



Johnny Shockley, left, and Ricky Fitzhugh show how well their Chesapeake Gold oysters are growing. Shockley is one of the first watermen in Maryland to try aquaculture. Photo / Dave Harp

Aquaculture offers watermen new lease on their traditions

Editor's Note: This is the last set of articles in a three-part series about Maryland and Virginia wading into oyster aquaculture.

By **RONA KOBELL**

HOOPER'S ISLAND – In small watermen's villages like this one, the rhythm of life rarely changes.

Come fall, the first of the dredgers set out to scrape for what's left of the Chesapeake Bay's legendary oysters. They're done by early spring, when fading buoys begin to dot the Bay's mainstem from Kent Island to Tangier Sound to signal the start of the still-prosperous crabbing season. As the days become longer, women—most of them from Mexico—will pick that crab meat and help ship it all over the country. Then, once in early summer and again just before school starts, the soft crabs run, and the watermen begin all-night vigils to make sure the soft-shelled crabs, their biggest money makers, don't harden into worthless paper shells. When the leaves change, the crabbers come in, the dredgers go out and the cycle begins again.

Johnny Shockley has lived that rhythm. At age 12, he began harvesting oysters

with his dad and grandfather. At 20, he built his own boat. For the next 27 years, he dredged and shaft-tonged. But as his neighbors set out this year from the chain of low-lying islands that edge the Honga River, Shockley was not among them. His oysters—more than a million of them—sit in metal cages at the end of partner Ricky Fitzhugh's dock along Old House Point Road.

At 47 years old, and after years of struggling with dwindling oyster populations, expanding regulations and an overwhelming sense that nature has spoken, Shockley is breaking the rhythm. He is one of the first watermen in Maryland to dive headlong into aquaculture. And so far, he says, the waters are more than fine.

"I haven't looked back one second since I started looking at what we got here," Shockley said. "We're going to get aggressive. We see a lot of future in it. The oysters are growing. The market is incredible. And it gives us an opportunity to still be watermen and live in the traditions that we grew up in."

After more than a century of instituting laws to keep private industry from

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cultivating public bottom, last year Maryland passed sweeping regulations to clear the way for an oyster aquaculture industry in the state. State officials are backing up that law with cash—\$1.5 million—to help watermen transition into aquaculture. That money, which comes from the 2008 federal crab disaster funds, will help watermen purchase larvae, shells and oyster seed to begin operations. (A smaller pot, \$700,000, is available to anyone, waterman or not.) The aquaculture push also comes at a time when the state is closing large parts of the fishery to harvest.

While aquaculture has been touted as the way of the future and a way to save the oyster industry and watermen, many watermen have been reluctant to make the switch, and many of those getting into the business come from other backgrounds.

“It’s a priority for our governor and our secretary. And I can say with absolute honesty that it’s something that our staff believes in,” said Mike Naylor, director of the shellfish program at Maryland’s Department of Natural Resources. “We have a real opportunity to create a beneficial ecosystem service while creating economic opportunity.”

As with most developments in Chesapeake Bay aquaculture, Virginia is ahead of Maryland. It has a 110-year history of leasing bottom, and many watermen work in the state’s \$30 million clamming industry. Since 1997, the Virginia Marine Resources Commission has trained about 130 watermen to grow oysters. In 2008, the state began using its share of crab-disaster funds to expand those efforts.

The engine of Virginia’s aquaculture industry is a new “super oyster” whose fast growth and fat meat have astounded just about everybody who comes into contact with it. The oyster, known as a triploid because it has three sets of chromosomes, is sterile, so it puts all of its energy into growth. Where a wild oyster reaches market size in three years, a triploid can do the job in one year and can be harvested year-round. Standish Allen, the oyster geneticist who developed the triploid, is producing brood stocks at the Virginia Institute for Marine Science and making them available to growers through private hatcheries.

