

Oyster



gardening

What seafood lover isn't fond of oysters? Plucking a plump, juicy oyster from a coastal sound, popping open its shell and letting the meat sit on the tongue with only the tangy taste of saltwater as spice is a Tar Heel tradition that harks back to the state's first inhabitants.

But today, the demand for oysters is greater than the state can supply. At one time the state's commercial oyster harvest was nearly 1 million bushels per year; now it's down to less than 50,000. Many oysters eaten in North Carolina are imported from states rimming the Gulf of Mexico.

The decline of oysters in our sounds and estuaries isn't a problem just for seafood lovers. By filtering water for their own food, healthy oyster populations produce cleaner waters. More than a century ago, before pollution and overharvesting all but wiped out the state's network of reefs, oysters were capable of filter-purifying every drop of water within Pamlico and Bogue sounds within a few days.

To counteract the loss, researchers have been trying for years to reintroduce oysters and reefs. Now people who live on coastal waters may contribute to the effort while harvesting their own private oyster gardens.

Legislation passed this summer allows dockowners to cultivate their own oysters for consumption for the first time. The Under Dock Oyster Culture bill stated that "shellfish cultivation provides increased ecological benefits to the estuarine environment by promoting natural water filtration and increased fishery habitats." Call it eco-gardening on the half-shell.

A new Under Dock Oyster Culture permit will allow dockside oyster gardeners to help (and help themselves to) the diminished bivalve.

written and photographed
by Mike Marsh

"Most people are drawn to oyster gardening the same way they're drawn to growing tomatoes," said Bogue Sound resident Richard Seale, one of the oyster garden enthusiasts who met with coastal legislators about local interest in recreational oyster gardening. "The cost of growing a garden is between \$100 and \$150, and most gardeners will grow 3 to 5 bushels per year. It's really cheaper to buy oysters. But, like backyard gardeners, they have a better product than they can buy in a market. And it's like a little victory garden because it helps the ecosystem."

Seale believes that under dock shellfish gardening by informed citizens is the most cost-efficient way for the state to increase wild shellfish stocks. "It is time to try a new approach," he said. "Shellfish gardening is a chance for a productive and creative use of the huge asset of private dock space that exists in North Carolina." He envisions a network of under dock gardens of sexually mature oysters that acts as a huge multi-point injection system of spat (oyster larvae) all along North Carolina coastal waters.

Seale is a member of a loosely organized group known as Shellfish Gardeners of North Carolina. Working with the N.C. Division of Marine Fisheries (DMF), N.C. Sea Grant and Carteret Community College, the group helped recruit 42 dock owners along the state's estuaries to participate in a pilot study designed to identify problems that could arise with privately grown oyster gardens. Craig Hardy, chief of the Resource Enhancement Section for DMF, said participants in the pilot study will help administrators develop the training session required of permit holders by the new law.

With the Under Dock permit, dock gardeners may legally possess undersize oysters growing in the cages. Permit holders will be required to attend a brief training session. Growers must also post signs around their cages and ensure that cages don't interfere with wild harvest in public waters below docks.

"The waters beneath boat docks are still considered public trust waters," said Hardy. "The activity of oyster growers must not restrict the navigation, fishing and recreational uses of that resource." Anyone may harvest oysters growing on the bottom beneath a docks.

Not everyone who applies for a permit may receive one. Many of the state's best waters for the location of private

Raising Oyster Seed

1. Skip Kemp, aquaculture coordinator at Carteret Community College, grows seed oysters from brood stock in his laboratory on campus. **2.** Oyster larvae, called spat at this stage, attach to bits of shell cultch. **3.** Spat are grown in tanks through which natural estuarine water is pumped. **4.** Developing oysters are fed phytoplankton grown in the mariculture lab at Carteret Community College. **5.** The 3/4-inch-long oysters are ready for life outdoors. **6.** Garden oysters are grown in 2-foot-by-3-foot cages of plastic mesh. **7.** Foam floatation blocks keep oysters off the bottom of the sound.



Is Oyster Gardening in Your Future?

