RHODE ISLAND'S SHELLFISH HERITAGE

An Ecological History

BY SARAH SCHUMANN · 2015

Coastal Resources Center
Coastal Institute
Rhode Island Sea Grant

The shellfish in Narragansett Bay and Rhode Island's salt ponds have provided humans with sustenance for over 2,000 years. Over time, shellfish have gained cultural significance, with their harvest becoming a family tradition and their shells offered as tokens of appreciation and represented as works of art.

This book delves into the history of Rhode Island's iconic oysters, quahogs, and all the well-known and lesser-known species in between. It offers the perspectives of those who catch, grow, and sell shellfish, as well as of those who produce wampum, sculpture, and books with shellfish—particularly quahogs—as their medium or inspiration.

Rhode Island's Shellfish Heritage: An Ecological History, written by Sarah Schumann (herself a razor clam harvester), grew out of the 2014 R.I. Shellfish Management Plan, which was the first such plan created for the state under the auspices of the R.I. Department of Environmental Management and the R.I. Coastal Resources Management Council. Special thanks go to members of the Shellfish Management Plan team who contributed to the development of this book: David Beutel of the Coastal Resources Management Council, Dale Leavitt of Roger Williams University, and Jeff Mercer of the Department of Environmental Management.

Production of this book was sponsored by the Coastal Resources Center and Rhode Island Sea Grant at the University of Rhode Island Graduate School of Oceanography, and by the Coastal Institute at the University of Rhode Island, with support from the Rhode Island Council for the Humanities, the Rhode Island Foundation, The Prospect Hill Foundation, the Sharpe Family Foundation/Henry and Peggy Sharpe, and van Beuren Charitable Foundation.

ISBN: 978-0-692-49054-9

This publication is sponsored by the Coastal Resources Center and Rhode Island Sea Grant, located at the University of Rhode Island Graduate School of Oceanography, and by the Coastal Institute at the University of Rhode Island.

This publication was made possible with major funding support from the Rhode Island Council for the Humanities, an independent state affiliate of the National Endowment for the Humanities, and from the Rhode Island Foundation, The Prospect Hill Foundation, the Sharpe Family Foundation/Henry and Peggy Sharpe, and van Beuren Charitable Foundation.

This document should be referenced as:

Schumann, S. 2015. *Rhode Island's Shellfish Heritage: An Ecological History.* University of Rhode Island. Narragansett, R.I. 168 pp

Editor and designer: Monica Allard Cox, Rhode Island Sea Grant
Design consultant: Ernesto Aparicio
Proofreader: Dina Dionizio, University of Rhode Island

This book was designed using Adobe Caslon Pro 11/15 for the text and Gotham 28/31 for the chapter titles.

Printed by SYL, Barcelona, Spain

Cover photo, Misquamicut, courtesy of the Rhode Island State Archives

RHODE ISLAND'S SHELLFISH HERITAGE

An Ecological History

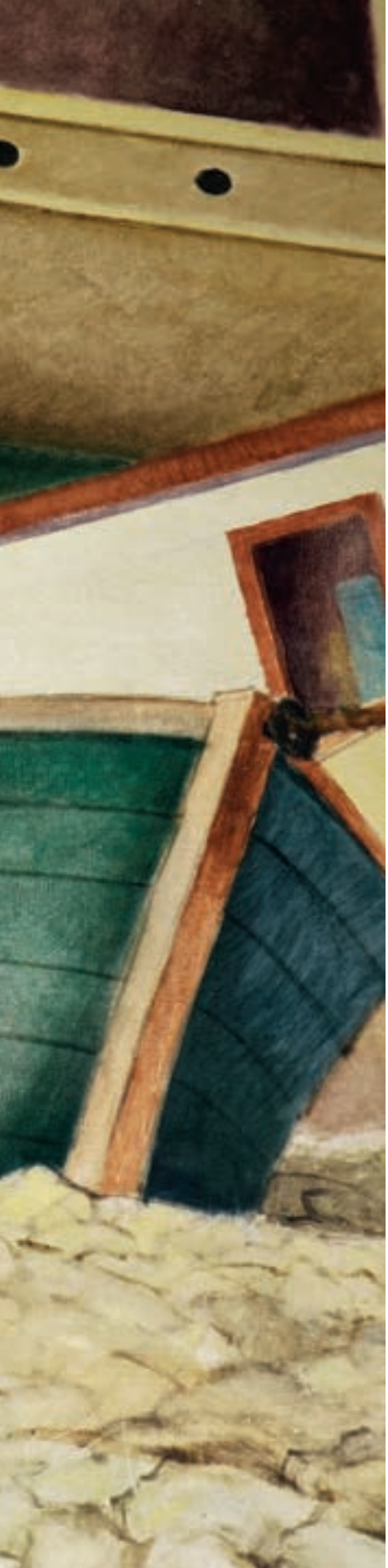
RHODE ISLAND'S SHELLFISH HERITAGE

An Ecological History

BY SARAH SCHUMANN · 2015

Coastal Resources Center
Coastal Institute
Rhode Island Sea Grant

PHOTO BY MELISSA DEVINE



CONTENTS

A mural by artist Paul Sample at the post office in the Apponaug neighborhood of Warwick commemorates Rhode Island's shellfishing heritage. It was commissioned during the Works Progress Administration.

PHOTO BY MELISSA DEVINE


MASSACHUSETS BAY
CONNECTICUT
COLONY
RHODE ISLAND
COLONY
ISLAND SOUND
THE ATLANTIC
Litchfield
Hartford
New Haven
Middletown
Durham
Wallingford
Stratford
Milford
Brentford
Norwalk
Fairfield
Weathersfield
Farmington
Mansfield
Windham
Canterbury
Pomfret
Killingsley
Providence
Warwick
Bellingham
Dighton
Oxford
Douglass
Mendon
Worcester
Sutton
Rehoboth
Attleborough
Somerset
Norwich
Stonington
New London
Groton
Saybrook
Richmond
Whale Rock
Judith Pt.
Block Island
Montauk Pt.
Gardners Isle
Shelter Isle
Robins I.
Northampton
Southold
Suffolk
Riverhead
Southampton
Easthampton
Sag Harbor
Plum I.
Oyster Pond Pt.
Rum Head
Montauk Pt.
Nov. 14, 1905
Z.
Billings
Map no. 2. N37. 1790

One

TURNING BACK THE TIDES

HUMANS HAVE HARVESTED the shellfish resources of Narragansett Bay, Little Narragansett Bay, and Rhode Island's coastal salt ponds for at least 2,700 years—nearly 2 million tidal cycles. Turning back these tides, peering into shellfisheries of decades and centuries past, brings to light not only the enduring importance of shellfish to Rhode Island, but also the ways in which the human relationship with these resources has changed through time.

Although the sensory experience of shellfish may be identical now to what it was 100 or 1,000 years ago, the abundance of different kinds of shellfish, the technology used to harvest shellfish, and the societal values governing the use of Rhode Island shellfish have varied dramatically from generation to generation.

Early on, shellfish were harvested only from shore. In the 19th century, oysters and soft-shell clams (steamers) were the primary wild shellfish that inhabited Narragansett Bay. And prior to the last hundred years, all shellfish in Rhode Island waters were wild, scattered in the water by Mother Nature alone. Now, shellfishing from a boat is widespread, wild quahogs outnumber wild oysters and soft-shell clams by orders of

TOP PHOTO COURTESY OF THE NORTH KINGSTOWN FREE LIBRARY, BOTTOM PHOTO © NATHAN BLANEY/GETTY IMAGES

magnitude, and aquafarmers nurture a cultured crop alongside the wild shellfisheries.

Market trends, the global economy, weather, industrialization, and a host of other factors have shaped the course of shellfisheries over time. These changes have spurred innovation within the shellfisheries, and have also prompted intense deliberations about how to best manage access to Rhode Island's shellfish resources. Should shellfish resources be accessible to all, or to a select few who commit to enhancing their abundance? Should shellfish be farmed, or remain subject to the vagaries of natural spawning? Should commercial shellfishermen be allowed to use mechanical assistance, or should they rely on their own bodies as a sole source of power when hauling their gear?

In coffee shops and conference rooms, from the daily papers to the dealers' shops, Rhode Islanders have deliberated on how best to care for the state's shellfish to produce the greatest benefit for the people of the state.

As future tides ebb and flow through the shellfish waters of the state, they will further alter the character of its shellfisheries. But one thing seems likely to stay the same: shellfish will continue to be one of Rhode Island's greatest treasures.

SALTWATER LIVELIHOODS

As a commercial resource, Rhode Island shellfish support a diverse group of people. From the commercial fishermen who scoop up quahogs from the bottom of the bay to the aquafarmers who nurture young oysters in leased plots, and from the seafood dealers who ship Rhode Island's famed shellfish around the country to the local clam shacks serving up 'stuffies' to hungry tourists, thousands of residents make their living, directly and indirectly, from the harvest of these creatures.

A NATURAL SHELLFISH FACTORY

Rhode Island's climate, geology, and biological characteristics work together to make its waters ideal for a variety of shellfisheries. Its brackish coves, saltwater 'rivers,' and coastal ponds are quiet waters where sand and mud accumulate, creating ideal habitat for quahogs, soft-shell clams, razor clams, and scallops. Wave-swept shorelines provide the rocky bottom habitat preferred by oysters and mussels.

As habitats have changed, so have shellfisheries. A major part of that change has been tied to water pollution. As the state's population and land use increased, runoff from farmland and sewage effluent en-

Employees of American Mussel Harvesters inspect farm-grown oysters on a conveyor belt.

PHOTO COURTESY OF GREG SILKES, AMERICAN MUSSEL HARVESTERS

riched the waters of Narragansett Bay and the salt ponds with nutrients that help shellfish thrive. However, excesses of these nutrients suppressed the growth of eelgrass, causing scallop populations to struggle, and released slews of microbes into various areas, making the shellfish there unfit for human consumption.

As Rhode Island strives to reverse the effects of water pollution, it has an ally in shellfish themselves: as filter feeders, shellfish clean several gallons of water apiece in the span of a single day.

> *Rhode Island's natural resources are not remarkable. Farming land of wonderful fertility, or vast mineral resources are not hers. The one feature which has been prominent since the discovery of the continent is the supply of shell-fish.*
>
> rhode island agricultural experimentation station bulletin, 1896

OVERVIEW OF RHODE ISLAND'S SHELLFISH

The Ocean State's most celebrated shellfish is the quahog—officially named the 'state shellfish' in 1987—but at least eight other species are harvested commercially or recreationally from the state's salt waters.

BAY SCALLOPS
argopecten irradians

Found on sandy bottoms and eelgrass beds, the bay scallop is known as one of Rhode Island's most decadent morsels. But in the past, it was also big business. Scallops are short-lived species whose abundance is notoriously erratic from year to year. In good scallop years, thousands of the state's residents would turn out to grab a bushel for themselves—or a couple dozen bushels for market. In recent years, there has been much focus on bringing back scallop populations and restoring their eelgrass habitat.

EASTERN OYSTER
crassostrea virginica

Most at home on hard, rocky bottom and shorelines, the oyster was once the preeminent shellfish of Rhode Island. In the early 1900s, oyster aquaculture produced 1.3 milion bushels of oysters per year. But the oyster industry declined with the rise in pollution, and the Hurricane of 1938 sealed its fate as a Rhode Island relic. Wild oysters make occasional reappearances in Rhode Island waters, and since the 1990s,oysters have experienced a rebirth in aquaculture. Ecologists celebrate oysters for the ecosystem services they provide, such as water filtration and fish habitat, and are spearheading restoration efforts aimed at reestablishing a self-sustaining wild stock.

SOFT-SHELL CLAM, STEAMER
mya arenaria

Soft-shell clams, or steamers, share with the bay scallop a penchant for disappearing and reappearing in Rhode Island waters from time to time. As is the case with the scallop, extreme population variability has been coupled with a general downward trend over time. At the turn of the 20th century, politicians and shoregoers bemoaned an exodus of this shellfish from Narragansett Bay. They fretted about the fate of the clambake: it just wouldn't be a Rhode Island clambake with clams from any other state, they said. Soft-shell clams are still strong in patches, and occasionally they surprise Rhode Islanders with a massive set like the one that occurred in 2007 at Conimicut Point.

NORTHERN QUAHOG, HARD-SHELL CLAM
mercenaria mercenaria

Now Rhode Island's foremost shellfish, the quahog was once a bit player on the Rhode Island shellfish scene. Until the 1930s, the oyster, scallop, and soft-shell clam overshadowed the quahog both economically and as a cultural icon. But siltation caused by upland development and the Hurricane of 1938 changed Narragansett Bay from a mostly hard-bottom estuary to a mostly soft-bottom estuary. The mud-loving quahog soon entered the limelight. Large company-owned oyster leases gave way to independent small-boat quahoggers—a major turning point in the socio-economic character of life on the bay. Since then, the quahog has taken on a character all its own, inspiring both parodies and poetry, and garnering the illustrious title of 'state shellfish.'

BLUE MUSSEL
mytilus edulis

Although tide poolers may take home a few to eat from time to time, blue mussels are an overlooked species in Narragansett Bay from a commercial perspective. For a brief while in the 1950s and 1960s, a few boats dredged up copious quantities of them and sent them to New York, and in recent years a few fishermen have attempted to revive that fishery. For the most part, however, the mussel's ecological role exceeds its economic one; mussel beds are excellent habitat and feeding grounds for tautog and other finfish.

CONCHS, SNAILS, WINKLES, CHANNELED WHELK; KNOBBY WHELK
busycotypus canaliculatus; busycon carica

Conchs, which go by many other names, are the only snails commercially harvested from Rhode Island waters. The two species—channeled and knobby whelks—are carnivorous, preying on sedentary shellfish like quahogs. A small commercial fishery for these subtidal snails has been in place since the mid-20th century, but since the beginning of the 2000s, the market value of conchs and the number of boats pursuing them has skyrocketed.

RAZOR CLAMS
ensis directa

Razor clams burrow in the sand in shallow subtidal areas. Recreational and commercial fishing for razor clams is limited in scope, since Rhode Islanders generally do not have a tradition of eating or harvesting them. Nonetheless, to those in the know, stumbling upon a bed of razor clams is a rare piece of good fortune. Their sweet flavor may be one of Rhode Island's best-kept secrets.

DECKERS, LAPAS, SLIPPER LIMPETS
crepidula fornicata

These unusual snails, which spend their lives affixed to one another by the suction of their feet, can be found lying in great abundance in sandy areas, often over quahog beds. They are known by many names: 'deckers' to commercial quahoggers, who mainly consider them a nuisance; 'lapas' to Portuguese American connoisseurs, who relish the tradition of feasting on them with family; and 'slipper limpets' to the few people who have attempted to market them as a commercial product.

PERIWINKLES, WINKLES
littorina littorea

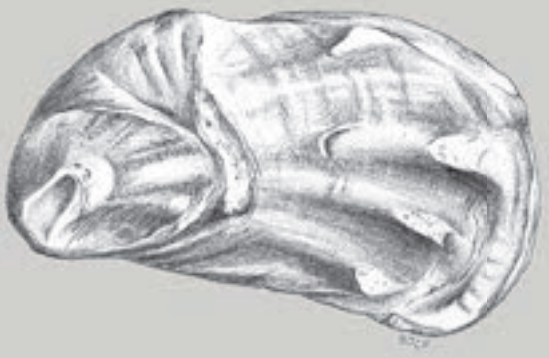
On some rocky shorelines, these small algae-grazing snails cover almost every square inch of rock. They are an invasive species that has been in Rhode Island waters so long (since the mid-1800s) that they now seem to be a natural part of the coastline. These slow-movers are left exposed at low tide and can easily be collected. There has been a small commercial fishery for periwinkles in the past, and many families enjoy picking them off the rocks, steaming them up, and picking their meats out with a toothpick as a saltwater snack.

channel ed whelk

RHODE ISLAND'S SHELLFISH

Illustrations by Brandon Fuller

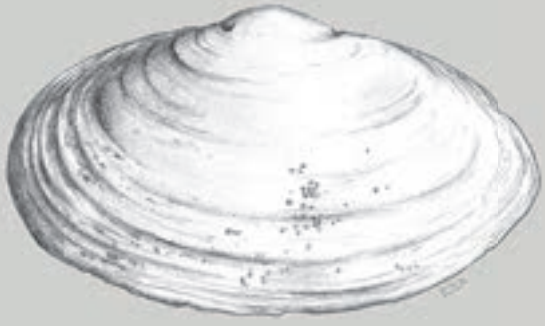
argopecten irradians



crassostrea virginica

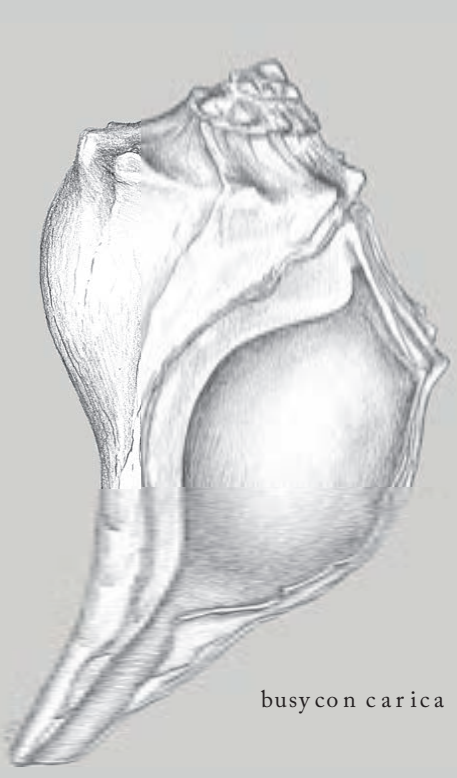
mytilus edulis

littorina littorea



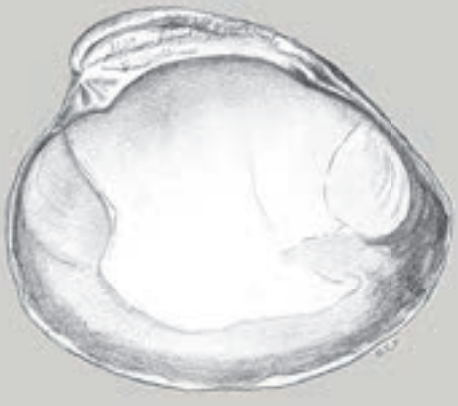
mya arenaria

ensis d ir ect a



busycon carica

busycot ypus canaliculatus



mercenaria mercenaria

Two

EARLIEST HARVESTS

THE NARRAGANSETT AND WAMPANOAG INDIANS were the first humans to relish the shellfish of Narragansett Bay, Little Narragansett Bay, and the coastal salt ponds. To the Narragansett and Wampanoag tribes who lived in what is now Rhode Island, shellfish was both sustenance and symbol.

THE TALES SHELLS TELL

Old shells are a record of the past. Through radiocarbon dating and shell ring counting, archaeologists can detect in what era a shellfish lived, how old it was when it died, and in what time of year it was harvested. By using these techniques, modern-day historians have examined middens (shell discard heaps) in Apponaug, East Greenwich, Potowomut, and Middletown for clues about the living patterns of Native Americans who dwelled there millennia ago.

Seven kinds of shellfish have been found in Rhode Island shell middens: quahog, soft-shell clam, bay scallop, oyster, ribbed mussel, channeled whelk, and slipper limpet. Shell remains at the East Greenwich site show that about 2,000 years ago, use of oysters dropped off and use of soft-shell clams increased. Rather than representing a change in taste

Wampum maker Allen Hazard in his shop, the Purple Shell
PHOTO BY ACACIA JOHNSON

preferences, this shift probably indicates an environmental change: as sea level rise slowed, rates of sedimentation increased, causing Narragansett Bay to shift from a hard-bottom to a soft-bottom habitat.

Old shells also shed some light on seasonal patterns of early residents, although they suggest at least two possible interpretations. Some archaeologists conclude that the existence of huge shell piles hints that early communities dried and smoked large quantities of shellfish for winter use, possibly stocking up for a seasonal migration inland. Others have analyzed the rings on quahog shells to ascertain what time of year they died. Shells in the East Greenwich midden, which was active from 2,700 to 400 years ago, appear to have been harvested during all four seasons, suggesting a year-round residence of the Native Americans who lived there.

SACRED SYMBOL

Allen Hazard, a wampum maker and member of the Narragansett Tribe, carries on an age-old tradition of creating objects of beauty and symbolism with quahog shells. Hazard is one of only three artisans in the world who make wampum in the traditional Eastern Native way. Contrary to popular belief, wampum did not attain the status of currency until after the arrival of Europeans on American shores. Here, Hazard talks about what the quahog shell represented, and continues to represent, to the Narragansett Tribe:

Wampum is sacred. That's the word to use when you're speaking about wampum with a traditional Eastern Native. Why? Because anything that gave its life so that we could continue ours was deemed special. There's no other way to put it. Money doesn't do that.

That's why we give it respect, and the ultimate respect is that once we get the meat out, and see that beauty, there's no way in the world we're going to throw that away. I don't care what your nationality is, when you see that, you're going to keep it. You're going to put it on your table or your countertop. Because it's beautiful. And we thought we were beautiful by wearing it, and making sure that our sachem had a lot of it. And that was probably the most real aspect of the quahog. We just couldn't throw it away. It was just too beautiful. We could throw away a scallop, we could throw away a clam or a razor clam, or a mussel, easy … This isn't the only beautiful shell in the world, obviously. But it's the one that has made history.

To all the elders, if someone used the term 'Indian money,' it was highly offensive. Pre-European, we really didn't know what money was. They came

Hazard holds one of the wampum necklaces he has crafted.
PHOTO BY ACACIA JOHNSON

over and landed on our shores and tried to bring that reality with them. When they saw us give wampum to each other, it was usually in the respect of 'Thank you.'

For example, if I was closer to your camp than mine at the end of a hunt, and we were friendly, I could count on you to give me a place to stay. You would feed me and take care of me for the night. Before I left, I'd offer you a strand of wampum. And you and I both understood that it was probably the most precious thing that you could give or receive. And that the time put into making them was quite extensive. We all understood that, whether it was Pequot, Mohican, Narragansett. We all did the same thing. And we had the same respect. The Europeans saw me give that to you and say, 'Thank you for the night's stay,' and they said, 'Oh, he just paid him for a night's stay. That must be Indian money.'

As the years went on, wampum was used as a replacement for coins and such, because of the decrease of precious metals. It got to where you could actually pay for a ride across the river on a ferry with a few chips of wampum. But it was not what Indians used as money. It was what the Indians used—and [then] the Europeans used it as money. A traditional Native would feel disrespected if you used the term 'Indian money,' because it was sacred to us. And money's not sacred.

CROSS-CULTURAL ENCOUNTERS WITH CLAMS

Early European settlers did not initially share the Narragansett and Wampanoag penchant for clams, and regarded the local custom of eating them as a curiosity. Roger Williams wrote of the soft-shell clam,

This is a sweet kind of shellfish, which all Indians … Winter and Summer delight in; and at low water the women dig for them; this fish, and the naturall liquor of it, they boile, and it makes their broth … seasonable and savory … and for that the English Swine dig and root these Clams whereso-ever they come, and watch the low water (as the Indian women do), there-fore of all the English Cattell, the Swine … are most hatefull to all Natives, and they call them filthy cut throats, etc.

It may have been only reluctantly that English settlers in New England first began to harvest and dine on clams. But when there was little else to eat, the shellfish that abounded on the shores became a welcome meal. In Cotton Mather's description of the hardships and starvation that early colonists withstood, he wrote, 'And how content they were; when an honest man, as I have heard, inviting his friends to a dish of clams, at the table gave thanks to Heaven, who 'had given them to suck the abundance of the seas, and of the treasures hid in the sands!"

NEW WORLD, NEW PARADIGM

The Rhode Island Royal Charter issued by King Charles in 1663 stipulated that residents of the then-colony 'shall have full and free power and liberty to continue and use the trade of fishing upon the said coast, in any of the seas thereunto adjoining, or any arms of the seas, or salt water, rivers and creeks, where they have been accustomed to fish.' This emphasis on public access stood in contrast with the Old-World custom, in which waters were considered property of the King.

In the early days of colonization, the abundant resources of the New World fit well with a desire for openness and equity in access to resources that contrasted with the enclosure movements taking place in Europe. However, this emphasis on open access would later cause tension as local populations expanded and placed a greater strain on fishery resources. As collective governance became necessary to maintain shellfish populations, Rhode Island was the scene of generations of debate over the appropriate balance between government oversight and public access to the state's fisheries.

Early oyster harvesting tools
PHOTO COURTESY OF NOAA

WATERS OF PLENTY

At first, the oyster's abundance prevented it from being perceived as a resource of value. During colonial times, oysters were so prolific that they were sometimes burned whole, to be ground into lime for masonry work—a practice banned by the Colonial Assembly in 1734 for its wastefulness. In 1766, the Assembly went further, restricting the harvest of oysters to use of hands or tongs.

In the first years of Rhode Island's statehood, many residents harvested a few bushels of oysters each fall and stored them in barrels in their cellars, moistening them throughout the winter with a mixture of cornmeal, water, and salt, to supply their families' food needs. At the same time, part-time commercial fishermen, many of them farmers, harvested near-shore oysters with tongs, selling them to women who shucked, canned, and sold them from their own kitchens. As oysters gained value as a food product and commercial enterprise, harvest made them scarcer. After statehood, the combination of these two factors—increased economic value and decreasing natural abundance—gave rise to the first large-scale attempt to conserve and enhance oyster populations, and in 1798,the General Assembly instituted seasonal shellfish harvest closures from May 1 to September 30.

A shell pile dwarfs fishing shanties in Wickford Harbor circa 1913.

PHOTO COURTESY OF TIM CRANSTON

Three

WHEN OYSTERS BLANKETED THE BAY

IN RHODE ISLAND'S FIRST YEARS as a state, oysters were abundant, especially in Narragansett Bay's northern reaches. Upon visiting Providence in 1884, Smithsonian ichthyologist George Brown Goode commented, 'the whole upper half of the Providence River was full of them … even to the city of Providence and that pretty 'cove,' now enclosed by a park, near the railway station.' Modern-day residents would never dream of eating shellfish from this part of the city center, now encased in cement and known as Waterplace Park, but in that era, its low-salinity waters made ideal habitat for oysters.

Long before Goode had published his account, however, the natural abundance of oysters in Rhode Island waters had begun to wane. By the 1800s, urban growth had dimished water quality in the Providence and Seekonk rivers and boosted demand for local oysters to unsustainable levels. In response, the state began to devise management structures to enhance oyster production. These actions would eventually turn oysters from a subsistence food and cottage industry into one of the state's most profitable business sectors. But this growth came at a cost to the free and public nature of the state's fisheries.

PARTITIONING THE WATERS

In 1799, the Rhode Island General Assembly took an action that foreshadowed a major shift in the management of the state's aquatic resources. Under a special act, it granted to two men, Christopher Sheldon and William Rhodes, 'the sole and exclusive right of raising and taking oysters' to 2 acres apiece of submerged ground off Sabin Point. This initial lease was followed by another, in the Providence River, in 1822, and a third, in Mount Hope Bay, in 1827. Early leasing activity was piecemeal, and lessees were more apt to use their allotted space for temporary storage of wild-harvested oysters than to increase the yield of their beds through culture methods.

The state formally instituted broad-scale private leasing as the lynchpin of its oyster restoration strategy in 1844 with the Oyster Act. The mechanics of the act were straightforward: waters less than 18 feet deep were available for lease at $10 per acre per year, and waters over 18 feet (later changed to 12 feet) were available for $5 per acre per year, for a period of 10 years, renewable upon request. The act also set up a panel, the Commissioners of Shell Fisheries, to oversee lease applications and collect lease fees.

By privatizing the fishery, the state's elected officials hoped to provide incentive for growers to invest their own capital in repopulating barren oyster grounds. But during the first 50 years of its new leasing system, Rhode Island saw relatively little investment in oyster aquaculture. Only a handful of investors took out leases, and those that did were frequently beaten back by the challenges of starfish predation and illegal poaching on their grounds.

Robert Pettis founded his oyster company in the 1850s, building an oyster house on Orange Street in Providence.

IMAGE COURTESY OF THE CULINARY ARTS MUSEUM AT JOHNSON & WALES UNIVERSITY

As the nascent industry struggled to find its footing, the Commissioners of Shell Fisheries toyed with a proposal to jump start the industry by selling permanent rights to oyster beds, as was done in Connecticut at the time. Fervent objections from independent, or 'free,' fishermen quickly blocked this idea from gaining ground. Ultimately, the growth that the commissioners sought to foster did take place, but it was due to events that lay entirely outside of their control.

As a source of shell-fish food Narragansett Bay presents one of the richest areas for cultivation on the north Atlantic Coast. Protected from the entrance of heavy seas, shallow enough to permit cultivation in nearly all of its parts and to allow the water to be warmed quickly by the sun's rays, rich in its content of plankton organisms and detritus and with most of the bottom hard, sticky, or muddy, it is an ideal region for the cultivation of oysters, clams, and mussels.

commissioners of shell fisheries, 1919

THE LONG ISLAND SOUND 'INVASION'

In 1895, events outside state waters spawned a whirlwind of lease applications and finally launched the long-awaited golden age of the oyster in Rhode Island. That year, Connecticut—then the hub of East Coast oyster culture—experienced an abysmal larval oyster set. Droves of Connecticut growers rushed to take out leases in Narragansett Bay. Local oystermen at first viewed the arrival of large Connecticut companies with suspicion, but they changed their tune when they began to benefit from the innovative methods and extensive marketing connections that out-of-state planters brought with them.

In the span of a few short years, the combination of Narragansett Bay waters and Long Island Sound capital turned the oyster from a dwindling and neglected shellfish into Rhode Island's third largest industry on land or sea. Huge steam- and gasoline-powered ships capable of moving thousands of bushels of oysters at once soon eclipsed the small sailing vessels of early oyster planters. Multi-story shucking factories, employing hundreds of workers and shipping product to New York and Chicago, sprang up along the waterfront.

Environmental conditions cooperated to feed the boom. 'In 1906-7 and 8 there were elegant sets,' recalled the *Providence Magazine* in 1918. 'Nature was having a chance to show what she could do. In 1905 she filled the river and bay with young oysters. Anything thrown overboard they flocked to and anchored upon, and the next year the beds gave

Men taking oysters through the ice. Starve Goat Island, R.I., circa 1893.

SILVER GELATIN PRINT [COPY] COURTESY OF THE RHODE ISLAND HISTORICAL SOCIETY, RHI X3 2274

up splendidly of the delicious bivalves … Everybody was getting great catches, the yield was eminently satisfactory and the public was a large purchaser.'

Along with growth in the overall size of the oyster industry came a southward expansion in its geographical range. As factories multiplied in Providence and surrounding cities, pollution levels in the upper bay increased dramatically, driving oyster growers further away from the metropolitan center. The state began opening up large swaths of lower Narragansett Bay to growers willing to experiment with deep-water oyster farming.

The deep waters of the lower bay, muddy and sandy by nature, were not naturally productive for oysters, which require hard surfaces. Adapting to the new environment, growers developed a practice of laying down old shells as 'cultch' for settling oyster larvae to adhere to. In years of poor larval settlement, growers went a step further, laying down seed oysters imported from other areas, even from out of state. Connecticut

growers were satisfied with the results of these experiments, and Narragansett Bay became a key part of their overall business strategy.

To Connecticut growers, Narragansett Bay offered several advantages. First, oysters grew to maturity in three years in Narragansett Bay, compared to five in Long Island Sound. Second, Narragansett Bay oysters did not take on the greenish color that they did in Long Island Sound. Connecticut growers began bringing oysters to Narragansett Bay to fatten up and 'bleach out' as a matter of routine.

