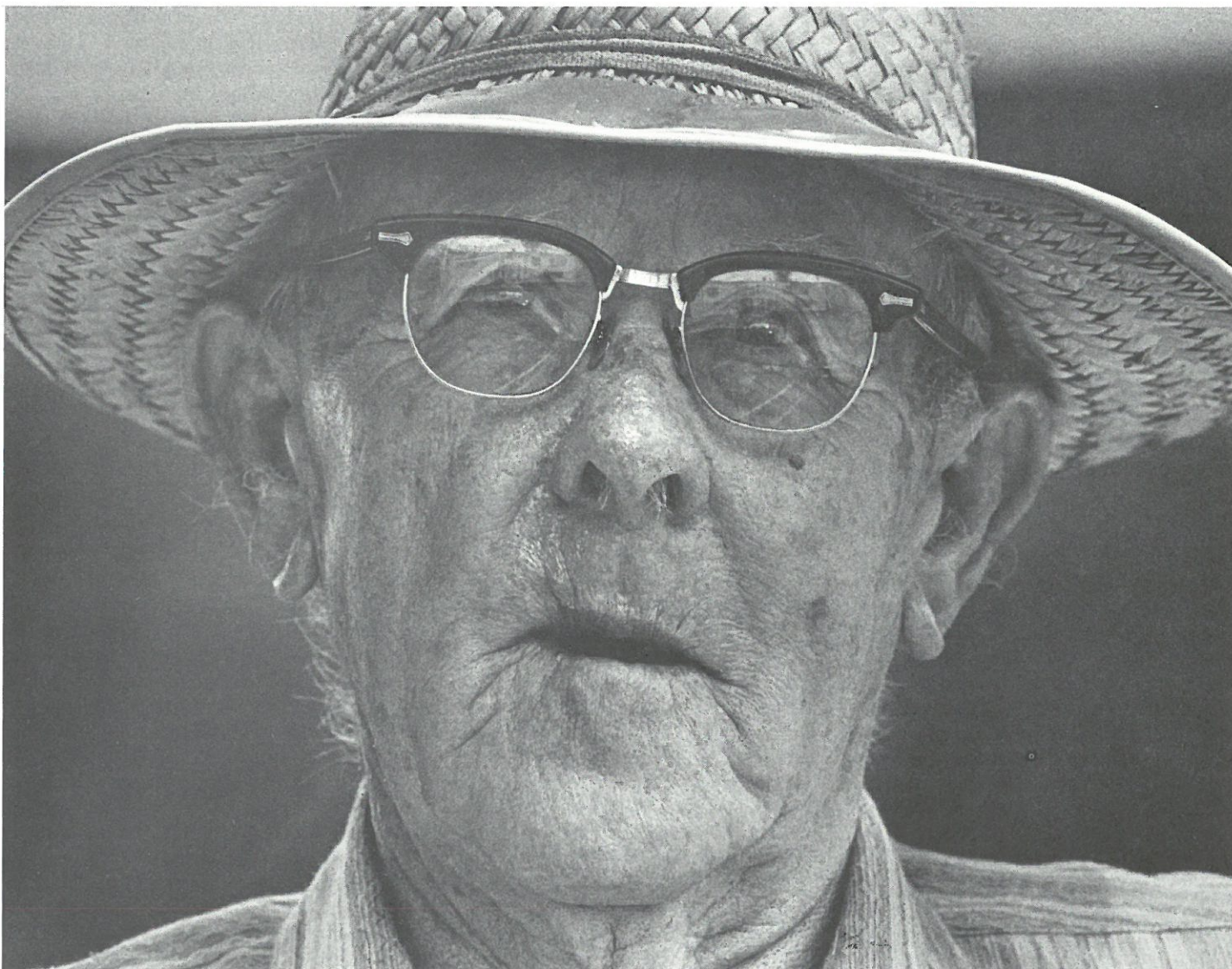


COAST WATCH

Photo by Steve Murray



"Things just don't hold a straight line," says Harkers Islander Irvin Guthrie

Storm carved an inlet And broke island's sleep

One evening in September, 1933, Irvin Guthrie walked out of his house and felt water rising around his ankles. A huge storm, one of those nameless but historic hurricanes, was shoving water up in Back Sound, flooding Harkers Island. "Up in the road, somebody had a lamp lit," Guthrie

Continued on next page

recalls. "People were tying themselves together with a long rope, so nobody would get lost. They were headed for high ground."