But in a way, both ends of the Chesapeake are playing catch-up. From Cape Cod to Cape Town, much of the world’s



Johnny Shockley, left, and Ricky Fitzhugh stand on their floating upweller system, which nurtures small oysters until they’re big enough to go into the water. Shockley plans to manufacture these systems to sell to other oyster growers. Photo / Dave Harp

“I haven’t looked back one second since I started looking at what we got here... It gives us an opportunity to still be watermen and live in the traditions that we grew up in.”

— Johnny Shockley, MD oyster farmer

seafood is raised in pens or cages. These industries create jobs and augment a dwindling supply of seafood just as doctors are telling people to eat more of it. But fish farms can foul their environments and deplete wild stocks of forage

fish, as farmers use wild fish to feed the farmed population. Also, populations of domesticated fish can escape and interbreed with wild populations, introduc-

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The oysters that Baltimore restaurant Gertrude's serves on the half shell are sustainably farm-raised varieties that include Choptank Sweets, Uncle Ernie's Tangier Sound Oysters and Olde Salts from the Rappahannock River Oyster Co.
 Photo / Dave Harp



Restaurant customers shelling out big bucks for Bay's oysters

≈ Delicious, sustainably grown Chesapeake oysters winning over area's top chefs.

BY RONA KOBELL

When John Shields returned from the West Coast 12 years ago to open Gertrude's, he wanted to feature fresh coastal food cooked with local ingredients in the Baltimore restaurant. He bought Chesapeake Bay crabmeat, vegetables from the city farmer's markets—even shrimp farm-raised on the Eastern Shore.

But the oysters were often from elsewhere. Prince Edward Island. Nova Scotia. Connecticut. Occasionally, Shields did serve the wild-caught Bay oysters, but the availability and the quality were inconsistent. Shields, who is also a television show host and has written cookbooks, asked the watermen he knew why no one was farming oysters in the Chesapeake, like it is done in California. They told him it wouldn't work.

"I was under the impression it was



Pantry chef John Kelley shucks farm-raised oysters in Gertrude's kitchen. Photo / Dave Harp
 impossible to farm oysters here," Shields said. "I took them at their word, that it couldn't be done."

That changed a few years ago, when an oyster farmer—Shields doesn't

remember who—walked into Gertrude's with a cooler of ice, set it down and shucked a few beautiful oysters. The veteran chef loved that the oysters were raised sustainably. But what sold him was the taste: The oysters, he said, were fantastic.

Customers agreed. Fried oysters are one of Gertrude's most popular dishes, and Shields' chefs were soon shucking about 500 a week. Shields now offers several farm-raised varieties, including Choptank Sweets, Uncle Ernie's Tangier Sound Oysters and Olde Salts from the Rappahannock River Oyster Co.

About a half-dozen Baltimore restaurants serve oysters raised in the Chesapeake Bay, including some of the choicest tables in the city. They include Oceanaire, a posh seafood chain in chi-chi Harbor East, Ryleigh's Oyster Bar in Federal Hill, and Woodberry Kitchen, a perennial on "best restaurants" lists that specializes in local

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ingredients.

The trend has spread to Virginia fine-dining establishments, including Gloucester's Rivers Inn and Richmond's Lemaire Restaurant.

"Having the Chesapeake Bay in our backyard, it would be irresponsible not to showcase the oysters that come out of the water here," said Oceanaire chef John Taylor, who previously worked with oyster farmers at the chain's Boston outpost.

The idea of oyster choice is not new to chefs who have worked elsewhere. Almost everywhere in the world, oysters are farmed. A diner would no more be satisfied with the choice of one kind of oyster than one kind of generic red wine. Indeed, Taylor speaks of a merroir for oysters, similar to the terroir for wine, which tells a connoisseur what kind of soil the grape was grown in and what sort of climate. An oyster's merroir, Taylor said, tells a customer if the water is fresh or salty, and what kind of minerals it has acquired in growth.

Restaurants like Oceanaire and Woodberry may have a customer wondering where the recession has gone. At Woodberry, it's hard to get a table, even on a weeknight. At Oceanaire, dinner for two, without dessert, can easily run north of \$112. Even at the more moderately priced Gertrude's and Ryleigh's, the oysters aren't what you'd call cheap—at least not compared to 30 years ago, when a dockworker might down a dozen with a cheap beer and call it breakfast.