The 'invasion' of Narragansett Bay by Long Island Sound growers helped the Commissioners of Shell Fisheries achieve their long-held dream of making Rhode Island a powerhouse in oyster cultivation. In 1915, the commissioners declared with satisfaction, 'We to-day have in Rhode Island the largest private oyster industry, or rather an industry conducted by private enterprises and organizations, in the world.'

At its height in the early 1900s, the Rhode Island oyster industry employed over a thousand people and had an annual output of 1.4 million bushels of oysters—worth $3 million to $4 million. Total acreage leased to private growers peaked in 1912 at 20,486 acres—a full 22 percent of the bottom of Narragansett Bay.

Rhode Island waters not only produced tremendous volumes of oysters, they were widely held to produce the tastiest oysters available as well. 'It is considered by epicureans that oysters grown in the waters of Rhode Island have a very palatable and pleasing flavor, which is undoubtedly due to the amount of fresh water which flows into our bay,' asserted the Commissioners of Shell Fisheries in 1910.

MAINTAINING AN OYSTER LEASE

Culture methods used by early 20th century oyster planters were very different from those used by aquaculturists today. There were no cages or mesh bags, no hatchery-reared seed, and no pressure-wash systems or tumblers to deepen the oyster's cup. Production was less intensive and outcomes were more uncertain.

The first step that a planter took upon acquiring a new lease was to mark his plot with buoys. The Commissioners of Shell Fisheries specified the precise nature of the buoys that each leaseholder should use. Plastic and styrofoam had not been invented yet; regulation buoys were cedar branches with their bushy tops still attached, marked with canvas tags containing the leaseholder's initials.

During the first year on a new lease, and every spring thereafter, a planter cleared his plot of debris and 'stirred up' the bottom to remove

any sediment or algal growth that might interfere with the growth of oysters. After cleaning the plot, he chose between two possible courses of action: he could either 'shell' the area with cultch to capture naturally occurring larvae, or he could 'plant' the area with seed oysters already a year or two old. Shelling was cheaper than planting, but involved greater uncertainty due to the fickleness of natural oyster sets.

A grower who opted to shell his plot started in early summer. He waited until the last possible moment before he expected local wild oysters to spawn. Timing was critical: if he laid down shells too early, they would become covered by a slimy layer of algae that would prevent oyster larvae from settling on them; if he laid down shells too late, he would miss the larval set. If the set was successful—that is, if larvae adhered to the cultch shells—the grower could either wait a year or two and then spread the growing oysters in a different area to mature, or he could leave them in their original bed for a total of three years and harvest them directly for market. If the set was unsuccessful, a grower would remove the cultch shells, dry them to kill off any algae or marine animals that may have become attached, and save them for use the following year. Shelling was the predominant method of culture in the early days of the oyster fishery.

A grower choosing to plant oyster seed rather than shell his plot began the process in spring. The first planters obtained wild seed stock from the Seekonk River, where oysters grew in abundance but were affected by a green coloration resulting from the area's naturally occurring plankton. By moving Seekonk River oyster seed to open waters to mature, growers could wash out this coloration, making the oysters more marketable.

As Connecticut companies moved into the bay, they began to import seed from Long Island Sound and even the Chesapeake Bay, where many of them also held leases. This southern stock was not biologically capable of overwintering in the cold waters of Narragansett Bay, so planters harvested it every fall and replenished it in the spring with another shipment brought up the coast. When natural sets began to experience sharp declines after 1915, planting displaced shelling entirely to become the exclusive method of oyster culture in Rhode Island.

To harvest mature oysters from their plots, small leaseholders used tongs. Larger companies used dredges. Early dredgers hauled their gear from sailing ships, but by the 1870s most companies had converted to large steam-powered ships, and later, to gasoline engines. Oyster leaseholders did not have to find buyers for their product, because their com-

An exterior view of the Narragansett Bay Oyster Company

IMAGE COURTESY OF THE RHODE ISLAND COLLECTION AT THE PROVIDENCE PUBLIC LIBRARY

panies were vertically integrated: separate people within the same firms performed the growing and the processing of oysters.

After oysters were harvested, it was common practice to 'float' or 'drink' the oysters at the mouth of a freshwater stream for a few hours. The difference in salinity between the lease plot and the floating station caused them to expel sediments and take on water, 'freshening' their flavor and increasing their weight. Many oyster houses were outfitted with rafts along their adjoining waterfronts for the purpose of floating oysters. The practice of floating oysters was outlawed in 1909 due to concerns about oysters absorbing pollutants during this phase of processing.

STARFISH: A FIVE-FINGERED MENACE

Oyster growers manipulated nature where they could, but fell short of bending the Narragansett Bay ecosystem to their will. Sometimes large populations of mussels grew between the oysters, competing with them for food and clogging dredges at harvest time. At other times, droughts reduced the flow of fresh water growers depended on to infuse their oysters with the Narragansett Bay flavor esteemed around the country. But the chief natural threat facing oyster growers was the starfish—also known at the time as 'five-fingers.'

To prey on an oyster, a starfish stretches its hundreds of tubelike feet around it, injects its stomach between the oyster's two shells, and pours


FROM
NARRAGANSETT BAY
OYSTER CO.
PROVIDENCE R.I.
NARRAGANSETT BAY
OYSTER CO.
PROVIDENCE R.I.
PARMELEE
B
N O
Co
PROVIDENCE


6967
4443

Previous page: A view inside the Narragansett Bay Oyster Company, Providence, in 1908, coincidentally the peak production year for farm-raised oysters. Growers marketed 8.7 million pounds of oysters that year.

IMAGE COURTESY OF THE RHODE ISLAND COLLECTION AT THE PROVIDENCE PUBLIC LIBRARY

At right: This photo from a 1900 annual report by the Commissioners of Shell Fisheries shows an oyster boat mopping for starfish.

PHOTO COURTESY OF THE RHODE ISLAND STATE ARCHIVES

digestive juices into the shell cavity. In this way, the starfish digests the oyster without having to remove it from the shell. A single starfish can eat up to three adult oysters or 15 juvenile oysters in a day.

Starfish blooms destroyed the nascent oyster industry repeatedly in its early years, with major starfish infestations striking yearly from 1859 to 1864, in 1885, and in 1891. Infestations continued to be a problem off and on during the peak years of the industry, and were a contributing factor in its eventual decline. A 1936 report of the Rhode Island State Planning Board affirmed that 'the starfish ... preys upon all forms of shellfish, and causes a total economic loss of $300,000 annually in Rhode Island waters.' The same report estimated that starfish annually consumed at least 30 percent of the total oyster crop.

Growers combated the five-fingered menace with a tool called a starfish mop. During summertime 'starring season,' when aggregations of starfish converged on their beds, growers affixed these mops to outriggers and dragged them along the bottom, entangling the prickly invertebrates in their plushy material.

During the Great Depression, the State Unemployment Relief and Civil Works administrations commissioned 70 boats and an army of unemployed fishermen to mop starfish from the state's private oyster leases. They extracted over 1,000 tons of starfish, giving most of them to local farmers to use as fertilizer. So strong was hatred towards starfish in Rhode Island that in 1935, researchers experimented with poisoning them, and in 1941, the General Assembly legislated a starfish bounty.

INSIDE A SHUCKING HOUSE

At the height of the Rhode Island oyster industry, more than 60 oyster packinghouses lined the shores of Narragansett Bay. Inside their walls, men and women of diverse nationalities worked side by side to prepare oysters for markets as far away as Europe. Many workers were of Portuguese or Cape Verdean origin.

Early oyster packers shipped oysters in the shell. To prepare them for market, workers separated clumps of adjoined oysters into individual pieces using a tool called a culling iron. To save on shipping and take advantage of opportunities for shell recycling, packinghouses eventually switched to shipping only the oyster meats. This shift gave rise to a new job description: the oyster shucker.

Shuckers worked standing up, along a bench. Every few seconds, a shucker grabbed an oyster from the pile in front of him, and with a quick flick of the wrist and his 'side-knife,' he emptied the contents of the shell into a tin colander. In smaller oyster houses, shuckers dumped the empty shells into a wheelbarrow beside the bench. Other workers emptied the wheelbarrow each time it filled up. In larger houses, shuckers dropped the empty shells onto a conveyor belt that ran below the bench and deposited them in a huge shell mound outside the plant. There, they would wait until the following year to be scattered on lease plots as seed-capturing cultch.

A practiced shucker could extract up to 3 gallons of oyster meats per hour. Every time he filled a tin, he carried it to the washing room, where a supervisor would make a pencil mark on his individual tally card to keep track of his output and calculate his pay. In the washing room, another set of workers transferred shucked meats into water-filled tanks equipped with air pumps that caused the water to foam and bubble, carrying away any sand or dirt present on the meats. After washing the meats, workers packaged them in tins and placed the tins in insulated tubs or pine boxes filled with ice. Oyster shipments making long journeys carried instructions to the shipper explaining proper re-icing procedures to keep the product fresh all the way to the consumer.

The monotony of shuckers' jobs gave rise to oyster shucking contests. Eventually, playful competition among shuckers transcended the workplace and grew into nationwide shucking tournaments pitting state against state, which Rhode Island oyster shuckers' skilled hands frequently won.

OYSTERS AND THE SHAPING OF POINT JUDITH POND

Point Judith Pond, informally known as Salt Pond and sometimes Great Salt Pond, is a 4-mile-long tidal pond—one of several salt ponds nestled behind the barrier beaches of Rhode Island's southern shore. Since 1910, it has been connected to the Atlantic Ocean via an artificially hardened permanent breachway that allows travel by the commercial fishing boats, pleasure boats, and ferries that dock in the port of Galilee, located at the mouth of the pond. Before the construction of the permanent breachway, the ecology of the pond was very different, and only rarely did seagoing vessels traverse its waters. The oyster—once highly plentiful in the pond—played a central role in driving the historical events that led to the building of the breachway and the transformation of the pond from quiet lagoon to major fishing port.

In the 1800s, when southern Rhode Island was little more than fields and tiny villages, Point Judith Pond oysters were so large and plentiful that farmers swapping their plows for a set of tongs could bring in 20 bushels in a single morning. The pond's naturally occurring breachway periodically filled with sand, keeping salinity levels in the pond low. Oyster larvae thrived in its brackish waters.

But without warning in the 1890s, Point Judith Pond oysters mysteriously disappeared. Local families who depended on the pond's shellfish for seasonal income became alarmed, and the South Kingstown Town Council asked the fledgling Rhode Island College of Agriculture and Mechanic Arts (forerunner of the University of Rhode Island) to step in. In 1896, the college set up the first state-college marine laboratory in the country, on the salt marsh in Jerusalem. The lab's director, Dr. George Wilton Field, set about deciphering the disappearance of the oysters, with the help of local fishermen.

Field concluded that the oyster's decline was caused by two factors: the periodic closing of the pond's natural breachway and an increase in sediment levels flowing into the pond from the Saugatucket River. Together, Field's 1897 report alleged, these influences were 'transforming the beautiful sheet of water into a miasmatic bog-hole,' smothering oysters and reducing hard surface area available for larvae to settle.

'We are more strongly than ever of the opinion that a permanent breach is of vital importance to the permanent value, and even to the perpetuation of the pond,' Field wrote. His call for a permanent breachway was politically appealing to both manufacturing and fishing interests, who had argued the need for such a step for several decades. In the run-up to the oyster collapse, a series of storms had piled so

much sand along the shore that the natural breachway, once passable by deep-draft oceangoing vessels, had been reduced to a depth of only 6 inches. Teams of farmers and fishermen dug it out each spring, but were unable to keep pace with the sand dumped in it by each successive storm.

The General Assembly allocated funds for a permanent breachway in 1901 and put the towns of South Kingstown and Narragansett in charge of maintaining it. To enable the towns to pay for upkeep, the General Assembly divided the pond in half and used the Oyster Act to grant each town a lease to the portion adjacent to its respective borders. Each town, the General Assembly declared, could sublet its half to private interests or leave it fully open to free fishermen, as it saw fit.

South Kingstown leased many small oyster plots to various townspeople, and one large plot of 300 acres to the Dykstra brothers from Long Island. The Dykstras set up an oyster house at the top of the pond where Stone Cove Marina now sits, hired several dozen local people to work there, and before long, had established themselves as one of Rhode Island's most prominent fishing families.

The state and the town of South Kingstown finally excavated a permanent breachway between the pond and the ocean in 1909. The new construction enabled establishment of the Port of Galilee just inside the pond, providing refuge to ocean fishing vessels and other larger boats. Were it not for trials of the Point Judith Pond oyster, Rhode Island's largest commercial fishing port might never have been built.

Ironically, rather than restoring the pond's oysters, the permanent breachway finished them off completely. The influx of high-salinity seawater caused oysters to stop spawning altogether, and saltwater predators such as the oyster drill and starfish moved in from the ocean and consumed what was left. For a few decades, oystermen like the Dykstras kept their plots going by transplanting seed oysters from the upstream reaches of the pond, where freshwater inflow kept the water brackish enough for oysters to spawn. Nevertheless, operations eventually became unprofitable and the oyster culture industry in Point Judith Pond went dormant for the better part of a century. Scallops, however, thrived in the saltier environment, and fishermen along the pond's shores exchanged their tongs for dredges and adapted to the new ecosystem.

THE DYKSTRA FAMILY OF POINT JUDITH

John Dykstra's father and uncles arrived in South Kingstown in 1920 to take out a 300-acre lease on the bottom of Point Judith Pond for the

cultivation of oysters. Dykstra was born during the height of their oyster operation in the 1920s. Here, he recalls the ups and downs of the family business that he witnessed as a boy:

[Oyster farming] was new for here. Nobody did that before around here. And people got jealous about it … The people who always made a living on the pond, they got testy after a while. When my father and brothers came, they hired 25 people at one time, and they were all very happy to work, because they had no work. And they worked on the pond anyhow. All they knew was catching stuff like that, so they were good men for my father and them. But after they worked for a few years, some of them got a little jealous and then they went to the town meeting and claimed that we shouldn't be renting the whole bottom of the pond. So at that time, they shrunk it down to about a half, because they weren't using it anyhow, my father wasn't. Every once in a while my father would have to go to a town meeting and argue to keep it open …

My brother was the first one born here. He was born in the [oyster house] shop at the head of the pond. The shop was twice as big as it [was later]. They cut it in half and made the house we always lived in, moved it a quarter mile up the road, and made that half of the oyster shed into another house when the business went downhill. And that's where we lived. The shop was destroyed by the '38 Hurricane. I was 12 years old [then]. I grew up in that shop. There was always some activity around there ...

There were [no predators] for the first 5 years. And my family had hoped that they would stay away longer than that. But by the time I was very small, they were already dredging for starfish … at least once a year and maybe two …. When the mills were still running, they had this stuff called waste. It was cotton, big strings of cotton. And you wind that up and put it on a dredge bar, and tow that thing over the top of the oysters, and the starfish catch and tangle in it. We used to pick them out by hand, so it was a job for the whole family … Everybody would get around it and pick like mad to get the starfish out. And then you towed it for a while again.

The Stratford Oyster Company, owned by William M. Merwin and son, East Providence, in 1909, in a photo from the Commissioners of Shell Fisheries annual report

PHOTO © MYSTIC SEAPORT #1978.152.740


SEAFOOD

Four

THE 'FREE' FISHERY

IN THE SHADOWS of Rhode Island's celebrated oyster industry, a sizable number of independent fishermen continued to work the waters from shore or small boats. Called 'free fishermen' to distinguish them from the vertically integrated oyster operators, they were generalists who tonged and dredged for a variety of shellfish. Many also worked small farms on land. East Providence shellfishermen, it is rumored, used to harvest shellfish from shallow waters by using farm plows to churn up the sediment.

The structure free fishermen operated under was more haphazard and far less capitalized than the contemporaneous lease-based oyster industry. Accounts from the time estimated that free fishing contributed to the household budgets of thousands of Rhode Island residents, but little record exists of who these fishermen were. Prior to 1912 there were no licensing requirements in shellfisheries. In fact, relatively few regulations were in place at all. Anyone could harvest shellfish, and anyone could sell them to whomever they chose. The distinction between recreational and commercial shellfishing was one of harvest volume, not motive.

North Kingstown waterfront

IMAGE COURTESY OF THE NORTH KINGSTOWN FREE LIBRARY

Although free fishing activity was largely unregulated, it took place within a peculiar set of constraints imposed by the parallel private leasing system. The complex and sometimes testy relationship between private and public fishery regimes of the late 19h and early 20th centuries left a legacy that has marked Rhode Island shellfish politics to the present day in Rhode Island.

OPENING DAY

Scallop season arrived each September, to the merriment of the entire state. People from all walks of life dropped what they were doing and headed to the water with a dredge or dip net. Opening day of scallop season was a highly anticipated occasion each year, and there was much speculation for weeks beforehand about what the year's scallop harvest would bring. On that day, commercial and recreational fishermen collided on the water in a frenzy of dredges and dip nets.

Elizabeth Schumann spent the warmer months of her childhood in Touisset on the banks of the Kickemuit River. Born in 1918, Schumann recounts her girlhood memories:

You weren't supposed to get scallops before a certain date in September. The ban went off at midnight on Sunday, and all the little one-stroke engine boats came putt-putt-putt-putting into the river that evening. From about 9 o'clock until midnight, about all you could hear were these boats coming in. The Kickemuit was just packed, boat-to-boat. And then they took all the scallops. The next day or so, they were gone, and there were no more scallops.

So before that, all the residents went and got scallops to eat. Illegally, because it was the only way to get any before the boats caught them all. My father was a very law-abiding person, so he would go in the garage and shut the door, shut the window, and it was very hot. And he would sit there in the garage, cleaning the scallops, cutting the scallops out of the shell. And then he didn't get around to dumping the stuff right away. So it was a very fragrant garage. That was in the 1920s and early 1930s. It was the 1938 Hurricane that wiped them out, because it pulled up all the eelgrass. They never came back in full force.

A PLACE OF ITS OWN: SCALLOPTOWN, EAST GREENWICH

The East Greenwich waterfront was a colorful place in the days of the free fishery. Along the edge of Greenwich Cove, fishermen and their

The history of Scalloptown, East Greenwich, dates back to the Colonial era. This photo was taken on September 14, 1930.

PHOTO COURTESY OF THE PROVIDENCE JOURNAL

families lived alongside their boats in a racially integrated shantytown. Residents of Scalloptown, as the area was called, were not well off, but they wanted for little: their front yard was Greenwich Bay—an area legendary for its bay scallops and other shellfish.

Jane McGiveney grew up hearing Scalloptown lore from her mother, who spent her childhood there. McGiveney's great-grandfather, locally known as Old Man Rice, built and transported a scalloping boat to the Chicago World's Fair of 1893 to represent Rhode Island.

McGiveney says of Scalloptown shellfishing:

It was a good way to make a living. In the Scalloptown area, those families there lived off the bay.

I guess they were a fairly rough crowd, but they got married and they had children and they could eat well off the water … They were poor. But they were all in the same boat. They didn't know anything better. That's all they ever did was work on the water. It was a place of its own.

Everything went in the '38 Hurricane. The water went all the way up King Street, probably all the way up to Duke Street. Scalloptown was a very small section. People, because of nostalgia, often make it seem like it was a bigger area. But it wasn't. It was just a couple of streets, just a couple of blocks right along the water there.

Those shanties along the shore, they would bring [scallops] in and they would cut them out right there. It was a big thing that went on for several weeks, when it was in season … [Women] would go down and cut out. They would work almost around the clock. There wasn't refrigeration, and of course the warm weather. Even the kids went out and scraped the bottom of the boats. It was a really hard job, but a lot of the young girls and young boys did that. They'd pay them 50 cents.

Seafood was free then. If you could go out and get it, it was yours.

COMING OF AGE ON POINT JUDITH POND

John Dykstra's father owned an oyster lease in Point Judith Pond, but when John was growing up, he worked the pond's free fisheries. His father had a standing weekly order for two barrels of quahogs; as a teenager during World War II, Dykstra took over the job of filling that order when his father went to work for a shipbuilding company.

They wanted to keep that two-barrel order. So when I went to school, I did that each week. We caught four bushels of quahogs a week, and shipped those two barrels. At that time, Larchwood [Inn] was in full swing, and down by the river in Wakefield, there was the Wakefield Inn. A lot of older people with money went there. They used quite a few quahogs. And then we had maybe two dozen people where we went to the house on bicycles. We'd deliver a quart to a house. And we had two stores that catered to fancy people. There were a lot more grocery stores in those days. And the one that specialized, and had a little better clientele than the others, always bought oysters on Friday. Shucked. People around here didn't know what an oyster on the half shell was, hardly.

By the time I got to be 12 or 14, you could make quite a lot of money. I didn't finish school. One of the reasons I didn't go to school is that I used to work a couple of hours before school and a couple of hours after school. And the top pay for a teacher was, well the principal got $4,400 a year in those days, and it went down to $2,800 for a biology teacher. An English teacher was $3,300.

And like that, I made $6,000 that year before and after school. And I loved it. I loved fishing. I never quit loving fishing.

So I didn't do that well in school. I did well if I went, but because of getting up before then and going to work, I did my sleeping in school. It made the teacher awful mad. There's nothing that drives a teacher more crazy than someone who could learn but doesn't.

PRIVATE WATERS, PUBLIC STRIFE

The coexistence of free fisheries and private oyster leases was not always harmonious. Free fishermen resented the apportionment of public waters to private interests, especially when these were from out of state. Oyster companies, on the other hand, resented the freewheeling individual fishermen who trespassed on their leases and furtively pilfered their oysters.

The General Assembly did its best to avoid conflict between the two groups, first setting aside naturally productive oyster beds like Greenwich Bay and the Seekonk River for free fishermen and later designating all submerged lands less than 4 feet deep as off-limits to leasing so they could be worked from shore. However, clashes were inevitable between these two user groups, who worked adjacent waters under vastly different resource management structures.

One facet of the oyster leasing system that particularly irked free fishermen was the official policy that other shellfish that happened to settle on leased grounds—such as naturally occurring scallops and quahogs—were property of the leaseholder. In order to harvest these shellfish, free fishermen were required to obtain leaseholders' consent—which usually involved paying them a fee. Additionally, oyster leaseholders were exempt from catch restrictions applying to wild shellfisheries. Thus, while free fishermen were capped at 15 bushels of scallops per day in public waters, oyster leaseholders sometimes pulled in as many as 100 bushels of naturally occurring scallops from inside the lease plot line.

Despite animosity towards many aspects of the leasing system, free fishermen also drew some benefits from the setup. Regulations passed in 1854 permitted free fishermen to gather small oysters from public grounds and sell them to oyster companies for planting in their leased beds. This created a market for undersized oysters that benefited free fishermen while also providing growers with an affordable seed source.

Some free fishermen benefitted from oyster leases in a more direct, albeit illegal, fashion. As Rhode Island's oyster industry expanded, so, too, did poaching on its private oyster grounds. 'In some instances the loss sustained by one firm in a single season is sufficient to supply bivalves

Oysters at the Matunuck Oyster Bar
PHOTO BY ROBERT RHEAULT

for every ladies' aid supper in the land, in spite of the fact that thousands of dollars are being spent annually by the leaseholders in maintaining watchmen to guard the beds,' reported the *Providence Journal* in 1911.

Most oyster companies hired watchmen to guard their plots round the clock. But poachers often outmaneuvered watchmen, who lacked authority to punish poachers for taking oysters illegally. In 1913, the General Assembly tried to address this problem by granting private oyster company guards the legal authority to make arrests as deputies of the state, but poaching persisted.

Accounts from the time paint a mixed portrait of poaching. While some sources depict poaching as merely a vice born of laziness and greed, others hint that it doubled as a form of rebellion against a regulatory and privatization scheme that free fishermen considered fundamentally unjust. Politically motivated poaching of this sort was not limited to Rhode Island, but was part of a larger coast-wide rejection of leasing that erupted most famously in the long-raging Chesapeake Bay Oyster Wars.

Scientific American captured the essence of poachers' worldview in an 1880 article. Poachers, the magazine reported, 'are persons who live around the shores, who fish and dig clams, and steal oysters … Being residents along the shores, they seem to feel that they have an inalienable right to all they can find in the water … They have apparently no compunction about getting all they can from the cultivator's grounds.'

My grandfather oystered, but he didn't do that legally. He had a boat, with an exhaust made up with a pipe nipple on it, so when he went out at night he put on another pipe so the exhaust went underwater … He had a permit

so if anyone asked him, he could say he was on his own lease. He had a boat that he repainted down to the water line, an extra set of numbers that he could change.

—David Drew, East Greenwich

In Potter's Cove, there was a big oyster bed. My uncle used to be the warden there. He didn't get paid for it, but he's the only guy who could work there, tonging. He used to chase everyone else off. He didn't make many friends. He didn't make any friends at all!

—Dave Brayton, Tiverton

INTERPRETING THE PUBLIC GOOD

As representatives of the state, the Commissioners of Shell Fisheries were charged with maximizing public benefit from Rhode Island's rich estuarine resources. But notably—and sometimes contentiously—the commissioners made a distinction between 'public good' and 'public access.' Consistent with the Progressive-Era emphasis on efficiency and centralized management, they believed that the key to assuring profitable use of the state's waters lay not in opening the waters for all to harvest but in fostering shellfish cultivation methods that improved upon nature, through private leasing of public grounds.

With private investment, however, came private privileges. Many free fishermen at the time contended that the leasing system enshrined in the Oyster Act of 1844 clashed with the state's constitution, approved only one year earlier, which provided that '[t]he people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of this state (Article 1, Section 17).'

The two interpretations collided not only on the water but also in courtrooms of the time. In the precedent-setting case of *State v. Cozzens*, 1850, Nathaniel W. Cozzens was convicted of violating the Oyster Act of 1844 by stealing $40 worth of oysters from a private leased bed. Cozzens claimed that the bed was located in an area of natural oyster set customarily used by free fishermen, and contended that the Oyster Act violated Article 1, Section 17 of the Rhode Island Constitution.

The Rhode Island Supreme Court found it immaterial that the bed had previously been used by the free fishery. If leasing the area produced a greater overall public benefit than fishing it freely, the court reasoned, the commissioners were upholding their public duty by barring free fishermen from using it. Speaking for the court, Justice C.J. Greene declared:

The commissioners are required personally to inspect the land to be leased, and their decision, in granting the lease of an old oyster bed, is conclusive of the fact that such oyster bed can be used more to the public advantage as a private bed under lease than as a public bed. We understand the object of these sections is not the benefit of the lessees of the private bed, but, by holding out motives to them to plant and cultivate oysters, to secure to the public a more abundant supply. In other words, the constitutional right is so regulated as to reserve to the public the greatest benefit.

WHY NOT LEASE WATERS FOR OTHER SHELLFISH?

Leaving equity and access considerations aside, the Rhode Island oyster industry was undeniably successful in terms of sheer output. Admirers of the industry's high production levels suggested that a leasing system should be put in place for the benefit of other Rhode Island shellfish as well. As an example, they pointed to a favorite local food source and indispensable ingredient in the celebrated Rhode Island clambake: the soft-shell clam.

By the early 20th century, soft-shell clams were becoming sparser on Rhode Island shorelines, forcing clambake masters to import clams from out of state. As early as 1909,a *Providence Journal* article proclaimed with great sorrow that, 'Because of the popularity of the Rhode Island clambake and because of the prodigal digging of the clam flats all over the state, that famous shellfish, the Rhode Island clam, is nearly extinct … Only a few years ago, to have clams sent from Freedom, Maine, to Pawtucket, R.I., would have been far less profitable than the old yarn of sending coals to Newcastle. Now it is an absolute necessity.'

Observers wondered: could allocating portions of the shoreline to private companies bring back the soft-shell clam for the benefit of the public? Many believed it would—but free fishermen disagreed.

CLAM FARMS ADVOCATED

editorial, *PROVIDENCE JOURNAL,* 1910

In the oyster industry, the 'free fishermen' do not plant; they simply help themselves to the oysters provided by nature, and of course the supply is exhausted. But the leased oyster farm on which property rights are recognized is an important factor in the shellfish trade. The revenues from the leases are of course acceptable to the State Treasurer, but the most important result of the marine farm is the great increase in the output of oysters. Is it not practicable

Thanks to its popularity, in part for clambakes, the shoft-shelled clam, or steamer, grew scarce in Rhode Island waters in the early 20th century.
PHOTO BY PAUL KELEHER

to revive the clam industry by the same methods … Why should a clam farm be less practicable than an oyster farm?

A PROTEST AGAINST PROPOSITION TO ESTABLISH CULTIVATED BEDS

letter to the editor, *PROVIDENCE JOURNAL*, 1910

Who would get the benefit? Like the oyster industry, would it not be to the rich stock companies such as we have in that line here instead of the working man who to-day is having a hard time to get the food for his family while working 32 hours or less a week? When Friday or Saturday come this man takes his hoe and basket and walks to the shore to get his Sunday dinner.

Five

A BAY IN TRANSITION

THE EARLY TWENTIETH CENTURY altered Rhode Island waters and their shellfisheries in fundamental ways. On the state's shores, population levels soared. Factories multiplied, roads were built, and indoor plumbing became widespread—all changes that exacerbated a growing problem of downstream pollution. Technological advancement, punctuated by the hardships of the Great Depression, the Hurricane of 1938,and World War II, brought societal change and a demand for greater access to saltwater resources. All the while, under the waves, Narragansett Bay's ecosystem was transforming from a hard-bottom estuary to a soft-bottom estuary. The shellfish, shellfisheries, and shellfishermen that emerged by mid-century were very different from those of 50 years before.

Buildings of the Seacoast Oyster Company after the Hurricane of 1938. Wickford, R.I., 1938

PRINT BY CHARLES S. WILLIAMS JR. COURTESY OF THE RHODE ISLAND HISTORICAL SOCIETY

Providence Gas Works at Fields Point by photographer Frank Farley, circa 1930

IMAGE COURTESY OF THE RHODE ISLAND COLLECTION AT THE PROVIDENCE PUBLIC LIBRARY

POLLUTION: AN 'EVER-CREEPING MONSTER OF DESTRUCTION'

At the same time that Rhode Island's oyster growers were taking advantage of Narragansett Bay to fuel production of their valuable crop, other Rhode Island interests were making use of this water body for a different purpose: removing effluent from factories, refineries, and sewers. As pollution problems worsened, oystermen struggled to maintain the purity of their product, but for many growers, there was little remedy.

The flush toilet was a prime culprit in the degradation of Narragansett Bay. Sewerage installed in the city of Providence starting in the 1870s originally funneled the city's waste directly into the bay. It wasn't until 1901 that a treatment facility was constructed at Fields Point, and even then, lapses in treatment occasionally made oysters taken from the upper bay perilous to public health.

Industrialization contributed to the pollution problem, too. As early as 1895, the Great Bed off Fields Point—once one of the bay's best locations for oyster production—was permanently abandoned due to contamination by tar and oil effluents from the Providence Gas Works.

At first, oyster growers responded by moving south, out of the Providence River and into deeper waters. But by 1910,with vast amounts of submerged lands already leased and a thriving oyster industry hanging in the balance, there was no longer anywhere they could go to escape pollution. Realizing the potential for a public health scare that would decimate the entire industry, the Rhode Island Oyster Growers Association petitioned the General Assembly to put an end to contamination of the bay. At the bidding of the General Assembly, the Commissioners of Shell Fisheries invited two experts, Harvey W. Wiley and Frederic P. Gorham, to investigate water quality in Narragansett Bay's oyster beds. Wiley was the chief chemist of the federal Bureau of Chemistry in the Department of Agriculture (forerunner of the Food and Drug Administration) and a crusader for food purity and accuracy-in-labeling laws in the United States. Gorham was a biologist at Brown University.