Guthrie joined the group for a moment, but left it when he suddenly felt drawn away for what might have been his last glimpse of the house he'd grown up in, his father's house.

"Just when I got back down there, that's when the water broke open Barden Inlet. Then it stopped rising and started dropping down."

It was as if a dam had burst. The swollen sound had split the land barrier and carved a new inlet between Cape Lookout and Shackleford Banks.

Harkers Island was spared, and its people untied themselves and went home to what was left of their houses. The hurricane had swept Guthrie's house off its foundation, but set it down whole. His neighbors helped him lift it back astride its underpinnings.

"Only thing is, the doors and windows never fit just right after that," Guthrie says. "Things just don't hold a straight line."

For Guthrie, that September night

was a turning point in the life of Harkers Island. It was, he says, almost as if when the water rushed out, the twentieth century rushed in. The inlet made it easy for sports fishermen and tourists to use the island as a jumping-off place, and brought about more change, Guthrie believes, than the bridge, which was built in 1941.

"It was the worst thing that ever happened," Guthrie says about the inlet. But he hasn't always felt that way. "I was one of the first that went to the government and asked them to dig it out," he says. "We thought it was going to make it easier to get in and out. And it did, but everybody else started using it, too. And each year it gets a little wider, and now it's about to take the lighthouse with it. If we'd just left it alone, that inlet would have long ago filled in."

Along with the boats came a steady flow of sand and saltier seawater, which changed almost overnight the fishing in Back Sound.

"There used to be an oyster rock yonder, where there was always a mess of oysters," Guthrie says. "But since that inlet broke open, and the sand

came washing through there, you can't do any good there."

Clams, oysters and scallops were plentiful in the sound before the storm. Shrimp were so thick in the water that they fouled nets and made enemies of the fishermen, who called them "bugs." Mullet swam in schools that Guthrie says would have covered a half acre.

"When I was born here in nineteen-o-one, there were less than a hundred people living here," he says, "and everybody at the time made a living out of salt water."

In his house, there is an automatic clothes washer. There is also a television. Down the street are a movie theater and a new bank. But the house is the same house, his father's house.

"This is an old house and an old style," he says, rocking on his porch. A stiff breeze off the sound makes 90 degrees feel like 75. "But I wouldn't trade it for any mansion on the road. Every morning I get up and see my own kingdom here. . ." His hand sweeps out toward the sound, hovering like a gull in the wind: ". . . the water."

Fishermen keep nets and traditions well-tended

If you take the road to Harkers Island, you won't find anything exotic or even especially scenic through your car windows. From the road, it is another pleasant Down East community. There are 667 houses. Of these, 549 are used all year. Half are plain, frame cottages and the rest are about equally divided in number between brick houses and mobile homes. The island, low, flat, and tree-shaded, is stretched out in the waters of Back Sound, sheltered from the Atlantic by the jutting elbow of land formed by Cape Lookout and Shackleford Banks.

"If you go to Harkers Island with the notion that you're going to find this quaint, old-timey fishing village, forget it. It's just not there," says Jim Sabella, a Sea Grant researcher and an anthropologist at the University of North Carolina at Wilmington. "It's only when you've lived there for a while, and you get to know the families, that you see the older way of life coming through."

It is a way of life that lures young

people, especially daughters, home from the cities, and one that attracts well-to-do outsiders into rustic retirements spent among boats, nets and porch swings. In 1900, there were fewer than 100 people living on the island. Now, there are 1651.

Fishing is not the whole of life on Harkers Island, but it's the foundation. And it's the starting point for Sabella and his research associate, Marcus Hepburn, when they talk about their two-year, Sea Grant study of the island.

