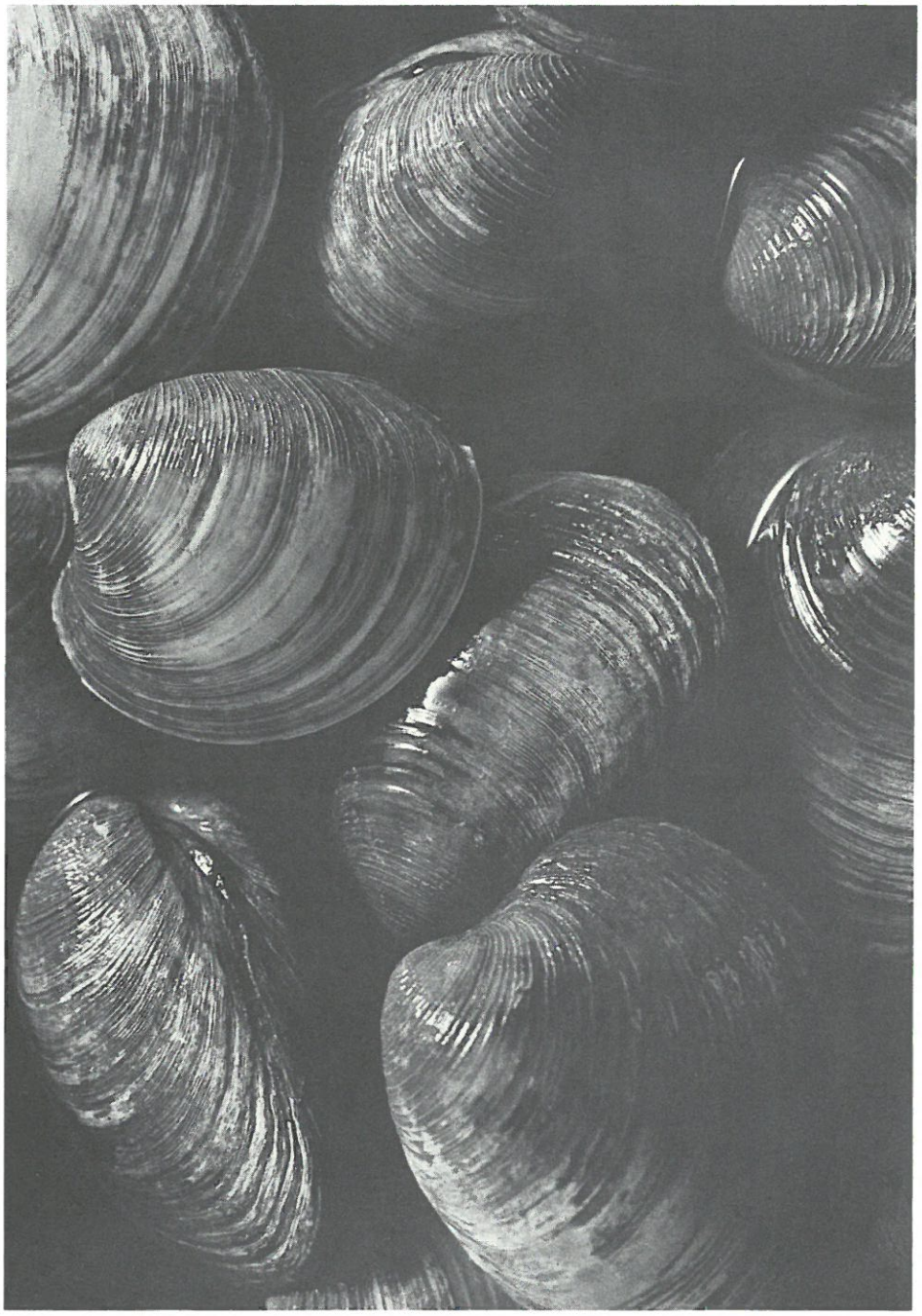
UNC Sea Grant

March, 1982

COASTWATCH

Photo by Steven Wilson



The hard clam, Mercenaria mercenaria

Getting a clam Out of bed

North Carolina fishermen say there's more than one way to get clams from the estuary to the table. They rake, tong, "sign," kick and dredge hard clams from their estuarine beds.

