local listings for program dates and times.

Say Merry Christmas With Shrimp

Why not add festive flair and ocean flavor to your holiday hors d'oeuvres with a shrimp Christmas tree?

Joyce Taylor, Sea Grant's seafood education specialist, says the tree is easy to assemble and offers a light, tasty alternative to the heavy hors d'oeuvres and calorie-ridden sweets that abound during the holiday season.

Shrimp Christmas Tree

- 2 lbs. medium shrimp
- 1 bunch curly endive
- 1 foam cone, 1 1/2 feet tall
- 1 small box round toothpicks
- cocktail sauce

Place shrimp in boiling salted or seasoned water. Cover and simmer about five minutes or until shrimp are pink and tender. Drain. Peel shrimp. Devein if desired. Chill.

Separate, wash and dry endive.

Starting at the base of the foam cone and working up, cover the cone with overlapping leaves of endive. Fasten endive to the cone with toothpick halves. Cover fully with greens to resemble Christmas tree. Attach shrimp to the tree in loose spirals with toothpicks (see drawing at right).

For flair, add a red bow to the top of your tree. Provide cocktail sauce in nearby bowl for dipping shrimp.

Cocktail Sauce

- 1 1/2 cups catsup
- 1 T. lemon juice
- 1 T. Worcestershire sauce
- 2 T. horseradish
- 1 1/2 tsp. sugar
- 1/4 tsp. or more Tabasco
- salt and pepper to taste

Combine all ingredients and chill.

Taylor says the tree can be assembled several hours in advance. But be sure the tree is tightly wrapped in plastic wrap to keep the shrimp from drying out and returned to the refrigerator for chilling. Be sure to keep the shrimp tree under refrigeration until serving.

For other seafood appetizers — crab-stuffed tomatoes, crab dip, hot crab spread and smoked fish spread — fit for holiday fare, write to Joyce Taylor, N.C. State University Seafood Laboratory, P.O. Box 1137, Morehead City, NC 28557.

Ask for the Sept./Oct. hors d'oeuvre issue of *Mariner's Menu*, the bimonthly consumer seafood newsletter produced by Taylor. While you're requesting this issue, why not subscribe to this free newsletter. It's full of fish and shellfish recipes and consumer information. A subscription

would also make an excellent gift for friends who love to cook.



FDA Head Talks Safety

Thomas Billy, director of the Food and Drug Administration's new Office of Seafood, recently outlined new FDA initiatives for fish and shellfish safety at the Seafood and Environment Symposium hosted by Sea Grant in Raleigh.

Billy told an audience of seafood scientists and technologists that Congress had budgeted an additional \$9.5 million last fiscal year and \$6 million for the upcoming fiscal year to increase seafood inspection and to allay public fears about seafood contamination and disease risks.

Much of the public's fear about the safety of seafood is unfounded, Billy says. Only the consumption of raw shellfish poses significant health risk — but no more risk than eating any other uncooked meat.

To increase the public's confidence in fish and shellfish, the FDA will initiate the following steps:

- Audit all state's shellfish growing waters to ensure that waters open to harvest are not polluted.
- Develop an inspector training program.
- Clamp down on bootleggers who illegally harvest shellfish from areas closed to harvest because of pollution.
- Evaluate and possibly approve a new commercial kit to test for ciguatera — a toxin found in tropical reef fish.
- Double the level of FDA chemical contamination monitoring in the United States and develop a new target list of contaminants.
- Visit all of the more than 3,000 seafood processing plants in the United States.
- Raise the U.S. seafood decomposition minimums to zero, mimicking Canadian standards.
- Increase inspection of imported seafood.
- Expand consumer education efforts to include brochures on home handling of seafood, a consumer hotline and information to specific audiences who are at higher risk for seafood-related illnesses.
- Improve the reporting procedure and database for seafood illnesses.

Sweep Nets Tons of Trash

Nearly 12,000 volunteers swept North Carolina's waterways clean of 212 tons of trash Sept. 21 in the First Citizens Bank Big Sweep. It was the most successful waterway cleanup in the five-year history of this Tar Heel event.

At nearly 300 sites statewide, volunteers collected scores of plastic bags and bottles, mounds of cigarette butts, miles of monofilament line and mountains of tires.

At inland sites, sweepers filled dumpsters and pickup trucks with refrigerators, stoves, sofas, television sets, shopping carts, bed frames, box springs, car batteries, toilets and, yes, even the proverbial kitchen sink.

