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# Shellstockers Review

*Newsletter of the North Carolina Shellfish Growers Association*

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## ***INSIDE SCOOP . . .***

### **ECSRI Scores \$750K for Projects:**

The East Coast Shellfish Research Institute has been given \$230,000 in federal funds to develop a rapid test that differentiates benign from pathogenic *Vibrio parahaemolyticus* strains and to document heavy metal concentrations in clams and oysters throughout the East Coast. An additional \$470,000 was awarded to evaluate the environmental impacts of mechanical harvesting on planted oyster bottom and to evaluate environmental interactions of clam culture and harvest in the Delaware and Chesapeake Bays.

ECSRI is the research arm of the ECSGA. Troy Alphin, a UNCW researcher, represents the NCSGA on this research board.

***2009 Dues are due. Pay today. Save us a stamp***

**Note from the President:** It hasn't been a banner year for oysters in Stump Sound, and from what I'm hearing, many other areas in the state are faring the same. The main culprit here is tunicates, those little balls of mush we call sea squirts.

They get into everything, the racks the cages and the clusters of oysters on the bottom, out-competing oysters for food and eventually contributing to the death of many.

At the root of the problem are the droughts of 2007 and 2008. These tunicates love the salty water, so the more droughts we get, the more the sea squirts thrive.

Tunicates are intriguing for a number of reasons. There is good evidence that the first description of them dates back to Aristotle who thought they were sponges and, for a casual observer, this is still an easy mistake to make. One early observer said they look like chunks of brain. I think they look like shriveled up pears with holes in their ends.

The larger ones growing in clumps in Stump Sound are *Styela plicata*, and the small round ones we commonly call sea grapes are *Mogula*. The *Mogula* seem to get into the cages and stick to the sides, while the *Styela* mostly adhere to the racks and to pieces of shell on the bottom. And, of course, a description wouldn't be complete if I did not add that they are an invasive species thought to have originated in Asia.

We're not alone. In Canada's Prince Edward Island, four varieties of tunicates have been found in a growing list of rivers and bays. Scientists think global warming is creating better conditions for two of the species.

So shellfish lovers, beware: This tiny creature is likely to push up the price of mussels and oysters from P.E.I. as fisheries officials there introduce new restrictions to protect their \$20 million industry. Tunicates bump up mussel packing costs by 20%

There is some evidence that crabs eat tunicates. In late August, almost 20 tons of rock crab were dumped onto a mussel lease in the Montague River. The mussel lines were weighed down

to touch the bottom and create a ladder for the crabs to gain easy access.

Mussel farmers are hopeful that the rock crabs will make a significant contribution to keeping the mussel lines clean. As a side benefit, the crabs can be caught again and sold for food.

Closer to home, the remedies are not so effective. I don't think crabs will do the job here. I've tried dusting the tunicates with boric acid, a cockroach killer I bought from Lowes. I also sprayed some with a 5% acidic acid (white vinegar), and I've tried hydrated lime. All of these had little effect on the tunicates in the water, even the inner-tidal ones, I think because they weren't allowed to dry long enough, and the water just washed off the treatment not long after it was applied. When I was able to take the tunicates out of the water for longer periods of time, they withered away. Of course, they'll wither away with no treatment at all if you leave them out for a couple of days.

There may be a way to head off their growth if you can catch them early in life. These animals produce both sexually and asexually so that makes it a lot more complicated to fight. Like oysters, they shed eggs and sperm into the water column, but unlike oysters, the larval period only lasts a few days.

They love hard substrates, and when the water conditions are appropriate during the breeding season (late spring through early fall), they can rapidly recruit and occupy space to the exclusion of other benthic animals, like oysters.

What's good for one is bad for another and visa versa. When the picking gets slim in Stump Sound, the oysters thrive in the fresher waters of New River. I'm sure that's true for other parts of the state also. I recall now how the price of oysters skyrocketed after hurricane Katrina. Maybe the Louisiana oysters will take a jump this year. It's pay back time. – Jim

**2009 Aquaculture Development Conference:** Plan to attend the 21<sup>st</sup> annual conference January 30-31, 2009 at the Sheraton in Atlantic Beach, NC. Register at <http://www.ncaquaculture.org>.