Found from Nova Scotia to the Yucatan, the hard clam (*Mercenaria mercenaria*) is classified as a bivalve mollusk, meaning it has two valves or shells and a soft body. The hard clam lives in coastal creeks, bays and sounds, burrowed several inches below the sediment, feeding on food filtered from the water.

Clams are graded by size and priced accordingly. The chowder clam, whose name implies its use, is the largest hard clam, but it brings fishermen the smallest return. The cherrystone, a medium-sized hard clam bringing medium prices, is served raw or steamed. The littleneck, the smallest and most expensive hard clam, is used in the half-shell trade and is also steamed. Clams bring from about eight to 13 cents apiece, depending on the size and the supply.

Indians, the first clammers along the eastern United States shoreline, ate the soft-bodied clam and used its shell to make bead necklaces called wampum. Wampum originally had a sacred significance, but after the arrival of the European settlers it was used as money for trade.

Traditionally most clammers, recreational and commercial, have used either rakes or tongs to unearth clams from the estuarine bottom. Most hand clamming occurs during warmer

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Photo by John Rottet

A Cedar Island clammer

months, says Marcus Hepburn, a researcher at the Institute for Coastal and Marine Resources at East Carolina University. As part of a UNC Sea Grant research project examining hard clams, Hepburn is finding out more about the people who clam.

Hepburn describes one method of harvest called "swimming for clams." "The person immerses himself in the water and crawls along the bottom on his hands and knees," he says. "All the while he's feeling the bottom for clams with his hands, knees and feet. When he finds a clam he deposits it in a tub that sits in an inner tube. The tube and tub are pulled along by a rope attached to the clammer's leg."

Lionel Gilgo, a retired clammer from Atlantic, says he clams by the sign. It seems clams sometime give away their position while they're feeding by making a small hole in the sand. "You've got to know that sign from the other signs on the bottom," Gilgo says. "They'll only sign certain days and they only feed on the tide, but never on the ebb tide. And they won't feed every day."

Until the mid-1970s all North Carolina clams were harvested by hand. But then two mechanical methods of harvest were introduced, kicking and dredging. Kicking and dredging are winter fisheries, limited by the N. C. Division of Marine Fisheries. Last year, 30 percent of the 1,458,000 pounds of clams harvested in this state were kicked, four percent were dredged and 64 percent were harvested by hand methods. Clams brought North Carolina fishermen more than $5 million in dockside revenues during 1981.

After the introduction of mechanical harvest and a jump in clam prices from seafood dealers, clamming became an important seasonal fishery in North Carolina. Clam landings doubled and dockside values quadrupled between 1977 and 1979 alone, Hepburn says.

Though clam landings have remained constant in recent years, two problems face the fishery—exploitation and pollution. Fishermen, scientists and resources managers are worried that clam stocks may be becoming overfished. Sea Grant researchers Charles Peterson of the UNC Institute of Marine Sciences and Marcus Hepburn are taking a closer look at the hard clam and its harvest methods, hoping to answer some important questions about the fishery.

Some clams are unharvestable because they bed in waters polluted by sewage treatment plants, malfunctioning septic tanks, farm drainage areas, construction sites or industry. Mark Sobsey, another Sea Grant researcher from the University of North Carolina at Chapel Hill, is examining contamination in oysters and clams.

So while the hard clam lies snuggled beneath its estuarine blanket, those of us topside worry about its fate. Fishermen are concerned about having enough clams to fish; resource managers are worried about managing stocks, and scientists are anxious to learn more about both the clam and the people who fish for them.