Unusual finds included love letters, an artificial limb, a carousel horse, a sequined headdress, a Spanish laundry detergent bottle and a safe stolen during a robbery.

This year, volunteers also made some gruesome finds. In Craven County, volunteers found a dead turtle entangled

in fishing line. Along the Tar River, they found the grim result of a curious puppy's fatal entrapment in a plastic milk jug.

But two animal entrapments had a happy ending. Volunteers at the Fort Fisher State Recreation Area released a sea turtle entangled in fishing line. And at nearby Carolina Beach, a seagull was freed from a fishing hook.

Big Sweep organizers noticed several trends in this year's cleanup.

Beaches were cleaner of large items, but they were virtual public ashtrays for cigarette butts, volunteers reported. Sweepers at one site at Emerald Isle counted and bagged 10,520 butts.

Inland volunteers and coordinators noticed an increase in the number of appliances and tires being dumped into our state's waterways.

"I earnestly think this is because of ignorance and laziness in getting materials to the landfill," says Big Sweep Coordinator Cecilia McDaniel Brown of Keep Winston-Salem Beautiful.

With a successful cleanup completed, plans are already under way for next year's cleanup set for Sept. 19.

Big Sweep was made possible by generous contributions from: First Citizens Bank, Yadkin Inc., Alcoa Badin Works, Alcoa Foundation, R.J. Reynolds Tobacco Co., N.C. Wildlife Federation, N.C. Wildlife Resources Commission, N.C. Beer Wholesalers, Texasgulf Inc., MCI, Duke Power Co., CP&L, the Tennessee Valley Authority, WGHPiedmont 8, WRAL-TV5, WLOS-TV, WITN-TV and WWAY-TV.

The Big Sweep is coordinated by: UNC Sea Grant, Keep America Beautiful, N.C. Division of Coastal Management, N.C. Division of Water Resources, N.C. Division of Environmental Management, N.C. Wildlife Resources Commission, N.C. Wildlife Federation, N.C. Division of Parks and Recreation, N.C. 4-H, Keep North Carolina Clean and Beautiful, WGHPiedmont 8, WRAL-TV5, WLOS, WITN and WWAY.

A Pat on the Back

Two Sea Grant employees have recently been recognized for their achievements.

Skip Kemp, a Sea Grant marine advisory agent at Bogue Banks, was

awarded the 1990-91 Chancellor's Outstanding Extension Service Award for his work with shellfish aquaculture and estuarine leaseholders.

Kemp has worked to increase the private culture of clams, oysters and scallops and turn these shellfish farming experiments into viable new coastal businesses.

Debra Lynch, who heads the Marine Advisory Service secretarial staff, was awarded a 1991 Distinguished Performance Award for the Chancellor's Unit from N.C. State University. Lynch has worked for Sea Grant for seven years and has been an invaluable part of the Raleigh office.

Lynch developed a special method for handling grant processing for the National Sea Grant Program in Washington. The method was later adopted by Sea Grant programs in other states.

Fishing Forum

Can recreational fishermen have a say in how North Carolina's coastal fisheries are managed?

The answer to that question could come during the first N.C. Marine Recreational Fishing Forum, scheduled for Feb. 1 at the Jane S. McKimmon Center on the campus of N.C. State University in Raleigh.

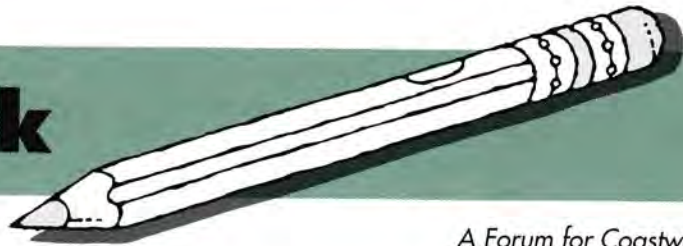
The forum will inform the recreational fishing community about the latest developments in fisheries research and management, says Jim Murray, director of the Marine Advisory Service for the UNC Sea Grant College Program, a forum sponsor.

Leaders of groups that benefit from the recreational fishery will also be invited to participate in a forum in which they will voice the concerns of their peers, Murray says.

"This will not be a 'how to fish' meeting," Murray says. "It'll be an opportunity for recreational fishermen to become more aware of what's going on in how fisheries are studied and managed. Those are two subjects of vital importance to the future of the fishery resource in this state."

For information about registration, contact Murray at the Sea Grant office in Raleigh at 919/515-2454.