That may be part of the reason why it's hard to find a restaurant with the staples that Shields' Grandmother Gertrude once cooked. Scalloped oysters, oyster stew and oyster dressing used to be common foods on U.S. tables. But at \$20 a pint for shucked oysters, few can afford to routinely cook those dishes now.

Oysters began to recede from Baltimore menus as the wild fishery crashed in the 1980s. The growing half-shell market has put them back on the table. And as word spreads about the quality and sustainability of the farm-raised oysters, chefs and wholesalers predict more restaurants will offer them.

Chefs like Shields and Woodberry's Spike Gjerde are "like voices crying



Gertrude's Chef John Shields digs into a plate of Olde Salts, which are farm-raised in Chincoteague Bay and sold by the Rappahannock River Oyster Co. Photo /Dave Harp

"I was under the impression it was impossible to farm oysters here. I took them at their word, that it couldn't be done."

—John Shields, Gertrude's chef

in the wilderness," said Gaylord Clark, a longtime commercial fisherman on both coasts who now runs a sustainable seafood and farm business in Baltimore and supplies Woodberry Kitchen. Clark became aware of oyster farming in the Chesapeake after a visit to Richard Pelz' Circle C Oyster Ranch in Southern Maryland. He saw the oysters thriving in floats—and the marine life that grew up around them. He tasted the product. He became convinced

there was no better way to grow oysters.

"The people who come to get the oysters are uniformly bowled over," Clark said. "The cups are deep, the oysters are tender and firm, the shells are clean and they're relatively thin. They don't look like something you would chuck over the bow of a skiff as an anchor."

"They're just outstanding," he added. "There's no question about it."



Tommy Leggett checks on the crop at his York River oyster farm. Leggett sells most of his oysters through Rappahannock River Oyster Co., but he personally delivers to a couple of restaurants, too. Leggett, below, has become a wise man of sorts for those interested in oyster farming. Many seek his advice before striking out on their own. He also manages the Chesapeake Bay Foundation's oyster farm. Photos/ Dave Harp

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ing a different—domesticated—set of genes into a wild population.

Oyster farming, on the other hand, seems to be a net positive for water quality. Around the barnacle-encrusted bottom racks and cages, the water teems with minnows, small crabs and thick Bay grasses. The oysters are so good at filtering the Bay's ever-present algae that a visitor can see to the bottom to count the shells.

Even better, aquaculture helps the state get oysters off the dole. Maryland has spent close to \$40 million over the last two decades to prop up a public fishery and restore populations ravaged by diseases and overharvesting. Fishery managers have little to show for their efforts, as oysters remain at less than 1 percent of their historic levels. With aquaculture, growers buy their own shells, set their own spat, hire their own help and reap their own profits—all while increasing the bivalve's biomass.

But even as Maryland officials extended a hand to watermen, they worried few would reach for it. Many watermen have complained that start-up costs—estimated at about \$15,000 for a small

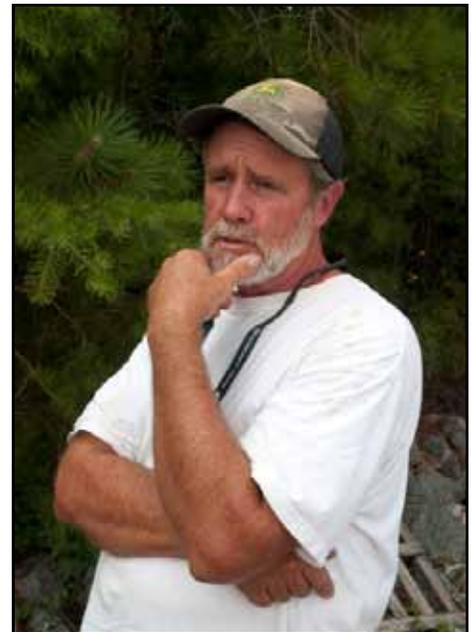
"I come out here, harvest 1,000 or 1,200 oysters, make \$400, put on the soap operas and crack open a beer, and those guys are still out there working. I look at it as working the water, just a different way."