Clams today, none tomorrow, say kickers

Thin sheets of ice weave a collar around Core Sound during a mid-January freeze down East. Charles Gilgo, a clam kicker, sits by the fire in his Atlantic home, hoping for a thaw.

"I came back in this morning after my first three bags froze on the boat," Gilgo says. "It was too cold for me."

A cold snap may keep Gilgo off the sound for a few days but he knows it will pass. But what really worries him is a bigger problem—one that could keep him by the fire in winters to come. And that problem, he says, is a scarcity of clams in Core Sound.

"I got started kicking because the money was good," Gilgo says. "You could make better money clamming during the winter than doing anything else. I've stayed in it because the money got even better and I didn't have to go far from home to clam. But if we continue kicking this year and next, there may not be many clams left in Core Sound."

Gilgo is worried that the clam stocks in Core Sound are being overfished and he may no longer have a winter fishery to rely upon.

His father, Lionel Gilgo, blames the declining harvests on mechanical kicking. Before retiring this fall, Lionel raked clams from Core Sound for 15 years.

"Kicking has just about destroyed Core Sound," he says. "They've caught about every clam out there and now they're very, very scarce. Raking is no good anymore.

"I told my son it was wrong when he started kicking. But I know there's money in it. And what are you going to do when everybody else is out there doing it? But they're catching less and less every year. Before long they're going to reach a point where their expenses overpower what they make."

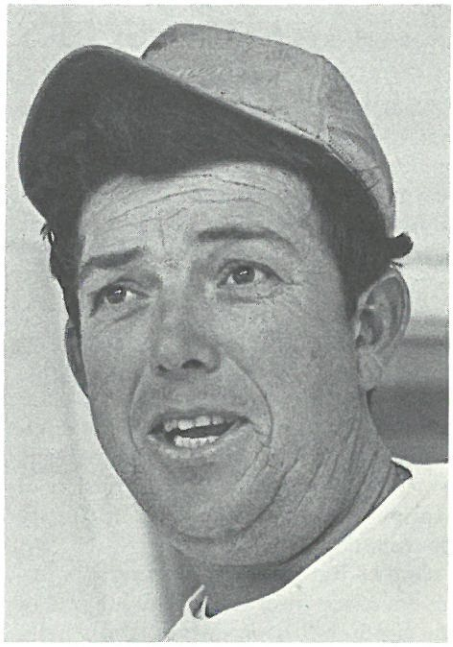
Many a temper has flared and a heated argument ensued over clamming in Carteret County. Traditionally, most clams harvested from North Carolina sounds were raked. But the invention in the mid-1970s of the kicker plate, an inexpensive metal plate welded to the rudder of the boat, changed the complexity of the fishery.

Clam kicking works this way: The

Courtesy of N.C. Division of Marine Fisheries

A kicker stirs the water for an early catch

Photo by Kathy Hart



Charles Gilgo

kicker plate deflects the prop wash from the rudder to the bottom, where it furrows a path eight to 12 inches wide. The wash has enough force to blow out shells, clams, grass—whatever is in its path. A heavy trawl or net is pulled behind the boat and hauled aboard every 10 to 20 minutes to empty the net.

Only a few fishermen initially adopted the kicking methods, says Fentress "Red" Munden, shellfish coordinator for the state Division of Marine Fisheries. But a severe freeze during the winter of 1976-77 laid a thick layer of ice over northern clamming grounds and caused seafood dealers to look southward. Clam prices jumped and more fishermen turned to kicking, many trying to recoup losses from 1978's disasterous shrimp harvest.

Clam kicking is a more efficient means of harvest. An average kicker will net 20 to 25 bags of clams a day, while a hand raker will harvest five to six bags a day.

Initially there were few restrictions on clam kicking. Kickers could harvest clams year-round in any area they could reach that was not polluted. But a clamor quickly arose from fishermen, rakers and others concerned about the grass beds. Grass beds protect not only clams but other juvenile fishes, shrimp and other shellfish important to North Carolina commercial fisheries. Complaints poured into Marine Fisheries. Many fishermen wanted the Division to put an end to clam kicking.