Back Talk



A Forum for Coastwatch Readers

Coastwatch wants to hear from you on topics relating to the North Carolina coast. Letters should be no longer than 250 words and should contain the author's name, address and telephone number. Letters may be edited for style. Send all correspondence to *Coastwatch*, UNC Sea Grant, Box 8605, N.C. State University, Raleigh, NC 27695. Opinions expressed on this page are not necessarily those of UNC Sea Grant employees or staff.

Keeping the Coast Clean

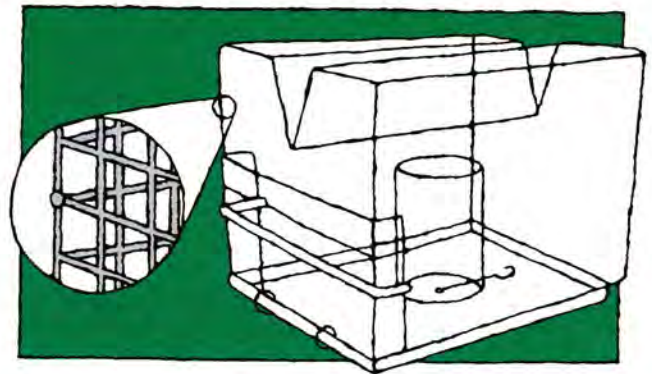
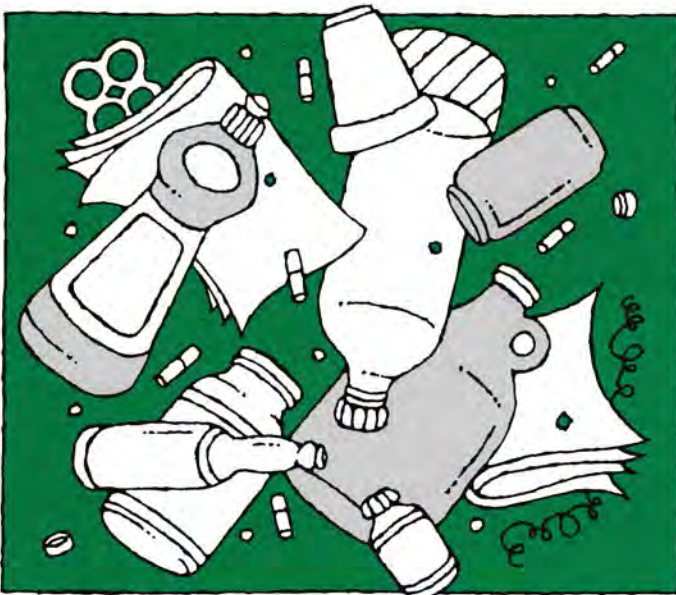
Dear Editor,

I really enjoyed my first "new" *Coastwatch* and look forward to many more years of being kept informed and enlightened. If you have a volunteer program in addition to the annual Big Sweep, I'd like more information about that and how to participate. You folks do a great job.

Candace Jackson, Raleigh, N.C.

The Big Sweep is more than a one-day waterway litter cleanup. It's a year-round educational outreach project as well, and there are a host of volunteer opportunities. In recent months, Big Sweep coordinators have held community education events such as "trash tournaments" in conjunction with sportfishing tournaments. We're sure these activities could benefit from extra hands.

Also, planning for the next Big Sweep, set for Sept. 19, 1992, is already under way. Throughout the year, especially in the months just prior to cleanup day, volunteers are needed to take phone calls, assist with mailings (i.e. stuffing envelopes) and help with other details. To find out how you can help, contact logistical coordinator Susan Bartholomew at 515-2454.



Cagin' Shrimp

Dear Editor,

In the early and mid-80s, I lived on Mill Creek in Pender County. At that time, I talked with Jim Bahen at Fort Fisher regarding research he was doing on a shrimp trap. I would love to know if he ever perfected the trap. I will be returning to the area for retirement soon and would love to catch a few shrimp off my pier. We enjoy your magazine.

Billie Hayden, Cincinnati, Ohio

Under a sampling permit from the N.C. Division of Marine Fisheries, Sea Grant marine agent Jim Bahen experimented a little with shrimp traps in the early 1980s. But he says he never had much luck catching shrimp in commercial quantities.

The trap was an 18-inch cube made of half-by-half hardware cloth with a V-type funnel entrance running along the length of the top side and a bait opening at the bottom. The most he ever caught in one "soak" or "set" (about 2 hours) was seven to eight shrimp, he says.