The release of the two experts' reports was a turning point for Rhode Island's oyster industry. Wiley found traces of sewage in many upper bay oyster beds, and Gorham's study located 260 pipes emitting untreated sewage into bay waters. Worse, it became clear that Providence's 1901 investment in an expensive sewage precipitation plant at Fields Point was

Providence sewage pumping station looking east. Providence, R.I.

PRINT COURTESY OF THE RHODE ISLAND HISTORICAL SOCIETY, RHI X17 1900

not paying off as expected. The Commissioners of Shell Fisheries were forced to condemn 99 oyster beds in order to protect public health and preserve the national reputation of Rhode Island oysters. These closures put thousands of people out of work.

From that point onward, the role of the Commissioners of Shell Fisheries was no longer limited to granting leases and collecting rents. They were now responsible for keeping track of the sanitary conditions of oyster beds and shucking houses. Beginning in 1910, growers were required to secure a third-party bacteriological inspection prior to harvesting oysters from their lease beds, and oyster houses were required to obtain a certificate of sanitary inspection from the Commissioners of Shell Fisheries before they could operate.

The coming years brought a combination of progress and frustration for oyster growers as they tried to stem the tide of pollution. Municipalities like Providence and Warren made great leaps in sewage treatment technology, but other towns did not follow suit, and some even installed additional outlets for untreated sewage directly into the bay. In 1919, the Rhode Island Oyster Growers Association announced that the poisoning of Narragansett Bay waters was driving many of the state's largest oyster growers out of the state.

The effects of pollution were not limited to leased beds, but affected free shellfisheries as well. In 1948, several decades after the 1910 reports made it clear that pollution and shellfishing could not comfortably coexist in Narragansett Bay, shellfish dealer Byron Blount cataloged the state's inaction in a letter to the editor of the *Providence Journal*:

Not many years ago we had our natural oyster beds in the Seekonk River, where the dealers obtained a lot of their seed oysters. But in time nature had to give up the job of reproducing shellfish in this area because too much waste was being dumped in the river. As late as 1935 oyster shells were being planted in the vicinity of Crescent Park and Gaspee Point. Since that time that ever creeping monster of destruction—pollution—has worked its way down the river, to destroy our natural resources. About 1940 ... the area between Bullocks Point and Nayatt Point was one of the best quahaug producing areas [supporting] as many as 300 fishermen with a catch of as much as 2,000 bushels a day ... What happened? Disaster again. Next on the program was the area that was closed in 1947, an area that completely wiped out the oyster industry. People began to wake up and wonder if that was the finish of an industry that the state had been famous for. They became aroused and we got action in the form of pollution abatement legislation. The shellfish industry was given a chance to hang on, but it is still swinging on the ropes.

OYSTERMEN TAKE POLLUTION BATTLE TO COURT

In 1910, a pair of East Providence oyster growers took their clean water demands to the Rhode Island Supreme Court. Oyster growers Payne & Butler accused the Providence Gas Company of allowing coal tar, oils, and other waste products from the manufacture of lighting gas to flow into their upper Narragansett Bay lease plots. Their accusation was supported by experiments done by George Wilton Field of the state college's marine lab (see page 32), establishing the toxicity of coal tars to oysters. According to the growers, the effluents killed many of their oysters and quahogs and tainted the surviving shellfish with a strong flavor of gas, rendering them unmarketable. The growers sued the gas company for damages to the shellfish on their leased plot, as well as to the ground itself since it was no longer usable for shellfish culture.

The gas company's defense lay in challenging the premise that the leased plots and the shellfish in them constituted "property" of the lessee. Submerged grounds, they contended, are public waters of the state and belong to lessees no more than they belong to every other member of the Rhode Island public. Therefore, they maintained, the growers lacked standing to seek reparation for destruction of the shellfish on their plots. If the court had found that the leased bed was not legally a form of property, then the gas company would have owed nothing to the growers. Instead, the court found in favor of Payne & Butler and ordered the gas company to pay damages of $17,280.

The Payne & Butler case was significant because it established that shellfish on a leased plot are property of the leaseholder. In so doing, it gave leaseholders standing to seek redress for pollution. In the decade that followed, oyster growers targeted other polluters. The O'Bannon Corporation imitation leather mill and the International Rubber Company, both of Barrington, and the Standard Oil and Mexican Petroleum Company plants in Providence all faced pollution accusations brought forth by affected oystermen.

The Payne & Butler case was also significant because it definitively settled the question of the constitutionality of restricting fishery access in the public interest. In the case's most enduring sound bite, the court reasserted the authority of the General Assembly and its delegates to make any sort of fishery regulation they saw fit:

Therefore the whole subject of fisheries, floating and shell-fish, and all kinds of shell-fish, whether oysters, clams, quahaugs, mussels, scallops, lobsters, crabs, or fiddlers, or however they may be known and designated and wherever situated within the public domain of the State of Rhode Island, are under the fostering care of the General Assembly. It is for the legislature to make such laws, regulating and governing the subject of lobster-culture, oyster-culture, clam-culture or any other kind of pisciculture, as they may deem expedient. They may regulate the public or private fisheries. They may even prohibit free fishing for a time as in their judgment it is for the best interest of the state to do so. They may withhold from the public use such natural oyster beds, clam beds, scallop beds or other fish beds as they may deem desirable … generally they have complete dominion over fisheries.

A NEW SHELLFISH KING IS CROWNED

The oyster industry collapsed in the late 1910s as dramatically as it rose to prominence 20 years earlier. For several consecutive years, larval oysters mysteriously failed to set on growers' cultch. Set failure was not unique to Rhode Island; it occurred all along the East Coast, making seed stock very expensive. Growers linked low oyster sets to the rising amount of petroleum floating on the bay, but natural cycles, predation, and other factors were likely at fault as well. Between 1912 and 1920, 74 percent of leased acreage was cancelled. Local production shrank so much that oyster houses started buying whole oysters from out of state to provide work for their shuckers.

By the 1920s, glimpses of a new major Rhode Island shellfishery were on the horizon. 'The year 1925 has been an extraordinary year for the

The Commissioners of Shell Fisheries instituted a 1½-inch minimum size for quahogs in 1908, but it was frequently ignored. In 1914, the General Assembly allocated state funds for the manufacture and distribution of metal gauges to encourage compliance with the law. Those early gauges were the precursor to the modern version, above.

PHOTO BY MELISSA DEVINE

quahaug or 'little neck' industry,' marveled the Commissioners of Shell Fisheries. '[T]he quality of this shell fish has been excellent and the 'set' very large, thus ensuring a plentiful supply for a long time to come.' Extensive quahog sets occurred again in 1927 and 1928, seemingly in inverse proportion to the declining sets of oysters.

As oyster growers relinquished their leases, vast expanses of ground became available to the free fishery. Meanwhile, increasing upstream runoff and siltation from deforested acres claimed by small farms helped turn Narragansett Bay's submarine landscape into ideal muddy burrowing habitat for the quahog. By 1930, Rhode Island led the nation in quahog production, and by 1931, over 1,000 Rhode Islanders were employed in the harvest and shipping of this bivalve.

During the Great Depression, the number of participants in the free fisheries doubled as Rhode Islanders flocked to the shore to dig shellfish for a meal or a paycheck. The soft-shell clam 'forms one of the most important sources of marine food personally obtainable by the average citizen,' wrote the R.I. State Planning Board in 1936.

Environmental and social changes continued to pummel the oyster industry in the 1930s and 1940s. Several big storms, culminating in the Hurricane of 1938, silted in many remaining oyster lease plots and reduced many shucking houses to rubble. The Great Depression dealt a blow to oyster prices, and World War II brought about a labor shortage. The Narragansett Bay Oyster Company in Providence, once the largest in the state, shut its doors in 1940. The Blount Oyster Company of Warren redefined itself as the Blount Seafood Corporation, retooling its factory for sea clams to help feed the troops.

While the country was busy fighting the war, old oyster leases filled in with littlenecks, cherrystones, and chowders (the largest size of quahog). Upon returning from the front, scores of young men picked up rakes and tongs and started turning those quahogs into cash. By 1955, there were almost 2,500 quahoggers on the bay.

The Commissioners of Shell Fisheries were abolished in 1949 and their role was subsumed into the Department of Agriculture and Conservation (forerunner of today's Department of Environmental Management). The leasing system established in the Oyster Act became defunct. The last oyster house to shut its doors was the Warren Oyster Company, in 1959. For the next half-century, the 'free and common' fisheries, supported largely by the newly prolific quahog, ruled the bay.

Six

THE QUAHOG ERA'S EMBATTLED START

THE ASCENDANCE OF THE QUAHOG from peripheral resource to Rhode Island's most valued bivalve took place amidst intense turbulence. The new, unclaimed wealth lying on the floor of Narragansett Bay opened up a period of negotiation, as different segments of the emerging industry sought to structure it to their own benefit. With the old order of the oyster era gone, Narragansett Bay again became a new frontier, and a Wild West mentality took hold.

In the late 1940s, newspapers began telling spectacular tales of a 'Quahog War' raging on the bay. It was a chaotic war fought amongst many motley armies: small-boat hand-rakers against larger dredge boats, shellfishermen against shellfish dealers, West Bay quahoggers against East Bay quahoggers, and conservation officers against shellfish poachers.

The madness did not last forever. By the 1960s, there were fewer quahoggers on the water and fewer quahogs to fuel the fire. Regulators and enforcement officers eventually installed a new governance structure for the industry. The Rhode Island quahog industry since that time has continued to experience occasional periods of unrest, but none have matched the storminess of those early days.

QUAHOGGER PHOTO COURTESTY OF BRUCE EASTMAN

Fishermen rake for quahogs through the ice on Greenwich Bay.
PHOTO COURTESY OF BRUCE EASTMAN

DREDGERS VERSUS HAND-RAKERS

Quahog dredge boats made their debut during World War II. Entrepreneurs enticed by the thick supply of quahogs on the bottom of Narragansett Bay invented the rocking chair dredge, or Fall River dredge, to harvest them far more efficiently than a tonger or bullraker could. Within a few years, there were 50 dredge boats on the water, most based out of Tiverton, each one hauling in dozens of bushels of quahogs each day.

Laws of the time restricted dredge boats to the lower Sakonnet River to avoid interference with the upper and West Bay tong and rake fleet, but as the efficient dredges depleted the quahogs in their designated zone, their captains eyed new territory. Led by Herbert Cavaca of Tiverton, a notorious former rumrunner who was rumored to own most of the dredge boat fleet, they petitioned the General Assembly to expand dredging privileges to other regions: Mount Hope Bay, the area between Portsmouth and Prudence Island, and parts of the West Passage.

Tongers and bullrakers saw the expansion attempt as an encroach-

ment on their own operations. Calling themselves 'hand-rakers' to highlight the manual nature of their work and distinguish themselves from the mechanized dredge boats, they marched on the Statehouse by the hundreds to oppose the proposals. Their arguments were multifold: the hand-raking fleet employed larger numbers of people than the dredge fleet and many of them were war veterans, their product was superior to dredged quahogs and commanded a higher price, and dredgers would flood the market with product if permitted into new areas, they asserted. If dredgers were allowed to expand, hand-rakers predicted, all of Narragansett Bay would soon resemble the lower Sakonnet River: fished out.

A 1946 *Providence Journal* article captured the rancor: "Those power dredgers have it pretty soft, and if they had to drag a bull rake for a living they'd know what it means to make a dollar,' said Alfred Turgeon, an East Greenwich hand-raker. 'They are forever crying for new territory and every time they get it they rob us of decent pickins's. They just about ruin any territory they work for us."

Another hand-raker, James Sisson of Apponaug, added, 'A power dredger comes in, runs a dredge six minutes and pulls up as many bushels as we can get in a day. In an hour he takes 50 bushels and he can easily run his load up to 100 or 150 bushels. One powerboat can put 30 of us out of work. We don't want any part of those fellows and they'll know it if it they start fooling around.'

Unfazed, dredgers countered that although they were smaller in numbers, their investment in gear and boats was greater—and therefore they had a pressing need to keep working. They contended that their role in providing a stable supply of quahogs to the market was vital to sustaining the entire industry. Finally, they made an innovative ecological argument, asserting that dredging cultivated the bottom and improved yields over the long run.

'Today there are 40 to 50 dredging boats in the State and no place to use them. Rhode Island ought to do something about it,' said dredge boat owner Herbert Cavaca of Tiverton in the *Providence Journal*. His colleague Harold Flaherty of Warwick Neck added, 'We're interested in the deep water quahaugs. There are tens of thousands of them in the bay that will never be caught by hand. We don't want to operate in shallow waters. The quahaugs there belong to the tongers and they should have them.'

Dredgers' promise to avoid shallow waters already worked by hand-rakers provided little comfort to the rakers. Pointing to dredgers' long history of ignoring conservation regulations, they contended that dredgers' interest in deep-water portions of Narragansett Bay was a sub-

A quahogger unloads his catch.
PHOTO COURTESY OF BRUCE EASTMAN

terfuge. The dredgers' true intent, they alleged, was to use new deep-water areas as a home base from which they could surreptitiously plunder shallow waters when no one was looking.

There was no easy solution to the question of dredging, and the battle raged on. In January 1947, Tiverton dredgers attempted to curry favor with state officials and hand-rakers on the other side of the bay by organizing a goodwill voyage. They formed a 45-boat flotilla, steamed to Wickford, and paraded past hand-rakers as the latter tonged or raked from their rowboats. Then the dredgers went ashore and invited Raymond Bressler, state director of agriculture and conservation, to join them for a demonstration tow nearby. Their goal was to show him the great extent of unexploited quahogs lying in the deep waters of the West Passage, going to waste because they were beyond the technological capacity of hand-rakers and outside the legal limits imposed on dredgers. But the goodwill voyage fell short on both of its objectives: the director refused to join dredgers for a test tow and West Bay rakers failed to befriend them as they circled local waters.

However, dredge boat captains were determined to gain new quahogging territory, and after their attempts to change the law were foiled, some of them opted for an extralegal means of expansion. Under cloak of darkness, they slipped into areas where they were not allowed to fish and lowered their dredges into the water. The rocking chair dredges that they used required very little set-up and could be hauled up and stashed below deck in minutes. If dredgers attracted the notice of a game warden, they simply pulled up their gear and heaved their catch overboard.

Dredgers' disregard for the law was not taken lightly at the Statehouse. In 1956, the General Assembly responded by increasing the penalty for illegal shellfishing from a misdemeanor to a felony. As a concession to law-abiding dredge boat operators, they opened a section of Mount Hope Bay for them to work in. But dredgers were not appeased, and they continued to lobby for more grounds. In 1969, dredgers finally received access to a section of the West Passage: a one-square-mile patch beneath the Jamestown Bridge, but only on a temporary basis.

This minor victory came about too late to save the dredge fleet. It was already in shambles due to another factor: low prices for larger quahogs. Unlike hand-rakers, who specialized in the high-value littlenecks, dredges were most effective at harvesting chowders, which sold for a lower price. In the end, the quahog dredge industry collapsed due to market forces, not as a result of a principled decision by lawmakers to eliminate

mechanized harvest of quahogs. Nonetheless, hand-rakers today consider the demise of dredging to be a moral victory for the independent man.

CALLING ON SCIENCE TO SETTLE THE SCORE

One of the central points of contention in the face-off between dredgers and hand-rakers concerned the effect of dredging on seafloor ecosystems. Dredgers insisted that their harvest method increased quahog production by thinning the crop and turning over the seafloor, like a farmer plowing his fields. Hand-rakers maintained that dredging killed shellfish unnecessarily by cutting off their feeding siphons and smothering them with mud. In 1948, scientists from the Narragansett Marine Biological Laboratory, U.S. Fish and Wildlife Service, and R.I. Department of Fish and Game undertook a two-year study to resolve the debate once and for all.

To measure the ecological impacts of dredging, scientists set aside a two-acre site off the coast of North Kingstown and divided it into eight test plots. They harvested some of the plots with bullrakes and other plots with mechanical dredges, careful to harvest an identical quantity of quahogs from each plot. Two years later, they counted quahogs and other invertebrates within each plot and compared the results.

The scientists found no difference between the effects of dredging and raking. According to their counts, neither method killed more undersized quahogs, neither method caused more quahog mortality by smothering, and neither method caused more destruction of other invertebrates. Both methods had been equally successful at mixing, or cultivating, the bottom.

Ultimately, two years of research could not settle the battle between rakers and dredgers, for at its heart it was not a scientific matter. It was a debate about people—jobs, technology, wealth distribution, and access to one of Rhode Island's greatest resources.

MARKETING MELEE ON THE UPPER BAY

Relationships between shellfish dealers and shellfishermen can be prone to tension. While the two are mutually dependent on one another—one for product and the other for an outlet for that product—they do not always agree upon how much the former should pay the latter for a quahog. Never was this misalignment of interests clearer than in the summer of 1946, when a massive quahogger strike shut down shellfish shops, wreaked havoc in coastal towns, and ravaged the unity of Rhode Island's shellfish fleet.

The roots of the tension stretched back as far the 1930s, when the shellfishing fleet began to absorb greater numbers of Rhode Islanders. By the 1940s, price reductions by dealers and retaliatory strikes by quahoggers were a recurring saga each spring as days lengthened and boats multiplied. Most years, the struggle ended within weeks, but in 1946, it raged all summer long.

The battle began in May, when dealers cut quahog prices from $3 per bushel to $2.50 per bushel for chowders and from $5 per bushel to $4 per bushel for the more valuable littlenecks. The Warwick-based Rhode Island Shellfish Protective Association, a trade organization formed over a decade earlier to defend the interests of hand-rakers, demanded a 50 percent restoration to the higher April prices. Dealers were intransigent: they could not compete in New York and Boston markets at quahoggers' proposed prices, they said.

Rebuffed by dealers, 400 quahoggers voted to go on strike. Now demanding prices even higher than those paid before the price cut, they formed the state's first-ever marine picket line to block product from reaching dealers. Only four shellfishermen, all unaffiliated with the association, slipped by the line and went quahogging that day. When a series of extremely low tides took place later in the week, association members expanded their vigil to prevent shore-digging as well.

Within a few weeks, most dealers had acquiesced to the Rhode Island Shellfish Protective Association's price demands. But having tasted a bit of victory, the association kept pushing, now raising the ante to include an ultimatum that dealers commit to maintaining the agreed-upon price for three months. This was the first time in state history that shellfishermen asked shellfish dealers for price contracts. Many dealers signed contracts and the quahog fleet returned to work. But in June, several dealers again dropped their prices.

It wasn't long before labor organizers from out of state appeared with offers to help the quahoggers unionize. Similar unionization pushes were occurring in the commercial fishing sectors of other East Coast states around this time. In August, the Rhode Island Shellfish Protective Association reformulated itself as Local 13,175, District 50 of the United Mine Workers of America, an American Labor Federation affiliate. It was the first and only unionization attempt by shellfishermen in Rhode Island, and it took quahog politics to a whole new level. Strengthened by their new affiliation, the union's 500 members became even more militant—resuming their strike, blockading streets in front of shellfish dealers' shops, and vandalizing dealers' property.

GEORGE'S LUNCH 1933

George's Lunch was the precursor to George's of Galilee Waterfront Seafood Restaurant.
PHOTO COURTESY OF GEORGE'S OF GALILEE

However, as the strike continued, it became apparent that not all quahoggers supported the union's actions. Many quahoggers in the East Bay communities of Warren and Bristol complained about heavy-handed practices by the Warwick-based union leaders, such as the issuing of 'permits' granting certain individuals license to work in spite of the ongoing strike. Before long, nonunion quahoggers defied the strike and began fishing again. Soon after, they formed their own rival organization: the Constitutional Free Fishermen's Association. The group's name was a reference to Article I, Section 17 of the Rhode Island Constitution, which affirms residents' right to 'enjoy and freely exercise all the rights of fishery.' The new association declared that its members would not negotiate with the union over their constitutional freedom to fish.

In early September, the state convened four meetings between dealers and union leaders to hammer out a solution to the conflict between dealers and harvesters. All four talks failed. But as the October scallop season approached, the union took a vote and decided to end the strike. The impending autumn exodus of seasonal quahoggers no doubt played a role in relieving tensions between shellfishermen and dealers and restoring prices to levels satisfactory to all.

TIMELINE OF THE STRIKE OF 1946

MAY 1: Dealers cut quahog prices in response to influx of summertime quahoggers.

MAY 6: The R.I. Shellfish Protective Association, led by quahogger Rob-

ert Murray, rejects dealers' lower prices and demands an increase instead.
MAY 8: Four hundred members of the R.I. Shellfish Protective Association meet at Oakland Beach and vote to strike.
MAY 14: State Labor Director William L. Connolly brokers a deal in which dealers agree to return to pre-May prices. The R.I. Shellfish Protective Association agrees, but demands that dealers sign contracts binding them to maintain agreed-upon prices for three months. Its members begin doing business with dealers who sign.
JUNE: Several dealers again drop prices. The R.I. Shellfish Protective Association announces its members will not do business with them until they reverse the cuts.
AUGUST 5: R.I. Shellfish Protective Association becomes Local 13,175, District 50 of the United Mine Workers of America. Local teamsters make a solidarity pledge not to haul quahogs for any dealer not approved by the shellfish union.
AUGUST 17: The quahoggers' union declares a strike against dealers who haven't signed its price agreement contract. Members begin picketing the shops of two prominent East Greenwich shellfish dealers, Finn's Seafood and Finn Brothers Seafood.
AUGUST 19: In Bristol, four union quahoggers board a non-union quahogger's boat and dump four bushels of his catch overboard.
AUGUST 20: A Bristol quahogger waves a gun at union members who threaten to sink his boat. Bristol shellfishermen begin watching their boats at night to fend off union attacks.
AUGUST 21: Union supporters harass a non-union quahogger as he tries to deliver his catch to a Wickford dealer.
AUGUST 23: Sixteen shellfish dealers in Rhode Island and Southeastern Massachusetts form the Southern New England Shellfish Dealers Association, led by F. Nelson Blount of Blount Seafood. Their first act is to hire a lawyer.
AUGUST 27: A truck carrying a shipment of quahogs from Finn Brothers is run off the road near Old Lyme, Connecticut. The union denies involvement.
AUGUST 31: Shots are fired at six nonunion quahoggers as they tong off Hog Island; the source of the shots is never identified.
SEPTEMBER 2: At Warren B. Finn's shop in East Greenwich, vandals rip out a gasoline pump, smash 25 windows, and destroy lampposts outside the shop.
SEPTEMBER 3: Bristol shellfishermen led by quahogger Harold C. Bryden form the Constitutional Free Fishermen's Association. Their first

The fruits of a morning's labor on Greenwich Bay
PHOTO BY MELISSA DEVINE

act is to file a charge of piracy against the union. In Providence, State Labor Director William L. Connolly convenes the first of four meetings with shellfishermen and dealers to mediate the ongoing strife.

SEPTEMBER 6: Forty shellfishermen congregate at Warren Finn Jr.'s East Greenwich shellfish shop. A gallon of kerosene is dumped on a 20-bushel shipment of quahogs; the perpetrators are never identified and the union denies wrongdoing.

SEPTEMBER 9: State Labor Director William L. Connolly hosts a fourth and final peace talk between union quahoggers and dealers; the parties fail to reach consensus. In East Greenwich, a group of shellfishermen announces the formation of a cooperative that will enable them to bypass dealers and market their catch directly to the New York market.

SEPTEMBER 20: The Southern New England Shellfish Dealers Association brings suit against the shellfishermen's union, charging conspiracy to fix prices and restraint of trade in violation of the Sherman Antitrust Act.


RI 7350 H
14750

Seven

HEYDAY OF THE INDEPENDENT QUAHOGGER

WITH DREDGE BOATS out of the way and aquaculture leases eliminated, the independent shellfisherman was in his glory during the latter half of the 20th century. After the huge harvests and raucous rows of the 1940s and 1950s,the industry settled into a period of moderate catch levels and relative stability. Then in the 1980s,when improved water quality led to many areas of the upper bay being opened to shellfishing for the first time in decades, shellfishing activity in Rhode Island again reached a peak—making the Rhode Island quahog fleet the largest outboard motor fleet in the world at that time. Prices were high, gas was cheap, and a whole new generation of quahoggers, many from non-fishing families, took to the water to make a living.

FULL-TIME CALLING, SEASONAL SIDELINE, SOCIAL SAFETY NET

Full-time quahoggers fish rain or shine, windy days and calm, all four seasons of the year. The income they earn quahogging feeds their fami-

Shellfisherman Mike D'Albergaria aboard his quahog skiff in Warren

PHOTO BY MELISSA DEVINE

lies, and for many, quahogging is all they've ever done. Full-timers are the ones who keep the market going through thick and thin. But they are not the only ones who depend on the quahog resource. There have always been those who relied on quahogging as seasonal employment, and those who turn to quahogging as a backup during times of need. The relationship among these groups has not always been easy.

'Full-time guys don't like part-time guys very much,' says Bob Bercaw, a full-time quahogger. They might not mind a few extra boats in summertime, when the market is so robust that it can absorb the extra product, but have a cooler attitude toward quahoggers who show up in wintertime when the productive Greenwich Bay transplant area opens up. 'There's guys who just come out of nowhere—firemen and all these other guys who used to be lobstermen—and they come quahogging when the transplant opens up,' says Bercaw. 'Gravy trainers, we call them.'

But even though they make a portion of their income elsewhere, many part-timers count on quahogging as an important component of an annual income strategy. 'For me, it's always been a way to improve my life,' says David Drew, who hails from a long line of professional quahoggers but chooses to split his career between quahogging and other pursuits. 'When I worked in a factory, I worked second shift and I would go quahogging in the morning. And the guy who I bought my equipment from, the guy I bought my gas from—they didn't care if I was a part-timer. That extra income was there, if we needed a new pair of shoes or wanted to go out to dinner.'

During lean times, shellfish have played the role of social safety net. Until Rhode Island's 2003 license restructuring program, anyone could get a license from the state to quahog commercially. In times of recession, legions of laid-off workers from other industries would take to the bay to earn a day's pay. Many had never picked up a rake before, and most went back to land-based careers once things improved.

'When jobs got a little tight,' says Drew, 'people would come in. Schoolteachers used to show up. Guys used to work their way through college. When the economy on the other side got a little bad, we would see influxes of people getting back into fishing because it was a way to keep going.'

The institution of a limited license program in 2003 severed the bay-ward flow of idled workers looking for temporary relief from unemployment. But the bay still throws out her welcome mat for those seeking better long-term prospects, as long as they secure a license first. Narragansett Bay is an equal opportunity employer, and harvesting quahogs

'ONCE YOU PUT ON A PAIR OF BOOTS, THEY'RE HARD TO TAKE OFF'

There's something about fishing. If you like it, it's really beneficial to you. Wild Bill Nolan told me a long time ago, he said, 'Once you put a pair of boots on, they're hard to take off.' And if you get the bug, it's very, very difficult to do anything else. People will stay until they're starving to death instead of quit.

—Tom Hall, Warren

Growing up on the water, just being kids. My friend's older brothers were quahoggers. They were 16 or 18 and they had a skiff with a 10-horse on it, and we would be 12 or 14 and just trying to get some derelict floating so we could paddle out. I sold my first quahog when I was 14.

—Jim Russo, Wickford

A friend of mine, we were hanging out, and he said, 'Hey, let's go dig some quahogs.' So we went to the Palmer River and puddled. That's when you use your feet, and you have a basket with a tube that floats. We got enough to eat, and ended up selling what we didn't use. I thought it was a cool way to make some money. I kept doing it. And after a month, I had made enough money to buy a boat, which meant you could cover more ground, you could go at high tide. It wasn't a lot of money. But we got hooked into the freedom of it.

—Mike D'Albergaria, Warren

The first amount of money that I ever made was $17 I came home and I was about as sunburned as a lobster and all covered in salt… I was about 15. And they said, 'How much did you make today?' and I said, 'Seventeen dollars.' And they said, 'And after $5 for gas, you made 12.' And I said, 'Yup.' And they said, 'Have you had enough of it?' and I said, 'Nope. Going again tomorrow.'

—Dave Ghigliotty, Warwick

I still like it. It's still fun to catch. I like that, there's that weird thing, it's almost like what fishermen have when they get a fish on the reel. You feel it in your fingers, when the quahogs are tingling in the rake. It's kind of an addictive thing. It's a weird thing to tell people about.

—Bill Sieczkiewicz, Charlestown

requires no impressive credentials—just a willingness to learn and work hard.

'[Quahog] licenses serve a social purpose,' comments full-time quahogger John Harvey. 'If some guy got out of the ACI [Adult Correctional Institute] and he couldn't get a job anywhere else because no one would give him a job, and if he wanted to work hard, he could make a decent living out on the water.'

QUAHOGGING: HIGH POINTS AND LOW POINTS

Natural variability, pollution closures, market trends, and unemployment rates have combined in various permutations over time to inflect dips and peaks in quahog landings.

From the 1920s to the mid-1950s, quahogging was on an upward trend. This was due to the relinquishment of the oyster leases, conversion of Narragansett Bay from an oyster-based ecosystem to a quahog-based ecosystem, and presence of mechanical dredge boats with their high harvesting efficiency.

After the mid-1950s, quahog landings began to decline. This was a result of the demise of mechanized dredging, closure of some quahog-rich areas due to pollution, and a low survival rate of juvenile quahogs. Landings and license numbers fell steadily through the mid-1970s.

Then from the late 1970s to the 1980s, landings increased rapidly as a greater number of shellfishermen were enticed to join the industry by high quahog prices, high unemployment, and the opening of many prime areas of the bay that had previously been closed due to pollution.

In the 1990s, the good times came to an end. Quahog numbers dwindled and prices stagnated. Then in 2003, Rhode Island instituted a limited licensing system that now prevents influxes of new shellfishermen during times of high unemployment. Though quahog numbers have recovered since the 1990s, this cap on the number of harvesters prevents landings from climbing sharply as they did in 1950s and 1980s.

SUPER TUESDAYS AT BARRINGTON BEACH

The Narragansett Bay quahog industry hit a peak in the 1980s, as new areas in the upper bay were reopened to shellfishing after many years of pollution closures. Shellfishing licenses were easy to get, quahog prices were at an all-time high, and the bay soon became filled with boats.

'There was quahoggers at every dock in Wickford, tied up all over the place,' says Bob Bercaw. 'If there was an empty little shallow water

Quahogger Dave Ghigliotty recalls the abundance of quahogs at Barrington Beach in the early 1980s.
PHOTO BY AYLA FOX

spot, there was quahoggers tied there. During the boom, when they opened up Barrington Beach, there were people in all kinds of boats. On a rough day, you would see people sinking. But at least when they opened it up, it was summertime. So people didn't die, but people lost their boats. It was absolute craziness.'

The area called Barrington Beach was opened in 1982, but to keep the market from flooding, regulators allowed quahoggers to fish there only on Tuesdays. The place was so rich with quahogs that for a year or two, 'Super Tuesdays' became the highlight of every quahogger's week.

That era, says quahogger Mike D'Albergaria, was 'a bonanza. The license was $15. Everybody got in. There were people quahogging out of canoes. There were thousands of boats. You didn't go anywhere else because you didn't want to deplete your usual areas, and the price went down so low.'

Quahogger Dave Ghigliotty remembers 'coming back from Barrington with the boat loaded. The boat had so much weight in it that water was coming over the sides. So I pulled the [drain] plug and put the plug in my mouth and I'm driving, and the water's coming in the boat, over the floor, and out the hole. The boat was full of quahogs. Full.

The boat was barely moving. It took me like an hour to get home from Barrington Beach. That was fun times. You used to come in, sell off, and go back out. Because you knew it was gonna end, so get it now.'