The Marine Fisheries Commission saw no need to end a valuable winter fishery, but it did begin imposing regulations in order to manage clam harvests. The commission limited mechanical harvesting to winter months, restricted kicking to daylight hours and certain days of the week, and set size limits.

Many clam kickers welcomed the restrictions. "We knew we needed a season," says Charles Gilgo. "Otherwise we would clean everything out in just a few years. We wanted to prolong the clams so we could continue to make a living."

In 1978 the Marine Fisheries Commission closed the grass beds to kicking. "I believed the grass beds should be set aside for the rakers," says Gilgo. "They're natural breeding grounds for shrimp and a lot of fish. And they're areas that shouldn't be kicked."

Today clam kicking is limited to Core Sound. Munden estimates about 200 boats were rigged to kick in Core Sound during the 1981-82 season. Harvest pressure has mounted, and fishermen like Charles Gilgo say things don't look good for the future.

"On a good day a few years ago I could bring home ten thousand to fourteen thousand clams a day," Gilgo says. "Now on a good day I may bring in seven thousand to eighty-five hundred clams. Prices have dropped too. Prices were sky high a few years back, but we've seen a decline over the past two years.

"I think Marine Fisheries should reseed places where we're kicking," Gilgo says. "It's the only way kickers like myself are going to keep going. Clams just can't reproduce fast enough naturally."

Seeding Core Sound with clams appears unlikely, Munden says. Experimental data indicate blue crabs would eat most of the seed clams in Core Sound.

Clam kickers also would like for Marine Fisheries to open up some new areas for kicking. But Munden says, "We feel all the area that can reasonably be opened has already been opened. To open other areas would damage grass beds, oyster rock or other fisheries.

"The fishery has reached the point where it is limiting itself. We could start a rotational system but it would involve the same area divided up into smaller portions. We're just not going to open any virgin area. The fishermen have backed themselves and us in a corner. There's so much pressure on the resource in this case I don't feel the resource can stand it much longer."

Whatever management system the Division of Marine Fisheries chooses for the future, it's sure to need some solid scientific data about clam biology and harvest methods to be successful.

—Kathy Hart

Researcher seeks hard facts about hard clams

Charles Peterson may look like a man after his own dinner as he sifts the sands of Bogue Sound for clams. But he's not. Peterson, a biologist at the UNC Institute of Marine Sciences at Morehead City, is after some hard facts about hard clams.

As part of a UNC Sea Grant project, Peterson is looking into hard clam biology as well as the effects of different harvesting methods on clam populations and on the estuarine environment. The information he collects is being funneled into the Division of Marine Fisheries for use in future clam-management plans.

One of Peterson's early findings uncovers more information about one of the hard clam's predators, the whelk, often referred to as a conch in North Carolina. Peterson knew the hard clam was one of the whelk's favorite meals, but he wasn't sure how factors like seagrass cover and clam size and density affected the whelk's appetite.

The whelk and the clam seem like unlikely enemies since they're both encompassed by a hard shell. But Peterson says, "The whelk grabs the clam with his foot and rubs the sharp edge of his shell against the clam, chipping away at the margin. Eventually the whelk chips away enough shell to get his lip in and pry open the shell." Peterson says the whelk leaves the evidence behind—an empty, rasped shell.

To see how grass cover affects whelk predation, Peterson and a group of graduate students, headed by Hal Summerson, set out for Bogue Sound to set up sample plots. Some of the one-meter-square plots were denuded of their grass, while others were left natural. Peterson then set out clams, marked by a dot of paint, in each plot and left them for several months.

In the first experiment (October-May), Peterson found that along sandy bottoms with no grass coverage, 54 percent of the hard clams were rasped and eaten by whelks. In a second experiment (July-November), 84 percent of the clams were eaten by whelks. Predation rates were higher for the second experiment because of increased whelk activity during warmer months, Peterson says. Meanwhile, the clams tucked away in grass beds suffered little predation.