Bahen had hoped the traps might be a good way for sport shrimpers to get a pound or two without trawling. Also, he thought it might provide a means for commercial shrimpers to fish in secondary nursery areas closed to trawling.

Division of Marine Fisheries has approved regulations for commercial shrimp traps, but the required large mesh size limits harvest. Shrimp crawl in, then crawl back out, Bahen says. Any variation from that design requires a sampling permit, and the catch from this experimentation may not be sold.

Bahen says he never found the magic bait or technique in fishing the traps; other people he knows who have tried them have been closed-lipped about their findings. However, he thinks that with more time and study shrimp traps can be perfected. With a renewed emphasis on "passive" fishing gear, which doesn't destroy or disturb the bottom, there may be room for research in the future. Bahen envisions an ocean shrimp trap for rocky or coral bottoms inaccessible to trawling.

The



Book Store

Publications to Enrich Your Coastal Library

Are you worried about Christmas gifts for that favorite recreational fisherman who has just about everything?

Try browsing the UNC Sea Grant bookshelves.

Sea Grant has a large selection of books and bulletins, all of which make wonderful stocking stuffers for the angler in the family.

KEEPING GEAR IN ORDER

Sportfishing Gear Maintenance is a two-page blueprint that advises fishermen about how to take care of rods and reels and other fishing equipment.

Any fisherman knows that well-kept gear can be crucial to landing the next big one. Best of all, it's free.

Write Sea Grant and ask for publication number UNC-SG-BP-81-1.

A BETTER DEAL ON A USED BOAT

Is your fisherman thinking about buying a used boat?

How to Buy A Used Boat is a publication that can give him or her all the information needed to make a wise selection.

What's the best type of boat to buy? What does a person look for when checking for defects and problems? What is a good price?

The answers can be found in *How To Buy A Used Boat*. Included is a checklist for evaluating small recreational boats and guidelines

for determining a fair price.

For your copy, send \$2 to Sea Grant. Ask for publication number UNC-SG-81-10.

A HANDY FISH REFERENCE

One of Sea Grant's most popular free publications is the *Recreational Guide to Management of Fish in South Atlantic Waters*.

It's a one-page guide crammed with current biological data on many popular species. It also includes the latest state and federal regulations for catching fish off the North Carolina coast.

Write Sea Grant and ask for a free copy of publication number UNC-SG-89-06.

SHRIMP IN YOUR FREEZER

Wouldn't it be nice to settle down for the winter with a freezer full of delicious Tar Heel shrimp?

A Guide to Recreational Shrimping provides detailed instructions for rigging small boats to catch these small crustaceans.

In 34 pages of advice and illustrations, this book shows how to build doors, choose nets, rig the boat and pull the net.

It's a real bargain at \$4. For your copy, write Sea Grant and ask for publication number UNC-SG-86-07.

STEP-BY-STEP CRAB POTS

Has your favorite fisherman ever built a crab pot?

It's more complicated than it looks. Sea Grant's booklet, *How To Build A Crab Pot* is one of the best booklets available on the subject.

Learn the step-by-step procedures for assembling this sure-fire method for catching crabs. For your copy, send \$1.50 to Sea Grant and ask for publication number UNC-SG-80-03.

HARDBOTTOM DISTRIBUTION/FISHING MAP

This 39"x27" poster is a guide to the natural offshore reefs (hardbottoms) between Cape Lookout and Cape Fear. These are prime fishing spots and can be located using the map's Loran grid. The flip side of the poster features five four-color paintings of the reefs. It also makes an excellent educational tool. For *The Hardbottom Distribution/Fishing Map*, write to Sea Grant and ask for publication number UNC-SG-86-25. The cost is \$5.

ODD FISH? NOT NECESSARILY.

These 16 colorful pamphlets feature underutilized species from Gulf and South Atlantic waters. The *Non-traditional Fish Brochures* describe how to catch, clean and prepare the fish. Recipes are also included.

Series 1 covers amberjack, sea robin, skates and rays, triggerfish, panfish, jack crevalle, sharks, sheepshead, bonito and croaker. Series 2 covers black drum, bluefish, ladyfish, mullet, pigfish and sea catfish.

For your copies, send \$1 per series to Sea Grant and ask for publication numbers UNC-SG-85-09 through UNC-SG-85-18 (for Series 1) and publication numbers UNC-SG-86-13 through UNC-SG-86-18 (for Series 2).