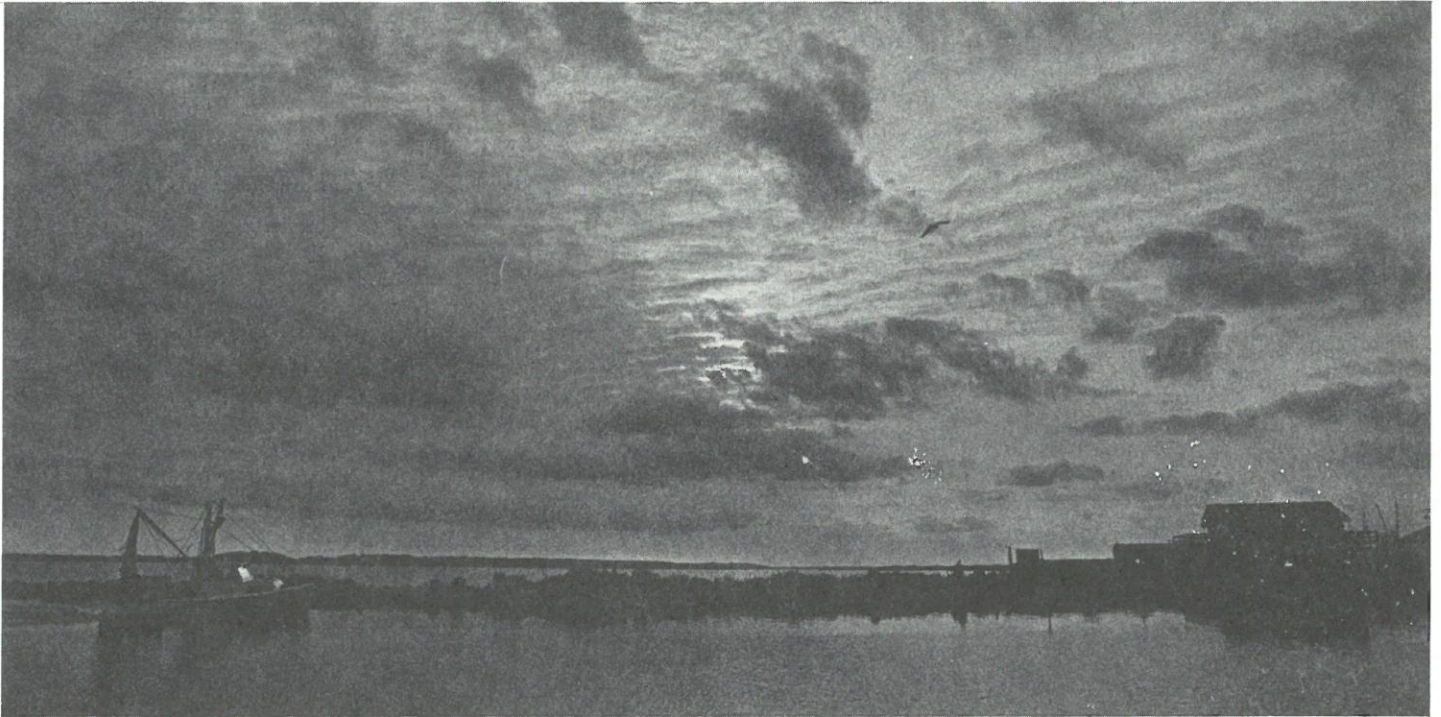
Sabella and Hepburn wanted to be able to tell the agencies charged with regulating the state's fisheries something about the people they are regulating—their values, their history and their culture. But Sabella and Hepburn also wanted to know what's likely to be left of places like Harkers Island when the twentieth century gets through with them. Harkers Island was singled out for the study, Sabella says, because it is fairly representative of the state's fishing

communities.

"There, in a relatively small space, we could look at many different types of fishing and many different sizes and types of fishing craft," Sabella says. "The same kinds of fishing are done in other parts of North Carolina, but not all of them in the same place."

Sabella's research associate, Marcus Hepburn, lived on the island for 21 months, made over a hundred fishing trips (for what he terms "participant observation"), and talked with almost every family that's called the island home for a generation or more. During those months of fishing, visiting and careful interviewing, Hepburn began to uncover a side of Harkers Island the tourists don't see. The only way to come to know the island, he believes, is to come to know it in the same way its people have: by way of the water.