Peterson also learned that density or the number of clams per area did not affect the rate the clams were eaten by whelks. But the size of the clam did play a role in whelk predation along sandy bottoms. Whelks tend to choose larger over smaller clams to munch on. "It may be the whelk is looking for more return for his effort when he chooses the larger clams to eat," Peterson says. "We don't know for sure. But the data show clams can't outgrow whelk predation the way they can with blue crabs."

Peterson feels that his findings again point to the importance of seagrass beds, this time as a refuge for clams. He theorizes that seagrass roots and rhizomes compact the sediment around the clam, making it harder for the whelk to dig out his prey. Or the root material itself may deter the whelk, Peterson says.

Photo by Kathy Hart

To tell a clam's age, Peterson halves the shell with this tool

As another part of his study, Peterson has been learning how to determine a clam's life history by reading the lines in his shell. The clam, like a tree, lays down an annual line that reveals its age. Scientists knew clams in northern waters added a growth line during winter months when they exhibited little or no growth. But Peterson knew North Carolina winters weren't cold enough to halt clam growth. Maybe southern clams didn't tell their age so easily.

But they did. Peterson found that most North Carolina clams add a growth line during the late summer or early fall. The clams growth rate slows 50 percent, causing the clam to add a growth line, Peterson says. He suspects the line is added during a period of physiological difference that may have some connection with the re-

productive sequence.

Besides laying down an annual line, hard clams also record daily growth lines and events in their shells. "Reading the days in a clam shell is like looking into a crystal ball," Peterson says. "You can see events like storms or lunar tides recorded right in the shell."

In Core Sound Peterson found that most hard clams reach legal harvest size (one inch thick) in one-and-a-half years. "But interestingly the clams that have reached harvest size have only had one reproductive season," Peterson says. This means that the clams have reproduced very few, if any, baby clams, he says.

Peterson found the average age of clams in Core Sound to be nine years. Ages among clams in the sample ran from less than one year to the ripe old age of 32.

But the clams' long life spans worry researchers like Peterson and also resource managers at the Division of Marine Fisheries. A long-lived species generally show lower levels of reproduction than annual species like shrimp and scallops. This could mean today's large harvests are feeding off of several years of reproduction that cannot be matched annually.

"It has really become imperative," Peterson says, "to address whether we need to worry about managing the stocks and whether we will be able to continue the level of harvest we are currently applying to the population."

In another part of Peterson's project, he and his graduate students compared the harvest efficiency and environmental impact of two hand-operated clam rakes—the pea digger and the bull rake. The pea digger, traditional gear used by hand rakers in North Carolina, resembles a garden rake, having a wooden shaft leading to a steel head with three to six prongs. Rakers pull the pea digger back and forth along the bottom waiting to hear the scaping noise of metal hitting shell, signaling a catch.

The bull rake has only recently made its debut in North Carolina after being used in the Long Island Sound. Its main feature, a cast iron basket, attaches to a metal shaft which ends in a T-shaped handle. Fishermen push the teeth of the basket about 5½ inches into the sediment and then pull the rake in short, quick jerks. As it is pulled along, clams, shells, seagrass and other debris are forced into the basket. When the basket feels full, the fisherman pulls up the rake and sorts out the clams.

Peterson tested the two rakes on a sandy bottom. The pea digger dug up more large clams than did the bull rake. And with a pea digger, researchers were able to cover more area than with the bull rake.

In the seagrass bed the opposite occurred. The bull rake captured more clams and covered more area than the pea digger. But the problem comes in the amount of seagrass removed by each rake. The bull rake removed, on the average, more than twice as much seagrass as the pea digger. It also had a greater effect on roots and rhizomes, important sources of seagrass survival and reproduction.

Peterson says his findings will support Marine Fisheries' restrictions on the use of bull rakes in seagrass beds, restrictions that have been under fire.