Friday highlights:

- 1:00 Lunch followed by the keynote address – Phillip Gadsden, Seaood Buyer, Harris Teeter
- 5:00 NC Aquaculture Association meeting
- 6:00 Social followed by the annual Aquafood Festival (NCSGA sponsored shellfish room)

Saturday highlights:

- 9:00-11:15 Shellfish Workshop
  1. Progress on the Culture of Red Porgy in North Carolina, Troy Rezek, UNCW
  2. Culturing North Carolina Black Pearls, Tom Osborne and Nelson Bullock, Ovlock Shellfish
  3. Evaluation of Remote Setting Techniques for Oyster Larvae, Jim Swartzenberg, J&B AquaFood

*The annual meeting of the NCSGA will immediately follow the last session of the Saturday workshop. Plan to be there around noon.*

**Acidifying Oceans Threaten Oysters:** Oceans are acidifying ten times faster than predicted, threatening heightened damage to coral reefs and shellfish, according to a University of Chicago study.

Researchers took more than 24,000 pH measurements over eight years and found the rate at which the ocean is becoming more acidic correlates with the atmospheric concentration of carbon dioxide.

When CO<sub>2</sub>, which helps cause global warming, dissolves in water, it forms carbonic acid. The resulting acidification prevents marine life such as coral, crabs, lobsters and oysters from building calcium carbonate skeletons and shells, impairing their ability to survive and reproduce.

“The acidity increased more than 10 times faster than had been predicted by climate change models and other studies,” University of Chicago ecology and evolution professor Timothy Wootton said. “This

increase will have a severe impact on marine food webs and suggests that ocean acidification may be a more urgent issue than previously thought.”

The loss of Alaska’s cold-water reefs may be a precursor to the extinction of reefs worldwide because of acidification, which occurs when oceans absorb carbon dioxide, according to the study.

NOAA and the National Science Foundation (NSF) have commissioned the first comprehensive national study of how these carbon dioxide emissions may be altering natural resources.

Carbon dioxide released into the atmosphere through the burning of fossil fuels is being absorbed into the oceans altering the biology and chemistry of marine ecosystems in fundamental ways. Some of the most vulnerable species – clams, crabs, lobsters, mussels, shrimp, and scallops - are also some of the most important economically to the United States, representing half of the \$4 billion annual value of all fish harvested in U.S. waters according to a NOAA news release.

A related study found the rising acidity of the world's oceans will put the future of Sydney's rock oysters at risk.

Laura Parker, a Sydney marine biologist, found the Sydney rock oyster and Pacific oyster are less fertile in more acidic water, and warmer temperatures result in abnormal offspring.

"I thought the changes would have an impact, but not as badly as the results showed," Ms Parker said.

The Sydney rock oyster industry is the most valuable fishery in New South Wales, earning about \$38 million in a year. *Sidney Herald Sun; Bloomberg.com; NOAA news release*

**Mass. and Maine Eligible for \$2M to Aid Shellfishermen:** The New England shellfish industry is eligible for as much as \$5 million in federal disaster aid to help local shellfishermen recover from the shellfish bed closures this year caused by the harmful algal bloom, red tide. The states of Massachusetts and Maine each will be eligible for up to \$2 million, and New Hampshire will be eligible for up to \$1 million. State fishing agencies will submit plans to the National Oceanic and Atmospheric Administration outlining how the funds should be used. Although most closures have been lifted, several areas remained closed. The U.S. Department of Commerce, which oversees NOAA, declared that this year’s outbreak caused a commercial fishery failure. *The Patriot Ledger*

*The states will now submit plans to the fisheries service outlining how the funds will be used.*

**ECSGA Elects Tom Kehoe for President:** Tom Kehoe has been elected to replace Bob Rheault as president of the East Coast Shellfish Growers Association. Bob Rheault was instated as the executive director.

Rheault succeeds Executive Director Ed Rhodes who is now Director of Aquaculture Sustainability for Phillips Foods in Baltimore.

Rheault, an aquaculturist and owner of Moonstone Oysters in Rhode Island, has served as the association's president since its inception.

Kehoe, who has served as an association board member, is also CEO of K & B Seafood, Inc. of East Northport, NY, a well-known oyster distributor.

**Oysters Fight Coronary Artery Disease:** Shrimp, scallops and clams are moderate sources of essential fats, providing about a third of what you get from oily fish like salmon, which is categorized as an excellent source. Oysters on the other hand, go toe-to-toe with salmon; a three-ounce portion of each provides about 1 gram of omega-3 fat, the daily amount recommended by the American Heart Association for people with coronary artery disease. Mussels aren't far behind and also rate as good sources of omega-3 fat. Karen Collins, MS, RD, CDN – *Kansas City News*

**Oysters Fight Cancer:** Researchers at Louisiana State University say ceramides, a fat compound found in oysters, could help prevent and treat cancer.

Ceramides are being used in clinical trials to speed the healing process in cancer patients undergoing chemotherapy. Jack Losso, a researcher in the LSU AgCenter Department of Food Science, says the results have been exciting.