The era of Super Tuesdays at Barrington Beach fundamentally changed quahogging. Many of today's full-time quahoggers joined the industry during that era. It was a time when young people from all walks of life flocked to quahogging, a time when they could make a good living and support growing families. Prior to the 1980s,quahogging was more of a part-time affair, practiced out of wooden skiffs with slow motors. But Barrington Beach 'turned it into a full-time job,' says D'Albergaria. 'It became more of a business. The price of a license went up. Regulations increased. You had to make more of an investment in your gear. Boats got bigger. You had to get a better motor.'

THE QUAHOG PIRATES

Dense concentrations of quahogs lie in the polluted coves of Narragansett Bay, just out of reach to law-abiding quahoggers. But to diggers with few moral scruples, these areas—untouched by harvest and full of quahogs made plump by the rich supply of sewage-borne nutrients—can represent a tantalizing temptation: piles of wealth just lying in wait to be scooped up by the teeth of a bull rake.

Nowadays, illegal quahogging in polluted areas is rare to nonexistent, and polluted areas of the bay are smaller than they once were. But in the mid-20th century, 'polluted quahogging' was a big problem. Some quahoggers of the time were unaware of—or refused to believe in—the health dangers associated with digging polluted shellfish. They concluded that the state was too conservative in where it drew the pollution line and flagrantly flouted prohibitions on fishing behind it.

Many a nightfall on Narragansett Bay saw the emergence of two groups, each relying on the cover of darkness to avoid discovery by the other: 'quahog pirates' lying low in the quahog-rich coves, and conservation enforcement agents hoping to catch them in their illegal pursuits. The ongoing battle of wits and wills between these groups gave rise to all manner of daring exploits—ramming of boats, high-speed chases, sting operations, and more. Pirate quahoggers sometimes wore masks while digging or repainted their boats with a different color every night to avoid identification. At least one had his wife push his catch to the dealer in a baby carriage, disguised as an infant, to escape notice. Some dealers turned a blind eye to the origin of the quahogs they bought.

The 'Rhode Island quahog war' was a hot topic. The quahoggers who engaged in illegal shellfishing were a small minority, but their antics grabbed the attention of the media and the public. Much to the chagrin of the law-abiding majority of shellfishermen, the problem even drew national media coverage, appearing in a somewhat sensationalized 1965 article in the *Saturday Evening Post* entitled 'The Dirty-Clam Caper' that claimed the conflict involved 'espionage, hand-to-skull combat, secret weapons, an armaments race, and midnight sea-chases through crowded harbors at 50 knots.'

THE SLUMP OF THE 1990S

The 1990s were the worst years for quahogging in recent memory. The unemployment rate was high and the number of quahoggers swelled. But at the same time, prices dropped and many traditionally plentiful quahog beds ceased to bear fruit. Many quahoggers left the industry.

'That's when everybody made a mass exodus out of the business,' says Dave Ghigliotty, who, like many quahoggers at the time, had no choice but to look for work ashore for a while. 'Because they couldn't pay their mortgages, they couldn't pay their rent, they couldn't live. I remember one March when I made $30. I went every day and I could not break a $30 bill. And I was a pretty good quahogger back then. I was starting a family, and had a young wife. And I had to go to Red Cross and get a box of food. I was a month or two behind on the rent, and I was getting pressure from the family. I had to get out.'

Eight

TOOLS OF THE QUAHOG TRADE

IN THE SPECTRUM OF PRODUCTIVE INDUSTRIES, quahogging is relatively low-tech. But the standard tools of the trade for today's commercial quahoggers are in no way unsophisticated. All are the product of a century of development, during which quahoggers and gear tinkerers perfected these apparatuses for the purpose at hand: scooping hard-shell clams out of the mud of Narragansett Bay.

THE QUAHOG SKIFF

Quahog skiffs are no-frills workboats with straight sides and a flat or shallow-V bottom. There has been a general trend towards longer, sturdier, and faster skiffs since the industry's beginnings in Rhode Island. Before World War II, most quahog skiffs were 10 to 16 feet long and maneuvered by oar. Quahoggers who worked close to shore rowed out a ways into the bay and then drifted back with the tide, tonging or raking along their return. Those who preferred to work further out paid for the services of a catboat—a larger, motor-powered vessel that towed groups of rowing skiffs to more distant shellfishing grounds. This communal system of getting to the fishing grounds began to fade away with the advent of the outboard motor in the 1950s.

Two fishermen onshore with quahogs, tongs, and baskets. East Greenwich, R.I. September 4, 1930.

GLASS PLATE NEGATIVE BY AVERY LORD, COURTESY OF THE RHODE ISLAND HISTORICAL SOCIETY, RHI X3 9276.

In the postwar period, significant changes took place in boat design and building materials. In the 1950s, quahoggers began to experiment with outboard motors and long-handled bullrakes. Boats grew in size to accommodate their greater power and the expanded depth range. By the 1960s, just about every quahog skiff on the bay was equipped with an outboard motor.

As outboards became more powerful and bullrakes become longer, they placed greater demands on quahoggers' boats. By the 1970s, many quahoggers began to replace their wooden skiffs with fiberglass boats. Fiberglass was easier to maintain and lighter in weight than wood. By the 1980s, fiberglass boats up to 21 feet long were standard in the Rhode Island quahogging fleet. Shortly afterwards, quahoggers began installing depth-finders and GPS technology on board, allowing them to easily keep track of their favorite shellfish beds.

TONGING

Until the 1950s, tongs were the main method of harvesting quahogs in Rhode Island. Quahog tongs are scissor-like implements consisting of two flat baskets with teeth, called heads, attached to two long wooden poles, called stales, that are connected by a hinge in the middle. Tongs are effective in water up to 20 feet deep. A quahogger lowers the tongs straight down into the water, opens the stales to spread the heads apart, and works them towards each other along the bottom until their faces are pressed together. If the tonger is successful, there will be quahogs clenched between the two heads. At this point, he pulls up the tongs and empties the catch onto his culling rack. When a tonger finds a good location, he puts out an anchor on either side of the boat, and works there until the tongs start coming up empty.

Tongs remained relatively unchanged during the time that they were in widespread use. Earlier stales were considered better quality due to the tighter grain of their wood. As slow-growing old-growth forests disappeared and lumberyards no longer carried fine-grain wood, tong manufacturers made stales thicker to compensate for the weaker wood types available.

By the 1980s, bullrakes had displaced tongs almost completely in the commercial quahog fishery. Nonetheless, each method—tongs or bullrake—has its own advantages depending on the situation. Bullrakes can operate in much deeper water. Also, since bullrakers drift with the wind and tides, they cover more ground; if a bullraker does not immediately hit a good spot, he has a chance of finding one as he moves along.

Rakes used in shore digging
PHOTO BY MELISSA DEVINE

On the other hand, when a tonger hits a good spot, he can stay there and make the most of it, while a bullraker might drift right past it. Tongs also require less physical strength to operate, and are preferred by some older quahoggers for their greater ease of operation.

SHORE DIGGING

Not all quahoggers fish from a boat. In locations where quahogs are plentiful along the beach, shore diggers use a variety of different methods to collect them. Some go at low tide and dry-dig quahogs in the intertidal zone. Kneeling on hands and knees, they pick through the exposed mud with a short rake that resembles a bent-over pitchfork, sifting out quahogs nestled just below the surface. Others don a bathing suit or wetsuit, walk in neck deep, and 'tread' or 'puddle' for quahogs, using their feet to feel for the upper edges of their shells. Others operate a short-handled bullrake in waist-high water and deposit their catch in a floating basket tied to their bodies by a rope. These techniques, also common to recreational diggers, are low-input methods easily accessible to the weekend quahogger or to those saving up earnings to buy a boat.

A quahogger pulls up a rake full of quahogs.

PHOTO BY MELISSA DEVINE

BULLRAKING

Bullraking has been the predominant method of quahogging in Rhode Island for at least 50 years. The first bullrakes, called Keyports, were made by blacksmiths in Keyport, N.J., in the 1940s and were soon imitated by the Arnold family of East Greenwich. Called Arnold rakes, these local imitations were identical to the Keyports except that they had a round bar instead of a flat one across the top of the head to avoid copyright infringement. Arnold and Keyport rakes bore little resemblance to the bullrakes of today, consisting of little more than a series of round rods curled over in parallel fashion. Unlike modern bullrakes, they had no sides to keep quahogs from falling out, and had a tendency to dig themselves into the mud. It wasn't long before further innovation took place.

The next stage in bullrake development was the creation of the bubble rake, the Rhode Island rake, and their variations in the 1970s.Unlike Keyports, which were blacksmith-forged, the new rakes were welded, with teeth spaced out along a straight bar. They were equipped with sides and deeper baskets to collect greater quantities of quahogs. The 1990s saw the advent of another design—the suitcase rake—which was similar to a bubble rake but with a greatly elongated basket—as well as the pocketbook rake, its miniature look-alike.

To operate a bullrake, a quahogger positions his skiff so that it is sideways to the wind or tide, whichever is stronger on a given day, and throws the rake over the side. As the wind and tide move the boat along, the quahogger pulls the rake through the mud. The type of wind on any given day is a determining factor in the location that a quahogger decides to work. On calm days, a quahogger may avoid areas of soft bottom, because the rake is likely to get stuck in the mud.

As the boat drifts, the quahogger snaps the T-handle back and forth in a circular motion to work the rake head's teeth through the mud. Through the vibrations of the stales, the quahogger can feel the quahogs accumulate in the basket. It's just as important to rinse the mud out of the bullrake as fast as it is coming in, as it is to catch quahogs in the rake; if the rake becomes full of mud, quahogs will be pushed aside instead of going into the rake basket. In a good spot, a quahogger can fill a rake basket in about 10 minutes.

When he feels it is full or he wishes to move elsewhere, the quahogger pulls up the rake and dumps the contents onto a culling rack to sort out any undersized quahogs from the mix. Until 1999,it was illegal to use any mechanized devices in the quahog fishery, and quahoggers hauled up their rakes by hand. Now, many quahoggers attach a rope to the rake

head and run it through a lobster pot hauler to help pull it up. The energy saved this way can help extend a quahogger's day and even his career.

I always worked off the port side instead of the starboard side. There's not many of us. I just did because on my first boat, the steering cables were on the right side, so I worked off the left side. I didn't know it was something that I wasn't supposed to do … Wrong Way Bob: that was my first shellfishing name. I guess that's not so bad; they could have called me way worse.

—Bob Bercaw, Wickford

I've been a gear manufacturer since 1982. It's been my full-time job for 30 years now. I sell as far as Maine to Florida. Bullrakes, tongs, poles, accessories, clamps, handles, davits, skids. Anything they need, I make. If they need something special, I'll make it up, to order. I can make two rakes a day, while running the shop, taking phone calls. I'm the only guy in Rhode Island who makes them. There used to be three of us. Now there aren't enough guys to support three manufacturers. When I started there were 2,000 commercial guys, now there's about 300.

—Dennis Medeiros, Tiverton

DIVING

A few shellfishermen started experimenting with scuba diving in the mid-1970s.Divers became common during the quahog boom of the 1980s,but today only a minority has stuck with it. Diving remains the primary method of harvesting soft-shell clams in the subtidal zone.

Shellfish divers wear ample weight to stay on the bottom, and use their hands, often encased in three-fingered neoprene mitts, to fan away sediment and shovel shellfish into their dive baskets. Baskets range from simple to elaborate; those who dive professionally customize their baskets to specific applications and personal preference. Baskets are connected to removable mesh bags. Some dive bags can hold up to 300 pounds of shellfish. Like their dive baskets, the methods used by each diver can be highly individualized.

If you're on a hard bottom, on sand, you want good visibility and you would fan. You almost do a dog paddle under the water. If I'm in heavy rocks I'll use a screwdriver and pluck them out. But my method now, now that I've progressed from fanning, is groping. That's the terminology for it, groping. Soft bottom, or anything that's not rock hard. I can do that with my eyes closed. You follow the transitions, the edges in the bottom. If it changes from

a mussel bed to a decker shell bed, usually somewhere along that change, the clams, as they move along the bottom, they stop right there and they become more concentrated.

—Billy Blank, North Kingstown

'Half the time you can't see,' says Bo Christensen, who dove daily during the soft-shell clam bonanza off Conimicut Point in the mid-2000s. 'It's like a dust cloud down there. I had to rely on the people in the boat: 'Am I catching anything? Is this a good spot?' You're just kind of shoveling what you figure is product into the baskets.'

Many divers have tried bullraking as well. Each method has its advantages, they say. Bullraking can be safer than diving, since a raker aboard a boat can see what's going on and is not dependent on a breathing apparatus. On the other hand, bullraking is subject to many variables, like the tide and the wind, whereas diving can be done at any time on any day and in almost any weather. Furthermore, raking depends on movement, which makes it harder to stay on a good spot; divers, on the other hand, can stay on a good spot and take the most advantage of it. But diving, especially in a heavily weighted drysuit of the type that divers wear in winter, can be physically exhausting.

'It can be such a tremendous amount of effort,' says diver-turned-bullraker Dave Zubik. 'It was a great feeling of accomplishment at the end of the day. It was like every day was a mission. I used to call it 'clam-bat.' You were in 'mortal clam-bat.' I had to make the joke because some days, it really was combat. It was brutal. [But] if you were making a living, it was a great feeling.'

THE DIGGER-DIVER WAR OF THE 1990S

When divers came on the scene in the late 1970s,they made more than a few waves among the Narragansett Bay bullrake fleet. As divers started perfecting their methods and working deeper waters, they began to give rakers a run for their money. Unsurprisingly, their success was not celebrated by many Rhode Island bullrakers.

'For many years, we weren't liked,' says diver Billy Blank. 'I lost a lot of friends when I started diving. But that was my choice. I saw it as a better way to make money.'

Tension built as the two groups tried to stake out their territory. Some rakers say that divers used to follow them to spots they were working, put up their flag, jump in the water, and start harvesting quahogs directly below them. As a law, boats are not allowed to motor within 50

feet of a diver flag, and in the early days of quahog diving, DEM enforcement officers told rakers to pull out their rakes if a diver was present within this range. If a diver showed up where a boat was working, the boat had to move.

But the affronts ran both ways. A few frustrated rakers dropped explosives in the water near where divers were working. A diver's boat rammed a raker's boat. As a precautionary measure, divers started diving in the afternoon, after rakers were done for the day.

In the early 1990s,the Rhode Island Shellfishermen's Association tried to push legislation through the General Assembly that would have banned shellfish diving. Rakers packed conference rooms, arguing that diving was too efficient and that it was impossible for DEM to enforce conservation measures on underwater operators.

After intense deliberation, regulators failed to find enough scientific evidence to support a diving ban. The proposed legislation fizzled. And as quahogging entered the slump of the 1990s,many divers left the industry for more lucrative jobs ashore, diffusing the diver-digger tension.

THE SALT PONDS DIVING DISPUTE

Shellfish divers again found themselves targeted for elimination in the early 2000s, this time by shore-side residents of the coastal salt ponds. Residents there accused fishermen of harvesting more than their legal entitlements, trespassing on private property, and impeding the safe navigation of pleasure boats in the ponds. Divers in turn defended their right to make a living, and accused residents of unfairly singling them out.

In 2003,the General Assembly sided with the shore-side residents, and outlawed scuba diving in Potter, Ninigret, Quonochontaug, and Green Hill ponds. Commercial shellfish divers quickly challenged the act in court, at first winning a victory in the Rhode Island Superior Court. That court concluded that the law unreasonably deprived divers of their 'rights of fishery' and that the law was not justifiable on conservation grounds. However, in an appeal by the state, the Rhode Island Supreme Court upheld the law.

With this ruling, diving with scuba gear was officially banned in the salt ponds. However, divers are still able to hunt quahogs using a hose attached to a compressor aboard their boats.

Nine

OTHER WILD HARVESTS

WHEN DAVID DREW was a young man, his father, quahogger Harold Drew, offered him some words of wisdom: 'You need to be a waterman. You need to diversify.'

Most shellfishermen have heeded this advice at some point in their careers. Diversifying fisheries helps to break up the monotony of working on one species, to fill in the gaps when finances are tight, or to tap into temporary boom times in a sideline fishery when the opportunity strikes. Although the quahog is king, some fishermen practice a yearly seasonal round that includes other shellfish, such as mussels, scallops, soft-shell clams, conchs, oysters, and even periwinkles and razor clams—not to mention other marine species like lobsters, crabs, and finfish.

MUSSELS

Mussels traditionally held a marginal status among Rhode Island's shellfish species. In 1943, the *Providence Evening Bulletin* published a lengthy feature article on blue mussels, advocating this plentiful species as a solution to wartime food shortages. This 'victim of neglect,' wrote the author, 'is easy to find, easy to catch, easy to cook and good to eat, which

Whelk, better known as conchs, have become more profitable thanks to a rising export market.
PHOTO BY MELISSA DEVINE

Blue mussels
PHOTO VIA WIKIMEDIA COMMONS

makes the neglect of this prolific, delicious shellfish a paradox at this time of food shortages and rationing …. It has been said that Americans, who have the finest mussels in the world, neglect them because their other shellfish is so fine. But another explanation is that Americans never tried them, since fishermen don't harvest them, dealers don't carry them and most cookbooks don't even mention them.'

Despite efforts to popularize the mussel, most Rhode Islanders continued to ignore this abundant species. Mussels did not begin to enter the limelight until the 1950s,when one fisherman—Donald Wilcox Sr. of Apponaug—established connections with buyers in New York's Fulton Fish Market. Wilcox was able to keep the growing mussel fishery in Narragansett Bay to himself for a decade before other fishermen jumped in.

Since then, the mussel fishery has been an on-again/off-again, high-volume/low-value fishery pursued on a part-time basis by a few individuals. Mike Marchetti is one of these fishermen.

'It was my intention to renew the old bay mussel fishery that the Wilcox family was successful at,' he says. However, Marchetti, who also fishes for sea scallops, scup, and lobster off the Atlantic coast, says that bay mussels don't support a dependable fishery.

'The biggest problem here is the pea or oyster crab that tends to live inside most bottom-dwelling mussels, thus making them less appetizing to most and thus unmarketable,' he says. Pea crabs are a parasite found in many Narragansett Bay mussel beds. They do not generally kill mussels, but they do affect their appearance and marketability. In addition, Marchetti says, the price of mussels barely exceeds the cost of catching them.

'The wild market price is pretty low, making it difficult to make a profit at it, other than as a wintertime filler from other fishing activities. I have to go for major volume, but I can't process them. I can literally load the boat in an hour, but trucking, processing, price, culling at dealer have made it challenging.'

Marchetti keeps his mussel dredge handy and occasionally contemplates fishing for them again. But first, he says, he has to address the market and processing issues. In the meantime, he is experimenting with farming mussels in a site off Newport.

THE MUSSEL KING

'We were the pioneers,' says Donald Wilcox Jr., remembering his father.

My dad was the mussel king of the New England coast at one time, in the 1950s.He had connections with the Mafia. He sold to New York. No one else

could sell there. My father paid 50 cents a bushel back in the 1950s to unload. In order to do business, he had to pay. That's how it was back in the days.

Around here nobody bought mussels. It was just for tautog bait for fishing. So my father went to New York. He was the smartest, and he just knew that there was something there. My grandfather had connections with the mob, because he had a barroom. We lived a colored past.

One time [a competitor] tried to ship mussels to New York, and the truck ended up in the East River. And the Mafia pulled out the driver and told him, 'Try this again and you'll be in the truck next time.' And nothing was ever said. That ended it. No one [else] went musseling. My father didn't do it, he just said, 'These people are starting to cut into my business,' and they said 'We'll take care of that.' Maybe it was bad, but that's just how it was back then.

My father lost his control, or the Mafia's control, back in the early 1960s. And he lost it when the crabs got inside the mussels and nobody would buy the mussels. So he could no longer supply the market. And that opened the door for not just people in Rhode Island, but Massachusetts. Musseling came back later, but my father had lost his connection. Mussels were being sold locally a bit by then. The whole operation had changed.

CONCHS

Conchs have long been fished commercially in Narragansett Bay, but until recently, the market for them was small and only a few fishermen participated.

'When I was 17 years old, I had a 16-foot skiff. I had 25 snail pots,' recalls Donald Wilcox Jr., now in his 60s. 'I hauled them by hand. And I did all right. I'd get half a bushel a pot … I'd come into Apponaug, load them all in my truck, then drive to Amoriggi's Seafood in Johnston. He was the only buyer of conchs in Rhode Island. They had a cooking place there, and they'd cook them in snail salad. It was an ethnic thing. I'd drive up to Johnston, and I'd get paid once a week. Everyone else thought I was crazy, because they'd be quahogging, and they'd get paid in cash. But I liked doing it.'

In 1980,Blount Seafoods in Warren installed conch processing equipment with the goal of marketing conch meat as scungilli, or snail salad, and in frozen blocks for the wholesale market. But even with this market boost, the fishery remained small and part time—until the 1990s.

The 1990s changed everything for the conch fishery. China's growing economy made more disposable income available to Chinese consumers—and Narragansett Bay conch became one of the things they

chose to spend it on. Prices starting creeping up. Then in the 2000s, struggling lobstermen started flooding into the conch fishery. What had previously been a few fishermen trapping conch for the local market turned into dozens of fishermen supplying an increasingly hungry export market. Daniel Eagan, who has fished conch since the 1980s, watched these changes unfold in disbelief.

I started around '89. I did it as a supplement to lobsters. Richard [Cabral] came up to me and said, 'Why don't you try taking some of our pots and try it?' They were milk crates, solid milk crates. So I put them out, started filling them up. The price was only 32 cents a pound, but it was a nice sideline. I liked conching. Eventually the price started getting better. I ended up switching to full-time conching ...

And then, the 1990s showed up. The price started crawling up. I was sick and I got out of it a couple of years. I sold my wooden boat in 2001. Then the price went up to 75 cents a pound, and I had to get back into it quick. I started setting traps out of my 24-foot boat. There was only three or four of us doing it, and we caught the price rise. It stayed like that until the mid-2000s.

And then all of a sudden, lobstering started getting worse and worse, and guys started coming into it and experimenting a little bit. The price started rising, and it went to a dollar a pound. I never thought it would get to over a dollar a pound, but it did. And more guys started coming in.

Then the mid-2000s came, and the price hit over a dollar. And in 2011,the price went to a buck-fifty. Then it went higher. And every time the price increased, the price of bait went up, and the more entrants we had in the fishery. All the way until 2013, when the price peaked at two and a quarter … Now ... we're in uncharted territory.

BAY SCALLOPS

The rich, succulent bay scallop was once a fixture of Rhode Island shellfisheries. Scallops are a notoriously erratic species, and it was not unusual for one year's catch to rise or fall tenfold the following year. Location of good scallop sets, too, was unpredictable. Some years, they were concentrated in Point Judith Pond; other years they might be in Wickford, Greenwich Bay, the Sakonnet River, Little Narragansett Bay, or any number of areas with the right habitat conditions.

Dedicated scallop fishermen spent their spare time in the final weeks of the summer scouting out good scallop beds using a wooden box with a glass bottom to view the bottom of the water column from

Watercolor entitled *Wickford, R.I. Scalloping* by Paule Loring, 1899-1968
PHOTO © MYSTIC SEAPORT #1964.444

the surface. Fishermen either waded in the shallow water bent over this 'looking box,' or peered through the box from the side of a boat as a friend motored along. This way, they knew the location of scallop concentrations ahead of time, and didn't waste any time searching on Opening Day in September. Every scalloper tried to keep this valuable information to himself, but word usually got out—even making it into the newspapers. The result was the mass arrival of hundreds of recreational and commercial scallopers at whatever happened to be the hottest scallop bed of any given year.

'[One year], Potter's Cove was plastered with scallops,' recalls shellfisherman Dave Brayton. 'There was everything from little dories with 10-horse outboards on them … dredge boats were in there, there were some pleasure boats, cabin cruisers, 25-,40-footers. Everybody was hauling a dredge. It looked like a circus out there.'

Most fulltime shellfishermen worked the scallop fishery, but not all scallopers were fulltime shellfishermen.

'A fireman would take a couple days off from work,' says Donald Wilcox Jr., recalling the mid-20th century scallop fishery. 'The ones who

were good fishermen would take a couple of weeks off. They would plan their vacation around scallop season. People would take the kids out of school. And you'd be cutting scallops right in the back yard. There was no Board of Health. It was a whole different world.'

Although scallop sets had always been erratic, they became even less reliable as the years wore on. Their decline is frequently attributed to the disappearance of eelgrass in Rhode Island waters, itself at least partially a result of increased turbidity due to greater amounts of nutrients and sediment flowing into the water from land. Scallops remain a species characterized by surprises and mysteries, however. Despite the overall decline, an occasional scallop set still takes place in the bay or ponds.

'During the 1970s was when we had a big scallop boom in the salt pond,' recalls Bill Sieczkiewicz. 'It's what drove my wife to go back to college and get a good job, because I used to bring the scallops home and dump them on a bench in the cellar and she had to sit there and shuck scallops all day. She'd be sitting down there with my daughter in the bassinette, cutting scallops. She got quite good at it.'

In 2012,young fishermen who had never scalloped before started seeing scallops around. Skip Eagan, a shellfishermen in his late 20s, decided to try catching them.

'I asked a few guys how to do it, and I got a couple of free dredges from a guy in Warren,' Eagan says. 'I went to where I was catching them in my bullrake, and I realized that I could actually do something with them … It's fun because it's a boutique fishery, and they're one of my favorite shellfish to eat. They're delicious and everybody that I know who eats them loves them.'

Eagan says that catching the scallops was easy, but selling them proved difficult. Rhode Island shellfish dealers hadn't seen sizable scallop harvests in decades and weren't prepared to handle them. The dealers Eagan talked to were wary of selling scallops whole, because most consumers expect to buy them already shucked. But they lacked permits to shuck them, since shellfish today are typically sold whole. These are the kinks that Eagan has to iron out to make scalloping work. But he intends to keep trying.

'It's something that I love doing and it's good to get Rhode Island bay scallops on the market … It's a novelty.'

SOFT-SHELL CLAMS

Soft-shell clams (steamers) were once prolific, but they began to disappear around the end of the 19^{h} century. Like scallops and oysters, steam-

Soft-shell clams, or steamers, were the original clambake clams.

IMAGE FROM THE COLLECTION OF RUSSELL J. DESIMONE

ers—the original clambake clams—tend to appear and reappear sporadically in different locations around Narragansett Bay and Rhode Island's salt ponds.

Today soft-shell clams are harvested by diving or shore digging. Before the advent of diving technology, says Ted Wheeler, harvesting steamers was a group affair.

'You'd have one guy digging them,' Wheeler explains. 'You'd have a digger, and then a shaker. If you were the digger, you'd go with a shovel in the ground and you'd flop it in a basket. And the shaker would be holding that basket, and they'd shake them all around, get all the dirt off them, the extra shell. And then they'd throw them up on a boat, and there'd be a big culling board, and you'd have somebody up there pick-

George Fecteau's skiff
PHOTO COURTESY OF BRUCE EASTMAN

ing them over. That's the way we used to catch steamers. It could be a three-man operation, could be two, could be four. It depended on how many kids you had.'

A good set of steamers is a rare find, and shellfishermen are quick to capitalize on it when word gets out. One of those times was the 2007 opening of a formerly polluted area off Conimicut Point. The area turned out to be loaded with steamers.

'When steamers opened up, off of Conimicut, that was a horror show,' says Billy Blank. 'It almost looked like a bunch of zombies coming off the beach when the tide was low. All these people coming out with pitchforks, bullrakes, toilet plungers. It was like something out of a scary movie. There would be 300 people within 20 acres!'

But it didn't last long. 'You've got all these people digging 12 bushels [a day], and here were all these smaller [clams],' Blank continues. 'People were stepping on them, just crunching them. And there was a big set of baby starfish, billions of them. So when all those steamers came out of the bottom, they didn't even have a chance to get back into the bottom, because either people stepped on them, or sea gulls got them, or the starfish ate them. Within a year and a half, there was nothing left. No babies, nothing … Last time I was up there, a year and a half ago, I didn't find a single steamer.'

OYSTERS

Wild oysters, though mostly blotted out by the sands of time, still occasionally appear en masse on Rhode Island shorelines. Sometimes a fisherman stumbles upon a small oyster set and keeps it to himself; at other times the set is so large that it becomes a substantial sideline for quahog harvesters. The largest set in recent memory took place in the 1990s,and kept shellfishermen busy for months.

'The guy that found them was Georgie Fecteau,' recalls quahogger John Harvey. 'It was off of Greene's River. He was getting them for a while and keeping it a secret, sneaking them out of his boat. When the guys found it, it was just so thick it was incredible. Guys were getting their limit in about an hour, or less. And then it turned out there were other places. They were all over the bay.'

'There was a sand bar in Wickford where there were millions of them there,' says Bob Bercaw. 'But they were all kind of bunched up, and so you used to have to split them. We all used to go, I'm guessing like between 25 and 30 guys, used to go over there every day in the wintertime at the low tide and pick oysters. It was unbelievable how many

of them were there. The whole place was just filled with them. They were everywhere. It was one of the easiest winters I've ever had, because you'd go out most days and make $100 quahogging then go out most days and make $100 on oysters. But then the oysters disappeared from there.'

Currently, only 5 percent of the oyster landings in Rhode Island come from wild beds; the rest are produced through aquaculture. One of the challenges of harvesting wild oysters is that they lack the uniform shape and size of farmed oysters. This was not a problem when wild oysters were shucked and sold as meats, but as serving oysters on the half shell has become the standard presentation, the peculiar shapes and varied sizes of wild oysters have acted against them in the marketplace.

'The bulk of the business is gone,' says John Crandall Jr. 'I've got a few private people who come by [to buy my oysters]. People used to eat them fried or in an oyster stew. A lot of those people passed away, and the younger generation is more into oysters on the half shell. Different generations like different things. What they liked then and what they like now is completely different.'

PERIWINKLES

Periwinkles are easy to harvest and can be profuse in certain areas of rocky shoreline. Though they are more widely consumed in Asia and Europe, there is a small demand for periwinkles in New York's fish market.

Author Sarah Schumann displays some of her razor-clam catch.
PHOTO BY MELISSA DEVINE

However, Rhode Island's periwinkles are at a competitive disadvantage compared to those from Maine, where they grow larger.

'I did periwinkling for about 20 years,' Crandall says. 'We used to go on a low tide and get 20 to 60 pounds in an hour. My wife used to help. You just start picking, like picking blueberries. You don't have to dig them; they're right on top. We did that for quite a few years. But two or three years ago, that went by the wayside. The market dried up. It was a lot of fun, too. I miss doing it, but it's like everything else, it came to an end. I keep hoping it will come back, but you never know.'

RAZOR CLAMS

Most Rhode Islanders are familiar with razor clam shells, but few know the pleasure of eating them. The small numbers of shellfishermen that harvest razor clams commercially work within the confines of an underdeveloped market. Shellfisherman Sarah Schumann, who is also the author of this book, has been trying to change that.

I first came across razor clams when I was searching for new spots to dig quahogs in the salt ponds. I talked a local dealer into buying them. It's a small-volume fishery, so getting a good price is important. At first, there were a few chefs who were really excited about them, but most potential buyers had never heard of them. It's also difficult because their shelf life is short and the supply is inconsistent because you can only harvest them on really low lunar tides. My dealer and I did some research online and saw images of razor clams bundled up in rubber bands like bunches of asparagus. Bundling them increases their shelf life and makes a nice presentation.

We're raising awareness. It's been an uphill battle, but the work is paying off. Now I can go digging every time there's a tide, and feel confident that there will be a buyer to take the harvest off my hands when I'm done. It's nice to feel like a pioneer. Rather than spend my time quahogging, where I'd be near the bottom in terms of my catch, I can focus on razor clams and feel good that I'm one of the best in the fleet—because almost no one harvests them!

