THE JUMPING GENE: Identifying Toxic Vibrios

By Elizabeth Coleman

It takes a lot for people who love raw oysters to stop eating them, but widespread doubt about safety has reduced the consumption of raw oysters by over 60 percent nationwide. For oyster producers—whose usual struggles with harvest killers like disease and water pollution are bad enough—this is economic disaster, as nearly half the national oyster harvest is eaten raw. If enacted, a U.S. Food and Drug Administration proposal to ban the sale of oysters on the half shell from April to October and to require containers of shucked oysters to carry a warning may be the oyster industry's death blow.

The major culprit is *Vibrio vulnificus*, a pathogenic bacterium that thrives during the hot months in the warm coastal waters of the Gulf of Mexico. The vibrio occurs naturally, even in waters otherwise uncontaminated by pollutants such as sewage, so raw oysters from "clean" waters can still harbor it. The FDA reports a dozen deaths a year from *V. vulnificus*. Though the vibrio is killed by cooking and, in any case, affects only people who already have depressed immune systems or diseases of the blood, liver, or stomach, many are confused about the risks and have stopped eating oysters altogether.

If the oyster industry is to survive, consumers must be assured that raw oysters are safe to eat. Processes for eliminating pathogens include heat pasteurization, which is efficient but can change flavor and texture, and low-dose irradiation, which preserves flavor and lengthens shelf-life, but has not yet found wide public acceptance. In other treatments, clean water is circulated through trays containing unshucked oysters or shucked oysters are bathed in ice-water. The drawback common to all these processes is that they treat the oysters after harvest, thus adding considerably to production costs and to the time between harvest and table. The simplest answer is a quick dock-side test for newly harvested oysters that would indicate the presence of harmful *V. vulnificus* strains before the oysters reach restaurants. Those that are free of the vibrio could be so labeled and shipped immediately to oyster bars and restaurants where shellfish are served raw.