- For information on oyster growing regulations: Craig Hardy, N.C. Division of Marine Fisheries, (252) 726-7021 or www.ncfisheries.net.
- For information on starting an oyster garden: "Shellfish 4 Us: Backyard Shellfish Gardening," by Skip Kemp, can be ordered from N.C. Sea Grant at (919) 515-9101 or www.ncseagrant.org.
- To link up with other home oyster gardeners: Shellfish Gardeners of North Carolina, John Zimmerman, (252) 393-6514, or Richard Seale, (252) 726-0930.

docks are closed to shellfishing because of pollution, and dock gardens must be located in waters that are open to shellfishing.

Hardy is relieved at this prospect. One of the main concerns the Division of Marine Fisheries has had about private oyster gardening is that oysters grown in polluted waters could harm growers or people who unwittingly buy from poachers. Many pollutants filtered from the water and retained in oyster tissue can be harmful, even fatal, to humans who eat oysters from restricted waters.

Hardy anticipates that the permitting process will be in place in 2005, perhaps in time for spring planting; he says the optimum times to plant young oyster seed are the temperate spring and fall seasons.

Getting the Garden Growing

Skip Kemp, formerly with N.C. Sea Grant and now aquaculture coordinator at Carteret Community College, manages a shellfish hatchery that supports the state's aquaculture efforts. In an elaborate setup on campus, Kemp cultivates the brood stock that spawns oyster larvae. To harvest the larvae, Kemp dips a beaker into the spawning tank, collecting 10 million of the free-swimming larvae per ounce of water. He transfers the larvae into tanks, where they implant onto tiny pieces of hard shell materials known as cultch. At this stage, oyster larvae are called spat.

The spat then go into larger tanks through which natural estuarine water is pumped. When the young oysters are 3/4 inches long, they are placed inside cages — actually 2-foot-by-3-foot plastic mesh bags filled with foam floatation blocks. The cages are suspended by rope beneath the campus research dock in Bogue Sound.

Growers may hang up to 90 square feet of oyster cages beneath their docks. Gardeners will provide data on growth, survival and rainfall to the Division of Marine Fisheries.

"I think the best thing about oyster gardening is promotion of oysters and their value," Kemp said. "It's an excellent opportunity to learn about oyster ecology and their role in the ecosystem. . . . We found out you can't dredge oysters from the bottom and still have oysters, too. They've been mined out. This may be a way to help restore lost oyster beds."

Oyster Stew

1 pint standard oysters
4 tablespoons margarine or butter
1 quart milk
1 1/2 teaspoons salt

1/8 teaspoon freshly ground white pepper
1/6 teaspoon paprika
4 tablespoons finely chopped fresh parsley
oyster crackers (optional)

In a medium saucepan, melt margarine over medium heat. Add oysters and cook just until edges begin to curl, about 5 minutes. Add milk, salt, pepper and paprika. Cook until thoroughly heated and oysters are done, about 8 to 10 minutes. Do not boil. Pour into serving bowls and sprinkle with parsley. Serve with oyster crackers. Serves 4 to 6.

— from "Mariner's Menu" by Joyce Taylor, www.ncseagrant.org.

Victory Garden at Sea

Returning North Carolina's oysters to their former glory will take time and concentrated efforts. But dock gardens can have more widespread effects than a casual observer might think.

"For the last 10 years, Virginia, Maryland and New York have been encouraging people to grow oyster gardens," said Kemp. "In Virginia, the 30,000-bushel harvest from oyster gardens now exceeds the commercial harvest."

Indeed, one study of a group of Louisiana oysters that were introduced to North Carolina waters showed that the first offspring of the transplanted oysters had implanted a mile away. The impact of lots of widely dispersed docks with hanging oyster gardens could be substantial in recolonizing waters where oysters are struggling or have disappeared.

John Zimmerman was one of the citizens who first approached DMF about oyster gardening. A participant in the pilot program, his dock near Emerald Isle in Carteret County is in waters that are safe for harvesting oysters.