Sarah Schumann harvesting razor clams

PHOTO BY MELISSA DEVINE

Ten

A COLLECTIVE EFFORT

'MOST QUAHOGGERS are individual and independent, and that's one of the reasons they do what they do, because they don't want anybody telling them how to do anything,' says shellfisherman Bob Bercaw. This sentiment is common among shellfishermen, who often cite the ability to challenge themselves and act as their own bosses as a primary motivation for sticking with this line of work.

But interwoven with the fierce independence practiced daily by Rhode Island's wild-harvest shellfishermen is a deep sense of community. All shellfishermen harvest from a commonly owned resource pool, sell to the same markets, and deal with the same regulations. Furthermore, they work in a dangerous environment, where anyone may suddenly require the help of anyone else to survive. It pays to get along.

'There's always that rivalry, but good fishermen will always help each other out,' says Daniel Eagan. 'Everyone has their spots, but you might tell someone, 'This edge is working pretty well.' You trust the person that he's not going to jump on the exact spot that you're working, but he might follow that edge a little further down … You need a support network. It takes a long time to develop that.'

Daniel Eagan fishes with his daughter, Katie Eagan, on their boat the *Frances E.*
PHOTO BY MELISSA DEVINE

THE RHODE ISLAND SHELLFISHERMAN'S ASSOCIATION

Since the dawn of the quahog era, independent shellfishermen have, from time to time, also formally banded together to take on issues better addressed collectively than individually. The list of one-time shellfishermen's organizations includes the Shellfish Protective Association, the Constitutional Free Fishermen's Association, the Narragansett Bay Handrakers' Association, and the Rhode Island Divers Association. But the most enduring shellfishing advocacy group has been the Rhode Island Shellfisherman's Association (RISA).

RISA formed in 1978 when members of Rhode Island's shellfishing community united to fend off a proposal by East Greenwich shellfish dealer Warren Finn Jr. to build a depuration plant on the shores of Narragansett Bay. Depuration is a process, never before attempted in Rhode Island, that cleanses quahogs from polluted areas through temporary storage in tanks of circulating clean seawater. Finn's goal was to gain special permission to buy quahogs from polluted areas and purify them in his one-of-a-kind facility.

Quahoggers feared that depuration would allow Finn to set prices for the entire industry. If depuration were approved, they said, he would have access to quahogs that were off-limits to everyone else, as well as the ability to hold them off the market until prices rose. Alleging that permission to depurate would give Finn a 'sanitizing monopoly,' they filed articles of incorporation as the Rhode Island Shellfisherman's Association and learned their way around the Statehouse.

Ironically, the association and Finn did not remain enemies for long. 'The guy we were fighting against became our best ally, because he agreed to give up his depuration proposal if we agreed to expand the transplant program,' explains long-time RISA Secretary Bruce Eastman. 'Because he was looking for stuff in the wintertime, when he really needed it … Warren said, 'Let's work together. Let's get a better transplant program in place."

Prior to 1978, transplants were sporadic, relying on R.I. Department of Environmental Management (DEM) boats and student labor. When Finn and RISA negotiated a truce to the depuration battle, they came up with a new idea: using shellfishermen's own skiffs to extract quahogs from polluted areas and Finn's buyboat to move them to approved areas. Thus began a storied collaboration.

'That's how the Greenwich Bay management area came about,' Eastman says. 'Warren Finn claimed he thought it was the most success-

ful management program on the East Coast for shellfish. We could work three days a week, dealers were getting enough stuff, and everybody was happy.'

After defeating the depuration proposal in the late 1970s,RISA went on to deal with an assortment of issues facing shellfishermen: pollution, marketing initiatives, the advent of shellfish diving, the revival of aquaculture, and all manner of regulatory changes. RISA engages with regulators on policy consultations and partners with scientists on cooperative research projects. With DEM and the Narragansett Bay Commission, RISA oversees the annual transplant program that moves quahogs from polluted areas to spawner sanctuaries in clean areas. Working closely with the R.I. Coastal Resources Management Council, RISA evaluates potential spatial conflicts between shellfishermen and proposed aquaculture sites. The organization regularly partners with local universities on collaborative fisheries research projects.

'There have been a lot of issues that pop up that we've had to work on,' says RISA president Mike McGiveney. 'It's always important to have people in the room. And to work on things together.'

McGiveney has led the 90-member association since 1995.Joining the RISA leadership was perhaps a natural step for this quahogger, who has owned his own boat since the age of 12 and holds a degree in political science from URI. But the role, he says, was demanding at first.

'The first few years were pretty intense, a big learning curve,' says McGiveney. At that time, bullrakers and divers were clashing over territory on the bay, and a bill at the Statehouse that sought to jump-start an aquaculture industry in Rhode Island was raising alarm among many quahoggers.

'It fell in my lap,' says McGiveney of the aquaculture bill. 'It was a very tough battle. The legislative session went to the end of July that year, so it was the longest ever. There were 18 different drafts of the bill. We had several rallies at the Statehouse with fishermen, because we had a lot of concerns about the bill. And eventually we prevailed.'

Those first years prepared McGiveney for the ongoing challenges of leading a coalition of often independent-minded shellfishermen.

'Seems like you only hear from people when things are going bad,' says McGiveney. 'That probably is the biggest challenge, trying to get people to care about the industry, to attend meetings … People don't have to think what we think, but it's important to be involved … If you're not part of the process, then it's hard to complain about the results.'

The association shows its fun-loving side at its annual raw bar

events at the Charlestown Seafood Festival and the Bowen's Wharf Seafood Festival in Newport.

'Those are fun events,' says McGiveney. 'A lot of people show up, and it renews your faith. We've been doing the Charlestown event for over 20 years. It's one of our major fundraisers for the group. It's a three-day event, and it's amazing the amount of clams and oysters that we shuck. It's a homemade booth, and we get a lot of volunteers all shucking together, so it's a good social event.'

WARRIORS FOR WATER QUALITY

It is perhaps a given that shellfishermen harvesting resources in an estuary ringed by cities and towns will at times see their trade impacted by water quality concerns. Narragansett Bay has not defied this expectation. As population around its perimeter grew in the 20th century, so did pollution problems affecting its shellfish. Dozens of combined sewer overflows around the bay were funneling untreated sewage directly into its waters when it rained, and leaky cesspools and septic systems around the bay's shores were releasing slow trickles of sewage waste all year long.

Furthermore, the Providence sewage treatment plant at Fields Point, at one time a state-of-the-art facility, struggled to keep up with the growing numbers of residents it served. By the 1970s,the Fields Point plant was experiencing frequent breakdowns, and 65 million gallons of untreated or partially treated sewage flowed into Narragansett Bay every day. During that decade, DEM closed the upper bay to shellfishing about half of the time to protect shellfish consumers from the constant stream of pollution emanating from the Providence River.

As pollution worsened, shellfishermen became known for executing eye-catching publicity stunts to draw attention to the problem. In May 1978, RISA members arrived at a Statehouse hearing with stuffies and littlenecks, along with a strongly worded plea by the association's then-president, Rene Letourneau: 'We must reverse that trend before it is too late … Anything less than an all-out effort to stop this degradation must be considered a violation of a fundamental part of our state's constitution.'

The following year, the U.S. Environmental Protection Agency (EPA) declared that the city of Providence was in violation of the federal Clean Water Act and ordered it to reduce the sewage pollution flowing into the bay. What followed was a multi-year effort aimed at cleaning up the bay, which included the transfer of the management of the Fields Point sewage treatment plant from the city of Providence to the newly

'I have a debt to pay to Narragansett Bay,' says Phil Holmes, who serves as the Rhode Island Shellfisherman's Association's representative on water quality issues.
PHOTO BY MELISSA DEVINE

formed Narragansett Bay Commission. Through a bond referendum, Rhode Islanders voted to devote $877 million to improving the Field's Point plant.

Under the management of the Narragansett Bay Commission, the Fields Point plant improved by leaps and bounds, winning recognition by the EPA in 1995 as the best large secondary treatment facility in the country. In 2001,the Narragansett Bay Commission broke ground on the first phase of its combined sewer overflow abatement project, a massive tunnel under the city of Providence that now collects and stores wastewater during times of heavy flow.

After playing a role in instigating the improvements at Fields Point, shellfishermen turned their sights on another major point source of pollution in the bay: rampant discharge of untreated waste by the Blackstone Valley District Commission's facility at Bucklin Point. In May 1989, Save The Bay and RISA collaborated to host an impressive show of

outrage at the Brown University Rowing Club docks in the Providence River. According to shellfishermen who attended the rally, almost the entire shellfishing fleet showed up to press the governor for a cleaner bay.

The protesters gave the governor an ultimatum. Phil Holmes, then vice president of RISA, recalls, 'Save The Bay and the Conservation Law Foundation saw that things were getting started and being done at what is now the Narragansett Bay Commission, and they looked across the river at the Blackstone River and saw that nothing was being done. So they announced that under the Clean Water Act, they were filing suit against the Blackstone Valley District Commission for continued pollution of Narragansett Bay … And then the reporters said, 'What's up with all these quahog boats in the river?' So I said, 'We're here because we support Save The Bay in this lawsuit and we want the pollution to end."

The protest and lawsuit led to an eventual takeover of the Bucklin Point plant by the Narragansett Bay Commission in 1992, and a $35 million bond to make upgrades to the plant.

The 1989 rally at the Rowing Club was not the last time quahoggers banded together to show their commitment to preserving the bay. In 1999, RISA again teamed with Save The Bay to protest a proposed port expansion at Quonset. Shellfishermen were concerned that industrialization of Quonset would alter the small-town character of the local community and lead to oil and chemicals leaking into the bay from large container ships.

'About 10 guys came up to Waterplace Park in their boats,' says Eastman, recalling a June 9, 1999, protest at the Statehouse. 'We got out and we had a march. We carried up a bushel basket of quahogs up to the Statehouse steps on [bullrake] stales. We also had a demonstration at the site [of the proposed megaport, on June 30], with Save The Bay. We had about 40 quahoggers, and I don't know how many Save The Bay people came in their kayaks. I got the job of escorting the kayak people back to Allen's Harbor, because it was kind of rough. I putted along and made sure they made it back. That was my first exposure to kayaks.'

Of course, some pollution problems can't be resolved through protest; there are also those that call for sustained sacrifice and problem solving. The 1992 closure of Greenwich Bay was one of these. The 4.9 square miles of Greenwich Bay are possibly the most prolific quahogging grounds in Narragansett Bay, if not the world. For three decades, they have been the site of a transplant bed to which quahogs from polluted areas are transferred to cleanse themselves; the area is open only in winter, providing a lee where quahoggers can work in rough weather. But in

December 1992,a severe nor'easter blew through Rhode Island, causing a massive influx of contaminants into Greenwich Bay. The entire area remained closed to shellfishing for over a year.

The loss of access to Greenwich Bay's productive shellfishing grounds was a big blow to the industry. The closure was also felt by shoreside residents who used the bay for recreation. RISA joined with a number of other organizations and state agencies to form the Greenwich Bay Initiative, a collaborative effort aimed at assessing and addressing the causes of pollution in Greenwich Bay. Warwick voters approved a bond issue to upgrade the city's sewage treatment plant and expand sewer lines.

Greenwich Bay was reopened to shellfishing in June 1994,but addressing other sources of pollution is an ongoing effort.

Phil Holmes, who acts as RISA's representative on water quality issues, concludes, 'The fight for Narragansett Bay on point source pollution has been largely won. Attitudes have changed. Municipalities are no longer flushing sewage into Narragansett Bay. But when you get to individual neighborhoods and individual homes and new expensive septic systems that cost between $25,000 to $35,000 to buildyou get a different attitude. People look at that cost and say, 'Hey wait a minute! I don't want to do that.' It becomes an individual expense instead of a societal response.'

Holmes goes on to explain his commitment to protecting Narragansett Bay:

Every dime I've ever earned in my working life has come out of Narragansett Bay and the Atlantic Ocean. And if it hasn't been dipped in saltwater it had no meaning to me. Having bought a house with money that came out of Narragansett Bay and put kids through private school with money that came out of Narragansett Bay, I feel that I have a debt to pay to Narragansett Bay. I owe Narragansett Bay. And if it's my voice and my time spent at meetings and trying to educate people about it, then so be it. That's what I'm able to do, and ... that's what I want to do.

THE PUBLIC TRUST: STATE MANAGEMENT OF WILD SHELLFISHERIES

The work of collectively managing shellfish is arguably just as vital to sustaining robust shellfisheries as the work of harvesting them. Public resources require public stewardship, and in Rhode Island, this function is borne by DEM with input from members of the shellfish industry.

Goals for DEM in shellfish management are to maintain shellfish stocks, provide for sustainable harvest, and uphold the existing social and

cultural characteristics of the fishery. DEM issues and enforces regulations based on the recommendations of the Marine Fisheries Council, an eight-member panel of experts and stakeholders representing various state-waters fisheries who meet regularly to hear from commercial and recreational harvesters. The regulations that emerge from this process—minimum sizes, licensing regimes, bushel limits, spawner sanctuaries, transplant areas, and more—are as critical to shellfishermen's daily planning activities as the weather and tides.

In addition to its conservation programs, DEM oversees a water quality program in cooperation with the R.I. Department of Health. Since most shellfish are filter feeders than can ingest and store pollutants that harm human health, DEM keeps a vigilant watch on bacteria counts in areas of concern and enforces shellfishing closures in polluted areas. These conservative measures assure that all shellfish reaching the market are safe for the public to consume and enjoy.

LICENSE LIMITATION OF 2003

The defining influence of state management on the shellfish industry comes into sharp focus in DEM's licensing program. Licenses allow DEM to track participants in the fishery, collect landings data, restrict fishermen when necessary to conserve the resource, and generate revenue vital to financing shellfish management programs. But licenses also determine who gets to fish and who doesn't.

For many decades, there was no legal limit on the number of people who could obtain Rhode Island shellfishing licenses. The population of shellfishermen ebbed and flowed in response to shellfish abundance and trends in the larger economy: when quahogs were plentiful and unemployment was high, more people got into the fishery; when quahog numbers declined and land-based employment recovered, people exited the fishery. But when the quahog bonanza of the 1980s gave way to the devastating slump of the 1990s, the General Assembly was forced to rethink the wisdom of this strategy. In 1998, legislators asked DEM to devise a new licensing structure that would put an end to boom and bust cycles in Rhode Island's fisheries.

In 2003, after many meetings with industry members, DEM instituted a new licensing structure. It grandfathered in existing licenses and established an exit/entry ratio for future fishermen. Now, licenses are issued to new fishermen only when a certain number of existing fishermen have retired. The precise number varies from fishery to fishery and is set annually by DEM and the Marine Fisheries Council.

Block Island's Great Salt Pond supports both recreational and commercial shellfishing for quahogs, steamers, and other species.
ISTOCK PHOTO

Limitation of licenses and the exit/entry ratio have dramatically altered the character of shellfishing in Rhode Island. No longer do unemployed workers flock to the water when recessions hit. No longer are acres of quahogs wiped out in the blink of an eye. No longer does the quahog price drop several times per day as the market floods with product on a day when the weather is pleasant. But on the flip side, some participants say that license limitation, combined with other factors, has restricted the ability of the shellfish industry to persist and adapt.

BLOCK ISLAND'S GREAT SALT POND: LOCAL CONTROL

Block Island, 13 miles south of the mainland,is unique among Rhode Island localities: it is the only place in the state with municipal control over shellfishing. The seven-member New Shoreham Shellfish Commission has managed the town's shellfisheries through an agreement with DEM since the 1980s.

The island's atypical arrangement stems from the self-contained nature of its community and the unusual shellfish management needs of its 673-acre Great Salt Pond. In the summer, tourists flock to the pond to fill their buckets with shellfish: quahogs, steamers, scallops, surf clams, oysters, and razor clams. In a typical year, the town issues almost 3,000 recreational shellfishing permits, primarily to summer tourists. Maintaining shellfish abundance is key to generating tourism dollars.

'Next to drinking, on Block Island, shellfishing is the next biggest sport,' says Hermann 'Bo' Gempp, a commercial fisherman and member of the island's shellfish commission. 'The clam flats and Cormorant Cove are full every day in the summertime. People come in dinghies, they walk out … You can almost be assured of getting your limit in about an hour there.'

Block Island's shellfish also support a small year-round population of shellfishermen who depend on them during the winter for both recreational and commercial harvest. During the quiet part of the year, island residents take advantage of prime shellfishing grounds that are off-limits due to poor water quality during the busy summer boating season. According to a town ordinance, the commission may issue only one commercial shellfishing license to a non-resident for every 20 that it issues to island residents. There are currently 13 islanders and one off-islander holding Block Island commercial shellfishing licenses to fish there. Most of them shellfish part-time.

'Our cost of doing business is so high compared to the mainland, because we have a shipping charge,' Gempp explains. 'And there's a lot of other work on the island, so people do other work and just dabble at the clamming right now. In the winter, you can dry-dig a thousand pieces, but by the time you get it done, if you get 10 cents apiece you're gonna be lucky, so you're gonna work all day long for $100.And you can go bang nails for $20 an hour. There's plenty of other opportunities. But if we go back to a bad economy again, then people will go back digging … as a last resort.'

Block Island's small geographic area and tight-knit community lend themselves to inventive community-based management. The commission has experimented with independent stock assessments, shellfish seeding programs, transplants of shellfish from the mainland, control of predator populations, and designation of oyster spawner sanctuaries.

'There's so many things to manage here that it's hard to keep up,' says Gempp. 'A lot revolves around one little pond and not many acres.'

There are also many opinions about how the community should

manage its shellfish resources, Gempp says. Whenever he visits a local bar, he adds, community members quiz and harangue him about local shellfish management.

'I get beat half to death. 'Oh, this is wrong in the harbor!' 'This is wrong!' … Somebody went digging and they didn't get what they wanted or they broke their rake and it's my fault,' he says.

The occasional squabbling that comes with small-town politics make for lively, but productive, shellfish management discussions in New Shoreham, Gempp concludes: 'We argue occasionally, but it's because we have two different thoughts. We get it smoothed out, and that's what makes it work.'

QUAHOGS ON THE MOVE: RHODE ISLAND'S TRANSPLANT PROGRAM

'Quahogs are so tightly jammed in the polluted waters of the Providence River that some of the shellfish are stunted,' reported the *Providence Journal* in 1954. But a few miles away, in some open areas of the bay, their cousins were growing sparse. Quahoggers thought: why not transfer some quahogs from closed waters behind the pollution line to clean waters, where after a cleansing period they could be available to shellfishermen to harvest?

The idea of transplanting quahogs from polluted to clean areas was conceived as an olive branch. It was the brainchild of a group of Sakonnet River dredge boat owners who in 1952 were struggling to convince intransigent hand-rakers to let them work in the West Passage. In a move to win the rakers' support, the dredgers, led by Frederick Richardson of Blount Seafoods, offered to fund a quahog transplant program to benefit the whole fleet, by taxing their own catch.

After initial skepticism from hand-rakers, the idea caught on, and in 1954 the Department of Agriculture and Conservation (forerunner of today's DEM) supervised the first transplant of quahogs, from the polluted Providence River to clean waters off Rocky Point. When dredge boats vacated the industry a few years later, the Department of Agriculture and Conservation bought Blount Seafoods' 65-foot vessel the *Stormy Weather* to continue the program. Until the late 1970s, the *Stormy Weather* and its successor, the smaller and nimbler *Wanderer*, performed seasonal transplants funded by the state and staffed by volunteer graduate students.

'All it was, was a put-and-take,' says Art Ganz, who as DEM's senior marine biologist supervised the transplant program from the late

1970s until 2005. 'They'd harvest it sometime in the fall, they'd have the 15-day depuration period, and usually when the weather was bad, they'd open it up.'

At the time that Ganz was new on the job, DEM enforcement was dealing with a spat of illegal nighttime shellfishing in polluted coves off Greenwich Bay. By reducing the abundance of shellfish behind pollution lines, Ganz figured, the department could reduce the temptation to fish there. Meanwhile, stock assessments suggested that Greenwich Bay was being overfished. Moving quahogs from the polluted coves into clean yet depleted Greenwich Bay proper could accomplish two things at once, Ganz surmised.

In the mid-1980s, DEM closed all of Greenwich Bay west of a point of land called Sally Rock. Quahoggers volunteered to dig quahogs from polluted areas, and dealers donated their buy boats to move them to the newly designated transplant bed.

'We transplanted the heck out of Greenwich Cove,' Ganz recounts. 'And planted it into that area of Greenwich Bay that was closed. We closed that for 18 months, and that gave that stock two spawning cycles … Lo and behold, after a couple of years, the guys discovered on the east end of Greenwich Bay, there was a hell of a set. So all that stuff we had planted on the west of Sally Rock had set up beautifully!'

Since then, the transplant program has expanded to other areas and become a major component of the state's quahog management strategy. In addition to DEM, the Department of Health, and the quahoggers, other groups like URI and the Narragansett Bay Commission have pitched in to help fund, administer, and staff the program. Lobstermen have donated the use of their boats to help move quahogs.

The transplant program found itself at a crossroads in the mid-1990s, when a major rainfall event swept bacteria into Greenwich Bay and forced a two-year closure of its productive waters. With their primary transplant bed out of commission, Ganz and the quahoggers located two new areas to deposit transplant quahogs, just outside the mouth of Greenwich Bay: Greene's River/Potowomut and High Banks.

'We got a rotational program going,' says Ganz. 'We'd have Greene's River, or Potowomut, closed for a couple of years, and High Banks would be open. Then we'd close High Banks, and Greene's River would be open.'

In 2008, The Nature Conservancy approached Ganz, who by then was retired from DEM and serving as president of the Salt Ponds Coalition, with a plan to transplant quahogs to the coastal salt ponds. Once again, Ganz jumped at the idea.

Shellfishermen participate in a transplant program in Greenwich Bay in the early 2000s.
PHOTO BY MONICA ALLARD COX

'The upper bay has always been fed by the larvae coming down from the Providence River,' Ganz explains. 'Places like Greenwich Bay are fed by the polluted coves around Greenwich Bay. Likewise outside of Wickford. So, if we could create that same scenario in a clean area like the coastal salt ponds, that would be a good way that we could get recruitment going ...

'So what we did was establish spawner sanctuaries pretty much as close to the southwest corner of each one of the ponds. Southwest winds actually have more of an effect on the flow in the ponds than does the tide. So we put the stock into these closed areas and then let them spawn. You've got a lot of animals in close proximity so the opportunity for fertilization is good, and those larvae are pushed by the southwest winds throughout the ponds. It worked like gangbusters. The shellfish density in Quonnie Pond doubled when we started doing it.'

Rhode Island's transplant program is a unique form of public-private partnership that rests on close collaboration between state managers and industry. Ganz credits the success of the program with the strong working relationships between the two groups.

'We had open communication,' Ganz says. 'If I came up with a hairbrained stunt, the [quahoggers] would tell me, 'This isn't going to work for the following reasons.' And at the same time, with law enforcement, 'Well, you can't do it this way because it's unenforceable.' But getting the enforcement guys together and the fishermen together, all around the coffee table, we got an awful lot done.'

THE FUTURE OF COMMERCIAL WILD-HARVEST SHELLFISHING IN RHODE ISLAND

Wild-harvest commercial shellfishing has enjoyed a storied past in Rhode Island. But some participants in the fishery say its future doesn't bode well: there are only 19 shellfishermen under the age of 40 working the water full time. Whether it's due to restrictive licensing regimes, a poor quahog price, or a lack of interest in the work, the next generation is not taking to the bay in the same numbers as their predecessors did. Older shellfishermen question how the industry will survive once they've hung up their boots.

But the younger generation's enthusiasm and commitment to sustaining the industry may go some ways towards compensating for their small numbers.

'I decided to make this my career because it's fulfilling,' says Katie Eagan, who is in her early 30s and is one of the few women in the fleet. 'I've tried lots of things and this is the job that made me the happiest. I was very fortunate to grow up in the fishing industry, to learn this trade. A lot of people don't get this kind of opportunity … I think in the future it's going to be totally different than it is now. Unfortunately I think there's going to be a lot less of us. We will all have to be more involved on the management side. Commercial fishermen are resilient and adaptable by nature. Fishing has been going on forever, and it's not going away. We'll make this work.'

As a sign that there is still strong interest among Rhode Islanders in joining the shellfish industry, DEM receives more license applications than it can allocate each year. One of those applicants, Josh Bird, who at age 36 sees quahogging as a promising second career, says, 'I like the fact that not a lot of young people are getting into it, and I appreciate the opportunity to play a role in carrying it on … You see a lot of people coming into farming, and they're sustainability-minded people. I think in the future, you'll have a lot of people who are committed to stewardship.'

Dave Brayton rakes for quahogs with his grandson, Evan Riley.

PHOTO BY MELISSA DEVINE

The Fulton Fish Market in New York City, as the premier East Coast seafood wholesaler, has been a major customer of Rhode Island shellfish. In 2005, it moved from its original location, above, in lower Manhattan.

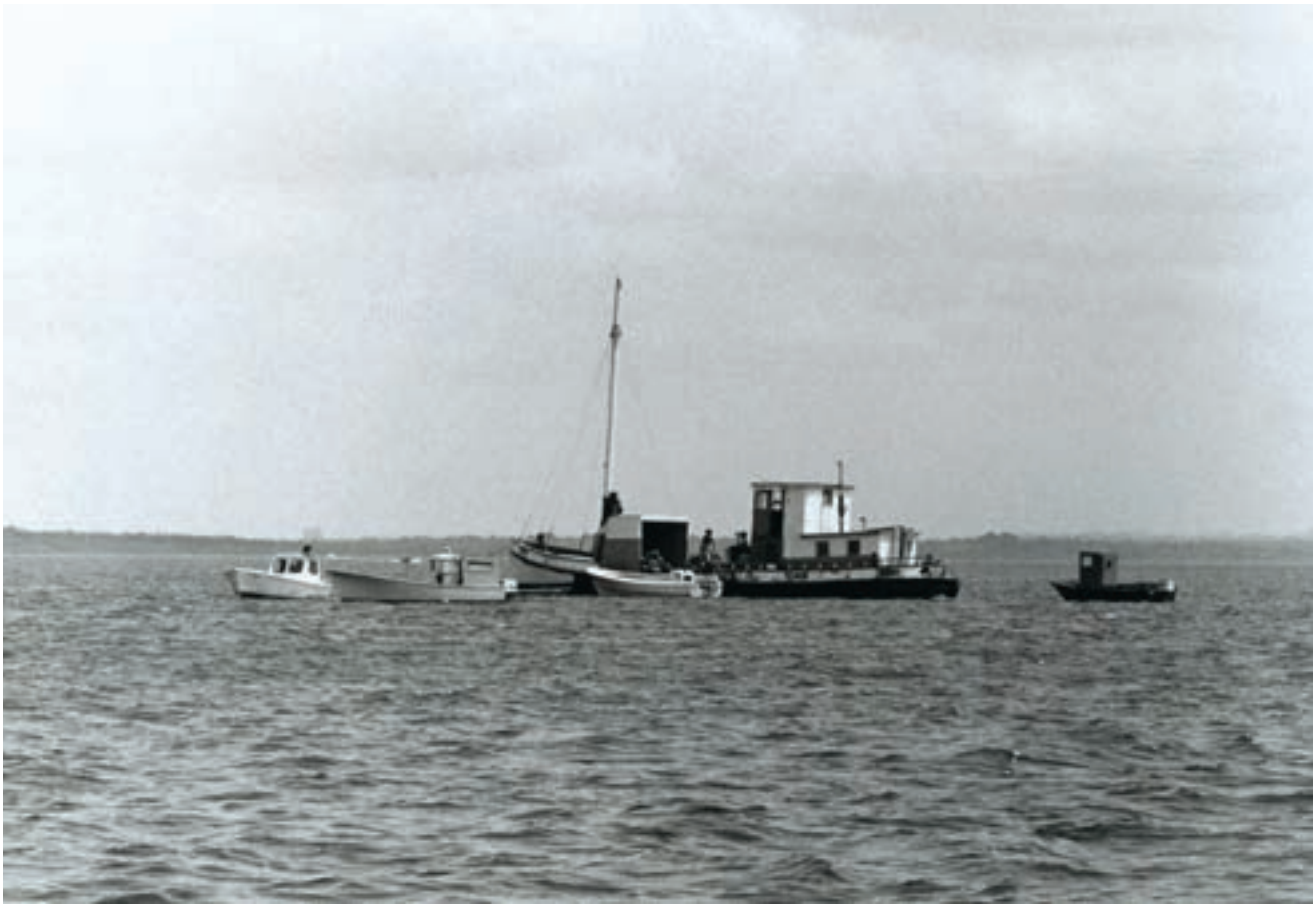
ISTOCK IMAGE

Eleven

THE WILD SHELLFISH SUPPLY CHAIN: THEN AND NOW

RHODE ISLAND'S NUTRITIVE WATERS and fleet of skilled shellfishermen provide seafood lovers in Rhode Island and around the country with world-renowned shellfish. But to keep the product flowing and the fishing boats floating, Rhode Island's shellfish industry requires a mechanism to profitably transfer shellfish from boat to plate. That mechanism—the shellfish supply chain—starts with the handful of shellfish dealers scattered around the state.

Shellfish market dynamics have experienced significant changes since the dawn of Rhode Island's quahog era. Influential dealers have come and gone, quahog availability has waxed and waned, and in the last 30 years, aquaculture-grown clams from other states have captured a large part of the Rhode Island quahog's market share. Some of the biggest challenges currently facing Rhode Island's shellfish industry lie in the market arena. A look back in time sets the context for understanding the troubles of today's shellfish supply chain.



The *Beacon* buyboat on Narragansett Bay
PHOTO COURTESY OF BRUCE EASTMAN

BUYBOATS

In quahogging's heyday, some dealers were so eager to get ahold of quahogs that they did not wait for quahoggers to come to them; instead, they went to the quahoggers. Buyboats, like the *Beacon* owned by Finn's Seafood, motored out to the most popular shellfishing grounds each morning and anchored up, patiently waiting as quahoggers worked their rakes and tongs through the mud. When the shellfishermen finished hauling up their daily limits, they lined up their skiffs alongside the buyboats and handed over their catch in exchange for a day's pay. In the early days, dealers paid in cash. Regulations were lax, and record keeping was minimal.

'Buyboats were handy because you didn't have to handle the stuff,' says quahogger Dave Brayton. 'Just get your money and go. There used to be three or four buyboats. There was one until 12 or 15 years ago. That was really handy. My father ran a buyboat for a while, in the 1950s, for a guy in Bristol. He used to go up to Barrington Beach. He'd anchor up, tow

his skiff. He'd go tonging in the morning, or raking, until the first guys started getting done. Then he'd come back to the boat [to buy quahogs from the other quahoggers].'

Buyboats trolled the quahogging grounds until the end of the 20th century. The last buyboat on the water was the *Snug Harbor*, belonging to the Finn family. Today, there are not enough shellfishermen on the water to justify the expense to dealers of owning a buyboat.

THE FINNS OF EAST GREENWICH

The Finn family was a fixture of the Rhode Island shellfish supply chain for almost a century, from 1914 to 2002. Three generations of Finns—Warren Sr., Warren Jr., and Mark—bought and sold quahogs on the East Greenwich waterfront, from a shop first known as Finn's Seafood and later Greenwich Bay Clam. At the height of the industry, says Mark Finn, his family's business was the largest dealer in the state, regularly buying quahogs from between 250 and 350 diggers. The Finns left their mark on Rhode Island's shellfish industry in ways that are still felt today.

'In a lot of ways, we were probably a pioneer,' muses Mark Finn. 'People either loved us or hated us. It's the only business where you buy stuff not knowing if you can sell it or not, and you've got a week to sell it. It was a tough racket.'