Of particular interest to the Division of Marine Fisheries, says Munden, has been Peterson's work with clam kicking. Kickers have long claimed that kicking cultivates the bottom, making better conditions for next year's baby clams and increasing their numbers.

But in an experiment where Peterson kicked and raked experimental plots then compared them to areas left untouched, he found no increase or decrease in baby clams. Even areas kicked for two years showed no increase in baby clam populations.

As another part of the kicking experiment, Peterson tested the recovery rates of seagrass from raking and kicking in seagrass beds. After raking and kicking his experimental plots, Peterson waited a few months to see how the grass fared. He found that the more intense the harvest (medium and high kicking levels) the greater the damage to the grass beds. Grass coverage was cut to about half of the before-kicking levels in the medium- and high-kicking plots.

"Reading the days in a clam shell is like looking into a crystal ball."

—Charles Peterson

After 10 months Peterson sampled the grass beds again. Grass coverage in the raked and low-kicking plots had recovered, but the medium- and high-kicking plots showed no tendency toward seagrass recovery.

Munden says Peterson's information provides important scientific proof of the long-lasting effects of clam kicking in seagrass beds.

While Peterson has gathered a lot of information about hard clams and the methods used to harvest them, he has more work to do. He plans to measure the effect of clam kicking on the survival of benthic invertebrates (food for fishes) and on the turbidity of the water. Peterson plans to compile his information into proposed management guidelines for the future.

—Kathy Hart

To hatch a million eggs

A metal shed perches by the edge of Core Sound in Atlantic. It might hold fishing gear. But it doesn't. Eight million baby clams are calling that shed home until May.

Monroe Willis, a native of Atlantic, and his partner, Earl Huskey of New Jersey, are gearing up what they hope will be a lucrative business—a clam hatchery. Clam hatcheries are new to North Carolina. Most clam culture has previously taken place in New England and Long Island. But warmer waters and longer growing seasons mean a marketable clam in fewer years in the southeast. Add the shorter growth period to the rising prices clams bring from seafood dealers and it equals more people interested in growing their own clams.

But it takes more than interest to get you started in clam culture. It takes some knowledge of clam biology, money to invest in equipment and lots of patience, says Tony Capehart, a Swansboro ice dealer. After reading up on clam culture literature and talking

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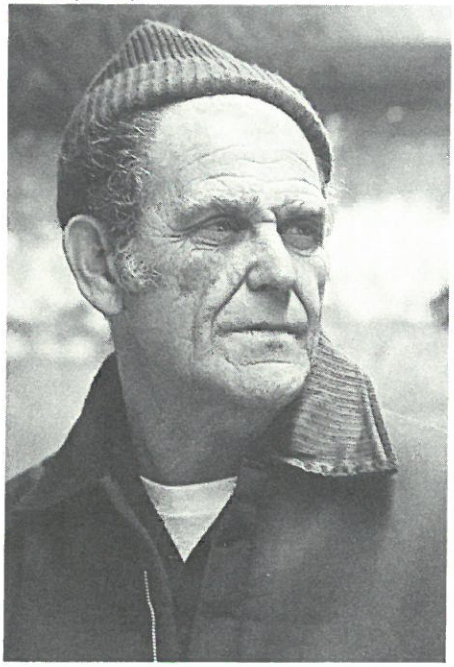
Photos by Kathy Hart



Monroe Willis

Water pours into clam trays

to others in the state who were experimenting with hatcheries, Capehart decided to set up a small hatchery of his own.

"As soon as I heard about the idea of clam hatcheries I told myself I had to try it," the young Capehart says. "You've got to be innovative if you're going to stay ahead these days."

Capehart describes his methods for culturing clams as one of "trial and error." First he collects a breeding stock of clams that are a moderate size and are not blunted or deformed. Capehart places the clams in a tank.

"I take a few sample clams, bust them open and check their gonads to see if they're ready for spawning around the end of April or the first of May," Capehart says. "If they're ready we quickly raise the temperature in the tank to 78 to 80 degrees to provide thermal shock."