— **Tommy Leggett, oyster farmer**

operation—are prohibitive, especially for a workforce that lives largely hand-to-mouth. But it's more than that; why should they pay for something that's free in nature, especially where there's still enough of it left to catch?

"We can cause a species to decline a lot, but to drive it to extinction is pretty difficult," said Jim Diana, director of Michigan Sea Grant and a professor of fisheries and aquaculture at the University of Michigan.

Watermen in a lot of places may resist farming as long as even a small wild



population remains. But, Diana said, a nudge in the form of state or federal aid can get them started, and if they make money, they will stick to farming. That's more or less what happened to the Asian mussel fisheries after the 2004 Indian Ocean tsunami hit.

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But Maryland watermen face other hurdles. A cumbersome permitting process requires approval from several state agencies as well as the Army Corps of Engineers before a lease can be issued. That can take a year—longer if the oyster ground is in a public fishing area or includes conflicts with recreational users. The only way a waterman can endure that wait is to have an alternate stream of income.

Even then, unforeseen events can delay applications even longer. Ryan Bergey, a Berlin accountant, and Jay Robinson, a Cambridge waterman, were partners in a wholesale seafood business for several years when they decided to explore aquaculture. They founded a nonprofit corporation called The Waterman's Trust and applied for 1,000 acres of leased bottom. Their idea: Hire watermen in the off-season to prepare their beds, plant their crop and harvest their oysters. They also wanted to build a 38-slip marina in Crocherson, MD, for working watermen.

But marinas in Maryland require a 4.5 foot draft, and this one only had 3.5 feet. Bergey and Robinson had to go to the state legislature to pass a law granting them permission to build. It took almost two years. And now, Bergey figures he's going to have to wait two years for the oysters to grow before he makes any money—if he can even plant them. He still hasn't heard from the Department of Natural Resources about those leases.

"A lot of those boys can't do that,"



Kelton Clark, director of Morgan State University's Estuarine Research Center, wanted to help Maryland's watermen transition into aquaculture. Today, a mountain of bagged shells at the university's grounds along the Patuxent River shows how far the idea has come. Photo / Dave Harp

"The question I always have for Tommy [Zinn] is, 'what do you guys need?' We will provide support for the industry until it can provide support for itself."

— **Kelton Clark, director, Morgan State University Estuarine Research Center**

Bergey said of the watermen. "They're already taking enough risk as it is."

After 10 years of growing oysters in Virginia's Lynnhaven River, waterman John Meekins and his partner, Pete Dixon, say they're tired of fighting

Mother Nature on one side and regulations on the other. The pair tried cage culture, but gave it up because of the expense—they got equipment and oysters from the state, but they're still out

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Inside Morgan State University's Estuarine Research Center algae kitchen: Algalogist Ann Marie Hartsig grows food for the oysters that Director Kelton Clark and his staff are growing. Photo / Dave Harp

Steve Gordon stands between dilapidated crab shedding tanks at George Island Landing Road in Worcester County. The longtime seafood businessman is happy to restore the area to its former glory as an oyster depot. Photo / Dave Harp



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about \$40,000 of their own money. Now the health department has shut down their ability to harvest their crop because of fecal coliform bacteria. And, with so many watermen attempting aquaculture, Dixon says, the market is saturated and prices are dropping—exactly what happened to the state’s clam industry.

“Every time we turn around, there’s some other guy starting up in our neighborhood,” Dixon said. “Putting oysters in boxes and putting them on an airplane is the only way you’re going to make any money. If you want to sell them around here, you’ll be a serf all your life.”

And yet, evidence abounds that watermen are naturals for aquaculture. Few know the biology of oysters better than the men who have plied the Chesapeake their whole lives. And no one knows the Bay better.

Not only that, but watermen are “riggers,” as longtime oyster farmer Tommy Leggett likes to say. There is no play-book for how to survive in rough water, other than to live by one’s wits. The best part of aquaculture, Leggett said, is that the oyster farmer can use those lessons without living dangerously—he can work the water and still pick up his kids at the

bus stop. And that’s exactly what he tells the many prospective farmers who make the pilgrimage to his York River farm for advice.