But relationships between the Finns and the quahoggers withstood the bumps in the road. Every November, the Finns sent turkeys to their regular quahoggers, and every December, they gave out bottles of whiskey. And through their constant efforts to remain the state's number one dealer, the Finns vied with other dealers to buy more quahogs—by driving prices up.

'When Warren [Finn] was around, he was the best,' recalls quahogger Dave Ghigliotty. 'Him and [another dealer] Healy, they would get into some vicious price wars. And the fishermen benefited. I walked in the shop one day and Warren said, 'Hey kid, did you go into Healey's today? What was he paying?' And I said, 'Twenty-two'. And he shouted, 'Twenty-two? Then we're twenty-five!' Just like that. Those were great days.'

Old-timers say that a little cheating was part of business as usual in those days. Shellfishermen sometimes had a laugh at the expense of dealers by 'stove-piping' quahogs. This meant filling a sack half full of quahogs, positioning a short length of stovepipe in the middle of the bag, packing the inner core of the pipe with rocks, and filling in around it with quahogs. When the pipe was removed from the bag, the bag

appeared full of nothing but quahogs. Dealers receiving stovepiped sacks of quahogs were none the wiser—until their customers opened the bags, discovered the deception, and called to complain.

'I got caught once,' admits Ghigliotty, recalling his teenage years. 'It was Old Man Finn. I came in in my little skiff, and I had a boatload. And he says 'Dump a few of those bags out.' And I dump them out, and there's a rock and a bottle in them. And he's like, 'Dump them all out!' And we started dumping them all. And then he got mad.'

Neither group held a moral high ground, however. Dealers occasionally bought undersized shellfish, accepted quahogs dug illegally in polluted waters, or shorted shellfishermen on their pay by rounding down the weight of their catch. But their most cunning trickery was reserved for their buyers. Mark Finn's favorite illustration is the time that his grandfather, Warren Finn Sr., lost the Campbell's Soup contract.

'I tell this story about my grandfather all the time,' says Finn.

He sold quahogs to Campbell's Soup for 25 years, when they first started making clam chowder. He was the biggest supplier. He sent trucks to New Jersey—two or three trucks a night.

So he was selling them a 3-bushel basket of quahogs, but he was only putting two-and-a-half bushels in. For 25 years. And then they got a new quality control guy at Campbell's soup, and he said, 'Look, this guy's screwing you!'

So, they went to—my father said it was a big skyscraper—like a 10-story building in New Jersey. They had a big boardroom. And they said, 'Mr. Finn, we've come to the realization that we've been buying a 3-bushel basket of quahogs and you've only been giving us two-and-a-half bushels. What do you have to say for yourself?'

He stood up and went around the room, shook everybody's hand and said, 'Thank you. It's been a pleasure doing business with you.' And he left. They thought he was going to say, 'How can I make it up to you? I don't want to lose you as a customer.' Instead, he just said shame on them for taking that long to realize it.

HARVESTER COOPERATIVES

Struggles to obtain a better price have led quahoggers to try different collective leveraging tactics over the years. Strikes, like the one that practically shut down the shellfish industry in Rhode Island for an entire summer in 1946 (see pages 60-63), have been the most spectac-

ular strategy used by shellfishermen to influence price, but throughout history, some have attempted a quieter form of bumping up the value of a quahog: the formation of harvester cooperatives. The two most enduring cooperatives were Eastern Seafood Corporation and the Independent Commercial Fisherman's Cooperative Association.

Eastern Seafood, on Water Street in Warren, had 27 stockholders at its founding in 1955As a *Providence Journal* article from the time recounted, 'Working in spare time on afternoons, nights and weekends, enterprising stockholders in the new corporation carved a neat cement-floored 40- by 25-foot shellstock shop out of the rear of their leased space. [President Bill] Nolan said the greatest advantage of membership in the corporation will be the elimination of the 'middle man' in the shellfish marketing process. In this way the quahauger-stockholder will get not only his usual day's pay for his catch, but a share in the profit of its sale which normally went to the dealer.' The Eastern Seafood Corporation lasted for about a decade before it disbanded.

The Independent Commercial Fisherman's Cooperative Association, colloquially called the East Greenwich Shellfishermen's Co-op, tried a similar experiment. A group of 50 West Bay quahoggers, led by President John Black, formed the business in 1976 on Water Street in East Greenwich. Like Eastern Seafood Corporation, the East Greenwich Co-op was formed 'to battle the raw deal [shellfishermen] say they are getting from quahaug and soft-shell wholesalers to whom they sell their catch,' wrote the *Providence Journal*. The East Greenwich Co-op fared well until the mid-1980s,but then the group fractured. During its heyday, shellfishermen say, it boosted prices for the entire Rhode Island industry by competing with other dealers.

Since that time, other groups have tried forming harvester cooperatives to sell directly to customers, but these attempts have remained stuck in the conceptual stage. 'It takes the right group of guys to do something like that,' says fisherman Tom Hall.

SHELLSTOCK ACCOUNTING AND THE TRANSITION FROM POUND TO PIECE

The market value of a quahog depends on its size. The largest quahogs are called chowders, hogs, bigs, or simply quahogs, followed in size by the smaller cherrystones, then topnecks, and finally littlenecks. The smallest littlenecks are sometimes called countnecks. The smaller the quahog, the more tender its meat and the higher a price it commands. Chowders, as

their name implies, are typically used in chowder, cherrystones are the ideal size for stuffies, and littlenecks are enjoyed raw or in clam pasta. Topnecks can be a lower-cost substitute for littlenecks.

Today, dealers buy quahogs and sometimes cherrystones by the pound, and everything smaller by the piece. But prior to the 1980s,all size classes were bought and sold by weight. Back then, quahoggers measured legal minimum size along the longest axis of the shell using a 1½-inch 'quahog ring.' In the 1980s,as new quahog fisheries developed up and down the East Coast, buyers in New York's Fulton Fish Market started buying the smaller size classes of quahogs by count instead of weight. Dealers started using a new invention—the grading machine—to efficiently separate and tally quahogs by size and value. Grading machines are made of rotating rollers with gaps of varying sizes between them; as quahogs pass through them, they fall through different gaps into separate receptacles depending on their width. As grading machines became the norm, Rhode Island rewrote its shellfish regulations to synch its minimum size with that of others states and make minimum size measurable by hinge width rather than length.

The switch from weight-based to count-based accounting shifted quahoggers' priorities. Weight-based payment had encouraged them to target larger littlenecks, since by targeting larger littlenecks rather than smaller ones, they could reach their daily bushel limit in a shorter amount of time. Under the current count-based payment system, they

Commercial quahogger Jody King describes the names for different sizes of quahogs at a Clamming 101 class sponsored by Rhode Island Sea Grant and the URI Coastal Resources Center.

PHOTO BY MELISSA DEVINE

Dave Andrade, former shellfisherman, has operated Andrade's Catch in Bristol since the late 1980s.
PHOTO BY MELISSA DEVINE

can maximize their pay by targeting the tiniest, barely legal littlenecks, so as to fit a greater number within a bushel limit. Some quahoggers worry about the effects of this incentive structure on the future of the industry.

'The countnecks, how can this stuff have a chance to reproduce?' asks quahogger Jim Russo. 'That's a big issue. And the market's been destroyed because everybody gave up on topnecks and bignecks, and now it's all countnecks. You can't make money on the water unless you're working on countnecks. The single mom who's trying to feed her kids does not need countnecks. She needs a nutritional food source for her kids. So you have this resource that's just lying out there—the bigs—that are just completely underutilized.'

THE QUAHOG PRICE CONUNDRUM

The shellfish supply chain has changed considerably over the years, but to the frustration of shellfishermen and dealers, the price of quahogs has remained more or less stagnant.

Out-of-state competition is one of the primary causes for the price problems facing the Rhode Island quahog. In 1985, fishermen in the Indian River in Florida started catching quahogs. A short time later, Virginia aquaculturists started farming them. Quahogs grow faster in warmer, Southern waters than in Rhode Island. Even though it is widely believed that Rhode Island quahogs taste better and have a longer shelf life than their Southern competitors, they are also more expensive because of the costs of harvesting them. The problem is compounded by the irregular supply of Rhode Island quahogs that results from pollution closures and by Rhode Island's fluctuating numbers of shellfishermen. Rhode Island controls about 8 percent of the national market in quahogs—down from 25 percent at its peak.

When the price of quahog dropped in the late 1980s, shellfisherman Dave Andrade opened Andrade's Catch, a shellfish wholesale and retail shop on Bristol's Wood Street, with his late wife Gigi. Today Dave runs the shop with the help of his children.

'We've grown very slowly, because there's a lot of competition. Even though our product is better—because it's wild and it's got a longer shelf life—it's not always readily available. We tried to develop a niche. I've got my own bags, touting 'Wild—made by Mother Nature.' We advertise that they come from certified waters, that they're not depurated. But they don't always see that—the bottom line with the consumer is the price. If you're charging $82 a bushel for littlenecks, and you've got Virginia littlenecks for $72, they'll buy that.'

Shellfishermen and brothers Tim and Marty McGiveney opened Twin Shellfish in Apponaug Cove in 2005. The business sells its shellfish wholesale, primarily to other New England-based wholesalers and retail businesses. The brothers run the operation with the occasional help of friends, and still get out on the water whenever they can.

'We've been on the water since we were 12 years old,' says Marty.

When this place became available, we thought, let's give it a shot. We were tired of the prices.

The first challenge was getting people to sell to you, when you're the new guy. They're worried you might be fly-by-night and you're gonna go out of business, so they don't really want to jump ship. We started out really small, with about two diggers. If you get more business and treat the guys good, you'll get more and more guys to sell to you, and better guys. I cook chili, soup, sausage and pepper sandwiches. They get their free beer when they come in.

And we were on the water for years, so most of these guys were our friends to begin with.

It's not as good as it was when Rhode Island owned 90 percent of the clams, back in the '80s. [Southern businesses] can put clams on the market for 17 cents,delivered. It's a shame that a lot of restaurants in Rhode Island still use clams from out of state.

Twelve

THE REBIRTH OF AQUACULTURE

WILD-HARVEST SHELLFISHERIES are no longer alone in making use of Rhode Island waters' shellfish-nurturing capacities. In the last 20 years, they have had more and more company in the form of shellfish farmers. The new aquaculturists are very different from the oyster growers of the late 19th and early 20th centuries, and represent a new and innovative use of the bay and salt ponds.

AQUACULTURE RETURNS TO RHODE ISLAND

After the last lingering oyster-era planters relinquished their leases in the 1950s, private leasing for aquaculture was absent from Rhode Island for two decades. The Commissioners of Shell Fisheries was abolished in 1949, and while DEM nominally inherited the authority to grant leases for aquaculture, it never used that authority. Then in 1971, the R.I. Coastal Resources Management Council (CRMC) was established, and aquaculture was one of several marine uses added to its purview. The creation of the CRMC opened new interest in aquaculture in Rhode Island.

The CRMC dusted off the old Oyster Act permitting framework, and in the late 1970s, it granted 14 aquaculture permits. One was to Lu-

Perry Raso tends his oyster farm in Potter Pond.
PHOTO BY MELISSA DEVINE

ther Blount, a Warren-based boatbuilder and member of the Blount Seafoods family, once one of Rhode Island's premier oyster planting companies. The lease was for an experimental oyster farm on Prudence Island that Blount planned to use to restock oysters throughout Narragansett Bay. Another was to the pioneering Blue Gold Mussel Farm off of Middletown. And 12 leases were assigned to small hobby growers, mostly in the salt ponds. All were experimental ventures, and none lasted for long. Technology and methods for shellfish farming were still in development.

'I started oyster farming in 1978,' says Bill Sieczkiewicz, a quahogger and fisherman who briefly experimented with aquaculture in Charlestown Pond. 'Way before the technology of the process came along. You didn't buy seed. The way that you caught the seed was by making up strings of bay scallop shells and setting them out when the spawning cycles of the oysters were on. I had seven little rafts—four in Fosters Cove and three in Green Hill. I had probably 3,000 scallop hangers, probably 12 shells apiece on them. That was a tremendous amount of work, making all those. We'd use tennis string, because Ashaway Line and Twine used to make tennis racket string, and they had seconds and you could buy it really cheap. And we used plastic drinking straws for spacers … There were four of us doing it then, or five … All of those farms eventually failed, for different reasons.'

The most ambitious aquaculture venture of the late 1970s was Blue Gold Mussel Farms. Spouses Graham and Sarah Hurlburt, a Harvard administrator and a chef, respectively, started the farm after admiring mussel production operations in Europe. The farm was greeted with excitement by the *Providence Journal*, which hailed it in a 1977 editorial: 'If the mussels are cooperative, it could advance the chances of a major new shellfish-farming industry in Narragansett Bay. Many miniature mollusks, mating madly, might mean more marvelous mussel markets.'

The media were not the only ones to embrace the proposal. The plan to attract and grow mussels on ropes dangling in Narragansett Bay sailed through the CRMC permitting process. Two years later, Blue Gold collected its first harvest, and seemed poised to become the largest mussel producer in the country.

But the success did not last. The mussels became infested with pea crabs, and were affected by a problem known as summer byssal drop, which caused them to detach from their growing ropes. Hurricane Gloria dealt a severe blow to the farm in 1986, and by 1988, Blue Gold Mussel Farms was gone.

A peek inside an oyster bag from a Hog Island aquaculture farm

PHOTO COURTESY OF RHODE ISLAND SEA GRANT/URI COASTAL RESOURCES CENTER

The company's legacy was felt in more ways than one. Blue Gold heralded the rebirth of shellfish culture in Rhode Island, inspiring a new generation of aquaculturists to try their hands at growing. But it also left a legacy of debris: when the company pulled out of Narragansett Bay, it neglected to pull out its gear. For years, the area off Melville was strewn with abandoned ropes and floats, making it difficult for fishermen to fish there. This was one of several factors contributing to a growing sense of ill will between wild-harvest fishermen and fledgling aquaculturists in Rhode Island.

As interest in shellfish culture grew in Rhode Island, so did apprehension among the state's wild shellfish fleet. Some shellfishermen in the 1980s still recalled a time in the earlier part of the century when Narragansett Bay's large oyster planters charged quahoggers a fee to harvest wild-set quahogs on planters' leases—sometimes as much as a quarter of their earnings. Fisherman Tom Hall credits much of the mistrust towards aquaculture among present-day shellfishermen to these historical roots.

'All the guys who were in the business when I started [in the 1960s] hated the [old oyster] leases,' Hall recalls. 'Hated them with a passion. All their ground was where the best quahogging was. And they actually had patrol boats that stayed up all night. Guys used to try to go in and dig quahogs on the leased grounds. I don't know if shots were fired, but there was a lot of animosity between the free fishermen and these large

companies—and they were large companies. And I can tell you, one of the reasons that the shellfishermen, and fishermen in general, really fight a lot of aquaculture, is because of what went on back in the '30s and '40s. And that carried over, generation to generation. So when somebody talks about leasing bottom, shellfishermen go a little bananas. Me included.'

Through the 1980s and 1990s, the state of Rhode Island was caught between opposing pressures from those who sought to promote aquaculture in Rhode Island's productive waters and those who feared that it would curb the freedom to fish. The result was a series of wild policy swings.

In 1980, Governor Joseph Garrahy ceded to pleas from wild-harvest shellfishermen and temporarily halted development of aquaculture in the state. Placing a moratorium on new leases, he charged the CRMC with designing a new aquaculture permitting process that would prevent clashes with existing uses of Rhode Island's waters. Three years later, the CRMC released its new set of rules, which included an extensive public hearing process for new aquaculture proposals. Public vetting while a project was in the conceptual stage, the CRMC hoped, would avert conflict between aquaculturists and other users once a project was underway.

The first new venture to apply for a lease under the revamped regulations was Spatco Ltd. (also known as Moonstone Oysters), led by Robert 'Skid' Rheault. In the late 1980s, Rheault applied to farm a 2.3-acre area in Point Judith Pond. The application was eventually approved, but only after nine public hearings. Many observers saw the new permitting process as overly onerous. In hopes of smoothing the way for future proposals, Rheault and the Rhode Island Aquaculture Association began a public education campaign highlighting potential benefits of shellfish farming in the state.

Efforts to turn public opinion around on aquaculture eventually paid off. In 1996, state legislator and CRMC member Eileen Naughton sponsored a controversial bill to streamline the permitting process for aquaculture in Rhode Island. In its original version, it would have prioritized aquaculture over wild shellfishing and transferred authority over most forms of fishing from DEM to the CRMC.

'It would have given control over the quahog industry to the aquaculture industry,' is the assessment of quahogger Bruce Eastman, who says that the 1996 aquaculture bill caused the biggest uproar he has seen during his tenure as RISA Secretary. 'A guy who ran a restaurant in Providence made a comment that quahoggers were a bunch of $50-a-day nobodies. So we made up a sign. I would come in early and hit the

windshields of all the cars around Apponaug, saying, 'There's a hearing tomorrow. We've been called a bunch of $50-a-day nobodies. If you're a $50-a-day nobody, stay home. But if not, then come to the hearing."

'The legislators called us 'the ponytails and the tattoos.' But once they realized that quahoggers weren't a bunch of buffalo hunters, it just got whittled down. We won in the end.'

By the time the bill passed the General Assembly in 1997, its most unpopular parts had been culled out. The legislation that emerged consolidated authority over aquaculture under the CRMC and supported creating a state aquaculture coordinator position there. In the years that followed, the CRMC worked closely with the public and other state agencies to craft an approach to aquaculture development based on consensus among all users of the state's waters. Soon after the 1996 reform, aquaculture in Rhode Island waters began an upward trajectory.

Prior to the aquaculture bill, says Ocean State Shellfish Co-op manager Graham Brawley, 'aquaculture was hanging on by the edge of its fingernails. Because for businesses that wanted to get started in the state, to have to wait for two years to get started is too long. There wasn't going to be an industry if they weren't going to streamline the process for getting a lease. The idea was to bring together all the agencies that had a stake or wanted a stake in the process. All the younger guys who have come into the business are an indication of how that process has been streamlined.'

In 2004, aquaculture in Rhode Island received another boost, in the form of U.S. Senator Jack Reed's Aquaculture Initiative. This endeavor directed $1.5 million in federal funding to support aquaculture research and education in Rhode Island. It supported a partnership between Matunuck Oyster Farm and South Kingstown High School to educate students about aquaculture, the creation of the Oyster Gardening for Restoration and Enhancement (OGRE) program, and a series of Practical Shellfish Farming classes for the community led by Roger Williams University (RWU) associate professor Dale Leavitt. Projects like these spurred collaborative relationships between the CRMC, URI, RWU, and Rhode Island Sea Grant that continue to drive innovation and development in aquaculture to this day.

Since that time, Rhode Island aquaculture has grown significantly.

'We have a lot of advantages in Rhode Island,' says Potter Pond aquaculturist Perry Raso.

We're able to harvest all year … We don't have 12-foot tides. We don't have 4 feet of ice. We don't usually have super-hot temperatures that prevent us from

The vessel *New Hope* works a long line at Salt Water Farms in the East Passage of Narragansett Bay. In this photo, workers are power washing fouling organisms from the oyster cages to allow water flow (and food) to get to the oysters.

PHOTO COURTESY OF GREG SILKES, AMERICAN MUSSEL HARVESTERS

harvesting. We're in a good spot regionally: being adjacent to the Boston and New York markets is key. The infrastructure that we have from Point Judith, which is a significant fishing port, is something that I take for granted. I'm 10 minutes from Point Judith where they can easily put my catch on a refrigerated truck that's destined for a large buyer.

And the reputation that Rhode Island oysters have is incredible. If you think about a restaurant in L.A., with oysters on the menu: how many other things in L.A. say 'Rhode Island' on them? It's kind of a neat thing that we have around here.

GROWING SEASONS

Growing an oyster from seed to market takes about 18 months. The work of oyster farming follows a seasonal rotation.

FIRST SPRING:

Growers purchase seed oysters, each the size of a grain of sand. They first place the seed in upwellers on the underside of a dock—either their own dock or a rented one. An upweller is a container made of small-mesh screen and equipped with a pump that circulates seawater through the

container at a fast pace to 'force feed' the tiny oysters inside and accelerate their growth. Growers leave oyster seed in upwellers for 6 months. During this time, they frequently pick through the seed and transfer the larger oysters to separate compartments within the upwellers so they do not compete for food with slower-growing individuals.

FIRST FALL:

When the oysters in the upweller reach the size of a quarter, growers transfer them into plastic mesh bags, stack the bags in wire cages, and hang them from buoys in the water column. This method is called the rack-and-bag method, and the time in which the oysters are in the bags is called the nursery phase. During this stage, growers periodically pressure wash the bags to rid them of fouling organisms such as seaweed and sea squirts, which block water from moving freely through the cage and prevent plankton from reaching the hungry oysters inside. During the nursery phase, growers frequently shake and agitate the mesh bags to chip off the growing edges of the oysters' shells; this causes the oysters to develop deeper cups, an advantage that helps them in the marketplace.

SECOND SUMMER:

In mid-summer, growers plant the nursery crop for their final stage of growth: the grow-out phase. Here they may select between two methods. Cage culture involves placing the oysters in stackable trays in cages floating off the bottom. Bottom culture involves broadcasting the oysters directly onto the seafloor. Both methods work well in the coastal ponds, but bottom culture is not feasible in the bay, where predators are a greater menace. During this phase, the oysters grow, spawn, and fatten up for harvest.

SECOND WINTER:

After 6 months in the grow-out location, oysters are ready to harvest. For cage-grown oysters, harvest means hauling up the cages and removing the oysters. For bottom-culture oysters, harvest is accomplished by diving, bullraking, or dredging the loose oysters from the bottom. Oysters need not be harvested all at once; most growers will stretch the harvest over a yearlong period to have a constant supply for their customers.

TASTE OF A PLACE

'More than any other food, oysters taste like the place they come from,' writes author Rowan Jacobsen in his connoisseur's guide *A Geography of*

Oysters on the half shell at Matunuck Oyster Bar

PHOTO BY MELISSA DEVINE

Oysters. 'While they are creatures of the sea, they draw their unique characteristics from the land and how it affects their home waters … Think of an oyster as a lens, its concave shell focusing everything that is unique about a particular body of water into a morsel of flesh.'

The unique taste of an oyster is called its 'meroir.' A takeoff on the viticulturist's 'terroir'—the characteristic taste of a wine imparted by the soil, climate, and topography in which its grapes are grown—the meroir of an oyster derives from the sediments, algae, and salinity of the location in the pond or bay where an oyster is raised.

Rhode Island's oyster meroirs are considered among the best: According to *A Geography of Oysters,* 'Some of the most savory oysters in the world come from a geographical arc running from the eastern end of Long Island, along the ragged Rhode Island coast, to Block Island, Cuttyhunk, and Martha's Vineyard: the line marking the terminal moraine of the most recent glacier. Along that arc, mineral-rich waters produce salty oysters with unparalleled stone and iron flavors.'

MATUNUCK OYSTER FARM

FARMER: PERRY RASO
LOCATION: POTTER POND
MEROIR: CRISP, BRINY, WITH A SWEET FINISH

The 7-acre Matunuck Oyster Farm, with its associated Matunuck Oyster Bar restaurant, has played a big role in putting Rhode Island oysters on the map. Owner Perry Raso not only produces a very popular oyster, he has also made his farm a center for education and ecotourism, inviting the public to see, touch, and taste his oysters while taking in the experience of Potter Pond.

Like many oyster growers, Raso got his start in wild-harvest shellfisheries, diving for steamers and littlenecks in Point Judith Pond. But after completing a degree in aquaculture and fisheries at URI, he decided to try something new, and he leased a 1-acre aquaculture site in Potter Pond. That small beginning grew rapidly.

'The 1-acre farm that I started in 2002 expanded to 3 acres and then to 7 acres,' Raso recalls. 'In 2006, the farm was producing a lot of oysters and I was selling them to Boston and New York, and I wanted to ensure a future for the farm. I was running the business out of a section of a rental house in a nice neighborhood. I had a couple of employees and a lot of gear. It wasn't a sustainable way of continuing my business.

'So I purchased a run-down restaurant that was shut down for a couple of years, because it was the only commercial dock on the pond. I figured I'd open the restaurant with the farm-to-plate theme … From that 1-acre farm with one student employee, now 11 years later, there are 12 people on the oyster farm, the vegetable farm has six employees, and depending on the time of year, the restaurant has between 150 and 250 employees.'

In addition to greeting guests at the restaurant, Raso connects with the public through farmers markets, events, and educational workshops at the farm.

'Open air markets like farmers markets have been a great way to connect with the customers. Community events are a great way to get our name out there, and a great way to keep it out there. We also sell juvenile oyster seed, and take part in restoration projects. And agritourism … It's a way to foster acceptance of the business. It's also a way to create revenue and spread the good word about shellfish.'

ROME POINT OYSTER FARM

FARMERS: BILLY AND RUSSELL BLANK
LOCATION: WEST PASSAGE, NARRAGANSETT BAY
MEROIR: SALTIER THAN THE ONES GROWN IN SALT POND

Billy and Russell Blank have spent their whole lives on the water, starting with quahog diving and lobstering. In the early 2000s, they were facing some tough choices. While they loved quahogging, the price for quahogs was sluggish—and meanwhile, their lobster catch was declining.

'We needed to do something,' says Billy Blank. 'And then aquaculture came along. We watched [quahogger and early aquaculturist] Lou Ricciarelli. For about three or four years we watched him. And it looked promising.'

Ricciarelli was an early pioneer in growing oysters using modern methods, and is widely considered to have been ahead of the curve. His untimely death in a diving accident in 2009 was keenly felt throughout both the wild-harvest and aquaculture industries.

'Unfortunately, he didn't get to see the whole thing turn into what it's starting to turn into,' laments Blank.

By that time, the Blank brothers had already followed in Ricciarelli's footsteps, setting up an oyster lease off Rome Point, in North Kingstown.

'We started with $10,000 between us,' remembers Billy Blank. 'We sold our lobster gear, most of it. Ten years ago, 10 grand. And without the boats and the trucks, I'm gonna say we're probably now sitting on close to half a million in total equity. We probably have over a thousand cages.'

Although the brothers continue to harvest wild quahogs in their spare time, aquaculture has proven to be the right decision for them, Billy Blank says.

'The quahogging industry as a whole hasn't progressed with the times. We do it because it's a beautiful job out there. It keeps you in shape. The freedom. But you still got to pay to the bills at the end of the day. If you want to have a house, if you want to have a retirement, if you want to have a truck, you have to keep money coming in. I think this [aquaculture] is the wave of the future, because we're the middleman … We harvest them and sell them directly to the co-op. So we get to decide how much we're going to get for them.'

EAST BEACH OYSTER COMPANY

FARMER: NICK PAPA
LOCATION: NINIGRET POND
MEROIR: FRESHWATER SPRINGS IN THE POND ADD A SWEETNESS TO THE FLAVOR

Nick Papa grew up in the Warwick quahogging community, but he found his own destiny in oyster growing.

'My dad was a shellfisherman for his profession,' says Papa. 'I started going with him, and he would pay me a couple bucks to sort and count all of his clams. Being out there so regularly, I always wanted to see if I could do it myself. Finally I talked my dad into letting me take his boat out, and the experience when I did was pretty special, being out there and being in charge of myself and working. The bay is just so special, I almost got addicted to being out on the bay … I couldn't imagine being away from it. But I could see the ups and downs of the quahogging industry itself.

'Somehow I ended up moving my boat from Warwick to Wickford, and I met the Blank brothers and Lou Ricciarelli. They always offered to show me what they were doing with the oysters. It was pretty different from quahogging, where no one will tell you anything about what they're doing. So I decided to try it out. I figured it would be more consistent, that you wouldn't have to sell them if the price was low. And since it's so sustainable, and it's good for the environment, I couldn't help but to give it a shot.'

Papa eventually took out a lease in Ninigret Pond and started the East Beach Oyster Company. The location was close enough to his grandparents' house on the pond to feel familiar, yet far enough away from Warwick and Wickford to escape the skeptical glances of Papa's quahogger friends.

'There were some heated debates about aquaculture when I was younger, so I kind of kept it to myself that I was even trying it," Papa admits. 'Because it's still kind of a bad word to a lot of the quahoggers.' His quahogger father was not opposed to the project on ideological grounds, Papa notes. 'He just thought it would be a lot of work. And since I didn't know much about it, I wasn't doing it efficiently at the time, so at the beginning it was quite a struggle. So my dad was on the fence for quite a while.'

Since then, Papa's father has started working side by side with him on the 3-acre oyster farm. In fact, Papa says, 'Most of the quahoggers were pretty positive about it after they found out what I was doing.' Ultimately, Papa finds he can satisfy his addiction to being on the water just as well on the oyster farm as on his old quahog boat.

'It is special for the obvious facts of the beauty of your surroundings. Sometimes you might work right through a sunset, you might see the most beautiful sunset of the year. It's part of my lifelong goal of just trying to spend time outdoors. I enjoy all of the weather types. There's something special about all of those conditions: the rainy windy days, or when it's snowing, or when it's springtime and you can hear the thunder. There's a fondness to the memory, I guess.'

ISLAND PARK OYSTERS
FARMER: DAVE MCGHIE
LOCATION: THE COVE, PORTSMOUTH
MEROIR: IT REMINDS PEOPLE OF THAT FLAVOR YOU GET IN YOUR MOUTH WHEN YOU'RE SWIMMING

Dave McGhie started oyster farming after being inspired by RWU associate professor Dale Leavitt's community class in Practical Shellfish Farming. He enjoyed the class and was contemplating applying for a lease site at some point in the future, when all of a sudden, opportunity knocked.

'I heard about a lease that was up for sale because a fellow had passed away, unfortunately,' says McGhie. 'But we ended up helping the widow out by buying the lease. That happened in May 2013.So we bought the lease with some oysters there at the farm, not knowing how many, and we bought some gear.'

McGhie has worked on boats his whole life, including a stint as a quahogger in the early 1990s.But oyster biology was entirely new to him.

'The oysters were a learning curve,' he admits. 'I'm sure we've killed some oysters … They grow way faster than you think, and you never have enough gear.'

Having worked previously in wild-harvest fisheries, McGhie was initially surprised at the level of cooperation among growers throughout Rhode Island.

'Commercial fishermen, they don't help you much,' McGhie explains. 'And aquaculturists will go out of their way to help you. Guys have invited me to their sites, and I've visited their farms, and done some upweller work with other guys. I think they realize, if someone gets sick from an oyster in Rhode Island, they're not getting sick from an oyster from Dave McGhie's farm, they're getting sick from a Rhode Island oyster. There's no distinction between my farm and anyone else's farm. I think they realize that the industry is only as strong as the weakest guy. And there's enough market share right now that you don't have to cut each other's throats.'

Island Park Oysters are grown in a 2.4-acre lease in the water body known as 'The Cove' at the northern tip of Portsmouth. The farm is in shallow water, accessible by walking in waders at low tide. The location is part of the draw for McGhie.

'There's been days when I've been out there and the horseflies are the size of helicopters, and the sun was beating down, and there was no wind, and you're sweating. It is a farm, and that's a four-letter word. And sometimes it really is farm work. And there's been other days, when you go out in October, and it's just beautiful, and the ospreys are hunting around, and it's just the greatest thing. The air has that smell of marsh and salt air, and it's just perfect. There's probably more of the horse-

fly-biting days than those other days! But there's enough of those nice days to keep you going back.'

MUSSEL FARMING: PROMISING, CHALLENGING

Mike Marchetti has been harvesting wild mussels at the mouth of Narragansett Bay on a part-time basis for a decade. Volume has been good, but each year, the pea crab problem seems to worsen. Frustrated with the constant infestations, Marchetti teamed up with Sakonnet fisherman Greg Mataronas in 2008 to try something new: farming mussels. Along with researchers from the Woods Hole Oceanographic Institute and the University of New Hampshire, Marchetti and Mataronas began an experiment in a system called mussel long-line farming in deep waters off of Newport and Block Island. Initially, Mataronas oversaw the Newport site and Marchetti oversaw the Block Island site.