So Hepburn climbed aboard the boats and went fishing. The great variety of gear and techniques astounded him. There are 143 commercial fishermen on Harkers Island. Fewer



A commercial fishing boat leaves the island at dawn

than half of these fish full time; the rest piece together incomes from boat-building or outside jobs. But though they are few in number, these fishermen are exceedingly diverse in the ways they work. They trawl, dredge, net, rake, kick, hook and tong almost everything that swims in the salt.

One of their most striking qualities, Hepburn says, is their inventiveness. Harkers Island fishermen developed, apparently independently of other regions, a way of catching shrimp: channel-netting. Harkers Islanders began making channel nets in the 1930s, and the gear was almost unknown elsewhere along the East Coast until recently, when its fuel-saving advantages made it attractive to fishermen to the south. A channel net looks something like a trawl, but it is anchored in place in or near a channel with a good tidal current and is fished at ebb tide, when the currents sometimes carry shrimp in swarms. Once the net is set, a fishermen positions his boat over the net, shuts down his engine, and empties a tail bag full of shrimp every 20 minutes or so.

"One night I was aboard with a fisherman when he harvested a thousand pounds of shrimp in five hours," Hepburn recalls. "His total gas cost was about two dollars."

Big trawlers often catch more shrimp, but they can burn hundreds of

gallons of fuel, at well over a dollar a gallon.

There are 22 or 23 good channel net locations around Harkers Island but a spot called "Gold Mine," in the "straits" between the island and the mainland, is considered to be the best. The islanders have developed a rigorous set of unwritten laws governing prime spots like Gold Mine. To establish his right to channel net in a popular location, a fisherman must first "lay on a set." For example, if James is fishing Gold Mine and Doug wants some of the action, then Doug must line up his fishing boat and wait with gear aboard, directly behind James. When James hauls out, after maybe four or five hours of fishing, he must yield to Doug. Doug may spend a day and most of a night laying on a set, or he may pay a young person to man the boat for him.

But it's not just channel netting that brings out the islanders' skill at self-regulation. There are equally effective and time-honored rules governing long-line and long-haul fishing. The captains of long-haul crews meet informally at the beginning of each season and list the best fishing locations. They assign a sequence that allows the crews to rotate through all the spots, so that each crew holds the rights to an area each day of the season, except Sundays.

Perhaps partly because they have been so successful governing themselves, the fishermen of Harkers Island view governmental agencies of all kinds with suspicion. Responding to a survey that asked who they thought had the most influence on fisheries policy-making, the Harkers Island fishermen placed commercial fishermen last among five groups. Fisheries officials, however, said that they weigh the fishermen's opinions higher than all other groups but one, the seafood dealers.

But fishermen and officials agreed on the best ways to publicize new policies. And, in some cases, Harkers Island fishermen have even begun to ask for more state regulation. Sixty percent of the commercial fishermen surveyed wanted the state to outlaw clam-kicking, which has been suspected of damaging shellfish nursery areas.

As Sabella points out, many of the new problems facing fishermen—competition from outsiders, fuel costs, pollution and scarce supplies of some species—are beyond the fishermen's abilities to control.

"I think the North Carolina Division of Marine Fisheries has boosted tremendously its credibility among Down East fishermen," Sabella says. "They've done so by getting out and

Continued on next page

asking the fishermen what they think."

One of the fishermen they ask is Ben Brooks, a Harkers Island native and graduate of East Carolina University. Brooks gave up a teaching career to devote himself to commercial fishing on the island. Brooks believes that his way of life is in serious trouble, largely because of the scramble for new gear, bigger boats and bigger catches.

"You have to go harder to make a living," he says. "You have less leisure time. You could have a certain trawl this year, catching shrimp, and next year somebody could pop up a new idea, and the following year, you'll probably have to get a new trawl."

It is the small-scale commercial fishing operation that is going to be weeded out, Brooks says.

"The shrimp are going to be protected there under the grass, moving north. And the man that's got some other source of income is protected, because whether he catches anything or not, he's going to get by. But the commercial man has to go right on through the hard times."

Marcus Hepburn sees a similarity in the evolution of farms into agribusinesses, and the new trend away from the kind of one-family fishing operations found on Harkers Island.

"The thing you have to ask yourself is, will we continue to have small

fishing operations?" he says. "It could go the route of agriculture: bigger business units, bigger boats. And if that happens, the Harkers Island fishermen won't be able to adapt. They enjoy their independence and won't give it up."