Thermal shock may cause the clams to spawn. But usually Capehart drops an eyedropper full of milky sperm (taken from the test clams) into the tank. The sperm, as it is drawn through the clams' systems by their pumping action, should induce the male clams to cast their sperm and the females their eggs. But what they should do and what actually happens may not be the same, Capehart says.

"Sometimes after I drop the sperm in the tank the clams quit pumping," Capehart says. "Sometimes they take it in and don't spawn and sometimes they just spit it right back out. It's frustrating. They don't spawn on every attempt. I may sit with 'em all day and they'll never spawn."

But if successful, Capehart may end up with several million fertilized eggs. After collecting the eggs, he takes a one-milliliter sample and examines it under a microscope to determine how many eggs he has. The number of eggs in the sample will establish the amount of water and algae the clams will need to survive and grow. Capehart feeds the clams algae cultured in glass bottles for about the first week or so of their existence.

"It's like feeding 'em Wheaties," Capehart says. "They grow much faster and they get a better start."

The clams hatch within two days and enter a larval stage. During this larval stage, Capehart sieves the clams through screens to separate the larger larvae from the smaller larvae.

In eight to 14 days the larval clams are ready to set or drop from the water column to the bottom. A larval clam preparing to set has a tiny shell and muscular foot which attaches the clam to a surface. Capehart places the setting clams in wooden trays, called raceways, fed by brackish water pumped from the White Oak River. The clams now feed off the nutrients found in the raw seawater.

Of the several million fertilized eggs Capehart begins with, only about five to 10 percent survive to be placed in the raceways. Sorting, disease and other hazards claim many of the larval clams.

The baby clams nurture in the raceways until January or February, eight to nine months, before Capehart plants the clams on leased bottom nearby. Capehart prepares his leased area by making a bed for the clams out of scallop shells. After laying the clams on their bed, Capehart tucks them in by staking nets over the bed to ward off predators like crabs, whelks, rays and starfish.

After a year in their bed, Capehart checked his first crop of clams to determine their progress and the results show in his face. "I was really happy with what I found," he says. "The clams show good growth and not much predation. I really feel encouraged again."

While Capehart's clams snuggle among the scallop shells in the White Oak River, Monroe Willis' and Earl Huskey's clams still lie in their cement-block raceways in Atlantic. Huskey and Willis, in their first year of operation, are waiting for spring to plant their clams.

Willis squats by the edge of one of the raceways and scoops his hand through the silt that has settled there. As the feathery silt sifts away, a mound of ⅜- to ½-inch clams appears. "We're going to hold 'em in the raceways here until next year's crop start setting, about May," Willis says. "We figure the larger they are when we put 'em on the lease the less likely they'll be eaten by crabs. Crabs don't bother 'em much once the clams get some size on 'em. We've had a few crabs get through our water filtering system and before you know it they'll have a big pile of empty shells over in one of the raceways."

From crab predation to disease problems, the fisherman starting a clam hatchery faces a lot of unknowns. But straighten out a couple of the mechanical kinks, add a little more science, and clam culture operations like Capehart's and Willis' may offer up more clams for our tables in the future than are fished from the wild.

(For more information about clam hatcheries and clam gardening, contact John Foster of UNC Sea Grant. Foster works with the Aquaculture Demonstration Project in Aurora and can be reached by calling (919) 322-4054).

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 offices in Raleigh (919/737-2454).

Seafood. It's high in protein and low in calories, but many North Carolinians shy away from cooking seafood at home. Nadine Tope, a food and nutrition specialist with the N.C. Agricultural Extension Service, is trying to teach more people about the value and ease of cooking seafood.

Tope, Joyce Taylor of the NCSU Seafood Laboratory in Morehead City, Hilda Livingstone of the N.C. Marine Resources Center on Roanoke Island, and Hallie Hooper, Maureen Rickards and Joy Frauson, home economics agents in Dare, Carteret and New Hanover counties, respectively, are putting together a slide show funded by a UNC Sea Grant mini-grant. The slide show will demonstrate methods for preparing and storing seafood, introduce unusual species to homemakers and stress the nutritional value of seafood.