The two fishermen placed 600-foot horizontal lines in the water, anchored at both ends, and attached buoys to keep the lines about 25 feet below the water's surface. They hung mesh 'socks' containing seed mussels along this line at 3-foot intervals. Since mussels held in the socks don't rest on the seafloor, they experience less pea crab parasitism than wild mussels. It takes less than a year for mussels grown this way to reach harvestable size.

In theory, says Marchetti, mussel farming should be straightforward: 'It's like trying to grow dandelions. It should be that easy. You go and check it to make sure things are going smoothly. As the mussels grow, they gain weight and you have to add flotation here and there, maybe a little chain to stabilize lines. That's it.'

But in practice, it has not been as simple as it sounds, he says. At the Block Island site, ships passing through the area slashed lines, cutting off support buoys. A series of major storms (Irene in 2011, Sandy in 2012, and Nemo in 2013) ripped mussels off of the lines before they could be harvested. Although the farm did have some moderately successful crops, they never made it to market. Eventually, Marchetti gave up on the Block Island site and took over Mataronas' Newport site. But his luck there has been about the same.

'I hate to say it, but my heart's just not into it right now,' admits Marchetti. 'There've been so many setbacks. I need to kind of regroup and focus where I can make money. But I still think it's viable and possible. That's why I have not left yet. I still think it's a possibility … I can guarantee they're the best mussels you've ever tasted. Ever. But the

Billy Blank, right, and his brother Russell own Rome Point Oyster Farm, a member of the Ocean State Shellfish Co-op.
PHOTO BY MELISSA DEVINE

problem is getting them from here to there. I know it's possible. It's just a matter of making them viable.'

OCEAN STATE SHELLFISH CO-OP

Unlike wild-harvest commercial fishermen, who are required to sell their product to a licensed shellfish dealer, aquaculturists are authorized to sell their product direct to consumers, restaurants, or retail shops. The Department of Health recognizes their lease areas as certified wet-storage facilities, enabling them to bypass the shellfish dealers if they choose.

However, most oyster growers have their hands full on the water, working up to 16 hours a day, seven days a week in the summertime when demand for their product is highest. The added requirements of marketing their product, transporting it to market, and staying on top of billing and bookkeeping can compete with the caretaking demands on the farm.

By the late 2000s, some of Rhode Island's oyster farms were busy enough that their owner-operators were struggling to keep up with the

marketing of their own product. It seemed natural to join forces and form a marketing cooperative. Six farms—Cedar Island Oyster Farm, Rome Point Oyster Farm, East Beach Farm, East Beach Oyster Co., Matunuck Oyster Farm, and Ninigret Oyster Farm—decided it was time to give collective marketing a shot.

'We had all worked together anyway,' says Graham Brawley, manager of the Ocean State Shellfish Co-op, who had previously worked with several other growers at Moonstone Oysters. 'So we decided to have a go at having the co-op, having a partnership, to really compete regionally rather than competing against the farm next to you … It was an opportunity for the farms to set their own market. We didn't know whether it was going to work out. But it's worked very well. It has everything to do with the guys working together.'

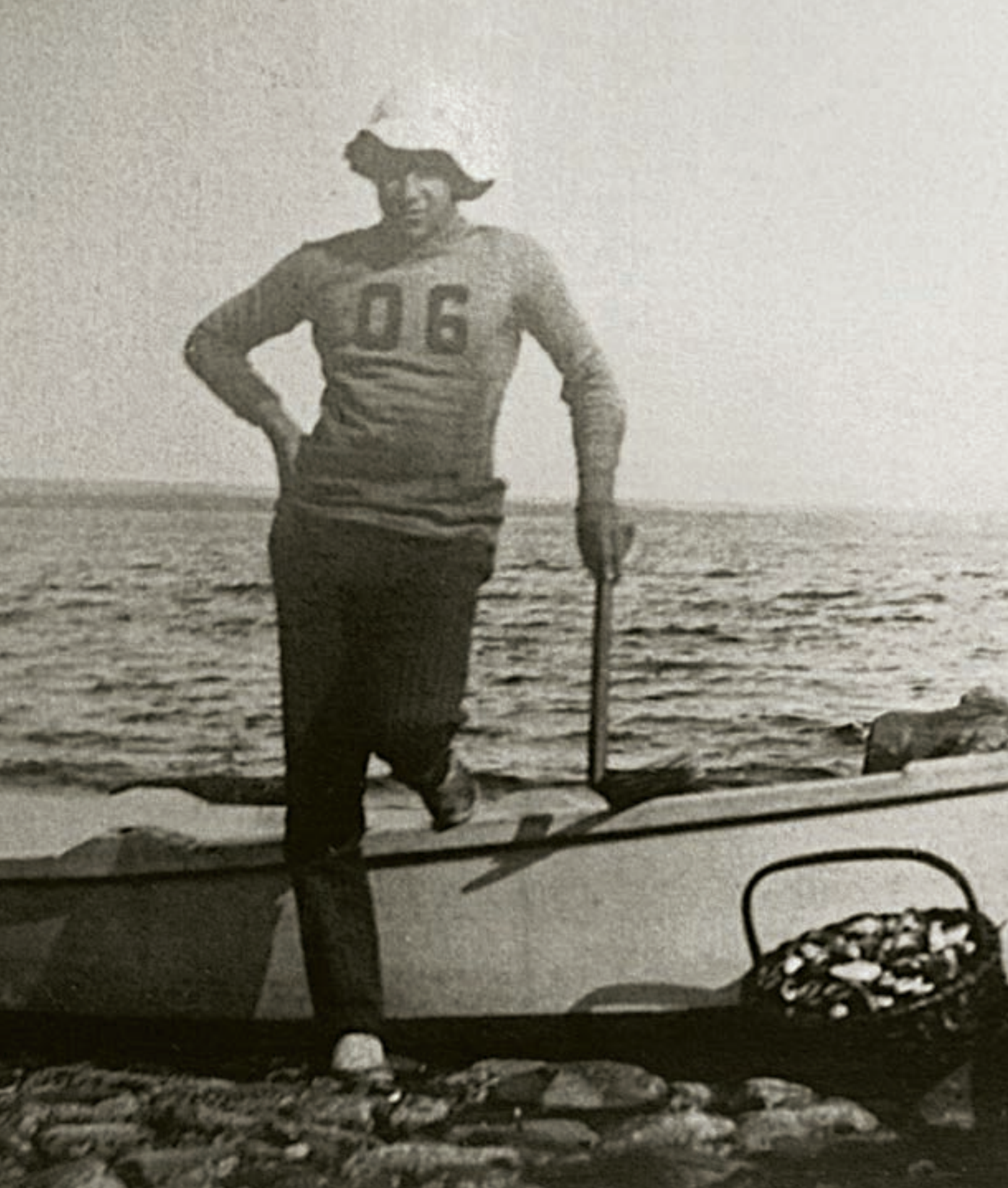
Nick Papa, owner of East Beach Oyster Co., had grown up hearing the stories of failed attempts at cooperative arrangements in the wild-harvest quahog fishery. But that didn't dampen his enthusiasm for trying it in the oyster fishery. He joined the co-op as soon as his product was ready to market.

'I was pretty excited to start a co-op,' says Papa. 'It just made sense that instead of selling to a private middleman who could do whatever he wanted with the price, that we could have a say in our own price. That was a huge improvement. There's been challenges in the co-op as well, with seven individuals working together. But overall I've been pretty impressed with that we've been able to work together.'

Member farmers deliver their oysters to the co-op's facility on Walt's Way in Narragansett. There, the growers, their assistants, and Brawley sort and package them for delivery to restaurants spanning from Boston to Washington, D.C. If one farm suffers a shortage of oysters due to weather or predation problems, the others make up for his share so that customers are always happy. But each farm retains its own individual brand and capitalizes on its own 'meroir' and unique story.

Brawley, who has worked in oyster aquaculture in Rhode Island since 1991, says that from his vantage point at the co-op, he has seen the state's aquaculture industry hit its stride.

'For the first time, young guys are realizing that they can actually earn a living,' he says. 'It's satisfying to be able to grow food, it's satisfying to be able to grow slow food. I'm selling an experience. Being part of that is satisfying. It really is.'


06

Thirteen

SHELLFISHING FOR FOOD AND FUN

ALTHOUGH RHODE ISLAND SHELLFISH are important economically, they also have a significant social and cultural value for recreational harvesters.

For Cranston resident Shawna McKeen Lawton, Narragansett Bay is like another member of the family.

If you are from Rhode Island, you are very comfortable with the bay, and you enjoy the bay, and you grow up around it and everything that it can give you. When I was probably 6 or 7, we had a boat, and we used to go out and jump off and swim to shore, and we would gather seaweed and mussels, which at the time were not considered good eating. My mom grew up in an immigrant Italian family, and so my mom was familiar with eating periwinkles and mussels and all of those things, but my dad's family didn't. And they were in shock.

My grandmother, on my mom's side, used to take us clamming, and she'd go in up to her waist or so and feel with her feet. I always used my hands. I remember cooking the periwinkles in a red sauce.

Then when my husband and I started dating, he and I learned how to scuba dive, and then we started diving for lobsters and bringing them home and enjoying that. And we'd go clamming in between Prudence and Patience Island.

A recreational quahogger

PHOTO COURTESY OF THE NORTH KINGSTOWN FREE LIBRARY

Through different stages of my life, the bay has always been an important part of it. And even my kids now know how to jump off the boat and swim and how to find clams … When I think about it, it's hit every stage of my life: my parents created memories for me, but then I took it to a different level with my husband, and then I started to create memories with my own children.

on a cold winter day on a lunar low tide, avid shore diggers Mike and Bruce look back on time well spent on the edge of Narragansett Bay in North Kingstown.

Mike: We've been doing this over here for 30 years.

Bruce: You've been coming here a lot longer than I have.

Mike: Digging them is the easy part. It's carrying them back that's the hard part.

Bruce: It's all about the weather and the tide. If you get a decent day and you're not freezing, it's nice, because you don't have to get out in deep water. It's nice to get out.

Mike: This tide is really good. You never see it like this. Usually you have to walk across in water up to your knees. It's only this good in the winter.

Bruce: But you know what the best part about the winter is? No bugs.

Mike: You could go buy these things, but there's nothing like getting them fresh. When you buy them, you don't know how old they are, where they came from.

Bruce: You get outdoors, and get something good to eat. I like to call it 'Rhode Island sushi' … I give most of them away, actually. I eat just a little bit of them, but give most of them away.

jaime dice of providence moved to Rhode Island five years ago from the South. Learning to dig clams and quahogs quickly made her feel at home.

When I go shellfishing, I feel like when I'm gardening—being part of the soil and the earth and connected to nature—but it's something unique to Rhode Island. You can garden anywhere in the world. With clamming, you have to be able to read the tides and understand the moon and think about the temperature of the water. You really have to be attuned to natural systems in order to know when to go and what to do.

It's the one thing I can do that's super-Rhode Island, and makes me feel connected to this local place. It doesn't take a lot of equipment or tools or knowledge. It's just more of a way to be part of the ecosystem here, instead of trying to be part of a more global or bigger ecosystem.

It's not necessarily that I want to eat clams; that's not why I do it. I do it because there's something that feels so good about doing it. I would give away all the clams that I spent hours fishing for! It's more of a special thing to give somebody something that you got out of the ground, out of the water.

I think a lot of it is that gold rush feeling, that thing inside you where you're like, 'Ooh, I have one! Now, just a few more. Cool beans! Oooh there's another one!' And thinking about how they're like clumped together or where they might be, it's kind of like a puzzle underwater. And that I can't use my eyes to see them; it's kind of enjoyable to be more in my body. It's not thinking so much, but it's more sensory ... And I can feel what it might have been like a couple hundred years ago doing the same thing. Because the clams can't have changed that much. It's all tied into time and space.

jon campbell of wakefield, a silversmith and artist (see pages 153-155), grew up fishing, shellfishing, and rambling in Point Judith Pond in the 1960s and 1970s. Oysters, scallops, and quahogs—all represented an adventure, a source of food, and maybe a little cash on the side. At that time, the line between recreational and commercial shellfishing was blurry.

I owned a quahog skiff before I owned a car. We weren't so interested in getting paid. We were interested in free grub. But if we caught more than we could eat, we would sell it ... It was pretty unregulated back then.

There were many personalities on the pond, says Campbell: funky beatniks who lived on boats at Hanson's boatyard, boat builders and eel fishermen who hung out at Babcock's boatyard, and a shoreside landowner who went to drastic measures to assert his possession over a piece of the public pond: *I got shot at once when I was about 12. People are territorial. I don't know if it was the owner or his groundskeeper. He just thought of it as his own.*

Every family in the neighborhood, says Campbell, had a special shellfish meat grinder for making chowder, and driveways were paved with quahog shells. But Campbell's favorite memories are of another bivalve: 'We used to make a cookie sheet of breaded scallops, and eat them like gum drops,' he recalls fondly.

Rhode Islanders learn how to dig for quahogs in Narragansett at a Clamming 101 class sponsored by Rhode Island Sea Grant and the URI Coastal Resources Center.
PHOTO BY MELISSA DEVINE

RECREATIONAL DIGGERS ROUT POLLUTION

The Kickemuit River, ringed by the shores of Warren and Bristol, has been the site of many a local family's shellfishing adventures. But the fun on the river came to an abrupt stop in 1990 when DEM declared the river too polluted for shellfishing. The shock forced local residents into action.

'My whole life was spent on the river,' says former Warren resident Marco Vecoli. 'When we were down there in the summers, we always ate the shellfish. When they closed the river, everyone down there was disappointed. We got together, and we tried to clean it up.'

Vecoli and his brother Alfred contacted the Kickemuit River Council, a volunteer-led watershed group. Together, they spearheaded a campaign to track the sources of pollution. They walked the shorelines of the river looking for pipe outflows. They waged an education campaign, letting residents know that they could have their septic systems pumped twice a year, free of charge. They took water samples and delivered them to the Warren wastewater treatment plant for analysis.

'We devised a device where I used a hockey stick, and I took the cap off a detergent bottle,' says Vecoli. 'I would screw it on the end of the stick so that we could scoop the stick 3 or 4 feet down in the water so

that we could get a sample. And we would put it in the special jars that we had for samples. There were about eight or 10 positions in the river and three or four outside, as you went out into the bay. We'd bring them up and get them analyzed. We did that for quite a few years. And I personally walked around the river, checking for pipes going in the river. We had a problem with one neighborhood, and we even had the Narragansett Bay Commission come down and run cameras through the sewage system there. We did a lot of work. It took years, but we finally got [the river] open again.'

In April 1995, the Kickemuit was reopened conditionally for shellfishing, meaning that DEM must close it again for a week after any substantial rainfall event. On the day it reopened after five years, the *Providence Journal* reported that 100 boats showed up to reinitiate the river's shellfishing tradition. Marco Vecoli has since moved across the bay, but at the age of 82, he still goes back to the 'Kicky' a couple of times each summer to grab some quahogs for dinner.

Fourteen

ENHANCING SHELLFISH IN RHODE ISLAND WATERS

MEMORIES OF THE DAYS when oysters blanketed Narragansett Bay and scallops piled up high on shucking benches have galvanized scientists, volunteers, fishermen, and farmers to get involved in shellfish restoration.

RESTORING WILD OYSTERS

Rhode Island waters may be replete with shellfish, but when many ecologists look at the bay and salt ponds, they see something missing: wild oysters.

'Historically, oysters were a ubiquitous species from Maine to Texas,' explains Bryan DeAngelis, restoration specialist with the conservation organization The Nature Conservancy. 'They were very high-density, occupying many bays and estuaries along much of the Eastern Seaboard, including some portions of Rhode Island. And throughout history, through a number of different impacts, including over-harvest, those resources were significantly depleted.'

The loss of wild oysters has haunted East Coast estuaries. 'Oyster habitats provide tremendous water filtration capacity,' DeAngelis says. 'They also provide biogenic structures—three-dimensional living habitat forms for fish, invertebrates, and crabs. They serve as places for

The small dots on these old quahog shells are baby oysters, called spat. They are part of Roger Williams University's restoration program.

PHOTO COURTESY OF KARIN TAMMI, ROGER WILLIAMS UNIVERSITY

settlement of juvenile oyster seed. These habitats enhance survival for crabs and for fish, stabilize shorelines and sediments, and help with erosion. Oyster habitats have enormous denitrification values for excess nutrients, which is a problem in many estuaries ... One of the tools for restoring ecological health, to try to maximize it, is to promote oyster reef restoration.'

Around Rhode Island, many individuals and organizations believe that the oyster has been gone too long from the state's waters, and they are working to bring it back—by rearing oysters in nurseries, improving oyster habitat, and educating the public about the benefits provided by these creatures.

'No one is suggesting that we're going to return the habitat to what it once was,' DeAngelis clarifies. 'Historical baselines are very valuable as a reference, to know what used to be here; however, to set our restoration goals based on those historical baselines is a very difficult thing to do. So many things have changed: our watersheds have changed, there are many influences and impacts that have dramatically changed things … We shouldn't be targeting our restoration efforts towards what used to be here; we should be targeting our restoration efforts towards 'How do we want to increase the services provided by oyster habitat, and how much oyster habitat do we need to do that?"

NEW LIFE FROM OLD SHELLS

The Nature Conservancy takes a 'build it and they will come' approach to oyster restoration that is based on a fundamental biological fact about the oyster: their free-floating larvae, or spat, are innately programmed to settle out of the water column on hard surfaces. The best possible landing surface is another oyster shell. But without a vibrant oyster population in the bay, there is a shortage of appropriate substrate for spat to settle on. Spat that doesn't locate good substrate is unlikely to survive.

By creating more hard surface, The Nature Conservancy aims to create more oysters. Since 2008, the organization and a network of volunteers have been collecting empty oyster shells from raw bars around Rhode Island and dumping them in key locations in the coastal salt ponds. They called the program Oysters Gone Wild.

DeAngelis says that the program is about 'increasing the recycling of shell. Substrate is one of the critical components of reef habitat … There's quite literally tons of oyster shell that goes into landfills. And that's an extremely valuable resource. And if we can get that material

The Nature Conservancy's shell recycling and reef building program collects tons of shells from participating local seafood restaurants, allows them to weather in the rain and sun, and then deploys them in tidal waters to create reefs.

PHOTO COURTESY OF THE NATURE CONSERVANCY

back into the water, that's beneficial, not only for oysters, but for the health of the ecosystem in general. That's valuable calcium carbonate.'

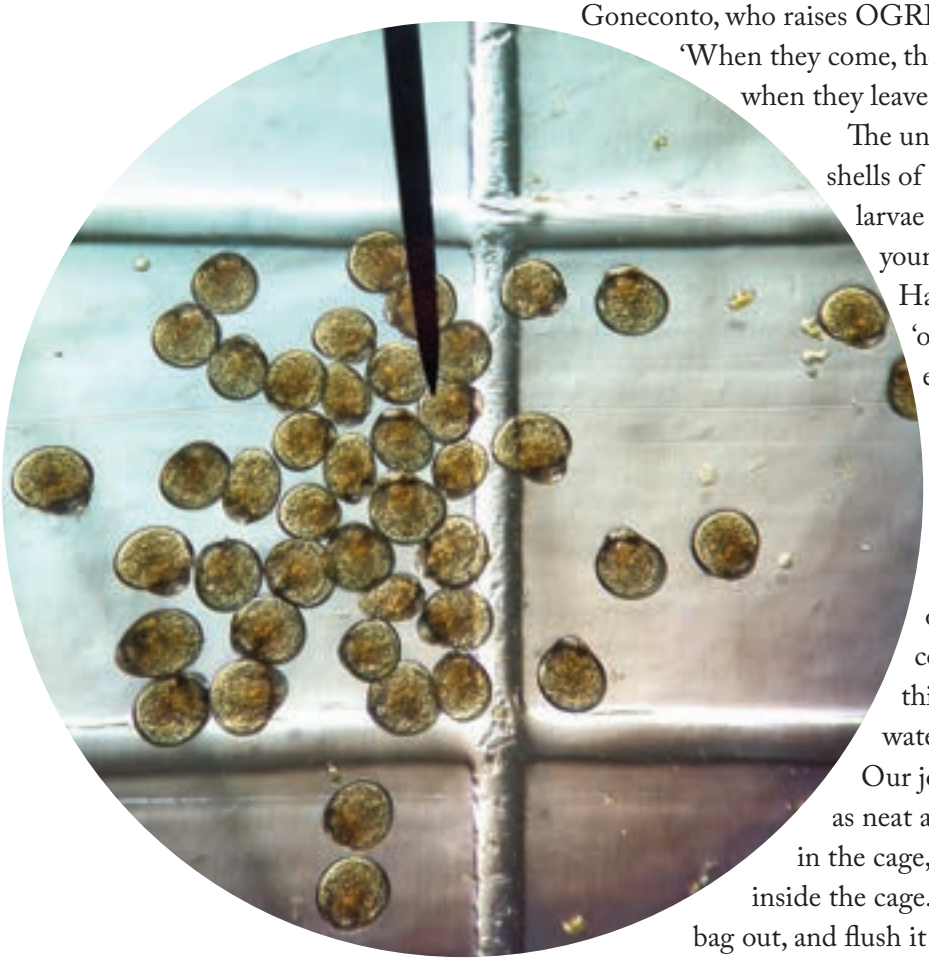
ROGER WILLIAMS UNIVERSITY BREEDS OYSTER GARDENERS

Repopulating oysters can be as simple as putting oysters in the water. But placing hatchery-reared oysters in natural habitat when they are small can make them easy prey for starfish and oyster drills. Restorationists have learned that waiting until oysters reach an inch in length before scattering them in the wild can greatly increase the odds that they make it to adulthood. This raises another problem, however: as oysters increase in biomass, they take up more space. Hatcheries can only handle so much volume, and finding room for floating nursery cages in Rhode Island's busy waters is not easy.

Staring in 2006, RWU pioneered an innovative solution to this conundrum. RWU's Oyster Gardening for Restoration and Enhancement (OGRE) program outsources the work of nurturing juvenile oysters to over 100 volunteer waterfront property owners. Each summer, the volun-

teers, led by RWU oyster specialist Steve Patterson, place juvenile oysters in cages hanging underneath their docks and tend them until they are big enough to survive in the wild. In addition to producing healthy, strong young oysters, the OGRE program also provides a meaningful side benefit: the education and engagement of coastal community members—the 'oyster gardeners'—in restoration work.

'The whole system, from when they start at the university to when they leave here, is rather exciting,' says volunteer oyster gardener George Goneconto, who raises OGRE oysters under his dock in Potter Pond. 'When they come, they're hardly visible. They're just specks. And when they leave, they're ready to be transported.'



Seed oysters grow in a lab at Roger Williams University.

PHOTO COURTESY OF KARIN TAMMI, ROGER WILLIAMS UNIVERSITY

The university's hatchery rears the spat on the shells of large surf clams. The clamshells offer oyster larvae a surface to adhere to and provide the young oysters with protection from predators. Hatchery technicians deliver sacks of these 'oyster crowns,' as they call the oyster-covered clamshells, to gardeners in the springtime, and gardeners place them in cages suspended from their docks. Although nature does most of the work from this point on, gardeners have an important role.

'We care for them by taking the sacks out of the cage and shaking them,' Goneconto explains, 'so that seaweed and other things like that, that are part of the flow of water here, can't get stuck to the clam shells. Our job is to make sure that the clam shells are as neat as possible … Everything is very confined in the cage, so it's easy for seaweed to get wrapped up inside the cage. So we go out and open the cage, take the bag out, and flush it by shaking it vigorously in the water.'

After about 6 months, the oysters have grown large enough to survive in the wild. Volunteers recover them from their nursery cages and scatter them in selected sites around Narragansett Bay, the coastal salt ponds, and Block Island's Great Salt Pond. There, the oysters grow, spawn, establish new reefs—and perform new ecological services.

'The ponds survive because of their cleanliness,' Goneconto muses. 'And if the ponds get polluted, that destroys all sorts of shellfish and

beautiful crustaceans that adhere to rocks and beautiful weeds that wrap around one another. These areas of nature have to be protected.'

BRINGING BACK BAY SCALLOPS

Bay scallops used to be big business in Rhode Island. 'There was a booming fishery back in the 1800s,' says Robbie Hudson, restoration specialist for the local conservation organization Save The Bay. 'It was a huge population. We were one of the number one suppliers to places like New York for bay scallops.'

But the short-lived bay scallop has always had irregular population dynamics, and the increased harvesting capacity that occurred with the advent of outboard motors made the appearance of large scallop sets in Rhode Island waters even more infrequent.

Save The Bay is the latest in a list of organizations attempting to reverse that trend by seeding scallops into Rhode Island waters. The list also includes DEM, National Oceanic and Atmospheric Administration (NOAA), and The Nature Conservancy. Hudson envisions a time when local bay scallops will once again be celebrated every fall on Rhode Island dinner tables.

'It's a native species to Rhode Island,' Hudson states. 'It's not huge charismatic megafauna, but with all those bright blue eyes, they're charismatic. There was a generation lost, but it's picking up again.'

Save The Bay started its scallop restoration program in 2007. It was a natural outgrowth of an eelgrass restoration project that the organization has been conducting for many years, since eelgrass is prime habitat for scallops. From 2007 to 2009, Hudson and his team placed adult scallop brood stock in cages and hung them in the water near Jamestown. From 2010 to 2012, they repeated the process in Point Judith Pond, and in 2013 they moved the cages to Ninigret Pond.

When spawning season comes along, the caged scallops release larvae into the water column, and nature takes over from there. Hudson's team monitors the amount of spat released and uses a dive survey to count adult scallops in the area several months later. So far, results have been promising.

'We're still talking about a species that can have severe swings in population structure,' Hudson says. 'But we've already seen that the population can be increased with our level of restoration, especially in the salt ponds. When you get into Narragansett Bay, you're gonna need a much bigger signal. But given their short life span, I think it's possible to

get a self-sustaining population that can be fished both recreationally and commercially.'

SOWING SEEDS FOR ALL TO REAP

When Owen Kelly first saw the comeback of aquaculture in Rhode Island, he was outraged. 'The sale of Narragansett Bay,' is how the Warwick quahogger labels the leasing of submerged lands to private shellfish farmers. But after some reflection, Kelly hit upon a type of aquaculture that he could live with: public enhancement aquaculture.

Unlike private aquaculture, in which shellfish are raised to market size within a circumscribed area under private ownership, public enhancement involves eventual dispersal of cultured shellfish into their natural habitat. Once planted, shellfish become 'wild,' and can be harvested by anyone when they attain legal market size.

Kelly and RISA teamed with RWU and DEM in 2004 to obtain funds under the Rhode Island Aquaculture Initiative for a public enhancement quahog seeding project. With those funds, they installed a solar-powered upweller at a Warwick dock. They have since raised and dispersed several generations of quahogs into Narragansett Bay and Point Judith Pond.

'We're growing a million to 3 million clams per year,' says Kelly. 'Everyone thought I was nuts when I proposed it ... But we have to make it better in Narragansett Bay—for everybody. So that you don't have to go out and get [an aquaculture] lease. It's a lot of work, no doubt about it. But I just can't see giving up land from the free and common fishery.'

The shellfishermen's group buys seed quahogs each year in early summer, and places them in the group's upweller, where they are tended by volunteer shellfishermen.

By late fall, when the quahogs have attained a size of 15 millimeters, the shellfishermen load them in their boats, travel to a predetermined spot in the bay or salt ponds, and fling handfuls of seed into the water in all directions. If it's late in the season, they may choose to tow a section of chain link fence behind the boat; this serves to work up the bottom and help the little quahogs burrow down into it. In past years, the quahoggers have dispersed seed in Greene's River, the High Banks, the east side of Greenwich Bay, and along the Escape Road mudflats in Galilee.

Kelly admits frustration at the lack of hard data available to evaluate the success of the project. He questions whether the quahogs are large enough to survive when they are planted. He wonders whether they ever

Dale Leavitt, associate professor at Roger Williams University, second from left, stands with some of his students behind an upweller, which circulates nutrients in the water more quickly to cultured shellfish that are attached to the upweller in bags. Leavitt was instrumental in launching the Oyster Gardening for Restoration and Enhancement program known as OGRE.

PHOTO BY MELISSA DEVINE

reach market size and are harvested—or if they succumb to predation by crabs before reaching legal size.

'Sometimes you wonder if you're breaking your back for nothing,' he broods. But he never stops. 'The main thing is we got the clams out there. To increase the bay. To help everybody. To help all of Rhode Island.'

'The more clams you put out there, the more you bring into the state's economy in Rhode Island,' Kelly explains. 'When I was knee-high to a grasshopper, Brushneck Cove was the place to go clamming. You'd get people from Smithfield, Wakefield, all over the state. There'd be 300 to 500 people out there every single day. They come into this town, and buy gas, and go to the store, and go up to the restaurants, and then go clamming. The trickle-down effect is amazing. That's what I want to bring back.'

CLAM BAKE

— AT —

ROCKY POINT!

GRAND EXCURSION

— VIA —

Old Colony and Newport Railway,

AND STEAMER

"CANONICUS,"

ACCOMPANIED BY

STETSON'S WEYMOUTH BRASS BAND.

Friday, July 28, '71

AN EXTRA TRAIN WILL LEAVE AS FOLLOWS:

		Fare for the Round Trip.			Fare for the Round Trip.
Plymouth	at 6.40 A.M.	$1.75	S. Abington	at 7.20 A.M.	$1.45
Kingston	6.50	1.75	Abington	7.05	1.50
Plympton	6.58	1.70	N. Abington	6.55	1.50
Halifax	7.01	1.60	S. Weymouth	6.43	1.50
Hanson	7.07	1.55	E. Bridgewater	7.35	1.30
N. Hanson	7.11	1.50			

Connecting at Fall River with Steamer "CANONICUS," Capt. A. P. ORSWELL, arriving at Rocky Point about 10 o'clock, A.M.

RETURNING,

Will leave Rocky Point at 3.25 o'clock, P.M.

W. H. BULLOCK, Sup't.

BOSTON, JULY 15, 1871.

Fifteen

A RHODE ISLAND ICON

THE PROVIDENCE SUNDAY JOURNAL reported in 1906,'Next to the arrival of Roger Williams himself nothing is more significant in the history of Rhode Island as a social unit than the arrival of the clambake as a public function.'This is not necessarily hyperbole: from the 19h century to the present day, scores of tourist guides, magazines, books, and postcards have celebrated the clambake as the defining Rhode Island experience, and most Rhode Islanders have at least once relished the tradition of gorging themselves on hot steamed clams and potatoes.

BROADSIDE © MYSTIC SEAPORT #1981.98.3

Images of a 1953 clambake

PHOTOS COURTESY OF THE RHODE ISLAND STATE ARCHIVES

The details of the clambake's cultural lineage are murky. In her book *Clambake,* folklorist Kathy Neustadt notes a historical irony. Although 19h-century clambake participants claimed to be carrying on a Native American tradition predating European colonization, no archaeological or written evidence has confirmed that native tribes actually practiced clambakes. The genesis of clambakes, writes Neustadt, may in fact have occurred after statehood, as New Englanders tried to establish a sense of historical identity tying them to their newly defined place in the world. Present-day members of the Wampanoag Tribe, however, embrace the clambake as part of their historical heritage, prompting Neustadt to propose that the clambake is both 'part of native American cultural inheritance and an invented tradition within white culture.'