But even if they lose their boats tomorrow, fishermen on Harkers Island won't line up for handouts.

"These people have a wide range of skills," Jim Sabella says. "A lot of them have built their own homes, in addition to their own boats. They do electrical work, they do mechanical work, they work with hydraulics. They are rich in abilities and intelligence, and they're perfectly capable of taking care of themselves."

But most of the island's fishermen are operating on the assumption that fishing has a future there. Even so, the pressures are giving some islanders pause to wonder. In a study of how fishermen's wives regard their lives and their husband's careers, Sabella and Hepburn found a reluctance on the part of the women to endorse fishing as a way of life for their children. Almost half of the wives surveyed were opposed to their sons becoming fishermen. But, as Sabella points out, "The women are very supportive of their husbands' occupations, in the sense that they realize that the men are happy on the water, that they

are their own bosses, that nobody interferes with them, and that it's a good life."

The study also found that three-quarters of the women worried "considerably" or "very much" about their husbands' safety. Most wanted their husbands to restrict their fishing to day trips and to safer areas inside sounds and estuaries.

"The fishermen's wives almost universally said their lives were tougher than other wives'," Sabella says. "They think that fishing is not adequately rewarded, financially. But that still doesn't mean, when everything is said and done, that they wouldn't rather stay in the fishing."

Whatever the hardships, Harkers Island has an almost astonishing hold on its daughters. As Sabella puts it: "The women, if they can help it, stay on the island."

Joann Brooks, who was not raised on the island, but inherited the Harkers Island way of life when she married Ben Brooks, expresses her regard for the island this way: "The people are different here," she says. "There's just a closeness that you have over here that you don't have other places."

The August issue of Coastwatch will look at Harkers Island's boat-builders and social traditions.

Photo by Steve Murray



Marcus Hepburn (left) visits with Mary and Dallas Rose in their house on Harkers Island

THE BACK PAGE

"The Back Page" is an update on Sea Grant activities—on research, marine education and advisory services. It's also a good place to find out about meetings, workshops and new publications. For more information on any of the projects described, contact the Sea Grant office in Raleigh (919/737-2454).



The rendezvous: October 6, 1980, on a remote stretch of beach near Duck, on North Carolina's Outer Banks. The

team: hand-picked professionals from France, Japan, England, Canada, Nova Scotia, Norway and the U. S. Support: aircraft, ships and satellite communications. Code word: ARSLOE.

The plans for the Atlantic Remote-Sensing Land and Ocean Experiment sound something like those for an allied invasion. But the object is peaceable: to measure the height, length, shape, strength and frequency of ocean waves.

Knowledge of waves and wave energy is crucial to communities trying to deal with pollution, coastal construction, shoreline erosion and other coastal problems. But very few reliable data are available to help planners predict what sort of waves can be expected for various periods or weather conditions.

ARSLOE will be the first project in which so many wave-energy specialists from such diverse backgrounds have focused their equipment and their attentions on the same stretch of shoreline. The site at Duck was chosen because of the relatively uniform topography of the ocean bottom there, which will make comparing data easier, and because the U. S. Army Corps of Engineers' pier there is well-outfitted for coastal research.

The Corps' Coastal Engineering

Research Center is coordinating the experiment, and the data collected will be sent to the National Oceanic and Atmospheric Administration for analysis.

Two teams of Sea Grant researchers, headed by Ernie Knowles and Tom Curtin of North Carolina State University, have been invited to take part in the experiments. In his Sea Grant work, Knowles is investigating ways to predict ocean waves. Curtin's Sea Grant project is designed to develop new instruments for studying near-shore currents and other physical processes.

In all, about 25 devices, built to measure everything from gentle swells to crashing breakers, will be riding the waves during the two-month term of the experiment. When the findings are in, scientists will be better-equipped to select the best methods and instruments for their studies of waves and currents.



Howard Kerby wants to make sure that the state's fishermen can continue to land lunker bass. So, he is doing research in

how to freeze them—not the striped bass, but their sperm.

