

THE SHELLFISH CORNER

By Michael A. Rice*

I welcome the return of *Aquaculture Magazine* and I'm grateful to be asked to follow in the rather large shadow of Dr. Kenneth K. Chew

Dr. Chew from the University of Washington, for many years provided news and insightful commentary on shellfisheries and shellfish aquaculture in this column. Ken has been a good mentor to many students, and an excellent researcher and administrator. And, in the traditions of a Land Grant/Sea Grant Extension academic, he has cultivated strong ties with the shellfish aquaculture industry worldwide. In his retirement, Ken has served as the Executive Director of the USDA Western Regional Aquaculture Center and as a Fish & Game Commissioner in his home state of Washington. Addition-

ally, he remains active on the Board of Directors of the Pacific Shellfish Institute based in Olympia.

Very much in the footsteps of Ken, with this column I hope to approach shellfish aquaculture from a practical viewpoint of sustainable seafood production. This will involve examining scientific approaches for greater economic returns and environmental friendliness, promoting sound public policy and fostering public good will toward shellfish aquaculture in the economy and fabric of coastal communities. Since shellfish farming in most parts of the world occurs in public waters in which governmental agencies are charged with looking

out for the public interest, there is by necessity significant interaction with government officials and the public on a variety of issues including food safety, navigation, environmental impacts, and potential conflicts with other users of these waterways.

For the last 28 years I've been on the faculty of the University of Rhode Island teaching fisheries and aquaculture and conducting research on the physiological ecology of shellfish and the optimization of shellfish aquaculture systems. During those 28 years, I've been a founding member and contributor to the regional Extension program of the Northeastern Regional Aquaculture Center, now based at the University of Maryland. This has allowed me to interact with much of the aquaculture industry in our region of the USA. Over the years, I've also worked in several countries in Asia and Africa on shellfish aquaculture programs. Locally in my state of Rhode Island, I work closely with the Ocean State Aquaculture Association in solving problems that face this growing industry. In addition to my academic teaching, research and extension programs, I've become involved directly in the governmental side of issues through service as a Representative in the Rhode Island state legislature and currently as a member of the Rhode Island Marine Fisheries Council, the body overseeing the state's fisheries management issues.



Michael A. Rice with Taylor float trials in Kubeneh Estuary, Gambia 2013. Photo by Emily Nichols.



Perry Raso is the owner/operator of the Matunuck Oyster Farm in South Kingstown, Rhode Island. To control the growth of Vp and other potential bacterial pathogens, maintenance of a good cold chain from harvest to consumer is a hallmark of his company operation. Photo courtesy of Matunuck Oyster Farm and Oyster Bar.

Research and regulatory communities are taking on a number of pressing issues facing the shellfish industry worldwide. For instance, various diseases and parasites of molluscan shellfish are constantly cropping up and causing problems for producers. Harmful algal blooms (HABs) are a perennial problem requiring shared industry-scientific-governmental knowledge, understanding and wisdom to manage and overcome problems as they present themselves. Another emerging problem associated with climate change is increased dissolved carbon dioxide in coastal waters, which can cause acidification that ultimately may dissolve the shells of larvae and juveniles of commercially important shellfish. In some areas, the effects of ocean acidification are already being felt by producers and solving the big problems like these will demand a shared industry-scientific-governmental approach.

Using this shared approach, traditional water-borne threats to human health have been largely controlled by shellfish sanitation programs in most of the developed world and consumer confidence is high. This confidence in shellfish safety is a prime determinant of market prices, so protecting that consumer confidence is of critical importance. Alarming, however, there

is growing concern about the spread of various kinds of *Vibrio* bacteria into areas without previous problems causing human health problems and affecting the bottom line of shellfish producers. This problem may be in part related to rising seawater temperatures. At issue is that there are reports of small numbers of consumers of raw shellfish becoming ill from a disease-causing form of the bacteria *Vibrio parahaemolyticus* (Vp) in areas farther north than Vp problems have been experienced in the past.

For instance, at the recent NMFS Milford Aquaculture Seminar Laura Wigand of the Washington State Department of Health reported 79 cases of consumers getting ill in 2013 from Vp, possibly associated with commercially harvested oysters in that state. These illnesses in turn led to eight bed closures. And sporadic instances of Vp-related illnesses have been reported along the Eastern seaboard as far north as Maine. Complicating matters is the fact that although Vp and other *Vibrio* bacteria species are widespread in the environment during warm weather, extremely few stains of the bacteria are actually pathogenic, or capable of causing disease in humans. As a result, actual field testing for the culprit strains is nearly impossible. Research is underway to study the genetics of *Vibrio* strains and factors that might cause some strains to become pathogenic.

The problem of controlling outbreaks of illness associated with Vp in raw shellfish was the main topic of the biennial meeting of the Interstate Shellfish Sanitation Conference (ISSC) held at the end of January this year in San Antonio, Texas. A record 250 shellfish and health professionals, state regulatory agencies, industry representatives, FDA professionals and international program partners gathered to review proposed changes to the ISSC Model Ordinance, the 500 page regulatory “Bible” governing sanitary safety of shellfish sold in the USA. A key proposal of the U.S. Food and Drug Administration (Pro-

posal 13-204) was to mandate the use of ice slurries at the time of harvest to rapidly lower shellfish temperatures and arrest post-harvest propagation of Vp and other bacteria. This proposal was not approved, but it is recognized that getting shellfish cold as soon as practically possible is a key means to prevent outbreaks of illness among consumers. New rules that were adopted at the meeting will add slight costs or burdens to states or business. States will now have to collect timely harvest data to inform risk-per-serving calculations, and mandatory harvester education was upheld. Shellfish industry attendees at the San Antonio meeting have reported an atmosphere of good cooperation and mutual respect among ISSC partners and there is optimism about continued good work into the future. However, industry’s attention to education of the public and keeping their consumers informed about shellfish safety is key to keeping them confident, enthusiastic, and continually coming back to the seafood counter and willing to pay for high quality. ☞



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