THE NEW WAVE COOKBOOK

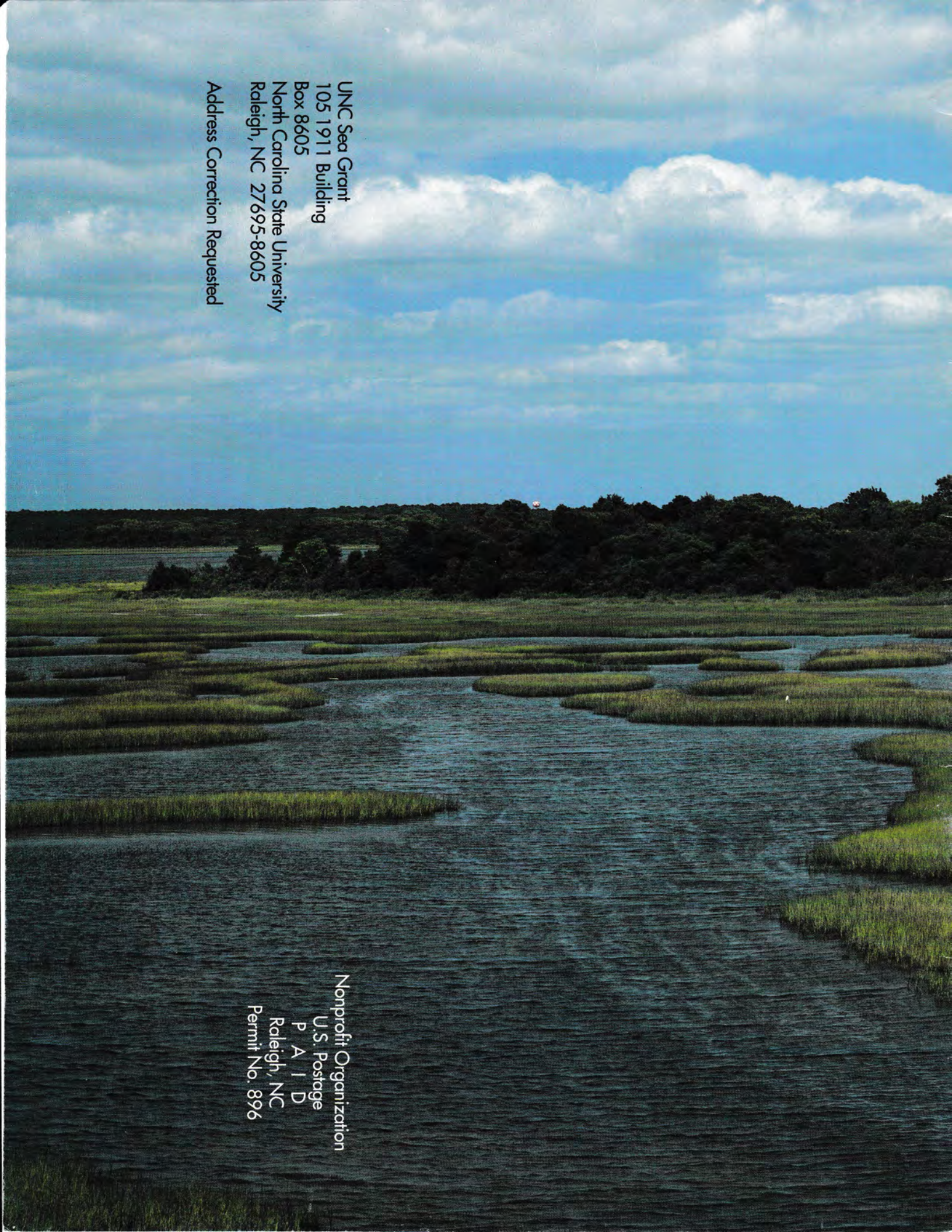
A fresh slant on preparing unusual fish is found in *Recipes With a New Catch*. This 40-page booklet is full of delicious recipes for cooking non-traditional fish — shark, triggerfish, bluefish, amberjack and more.

It's a catch for \$2. For your copy, write Sea Grant and ask for publication number UNC-SG-86-06.

Ordering Information

To speed delivery of Sea Grant publications, please use your Coastwatch mailing label or the customer number that appears above your name. Make checks payable to Sea Grant, unless otherwise specified.

Send all requests to: Publications, UNC Sea Grant, Box 8605, N.C. State University, Raleigh, NC 27695. For multiple copies or further assistance, call Carole Purser at 919/515-2454.



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