

Cooperative Program Ensures Safe Shellfish



An FDA shellfish specialist (left) and an inspector from the New Jersey Department of Environmental Protection (center) look at a map of the growing waters where the clams in the foreground were harvested.

FDA / Michael Ermarth

Whether you buy clams casino at your local supermarket or feast on raw oysters at a seafood restaurant, these shellfish are strictly regulated through a federal–state–industry cooperative program.

A widespread typhoid fever outbreak related to eating shellfish led to the creation of the cooperative program, known as the National Shellfish Sanitation Program (NSSP), in 1925 that continues today. Through the cooperative program, the Food and Drug Administration (FDA), state regulatory agencies, and the shellfish industry work together to keep

molluscan shellfish (such as oysters, clams, and mussels) safe for consumption by adhering to strict controls on their growing, harvesting, processing, packaging, and transport.

The Risk of Raw Shellfish

Unlike crustacean shellfish like crabs, shrimp, and lobster, molluscan shellfish obtain nutrients by pumping

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seawater through their gills and filtering out tiny organisms, which are then ingested. While pumping water, they can take in bacteria, viruses, and chemicals, concentrating them in their bodies at much higher levels than found in the surrounding waters. These contaminants can make people sick when they eat the shellfish.

"Molluscan shellfish carry an inherent risk because they are often consumed raw," says Larry Stringer, director of state programs in FDA's Central Region. "Problems that occur in shellfish growing waters from chemicals like pesticides or from disease-causing microorganisms cannot be fixed later before the shellfish reach the consumer, so these products are controlled early on. Every estuary, bay, or other area where shellfish grow is controlled under the cooperative program."

Four Components

The cooperative program has four components to help keep contaminated molluscan shellfish out of the marketplace:

- classifying growing areas based on water quality and other factors that indicate suitability for harvest
- inspecting facilities that handle shellfish to ensure the use of proper sanitary measures
- patrolling to deter illegal harvesting from prohibited waters
- conducting laboratory testing and analysis of shellfish and water samples

The states take the lead in accomplishing these tasks and have the authority to enforce compliance with the program. They can issue or revoke licenses. They can embargo, confiscate, recall, or destroy potentially contaminated shellfish. And they can write citations, make arrests, and

seize equipment and vehicles used to violate laws.

FDA's seafood safety experts at the Center for Food Safety and Applied Nutrition in College Park, Md., and the Gulf Coast Seafood Laboratory in Dauphin Island, Ala., along with FDA's 14 regional shellfish specialists throughout the United States, work closely with state authorities.

"The states are the regulatory arm that enforces the shellfish laws," says Elizabeth O'Malley, director of FDA's State Program Branch for the Northeast Region, "but the shellfish specialists are the face of FDA. Much of their job is in the field providing training, guidance, and technical assistance to help the states do their jobs."

The regional shellfish specialists work within FDA's five geographic regions (Northeast, Southeast, Central, Southwest, and Pacific), with each specialist responsible for a cluster of states in that region.

The tasks of an FDA regional shellfish specialist range from assessing wastewater treatment plants to make sure pollutants are not drifting into growing areas, to auditing state authorities to ensure they are classifying growing areas correctly, to evaluating state patrols as they look for illegal harvesters.

"If there's a technical deficiency, we bring it to the state's attention and they correct it," says Don Ullstrom, a regional shellfish specialist in FDA's Northeast Region. "Or we may just make a recommendation to strengthen the program."

Ullstrom may accompany the officers of the New York State Shellfish Authority as they patrol the inlets and harbors on their 30-foot high-powered motor boat. The armed state police officers use night scopes and other specialized equipment to look

for illegal harvesters on the water.

"The state does the patrolling," says Ullstrom, "but I'm on the boat checking that the state has the proper equipment to patrol, and can recognize the boundaries for prohibited waters."

Laboratory Testing

Another component of the cooperative shellfish program focuses on laboratory testing and research. State laboratories routinely test water quality and shellfish meat samples for microorganisms and marine biotoxins. FDA scientists evaluate and monitor the operation and performance of the more than 70 state, county, municipal, and foreign laboratories that support state and foreign shellfish programs.

