

# OYSTERS *for the* FUTURE

## Oystering Rules: The Whys and Wherefores<sup>1</sup>

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The eastern oyster (*Crassostrea virginica*) provides many important functions in coastal environments, from serving a crucial role in the estuary's food web to improving water quality for beachgoers and wildlife. Oysters are also a popular food choice for people —at times the commercial industry landings value has topped \$8 million annually in Florida. This publication is one in a series that highlights some of the key ecological and human factors important to the long-term sustainability of this valuable fishery.

### Bad things can happen

Harvesting regulations can be complex, and often the science behind a rule or regulation is not clearly understood by the people that it affects. Food-safety rules pertaining to the harvesting and handling of oysters intended for raw consumption are no exception.

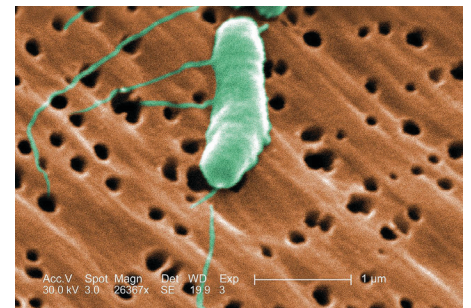
Regulations regarding shellfish are implemented through a model ordinance process that involves state, federal, and industry representation in the National Shellfish Sanitation Program. They are implemented for one reason: to protect the public and save lives. And they do.

**Time and temperature rules:** Two species of *Vibrio* bacteria are the primary motivation behind oyster harvesting rules related to temperature control. Both species occur naturally in warm, salty or brackish waters. They

may infect people through an exposed wound in the skin or as a result of eating raw shellfish.

*Vibrio* bacteria multiply faster with warmer temperatures, so when oysters are allowed to warm up, *Vibrio* will be found at higher levels. If oysters will be consumed raw, temperature control is imperative for the safety of the consumer. In warmer months of the year, stricter rules are put into effect about the time from harvest to placement in a certified dealer's cooler, in order to minimize the opportunity for bacterial reproduction.

***Vibrio parahaemolyticus*** is often the culprit in food poisoning cases related to eating raw oysters. It has potential to develop into a life-threatening infection given the right conditions.



*Vibrio vulnificus*, shown in this electron microscope image, is one type of bacteria implicated in illnesses associated with oysters. Infections are rare but severe. Photo courtesy Janice H. Carr, Centers for Disease Control and Prevention



Infections resulting from *Vibrio parahaemolyticus* bacteria, shown in this computer-generated image, are usually mild and self-limiting. Photo courtesy James Archer, CDC

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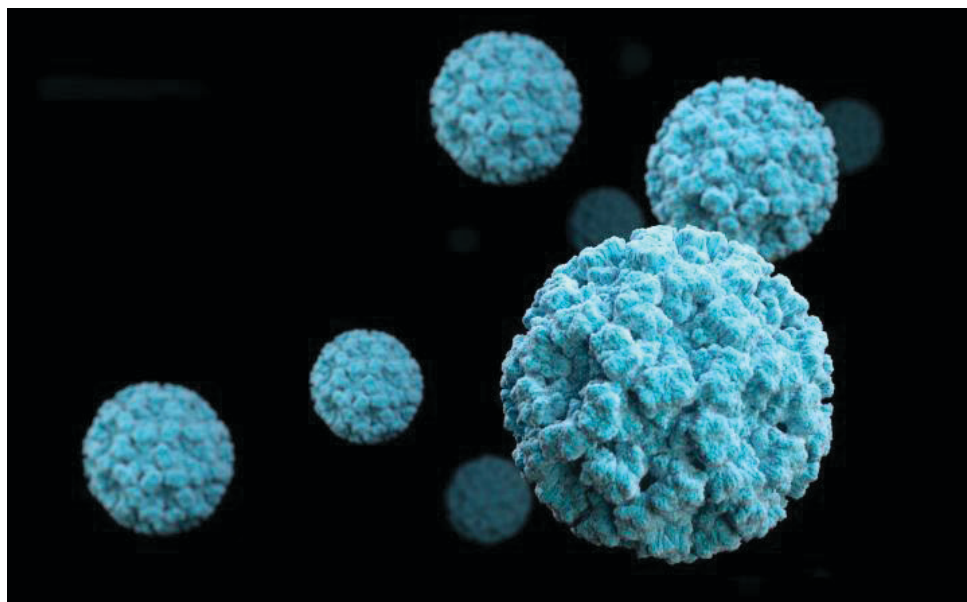
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This infection from *Vibrio vulnificus* began when the skin was punctured while cracking crabs for bait. Seek medical treatment immediately if you suspect an infection related to *Vibrio* bacteria. Photo courtesy of Capt. Wendy Billiot

***Vibrio vulnificus*** is responsible for more serious infections that can have high fatality rates for individuals with weakened immune systems. If a *Vibrio vulnificus* infection develops into blood poisoning, called septicemia, it has proven to be fatal in about 50% of the cases. Treatments for raw oysters, including pasteurization, irradiation, quick-freezing, and high pressure, have all been proven effective in killing these bacteria once an oyster is harvested, but many consumers still prefer the raw, untreated product.

**Harvest area restrictions:** Another management tool used by regulators to ensure public safety is the closure of harvest areas. Closures are enacted based on an occurring or predicted public health risk. The presence of fecal coliform bacteria is often used as an indicator to close areas because it demonstrates the presence of human or animal waste. Disease-causing organisms that may be associated with this waste include *E. coli*, Hepatitis A, and noroviruses, all unpleasant pathogens, to say the least. Harvesting areas are closed for these reasons.



This is a computer-generated image of a norovirus, the intestinal “bug” that causes an estimated 685 million stomach illnesses annually worldwide. Oysters in polluted waters can collect this virus. Photo courtesy of CDC

For a map showing the open or closed status of Florida shellfish harvesting areas, visit [http://shellfish.floridaaquaculture.com/seas/seas\\_statusmap.htm](http://shellfish.floridaaquaculture.com/seas/seas_statusmap.htm), or call the Florida Department of Agriculture and Consumer Services at (850) 617-7600.

#### **Onboard food-safety vessel**

**requirements:** There are also requirements for oyster harvesters related to maintaining a sanitary onboard setting for oysters until they can be delivered to a dealer’s cooler.

- A false floor is required so bagged oysters do not contact standing water.
- There must be a marine sanitation device with a lid onboard. No waste should ever be dumped into the harvesting waters. Oysters can filter disease-causing organisms and concentrate them in their tissues at levels much greater than the surrounding water.
- If harvesters cannot shade bagged oysters under a canopy, they must have breathable material to cover the bags. Wet burlap will typically suffice, but not tarps.

- Also, harvesters should never take their pets along for the ride.

**Value of proper tagging:** Harvesters must attach tags to oyster bags, and producers and retailers must retain the tags until the product reaches the consumer. Information on the tags allows food-safety investigators to trace any problems back to the source. This can help stop a potential or real disease outbreak in its tracks and is a vital component of the seafood industry safety net. If investigators know who harvested the oysters, when they were harvested, and where they were harvested, further health risks can be averted without shutting down the entire industry.

Following proper protocols for oysters from harvest to dinner plate will save lives.

For additional titles in this series, visit: <http://franklin.ifas.ufl.edu/>

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