



## Tales of Oysters Past and Present *While we feast, scientists study*

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Chesapeake  
Winter

“Let us royster with the oyster — in the shorter days and moister — Of dishes he’s the daisy and of shell-fish he’s the star.”

So opens an 1889 ode resurrected by the Chesapeake cookbook maestro Whitey Schmidt.

Shells from oysters we shuck for holiday stew and pie look pretty much like those tossed aside 400 years ago by Jamestown colonists and recently dug up by archeologists. But the old shells have more than a culinary tale to tell. They lived when an oyster was able to grow the best it could.

Scientists are beginning to hear the oysters’ story.

“Some people see just a shell,” says Juliana Harding, a Virginia Institute of Marine Science biologist who is studying shells found by Jamestown archeologists. “I see an environmental data recorder.”

The simple but successful life-plan of the oyster that warms Chesapeake holidays has been around since the dinosaur age. The bivalve and its cousins have invigorated festivities on these shores and those of the Old World. Oysters and

*Royster with the oyster.*

feasting go back at least to Roman times, when oysters (a different species from ours) were consumed copiously.

In the New World, Native Americans left ample evidence of their fondness for oysters. At Pope’s Creek on the Potomac River, a 3,000-year-old shell midden up to 26 feet high extends for acres, according to Henry Miller, archeologist at St. Mary’s City.

### Chesapeake’s First Christmas Feast

Oysters were consumed during both feast and famine at Jamestown. The bivalve takes pride of place in the first description of a New World Christmas, written by none other than Captain. John Smith. He and compatriots celebrated the holiday in the warm, dry lodges of Native Americans near present-day Hampton, Virginia.

“We were never more merry, nor fed on more plenty of good oysters, fish, flesh, wildfowl, and good bread, nor ever had better fires in England,” Smith wrote.

During a period of want in 1609, many Jamestown colonists moved to an oyster bank, where they survived primarily on the shellfish for almost two months.



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In John Smith's time, "The oyster was the central habitat engineer in the James River," says biologist Harding. Massive oyster reefs broke the water surface, posing a hazard to wooden ships of the day. Oysters living in shells the size of dinner plates had to be cut into pieces to swallow.

The thousands of old oyster shells excavated from wells and pits at Jamestown are buried treasure to Harding, offering a rare chance to study the animal in a pristine environment. "It's exciting to work with oysters that were able to do what oysters are supposed to," she says.

The largest Jamestown shells are "shoe size," according to Harding: about nine inches long. They likely were plucked from the outer parts of reefs or just below the surface in intertidal waters where the untool colonists could reach them. The largest oysters probably would have lived down in the reef matrix, inaccessible to early harvesters.

By the late 1700s, harvesting began to tip oyster ecology out of balance in some areas. Not only were oysters over-harvested, but their reef shells were removed, strip-mining the habitat where baby oysters settle.

### Forensic Oysterology

Oysters in the Patuxent and Potomac rivers actually grew faster from 1760 to 1860 than before, as nutrients streamed into Bay waters from new farmland, says Miller of St. Mary's City. After that, average oyster growth slowed, overwhelmed by destructive fishing methods and other forces. At St. Mary's City, Maryland's original capital, local oysters decreased in size by more than half after Europeans settled there, probably from harvesting pressure. Then, after state government moved to Annapolis, oysters climbed back to their 17th century size.

About half a century ago, the Chesapeake's last massive reefs were gone. This loss challenges today's restorers, who have no natural reefs as models to mimic.

An oyster, like a tree, records its life as it grows. Oyster rings — or layers of shell — inscribe growth rate and age, which in turn reveal information on the whole oyster population; how the reef perpetuates itself, how young are attracted and how members are lost.

The shells also record trends in water temperature and salinity. An oyster shell takes up oxygen in certain forms

(called heavy isotopes) in greater quantity when the water is warmer.

Getting an oyster to spill the beans about its past requires what Harding calls "forensic biology." Since she has to destroy the shell to analyze it, she honed her technique on more than 3,000 modern oyster shells before tackling the Jamestown ones.

Now the quest is on. The ultimate prize would be to conjure forth the complex ecology of old oyster reefs. At present, Harding says, "we don't have a clue" what it means to restore a living reef. She is convinced that "there are pockets of big old oysters left" here and there, clumps perhaps the size of a microwave oven, in areas like the York, James and Pocomoke rivers and Tangier Sound.

In the meantime, "Oysters have stories to tell us about their world," Harding says. To restore anything like the Bay's former bivalve bounty, "We have to make sure we listen."

Lynn Teo Simarski



Juliana Harding, Virginia Institute of Marine Science biologist, compares a modern oyster (left) to an old Jamestown shell.

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