A Sea Grant researcher from North Carolina State University, Kerby has been working toward freezing and then hatching large quantities of striped bass sperm on a production basis. In 1978, the first results from the freezing process showed there was no significant difference between fish produced from fresh sperm and those produced from frozen sperm. In normal artificial fertilization techniques, the success rate is usually 60 to 80 percent. But when Kerby's frozen bass sperm were mixed with the fish eggs, the rate was figured as high as 88 percent.

The major research involved in the project included testing cryoprotectants (which protect cells during freez-

ing) and extenders with the sperm under controlled rates of freezing temperatures. Kerby says that the frozen sperm he has produced will last up to hybrid sperm will last up to two years. He sees the frozen sperm being most beneficial to hatcheries hard-pressed for enough males to fertilize eggs and to other parts of the country where striper males are scarce. His research, Kerby explains, could result in more fish in the lakes and reservoirs and more fish stocked in estuaries with population problems.



They sold for seven cents a pound in 1880. Fishermen threw them away when the ugly, spiny crustaceans be-

came hung in nets. Of those that sold, about half were used as fertilizer and bait. The crustacean? Shrimp.

John Maiolo and John Bort, Sea Grant researchers at East Carolina University, are gathering some historical information on shrimping in North Carolina as part of a sociological study on the shrimping industry. They have uncovered some interesting facts.

In the late 1800s and early 1900s, shrimping in North Carolina was confined to the southern coastal counties of New Hanover and Brunswick. Fishermen used seines, cast nets and skimnets to catch shrimp in shallow sound bottoms.

Between 1915 and 1920, some changes came along in the industry that spurred fishermen to become more interested in catching the crustaceans. Two shrimp canneries opened in Brunswick County, fish houses began shipping shrimp out of the state to markets in New York City, and the otter trawl was introduced in the state. The otter trawl allowed fishermen to drastically increase their catches because they could fish deeper waters offshore.

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During the 1920s and 1930s, shrimpers began plying the waters of the Pamlico Sound for the first time. This opened one of the richest shrimping grounds in the state. After World War II, shrimp became more important and the industry boomed in North Carolina and throughout the South Atlantic states. More fishermen began fishing shrimp as prices the shrimp brought began to soar. Today, the shrimp fishery is the most valuable fishery in the state, and there is an increasing need to know, not only about the biology of the shrimp, but about the people who fish, process and market it. Through interviews with fishermen, processors and marketers, Maiolo and Bort are trying to put together a complete sociological picture of North Carolina's shrimping industry. Such a picture will help officials formulate new strategies for managing the state's shrimp fishery—strategies based on a knowledge of the people being managed.



In the past, the staff of the North Carolina Marine Resources Center at Bogue Banks has often had to beg, borrow and swap for specimens to fill the center's aquariums. The center didn't have a

boat large enough to capture all the marine life it needed, especially those species from off-shore waters.

But this summer, the center launched a new, 23-foot Sea Ox, especially modified for gathering specimens. The boat will be shared with the Marine Resources Center on Roanoke Island.

The modifications in the Sea Ox were made by Bob Hines, Sea Grant's marine advisory agent at Bogue Banks. Hines wired and mounted gauges, antennas, nets and radios, and put the boat in working order.

Says Dave Williams of the center's staff: "The boat will make it a lot easier for us to get the specimens we need, when we need them."



Would you like to serve crab meat panned in butter or crab casserole for dinner, but your pocketbook won't let you? If you have access to coastal estuaries—sounds, bays and river mouths, you can catch crabs at little cost with your own crab pot. UNC Sea Grant has a new publication, *How to Build a Crab Pot*, that describes the making of a crab pot in ten illustrated steps. The booklet also describes the regulations that govern recreational crabbing

in North Carolina. Another pamphlet, *Dipping and Picking*, published by South Carolina Sea Grant, describes how to cook, clean and pick your crabs once they're caught. For a copy of either publication, write UNC Sea Grant, Box 5001, Raleigh, N.C. 27650.

The Washing of Fish: A Literature Assessment, by Freda A. Ramey, Joyce A. Taylor and Frank B. Thomas, is a guide to articles and publications on the methods for washing fish commercially. The technical report reviews literature on techniques and equipment, as well as seafood handling, sanitation and preserving. It is designed to be of special value to the seafood industry. For a copy, send \$1.00 to UNC Sea Grant and ask for publication UNC-SG-79-07.

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