Whatever its origins, by the mid-19h century, the clambake was an entrenched part of New England folklife. A fixture of county fairs, church suppers, grange gatherings, and ladies' aid society dinners, it was also becoming a defining feature of Rhode Island in the eyes of the outside world. Early 19h-century clambakes were private gatherings, held in the shade of a maple grove, with tables made of boards resting on sawhorses, and run by volunteers. But in the 1830s, the clambake began its ascent towards a much larger affair.

Rhode Island's first shore dinner hall opened at Buttonwoods in 1836,and began mass-producing the clambake for paying customers. In 1840, presidential candidate William Henry Harrison attended a large clambake there, bringing national media attention to the new venue and to the Rhode Island custom.

Clambakes and politics went hand in hand for many years, particularly during 'Old Home Week' each summer, when locals who had moved away returned home for a weeklong reunion in their native towns. A European researcher sent to New England in the 1880s to record observations on the oyster farms reported back in horror on the custom of the political clambake:

'While I was in America, I saw the excitements caused by immoderate indulgence in shell-fish violently illustrated. They have there a sort of political assemblage called a clam-bake, where speeches and music and songs are interspersed with profuse feasts upon a species of oyster called the clam. Vast crowds attend these celebrations, and no sooner are they gorged with the insidious comestible, than they become full of excitement and furores [sic]; swear themselves away in fealty to the most worthless of demagogues; sing, fight, dance, gouge one another's eyes out and conduct themselves like madmen in a conflagration.'

Rocky Point's Shore Dinner Hall (here shown in 1953) was the nation's largest.

PHOTO COURTESY OF THE RHODE ISLAND COLLECTION AT THE PROVIDENCE PUBLIC LIBRARY

In the latter 19th century, shore dinner halls sprang up around the state: Rocky Point in 1847, Fields Point in the 1850s, and Crescent Park in the 1890s. Their proliferation signaled the availability of leisure time to a wider spectrum of society. With the advent of the shore dinner hall, the clambake became a massive event, feeding thousands of clam-hungry diners at a time.

Rhode Island's most commemorated shore dinner hall was at the Rocky Point Amusement Park. In operation for almost 150 years, it provided summertime memories to generations of Rhode Islanders, serving steamed clams, clamcakes, and chowder at its 4,000-seat shore dinner hall. The 1995 closure of the park and its shore dinner hall was mourned by Rhode Islanders of all ages; many can still conjure up the flavors they tasted decades ago while sitting at the hall's long benches.

THE CHOWDER DEBATE

People tend to be particular about their chowder. In *Harvesting the Bay,* a biography of the West Bay quahogging fleet, author Ray Huling writes, 'There's a tribalism to clam chowder. The most well-known debate centers on the broth: white or red? Milk or cream? Or tomato juice? It's a Boston versus New York contretemps, and, every now and again, in the media of the Northeast, you'll find some joker affecting to prefer one or the other, to claim one or the other for this or that tradition, in order to needle his rivals in the other town, or to act contrarian toward his fellow residents. Of course, neither city ever acknowledges the truth—that the best clam chowder doesn't resort to either kind of broth, but is, in fact, clear.'

Although 'Rhode Island clam chowder' as the name of a recipe refers to that which is made with neither tomato nor cream, there is no strict rule of thumb when it comes to how Rhode Islanders prepare theirs. Clear broth may be the norm, but some families prefer it with cream, and Rocky Point—the institution that more than any other has defined the expectations of Rhode Islanders with respect to clam-based foodstuffs—always put a little red sauce in its chowder.

THE CLAMCAKE

Much ink has been spilled writing about the merits of this or that chowder, or recreating in steamy detail the pungent aroma of seaweed and clam juice on hot rock. But although the clamcake is much loved within Rhode Island, few lines of prose have been written to celebrate this humble fritter.

Clamcakes are balls of deep-fried dough stuffed with chopped clam—traditionally quahog meat, although surf clam chunks can be substituted. Clamcakes are rarely eaten at home; they are typically consumed at clam shacks, like Flo's in Middletown or Iggy's in Warwick. Almost as a rule, they are eaten near the shore, in the summer, and frequently after a dip in the bay or ocean.

The clamcake-eating experience is ephemeral, and inextricable from the place and time at which it occurs. As Rhode Island clamcake fanatic David Norton Stone wrote in his homage *Clamcake Summer: One Man Eats Every Clamcake in Rhode Island (Or Dies Frying)*, 'A clamcake is best only for that brief moment when the danger of its being too hot to eat passes, and its skin cools enough to harden, but before the moisture in the cake softens it. A clamcake is fickle, like the summer weather in New England. But when a clamcake or a summer day is just right, you have

Clamcakes with vinegar at Evelyn's Drive-In in Tiverton, R.I.
PHOTO © ENVISION/CORBIS

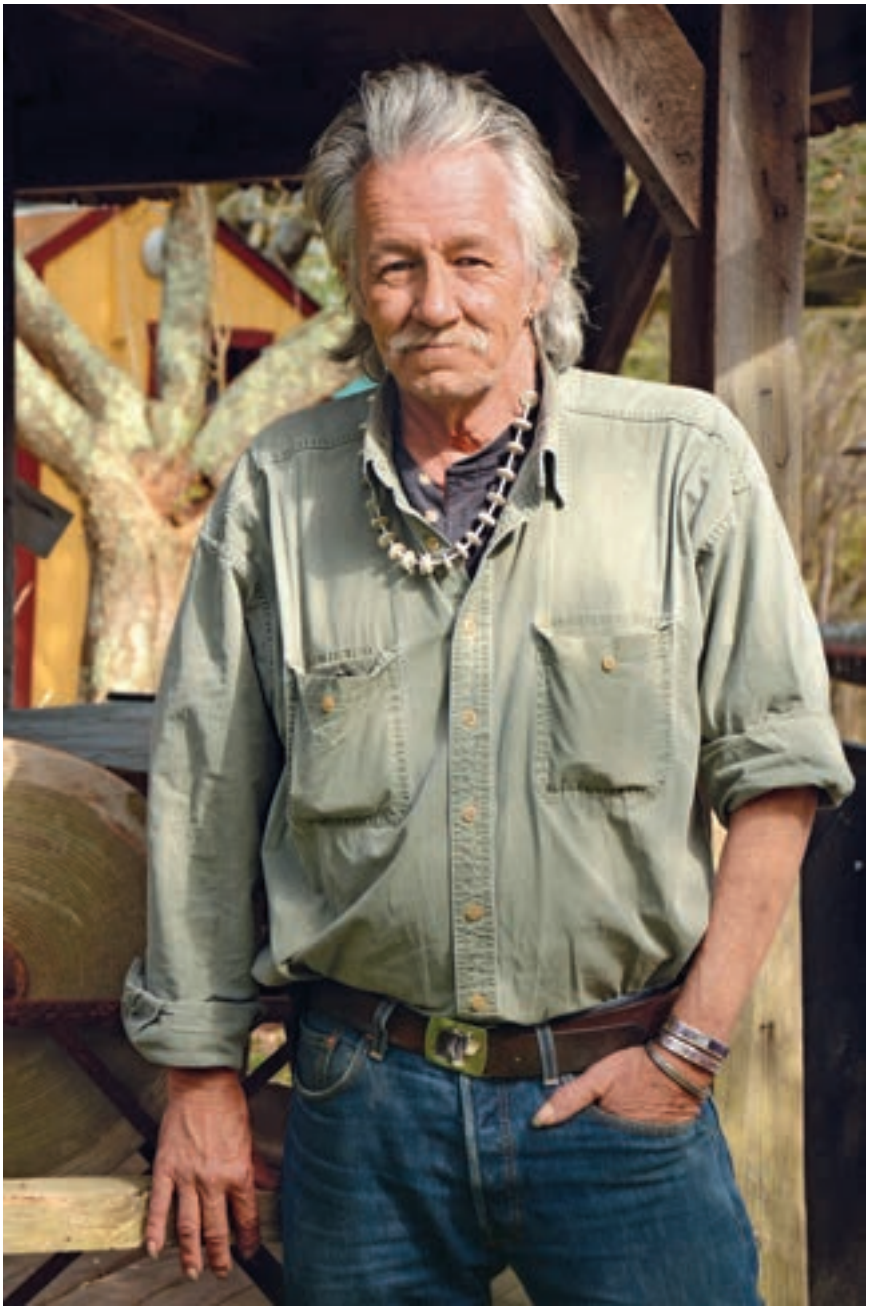
lived, and when both of those things happen at the same time, you will never be the same.'

A MOLLUSCAN MUSE: SHELLFISH IN ART

As object, as symbol, and even as raw material, shellfish are an inspiration to Rhode Island artists, professional and amateur alike. There's something about the quahog, in particular, that seems to captivate the visually creative.

Jon Campbell is a South County-based silversmith, stonecutter, and painter. One of his specialties is making jewelry and accessories from quahog shells.

'I've always felt a connection to quahog shells,' he explains. 'When I was a kid, you used to see wampum. People had it in their attics. No one was making it any more.'



Jon Campbell
PHOTO BY MELISSA DEVINE

Campbell's inspiration came in the 1970s,when he was hired to inlay abalone on banjos. In his spare time, he toyed around with applying the same techniques on quahog shell. He soon discovered, though, that 'The leap from mother of pearl or abalone to quahog is not an easy leap to make. The shell is very hard—a six [out of 10] on the hardness scale.'

Silversmith Jon Campbell specializes in making jewelry from quahog shells, though as a material, the shell is 'unforgiving to work with.'

PHOTO BY MELISSA DEVINE

To cut the hard shell, Campbell has an arsenal of cutting tools: a diamond saw, three circular saws of varying sizes, diamond grinders, and diamond drill bits.

'I like it as a material. It's sort of unforgiving to work with … If you're angry or frustrated, everything you work with will just explode. If you're in a bad mood, you won't be successful. It's a very particular material. You have to be in the right mood.'

Campbell's inspiration is sparked not only by the unique qualities of the shells' material, but by what they represent to him: a connection with place.

'There's only one place to come for quahog shells,' he says. 'One time I stopped in at Zuni Pueblo [in New Mexico], where they make fetishes and stuff. When they found out where I was from, they said, 'Can you get us quahog shells?' I said 'No. That's ours. That's ours in the Northeast. You can't have it."

Into green, blown glass quahog and monochrome painting on copper [glass blown in Niijima, Japan, of rare native silica]

ARTWORK © PIKE POWERS

Pike Powers is a painter and blown-glass artist. Quahogs are one of her favorite subject matters. She has produced 50 oversized glass-blown replicas of quahog shells.

'I like their form,' Powers says as she describes the inspirational qualities of quahogs. 'When you look at them from the side, facedown, it's kind of asymmetrical, and when you turn it to look at it from the top, from the lip down, it has a beautiful oval shape, with concentric curves going out. When you look at the back, it does the same thing, it's sort of a rectangle geometry to it, like a chambered nautilus almost: it starts out really small and spirals, but it's just a very simplistic version of that form. And to me, it's challenging to make that—something that's so graceful and simple. Even though it's just a muddy clam. I like the contrast of that—it's just a beautiful shell. Visually, it's really intriguing.'

In addition to admiring the appearance of the quahog, Powers' affinity for quahogs is inspired by the experience of harvesting them: 'Growing up clamming—we did it often in our family. We were very into the whole Rhode Island thing of getting quahogs, going clamming. And so I just had a lot of good memories.'

Artist and author Seth McCombs spent childhood summers on his father's and grandfather's boats in Narragansett Bay. His recently published picture book *Old Salty Dog: A Rhode Island Folk Tale*, springs from an enduring childhood fascination with quahogs and quahoggers.

'Growing up on the water, out on Narragansett Bay, I always saw quahoggers everywhere I looked,' says McCombs. 'In the marina where we kept my grandfather's boat, there was a whole bunch of quahoggers there. And I just thought the boats looked cool … When I wrote the story and did the artwork, I basically just wanted to draw that boat. The story just sort of came about through the idea of drawing that boat.'

The whimsically illustrated book tells the story of a lone quahogger who ventures out to sea and encounters sea serpents, giant lobsters, and mermaids.

'For a kid reading it, it's about sea monsters,' McCombs says. 'But for an adult reading it, it's about how hard quahoggers work and they don't make very much money ... When I was putting the book together, I hung all the original drawings up in the restaurant I work in, and the day I knew I had hit on a good idea was when a young guy and some of his friends were there, and they were sitting in the section where my artwork was, and he told me he was a quahogger ... He told me that nobody gives any respect to quahogs and everybody talks about local food and sustain-

COVER OF *OLD SALTY DOG* AND ABOVE ARTWORK © SETH MCCOMBS

able food, and quahogs are both of those. He was really excited that I was representing that in some way.'

McCombs chose to dedicate the first run of his book expressly to Rhode Islanders.

'The first printing has 'A Rhode Island Folk Tale' as a subtitle because I want it to be for Rhode Island first,' he says. 'Later printings won't have that there and I'll try to get them out to the wider world. But for now, I want it to be special for Rhode Island.'

The Drew family shanty in Scalloptown,
East Greenwich

PHOTO BY MONICA ALLARD COX

Sixteen

LIFE ON AND OFF THE WATER

THE LIFE OF EVERY PROFESSIONAL WATERMAN has its share of adventures, close calls, and life-changing moments. Lifelong shellfishermen carry a collection of one-of-a-kind memories from lives spent on or below the water.

CAUGHT IN THE CURRENT

All kinds of things have happened to me over the years … So many times you're out there working and you don't see the squall lines coming. All of a sudden it goes from 15 miles an hour to 60. And the next thing you know, your anchor rips loose and you're working and your anchor's coming at you, spinning like a spiral and it winds you up like a yo-yo, and it's taking you up the bay and you don't know where you're going. [Or] getting caught in ice floes and having them drag you down the bay. Stuff like that.

—Dave Zubik, quahog diver

A QUAHOGGER'S COMPANIONS

One time, in the wintertime, I had a seagull that landed on a boat, a young one with the gray feathers on his head. And his feet were tied together with fishing line. And he's hopping around on the front of the boat. So I threw him some quahogs. This thing looked like he was starving—well, they always seem like they're starving. So I put some quahogs on the front of the boat, and every time he'd come a little closer, so I put the quahog in my hand, and he came over and grabbed it. So I grabbed him and was trying to cut the string off his feet, and of course, he's trying to bite me. So I ended up stuffing him in an onion sack. And then I took one foot out, and I cut the string off his feet.

So after I get done, I'm thinking, 'Well, I'm never gonna see this guy again.' But before I had let him go, I put a zip tie on his ankle. So I nicknamed him Zip Tie. And I had him come back to the boat for 10 years at least! When he got to be an adult, when they're all clean and white, he brought—I don't know if it was a him or a her—but all of a sudden there was two of them. They used to show up together.

—Bo Christensen, bullraker, diver, and fisherman

THE GIFT OF LIFE—AND LIFELONG FRIENDSHIP

One winter day in his youth, quahogger Don Wilcox Jr. was motoring along in his skiff when he hit a wave and was launched overboard.

Georgie Fecteau saved my life. It was February 29, off Warwick Light. I wouldn't be here today if it weren't for him. He couldn't get me out, but he held onto me. I was dead, just about. He had a hold of me, and he said, 'Pull! Lift yourself up, Don!' But I couldn't. I had water in my boots. He was a strong guy, but he could not pull me out of the water. He hung onto me. And I was passed out. There is no doubt in my mind: I was a dead man. He saved my life.

I wasn't really that close to him before that happened. I was 17, 18 years old, and here's a guy who's 35,40. We had no bond together. But after that, we became close. He used to come out lobstering with me. We were friends 'til the day he died. I still visit his wife. She has Alzheimer's. Sometimes she recognizes me, sometimes she doesn't. But I do it for George, in remembrance of George.

—Don Wilcox Jr., bullraker and lobsterman

WINTER WOES

I started in late October of 1979. That was probably the worst winter since I've been quahogging. It iced all the way down to Beavertail. Some guys

were able to slide their boats across the ice and were able to get their boats free. I did it, and put a hole in my boat.

When I got into the harbor, I realized I was taking on water. I came back in between the pilings and put the bow up on the ice. Somebody ran across the ice and put a line on it. But I fell over backwards in the water. I was kind of swimming around and trying to get all my stuff that was floating. And there were guys on the docks yelling at me to get out of the water. I didn't realize at the time what was going on. They put a rope on my bow, and the guy that ran the marina at the time, he started up the crane and they hauled my boat.

A friend of mine who just happened to be around called my sister, and she came roaring up in her car and says, 'Get in, you're coming with me.' And she took me home and put me in the tub. It was a rough way to get started. But when the weather broke, I started making money. And the next year, I bought a fiberglass boat.

—Bob Bercaw, bullraker

BULLRAKING WITHOUT BOATS

In the winter of 1976–1977, Greenwich Bay developed a layer of ice a foot thick. Unable to harvest quahogs by boat, quahoggers grabbed their bullrakes and walked out onto the bay.

You partnered up, it made it easier. It was right off Goddard Park. We were lucky because the transplant that year was done by dredge boats, and the dredge boat laid a thick heavy strip. And we went and dug right on that strip.

Necessity was the mother of invention. Some guys would just show up with a chainsaw and charge you a dollar to cut the hole. Some people still had old ice saws in their garages and sheds, and they showed up with them. We'd make a hole with an ice chisel, and then get the saw working, and it cut pretty much like cheese. We brought out stales with us, and what you did was cut yourself a hole—not a big one—and you wedged the rake with the stale through the ice at a low angle and you ran like hell with it to push the rake way out there under the ice. And then you raked it back towards you.

We carried our gear out with a sled. The trucks from all the buyers drove right up. They didn't care what they were buying. They didn't even look in the bag, because they wanted the stuff so bad.

—Bruce Eastman, bullraker

SHELLFISHING IN THE FAMILY

The extended family was a defining social unit of Rhode Island quahogging in the mid-20th century. Apponaug had the Bennetts, Coles, and Wilcoxes. East Greenwich had the Drews, Maddalenas, and Arnolds. Wickford had the Bannisters and Smiths. Families fished together, built boats together, and when scallop season came each fall, they stayed up all night shucking together. Today, there are still shellfishermen who arrive at their career path through a father or an uncle.

But shellfishing has never been strictly a family affair. Shellfishermen hail from diverse backgrounds, and many are the first in their families to ply the waters. As shellfishermen form their own families, many take their kids along as helpers in the summer or on the weekends. In some cases, their children eventually buy their own boats and join them in the industry. Anyone who has been part of a shellfishing family knows the unique pleasures and demands of having a family member on the water.

NANCY AND DAVE BRAYTON REFLECT ON THEIR MARRIAGE

Nancy: We raised our four girls with him just quahogging the whole time. It's been a good life… We're coming up on 52 years of marriage. He's always been a good provider.

Dave: She's never ever complained. A lot of guys' wives have complained. Bad weather, you can't go to work—

Nancy: Well, see that's it. If it's bad weather, he goes to work anyway!

Dave: The only thing she complains about once in a while is that she gets nervous.

Nancy: Yes. I want to know when he's back on shore, so he calls me. But over the years I've gotten better about that. Instead of just worrying about it, I go about my day and if something happens, well then it happens. It's only been a few times that I had to go get him somewhere because he couldn't get home.

Dave: One time I went over to Quonset Point to get big ones. And I got about 800 pounds of big ones in my skiff. And it was blowing hard out of the northwest, and I was afraid to run across the whole bay with all that weight in a wooden skiff.

Nancy: But I'm home with little kids that I had to pile in the car.

Dave: She comes over, I pile all those quahogs in the trunk of the car. The car's sitting way down. And all I can think of, when we drove home and I had to pay the toll collector, I'm thinking 'What's this guy thinking?' Don Bousquet would have had a blast if he'd ever seen us coming across! All the kids in the back seat, the trunk full of quahogs.

Nancy: We would have made it into his next book!

This cartoon by Don Bousquet was inspired by the Braytons' story.

CARTOON © DON BOUSQUET

Quahogging boats on Greenwich Cove in East Greenwich
PHOTO BY MONICA ALLARD COX

ON GROWING UP WITH A SHELLFISHERMAN FATHER

[The hard days] give me a lot more respect for what my father did when I was growing up. I remember him waking up every single [day] at three or four in the morning to get out quahogging. And now I kind of do the same thing. Quite often, I find myself in situations where I'm thinking, 'I can't believe my dad went through all this, and did it while raising a family.' It gives me a lot of respect for him, which I kind of overlooked before. You can see someone doing that, but you don't really know all the aspects that it entails.

—Phil Russo, also a shellfisherman

A SHELLFISHERMAN REFLECTS ON HIS GROWN CHILDREN ENTERING THE INDUSTRY

Ninety percent of the time it's great. But being the father, you're worried about the finances. With three people in my family that fish, there's three small businesses that you have to worry about, three motors that have to keep running. This winter was stressful. You could see it in relationships. You could see it in friendships. You could see it in their vehicles. You could see the finances drain right down, because there's no support system. For example, equipment—you know that your son or daughter needs something to keep going, but do you let them learn that lesson? Or do you say, 'Here, take this?'

—Daniel Eagan, shellfisherman

SHELLFISH SHANTIES

Shellfish shanties are a physical embodiment of the importance of family in Rhode Island shellfisheries. During the mid-20th century, there were

a few dozen of these shanties perched along or over the shores of Narragansett Bay. Families used them for gear work, shellfish shucking, storage, and social gatherings. A few shanties still stand, although none is used for its original purpose today.

THE WILCOX SHANTY

The Wilcox shanty has stood at the bottom of Station Street in Apponaug for several generations. The Wilcox fishing family used it for many years as a place to buy quahogs and shuck scallops. 'It was an old shanty,' says Don Wilcox. 'My father inherited it in 1948, and it was already old then. My father used to buy quahogs there. It was just a transfer station. The boats would come in, they'd weigh up the quahogs, bag them up, and put them on a truck. It was shipped to New York every night. Quite a lot of stuff went through there.'

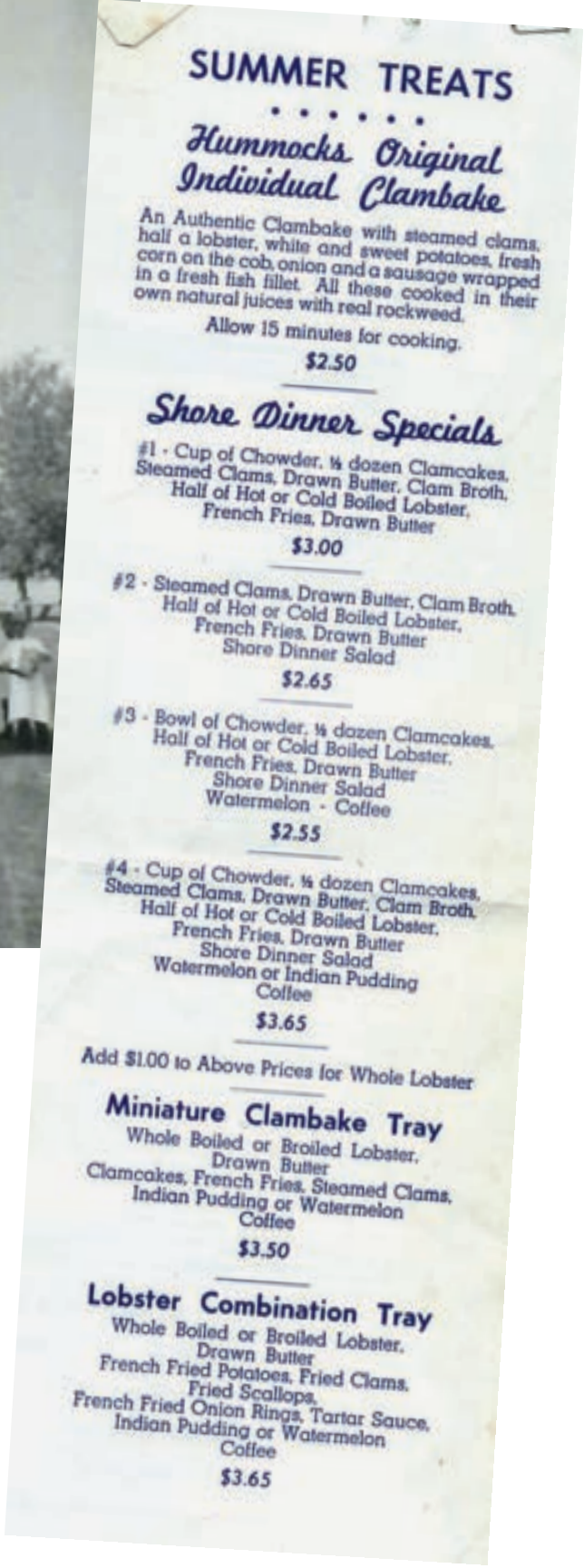
Today, it is no longer in use and has fallen into disrepair. 'It's on filled land,' says Wilcox. 'In other words, there were never any legal rights to have it. Just squatters' rights. They went out into the bay and put it on pilings and filled it. There's never been no taxes paid on it. It's built on the bay. Anyway, it's just fallen down because they won't let nobody fix it. You can't sell it. They're at a stalemate. They know it's my family's, but that we had no right to put it there. But it's been there a hundred years. They're just going to let it fall apart. So there it sits.'

THE DREW SHANTY

The Drew family shanty, on the shores of Greenwich Cove in Scalloptown, is the best-preserved shellfish shanty in the state. Its first life was as a scallop-shucking house. Workers from the neighborhood stood along a bench and worked as fast as they could to keep up with the scallop catches. 'You got paid by the measure,' says Drew. 'So there was always something in the air—guts, shells, something.'

When scallop catches dwindled, the family exchanged shucking buckets for welding machines, and started assembling bullrakes in the shanty. Now, Drew and his family use it for recreational purposes. One of his daughters even held her wedding there.

'I spent a ton of money fixing it up,' says Drew. 'My mom called me up and said I'd lost my mind … [But then we had a family cookout,] and my mom was there. There were a half a dozen kayaks there, and we were cooking. The kids were playing. And my mom said, 'Oh, this is what you meant.' My grandfather had it as a business, then it was my dad's workshop, and now it's about family. It's about social gathering.'



SUMMER TREATS

Hummocks Original Individual Clambake

An Authentic Clambake with steamed clams, half a lobster, white and sweet potatoes, fresh corn on the cob, onion and a sausage wrapped in a fresh fish fillet. All these cooked in their own natural juices with real rockweed.

Allow 15 minutes for cooking.

$2.50

Shore Dinner Specials

#1 - Cup of Chowder, ½ dozen Clamcakes, Steamed Clams, Drawn Butter, Clam Broth, Half of Hot or Cold Boiled Lobster, French Fries, Drawn Butter

$3.00

#2 - Steamed Clams, Drawn Butter, Clam Broth, Half of Hot or Cold Boiled Lobster, French Fries, Drawn Butter Shore Dinner Salad

$2.65

#3 - Bowl of Chowder, ½ dozen Clamcakes, Half of Hot or Cold Boiled Lobster, French Fries, Drawn Butter Shore Dinner Salad Watermelon - Coffee

$2.55

#4 - Cup of Chowder, ½ dozen Clamcakes, Steamed Clams, Drawn Butter, Clam Broth, Half of Hot or Cold Boiled Lobster, French Fries, Drawn Butter Shore Dinner Salad Watermelon or Indian Pudding Coffee

$3.65

Add $1.00 to Above Prices for Whole Lobster

Miniature Clambake Tray

Whole Boiled or Broiled Lobster, Drawn Butter Clamcakes, French Fries, Steamed Clams, Indian Pudding or Watermelon Coffee

$3.50

Lobster Combination Tray

Whole Boiled or Broiled Lobster, Drawn Butter French Fried Potatoes, Fried Clams, Fried Scallops, French Fried Onion Rings, Tartar Sauce, Indian Pudding or Watermelon Coffee

$3.65

Clockwise from top: An early shore dinner at Rocky Point, a summer insert menu for Johnson's Hummocks Sea Food Grill on Allen's Avenue in Providence, and George's of Galilee in 1955

ROCKY POINT PHOTO © MYSTIC SEAPORT #1981.87.10; JOHNSON'S HUMMOCKS IMAGE COURTESY OF THE CULINARY ARTS MUSEUM AT JOHNSON & WALES UNIVERSITY; GEORGE'S PHOTO COURTESY OF GEORGE'S OF GALILEE

ACKNOWLEDGMENTS

The following individuals shared their personal experiences with the author of this publication. We are indebted to them for bringing to life the connection between Rhode Island's shellfish and its people. (Stars indicate family relationships).

Rizwan Ahmed, Bristol
Dave Andrade, Bristol
Bob Bercaw, North Kingstown
Josh Bird, Warren
Billy Blank, North Kingstown
Nemo Bolin, Providence
Graham Brawley, Narragansett
Dave Brayton, Tiverton*
Nancy Brayton, Tiverton*
Jon Campbell, South Kingstown
Bo Christensen, Warwick
John Crandall Jr., Charlestown
Mike D'Albergaria, Warren
Bryan DeAngelis, Providence
Jaime Dice, Providence
David Drew, East Greenwich
John Dykstra, South Kingstown
Daniel Eagan, Bristol**
Katie Eagan, Bristol**
Skip Eagan, Bristol**
Bruce Eastman, North Kingstown
Mark Finn, Warwick
Art Ganz, Charlestown
Hermann 'Bo' Gempp, New Shoreham
Dave Ghigliotty, Warwick
George Goneconto, South Kingstown
Jeff Grant, Warwick
Tom Hall, Warren
John Harvey, Warwick
Allen Hazard, Charlestown
Phil Holmes, Warren
Robbie Hudson, Providence
Owen Kelly, Warwick
Mike Marchetti, Narragansett
Seth McCombs, Warwick
Dave McGhie, Portsmouth
Jane McGiveney, East Greenwich***
Marty McGiveney, Warwick***
Mike McGiveney, Coventry***
Shawna McKeen-Lawton, Cranston
Dennis Medeiros, Tiverton
Nick Papa, Charlestown
Pike Powers
Perry Raso, South Kingstown
Evan Riley*
Jim Russo, North Kingstown****
Phil Russo, Bristol****
Elizabeth Schumann, Providence*****
Sarah Schumann, Warren*****
Bill Sieczkiewicz, Charlestown
Tiverton High School Art Club
Marco Vecoli, Warwick
Ted Wheeler, Warwick
Donald Wilcox, Jr., North Kingstown
Dave Zubik, North Kingstown

Thank you to the following individuals who contributed to the creation of *Rhode Island Shellfish: An Ecological History*:

For conceiving of and facilitating in so many ways the development and production of this book: Amber Neville, Azure Cygler, and Jennifer McCann of the Coastal Resources Center and Rhode Island Sea Grant, and Judith Swift and Nicole Rohr of the Coastal Institute at the University of Rhode Island

For assisting in obtaining interviews, images, and/or performing numerous other tasks: Monique LaFrance, Shelby Southworth, Andrea Turano, and Taylor Wiggin of the Coastal Resources Center, Chip Young of the Coastal Institute, and Tracy Kennedy of Rhode Island Sea Grant

For review of the text for historical accuracy: Maury Klein, historian and professor emeritus, University of Rhode Island, and Michael Rice, University of Rhode Island professor of fisheries and aquaculture

For editorial review: Alan Desbonnet, Rhode Island Sea Grant

For providing photographs, illustrations, and other graphics:

Don Bousquet, cartoonist
Linda Caisse of the North Kingstown Free Library
Tim Cranston, historian
Tracey Croce of the Rhode Island State Archives
Russell DeSimone, historian
Melissa Devine, photographer
Brandon Fuller, illustrator
Acacia Johnson, photographer
Carole Ann Penney of the Rhode Island Council for the Humanities
Jennifer Robinson of the Newport Historical Society
Louisa Watrous of Mystic Seaport
Kate Wells of the Providence Public Library
Erin Williams and Richard Gutman of the Culinary Arts Museum at Johnson & Wales University