The slides will be used in county extension demonstrations and also in seafood demonstrations at the N.C. Marine Resources Centers and at the NCSU Seafood Laboratory.

Another Sea Grant mini-grant will focus on peeler crabs—crabs about to shed their shells. Rhett White, director of the Marine Resources Center at Roanoke Island, and Hughes Tillett, Sea Grant's marine advisory services agent in that area, have received funds to set up a permanent peeler crab demonstration.

The exhibit will be built near the center, and will include two crab-shedders and panels describing the shedding process. The exhibit, which will be built this spring, will be used by Sea Grant and Marine Resources Center staff for demonstrations and educational lectures.

The beach environment can be hostile to plants. Not every species can tolerate sand, salt spray, intense heat and harsh winds. And, those species that can survive these elements require careful planting and maintenance.

Seacoast Plants of the Carolinas for Conservation and Beautification is a handbook for coastal property owners interested in using plants for landscaping and protection. Written by Karl Graetz, a retired Soil Conservation Service agent, it provides descriptive information and photography on each plant species in addition to tips on planting and propagation.

To obtain a copy of this 206-page handbook, write Sea Grant, Box 5001, Raleigh, N.C. 27650-5001. Request publication number UNC-SG-73-06. The cost is $2.00.

Women have traditionally been an important force in the North Carolina seafood industry. Often they head shrimp, shuck scallops, pick crabs and manage the family seafood business while the men are out fishing.

But female commercial fishermen are rare. The clamming fishery in Carteret County is an exception.

While doing an analysis of clam licenses for a Sea Grant project, Marcus Hepburn discovered that a significant percentage of the clammers in the county were women. Hepburn, an anthropologist with the Institute for Coastal and Marine Resources at East Carolina University, says a breakdown of 2,100 licensed clammers averaged one female to every five-and-a-half males. On Harkers Island, one out of every three clammers is female.

"The opportunity for women is definitely there," Hepburn says. "Clamming provides an easy source of income because you don't need a boat or a lot of gear." Hepburn found that 95 percent of the female clammers work in the warmer months, either raking or swimming for clams. Many women occasionally accompany their husbands who go out clamming, too.

But, the significant percentage of women clammers comes as no surprise to Hepburn. "The participation of women in the clam fishery," he says, "has always been higher than the other fisheries, fifty years ago and today."

Socioeconomic Aspects of the Bay Scallop Fishery in Carteret County, North Carolina, by Peter H. Fricke of the Institute for Coastal and Marine Resources at East Carolina University, takes a look at fishing communities along Bogue and Core Sounds and their dependence on the bay scallop fishery.

For a copy of the report, write UNC Sea Grant, P.O. Box 5001, Raleigh, N.C. 27650-5001. Ask for publication number UNC-SG-WP-81-12. The cost is $1.25.

The Variability of Sea Level in the Carolina Capes, by Leonard J. Pietrafesa, Shenn-Yu Chao and Gerald S. Janowitz of the Department of Marine, Earth and Atmospheric Sciences at North Carolina State University, is the study of coastal sea level and its relationship to atmospheric forcing along the Carolina Capes.

To receive a copy of this report, write UNC Sea Grant. Ask for publication number UNC-SG-WP-81-11. The cost is $1.75.

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Effects of Upland Drainage on Estuarine Nursery Areas of Pamlico Sound, North Carolina, by Preston P. Pate of the N.C. Office of Coastal Management and Robert Jones of the N.C. Division of Marine Fisheries, reports the efforts of a Sea Grant study designed to measure the effects of freshwater drainage on primary nursery areas of the northern Pamlico Sound.

To receive a copy of the report, write UNC Sea Grant. Ask for publication number UNC-SG-WP-81-10. The cost is $1.

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