“I come out here, harvest 1,000 or 1,200 oysters, make \$400, put on the soap operas and crack open a beer, and those guys are still out there working,” said Leggett, who also manages the Chesapeake Bay Foundation’s oyster farm. “I look at it as working the water, just a different way.”

Mike Gadwill is further proof that Leggett’s rigger theory translates well to aquaculture. A longtime fisherman and crabber on Virginia’s Northern Neck, Gadwill got nearly \$20,000 in state funds to put a spat-on-shell setting system in front of his home. He needed a commercial shell-washer, but that would eat up the whole grant. Instead, Gadwill bought a cement mixer for \$500 and rigged it to clean shells. At first, his contraption could only clean 20 bushels a day, but with some tweaks, it was up to 150 bushels.

“I had no idea it would work, but it was just about the cheapest thing I could find,” Gadwill said. “You do have to be kind of a McGuyver.”

Kelton Clark believes in the watermen—so much so that he’s spent nearly \$1.5 million to help them.

The director of the Morgan State University Estuarine Research Center since 2004, Clark wondered if the watermen who were so resistant to aquaculture would embrace it more if someone helped them along. Not just provide seed, or shell, or leases, but optimize the techniques to set, grow and plant oysters.

Clark approached a lot of watermen. They all said no.

But then Calvert County Watermen’s Association President Tommy Zinn agreed to give it a try. Clark asked Zinn how much money watermen needed to make in a season from harvesting oysters, then formulated a business plan for planting oysters and submitted a request to the federal government.

Today, Morgan State has a state-of-the-art hatchery as well as setting systems. Clark hired a local oyster farmer, Jon Farrington, to help set up the lab. To support the industry, Clark rents space in Farrington’s upwellers—tanks that take in water from the Bay or river to feed baby oysters until they’re big enough to handle the natural environment. With the university, the watermen have planted about 10 million oysters on 14 acres of bottom that the association leases. The

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Regional permit streamlines application process for VA oyster growers

≡ Policy differences between Corps' Baltimore, Norfolk offices creates a disadvantage for MD aquaculture operations.

BY RONA KOBELL

On the road to creating a sustainable aquaculture industry in Maryland, state officials have hit a big stumbling block.

The U.S. Army Corps of Engineers requires that Maryland oyster growers get an individual permit if they want to put oyster shells on the bottom of their lease—something nearly every oyster farmer must do to ensure the animals will grow.

The process of issuing those permits usually takes 120 days but can take more than a year, frustrating both the growers and the state officials who have tried to pave the way for a farm-raised oyster industry in Maryland's end of the Chesapeake Bay.

Virginia growers had the same problems until 1993, when the Virginia Marine Resources Commission and the Corps developed what is known as a regional general permit. It allowed for a joint permit application—the grower sent its request to the state, the state forwarded it to the Corps, and the Corps gave its approval provided the lease didn't impede navigation or interfere with underwater grass beds. Generally, growers only had to wait a few months, whether they sought permits for growing oysters in floats, in cages 12 inches from the bottom, or on the bottom itself.

In 2007, the Corps issued a nationwide aquaculture permit—a type of general permit—that allowed existing growers to continue their operations.

Both the regional general and nationwide permits only take 45 days to obtain, according to Peter Kube, chief of the Corps' Western Virginia regulatory section in Norfolk. It is, state and federal officials agree, a much-improved system.

"We've had aquaculture here for decades," Kube said. "Those individual reviews took up a lot of time for a project that usually didn't have any major impacts, and for a project that is beneficial."

That Virginia has a streamlined



Jon Farrington waited 14 months for a permit from the Army Corps of Engineers to grow seed oysters in his Southern Maryland backyard. Here, he shows off the Revolution, a device he invented that lets the tide do the work of cleaning the oysters as they grow. Photo / Dave Harp

process and Maryland doesn't is unfair, according to Mike Naylor, director of the Maryland Department of Natural Resources' Shellfish program.