"I moved from Virginia two years ago," Zimmerman said. "They had a lot of oyster gardens in Maryland and Virginia, and I thought it would be a good idea for North Carolina. I read some newspaper articles on gardens and went to an oyster festival sponsored by the Chesapeake Bay Foundation to see how they made the cages. The University of Maryland was growing seed oys-

ters, and The Nature Conservancy was teaching gardeners how to grow them.

"In Virginia, you can return oysters to the state, and they use them to restore the oyster banks," he added. "There is also an educational process that goes with a garden that teaches citizens how valuable oysters are to the ecosystem."

Oyster gardening takes lots of time and effort, he said. The oysters must be tended periodically to remove any vegetation growing on the cages. Complying with the permit requirements also will require time. He sees potential in educational programs that could produce master shellfish gardeners and encourage community oyster gardens.

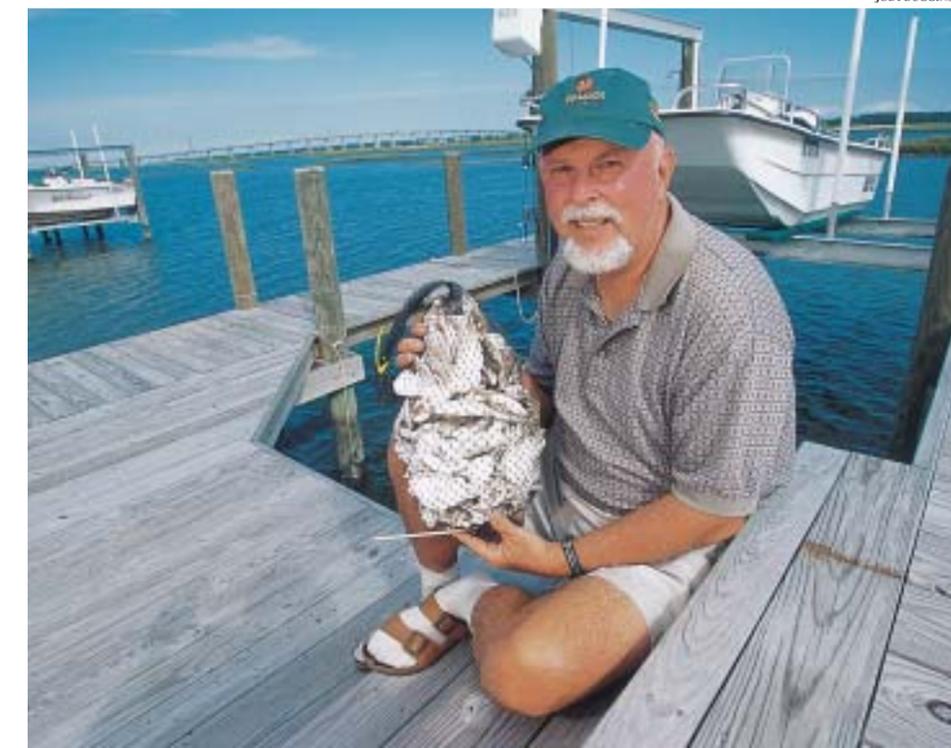
"For me, it's more of an environmental issue than an issue of eating the oysters," he said. "I would enjoy eating the fruits of my labors. I'm retired and have the time to make

my own wine and beer. I also have a vegetable garden. Since I live on the water, why shouldn't I be able to raise my own oysters?"

With the new permit in hand, Zimmerman and other oyster aficionados will no longer have to trudge out into the marsh and destroy natural oyster beds to harvest the makings of oysters on the half-shell. They will only have to take a walk along their piers to find the makings of a feast. And they will be able to supply surplus oysters to groups who are active in reef restoration. With more hands working to increase oyster production, oyster gardening should prove as good for North Carolina as it has been for other states along the Atlantic coast. ♡

Mike Marsh writes about North Carolina wildlife from his Wilmington home.

JODY DUGGINS



Homegrown oysters and clean water are the goals of prospective oyster gardeners such as John Zimmerman.