FDA's research laboratories also play an important role in shellfish safety. FDA labs in Alabama and Maryland were instrumental in identifying a toxic algae bloom ("red tide") in Texas waters in March 2008.

"We had a *Dinophysis* bloom that has caused shellfish poisoning in other parts of the world, but it was never before seen here," says Kirk Wiles, manager of the Seafood and Aquatic Life Group, Texas Department of State Health Services. "Our lab had no experience with this particular toxin." Wiles' team collected oyster tissue and water samples and shipped them to FDA labs. The labs found levels of toxin that would cause illness in people who ate the oysters, prompting state officials to close certain harvest areas and recall oysters harvested during specific dates from these areas. "This coordinated effort between the state of Texas and FDA labs directly resulted in protecting public health," says Wiles.

In addition to evaluating U.S. shellfish programs, FDA's regional shell-

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fish specialists evaluate the programs of five foreign governments: Canada, Chile, Mexico, New Zealand, and South Korea. These are the only countries that currently have shellfish sanitation agreements with FDA and whose raw shellfish products are accepted by states in accordance with the NSSP.

Benefits of Collaboration

FDA, states, industry, and consumers all benefit from the collaboration through the cooperative shellfish program. "FDA simply cannot monitor every growing area, or shellfish processing plant, or market or restaurant without our state partners," says Stringer.

"We view FDA as a full partner in our program in every way," says Wiles. "FDA monitors what we do and makes sure we follow the requirements of the NSSP, but we view the program as much broader than monitoring. FDA standardizes and trains our shellfish inspectors, evaluates us, and conducts joint inspections with us. When we have issues, we talk to our shellfish specialist more as a consultant rather than a monitor for compliance."

Ensuring safe shellfish through the cooperative program makes good economic sense. Through permits and other fees, the shellfish industry funds the state oversight. And because the state hires the inspectors and maintains the boats and laboratories, FDA can ensure, at a relatively low cost, that a high-risk product is safe for consumers.

The shellfish industry also benefits from the cooperative program. Under state supervision, Chuck Steidle, owner of Coastal Farms Inc. in Southampton, N.Y., buys clams from marginally polluted waters and "transplants" them to clean waters

where the clams purge themselves of contaminants before they are harvested for market. "It allows us to make use of a natural resource that normally couldn't be harvested," he says. "We put a lot of guys to work."

Since one bad outbreak of illness can decimate a business, Steidle doesn't balk at all the required record-keeping. "I feel it's for our benefit," he says. "If anybody ever got sick, it's very traceable ... within a day. We can tell where in the bay the clams came from, where they were planted, and can almost get it down to which digger caught them." Steidle says he's never heard of anyone getting sick from eating any of the third of a billion clams he has harvested in his 30 years on the water.

"As a result of the cooperative program, we have virtually eliminated the illness—typhoid fever—behind the program's establishment in 1925," says Paul DiStefano, an FDA seafood safety expert. "And today, we don't see a lot of illnesses in this country from molluscan shellfish. If there is an illness, it's because of a control failure somewhere along the line—it is typically a violation of the National Shellfish Sanitation Program."

Safe Shellfish Year-Round

Folklore says that shellfish are safe to eat only in months with the letter "R," which excludes the warmer months of May through August. But this caution is outdated, says DiStefano. It came about, "when we didn't have the refrigeration controls that we have today—controls that are monitored by state and federal officials as part of the cooperative program."

"If the cooperative program is followed, FDA recognizes raw shellfish to be safe year-round for healthy individuals to eat," says DiStefano. But

people who have weakened immune systems from diseases such as AIDS, cancer, diabetes, and liver and kidney disease should avoid raw protein foods in general, including raw shellfish, he says. "But all individuals can enjoy shellfish that is cooked."

DiStefano recommends buying shellfish from a reputable dealer, and looking for the tag that identifies where and when the molluscan shellfish were harvested and processed. By law, retail markets and restaurants are required to keep these tags for 90 days after the shellfish are sold to ensure that if there is an illness, the shellfish implicated can be traced back to the supplier and the harvesting waters. "There's nothing wrong with asking to see the tag," says DiStefano. "And if the seller can't produce it, walk away." 

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Cooperative Programs Help Keep Food Safe (slideshow)
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