"The Maryland growers are at a competitive disadvantage with Virginia growers," he said.

The same federal statutes govern Maryland and Virginia. Under the Rivers and Harbors Act of 1899, all dredging activities in navigable waterways require a permit. The Clean

Water Act of 1972 further amplified that provision: It required a permit for the discharge of fill material in all waters of the United States.

The Corps considers shell placed on the bottom as a "discharge," requiring the same type of permit one would seek for filling a wetland. But whereas the Corps' Norfolk office allowed the permit process to come under Virginia's

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oysters will be ready to harvest between Thanksgiving and Christmas.

Zinn expects they'll be able to sell them all. Even with the association's investment of \$10,000, the watermen will make money. Yet, Zinn still believes most watermen won't be able to afford to do these plantings on their own. Clark, for his part, acknowledges that, and is trying to change it.

"The question I always have for Tommy is, 'what do you guys need?'" Clark said. "We will provide support for the industry until it can provide support for itself."

Across the Bay, Steve Gordon also wants to help watermen. A longtime commercial clamming company executive, Gordon and his wife started their own business in Public Landing, MD, growing oyster and clam seed. Recently, the Gordons decided to grow full-size oysters and began dreaming of a "landing," just like in the old days—a place where watermen could bring in their boats and sell directly to distributors.

He stumbled upon George Island Landing, a tangled mess of peeler floats, crab pots, old mattresses and broken pilings along Chincoteague Bay. Several white shanties sit on the water. All once had some role in an oyster operation so robust it was a major Eastern Shore employer.

Gordon set about rebuilding the place as an oyster co-op where more than a dozen watermen can work leases and sell product to the likes of Whole Foods. He has bought most of what he needs, although he is waiting on permits.

"What I'm trying to do is get a whole group of people together and get

"What I'm trying to do is get a whole group of people together and get larger volumes. Once you get larger volumes, you get larger customers."

— **Steve Gordon, oyster grower co-chair, MD Aquaculture Coordinating Council**

larger volumes," said Gordon, who also co-chairs the state's Aquaculture Coordinating Council. "Once you get larger volumes, you get larger customers."

On Hooper's Island, Johnny Shockley seems to have all the elements in place for success. He's a rigger—he figured out how to build his own upweller, and he's planning on selling them and building and selling cages as well. He has access to markets—his partner, Fitzhugh, runs a fish business whose customers would be naturals for oysters. He has a good and fast-growing product, thanks to Allen's triploids. He already has a website as well as a name that reflects his optimism: Chesapeake Gold.

But perhaps the greatest reward is that his family will be able to continue in a tradition that goes back more than a century. Shockley's son is pursuing a degree in marine biology at Salisbury University, and plans to join the business when he graduates.

"Up until this, I never would have allowed him to work the water. But since I've seen this, I'm optimistic," Shockley said. "A lot of people are looking this way, believe me."

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authority, its Baltimore office has not done the same for Maryland.

"It doesn't matter if it's a subdivision, a road or aquaculture," said Bill Seib, chief of the regional branch of the Baltimore Corps' district. "If one of those is going to occur and the project is in the waters of the United States, you will need a permit."

Figuring out the type of Corps permit a grower needs requires a study of complex regulation. In Maryland, if the growers disturb more than an acre of aquatic bottom—and most will—they need an individual permit, because Maryland doesn't yet have the joint-permit system. The individual permit process requires a lengthy environmental assessment and a public hearing. The agency has completed most of those reviews in 120 days, although some have taken longer.

Any grower disturbing less than one acre would be eligible for a general permit, which includes a less rigorous review. And then there is the nationwide permit, which covers existing leases. Growers seeking to renew their leases would need a Corps nationwide permit, which could take 60 days.

The Baltimore District is developing a general permit similar to the one used in Virginia. But it won't happen quickly—a public notice will be published in the spring of 2011.

Beth Bachur, the Corps' Baltimore District branch program manager, said the agency recognized the need for change. "Maybe it's not quite there yet, but we are getting there."

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