

# A salty way to safer shellfish

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Credit: NOAA

(PhysOrg.com) -- A spritz of lemon and a dash of hot sauce make oysters taste great -- but a bath of salt water might make them more safe to eat. A new report finds that exposing oysters raised in low-salinity water to a weeklong douse in ocean water before harvest can rid oysters of the dangerous *Vibrio vulnificus* bacterium.

*Vibrio* is naturally found in the ocean, especially in summer months in warmer regions. Because oysters are filter feeders, the bacterium becomes concentrated in their tissues as they filter seawater. Immersion in saltier water may lead to a better -- and cheaper -- way to banish the bacterium, which causes 35 deaths and 95 people to become ill each year in the U.S., according to the [Centers for Disease Control and Prevention](#).

There are currently several methods to flush out vibrio, but each come with a cost.

"We can use irradiation, freezing, or high pressure, but those methods are relatively expensive, and they also change the texture and flavor of the oysters. People don't care for that," said Howard Kator, a professor of marine science at the Virginia

Institute of Marine Science in Gloucester Point.

The research took 200 oysters in insulated containers from three different sites, one from a low-salt river area and two with medium levels of salt. They moved the oysters just before harvest to an ocean inlet on the seaside of Virginia's Eastern Shore, where waters have a greater salinity -- from about 1.5 percent salinity to 3 percent salinity.

The oysters then spent 7-14 days in the saltier water, while the researchers took real-time measurements of their bacterial levels.

"We anticipated some pretty high levels to start, but they all dropped off equally rapidly within 7 days, and then even more in 14 days," said Kator. "And best of all, salt water does nothing to change the taste or texture of oysters the way that other methods can."

Kator said that the mechanisms of how [salt water](#) kills the bacterium is not entirely clear.

"There are all kinds of organisms inside oysters. Whether they colonize the oyster for food or for refuge, there's an ecological relationship in the oysters," Kator said. "At higher salt levels, the vibrio bacteria get displaced by other kinds of safe organisms, but the way that it happens is still something of a mystery."

Oyster experts see value in new approaches.

"One of the problems most of the processes kill the oysters," said Barakat Mahmoud, a professor of food safety at Mississippi State University. He added that processed oysters currently account for less than 10 percent of all domestic raw oyster sales in the United States -- so safety processing is not reaching close to being universal.

It still may be a challenge to find water salty enough for the shellfish to take a dip.

"Here in the Gulf, many of those locations would be

out in the open waters of the Gulf, which can pose a challenge in terms of weather, conflicts with other uses, and the cost of travel," said Bill Walton, a marine fisheries and aquaculture specialist at Auburn University.

To complicate matters more, different strains of the vibrio bacteria may actually benefit from the salty water.

"On the Pacific Coast the leading cause of disease is a different species of vibrio that actually prefers saltier water -- so this method would have little impact," said Anita Wright, a professor of food science and human nutrition at the University of Florida in Gainesville.

Kator says that larger studies are needed, especially with [oysters](#) that have higher levels of the [bacterium](#). But help for the oyster industry -- and for consumer safety -- could be as close as a salty water swim.

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