Losso says cancer cells treated with ceramides were dying, and his research has found that ceramides in oysters can restrict blood vessel growth and development of breast-cancer cells in test tubes and the blood vessels in rats.

By preventing the formation of blood vessels, the substance keeps cancer cells from multiplying, because they can't grow without nutrients from the blood. *Associated Press*

**400-Year-Old Shells Reveal Change:** A study of 400-year-old oyster shells discovered in a Jamestown, Va. well used by colonists shows that eastern oysters grew significantly faster then than they do today, a clue that may help shed light on the plight of the modern oyster.

The Virginia Institute of Marine Science study provides the first documented evidence that oysters now function differently than they did in the early 1600s.

"They were larger than modern oysters the same age, which probably would have made them exponentially more capable of reproducing, filtering water and making shell," said Juliana Harding, senior marine scientist at VIMS.

Roger Mann, professor of marine science at VIMS, said the slower growth rate of modern oysters may be the result of changes in water quality or sedimentation -- which can bury oyster habitat -- diseases, or a combination of these factors. *InRich.com*

*In 1617, oyster reefs  
in the James River  
near Jamestown  
were large enough  
to be navigational  
hazards*

**Repeated Arrests Lead to Protest:** A Maryland wannabee oysterman Joseph Janda, Jr. was arrested in October for possession of undersized oysters. Officers say 42 percent of the oysters in one bushel and 32 percent in another bushel were undersized.

The charges have touched off a flurry of protests from recreational anglers to the prosecutor and calls by a Baltimore County lawmaker for tougher penalties for repeat offenders.

During the past six years, Janda has been taken to District Court in Talbot, Dorchester and Somerset counties by the Natural Resources Police on 36 offenses, ranging from catching undersized crabs to dredging for oysters in a restricted area to working on a suspended license. *Baltimore Sun*

**Oyster Rustling Hits French Farmers:** Thieves have stolen 8 tons of oysters in the last three weeks, according to oyster producers in Normandy.

The oyster-farming community believes organized gangs with insider knowledge are responsible for the thefts. The canny rustlers strike at low tide when oyster beds can be easily accessed from the beach.

Once stolen, the oysters are sold on the black market as French consumers stock up for the festive season.

The French are Europe's biggest producers of oysters and fourth in the world behind China, Japan and South Korea, turning out 130,000 tons a year and eating almost all of it themselves. *Telegraph.co.uk*

**Proposal Expands Mariculture in Chesapeake Bay:** Seeking to boost Maryland's fledgling aquaculture industry, Governor O'Malley's administration plans to introduce legislation to make it easier for people and businesses to raise oysters or other shellfish in Chesapeake Bay.

The administration has drafted a bill that would overhaul the state's law that now limits leasing of the water and the bay bottom to private entities that want to raise oysters or clams.

Natural Resources Secretary John R. Griffin said the state needs to cut away the red tape and legal limitations on leasing in the Chesapeake if the state's once-prolific oyster industry is going to recover from the diseases that have devastated the Chesapeake's oyster population over the past two decades. *BaltimoreSun.com*

*"If you look worldwide, the only places where oysters seem to be thriving is in aquaculture settings," Griffin said yesterday. "There's very few public fisheries left."*

**Cherrystone Aqua Farms Takes on Oysters:** Cherrystone planted 100,000 oysters three years ago, half a million last year and 2 million this year at its Willis Wharf, Virginia oyster hatchery.

Greg Coates, who has run hatcheries in Hawaii and on the West Coast, will return to the Shore in January to manage the oyster effort.

Mike Peirson, who has been at the helm from the beginning, said there is room for expansion of the local clam-growing business. But he sees a lot more untapped potential in raising oysters.

"There are too many people growing clams right now," he said. "It went from being a specialty thing, now it is a commodity,"

"We're starting big into oysters this year," he added.

"You are basically subsidizing people who are going to compete against you," he said. So they started a system of hiring cooperative growers.

With no upfront charge for clam seed, Cherrystone provided growers with what they needed to get started. When the clams reached market size, the grower paid for the seed and evenly divided profits with Cherrystone.

When clams were 25 percent higher than today, going for more than 17 cents apiece in 1999, Cherrystone paid one co-opper \$1 million.

Sales reached \$11 million last year and \$6 million went right back to labor costs -- \$2.5 million for employees and \$3.5 to co-op growers. Labor is the biggest cost in aquaculture and Cherrystone employs about 65 people year-round and close to 80 in the summer.

Oyster production is expensive, with only 250 growing per cage, requiring "lots of labor and lots of equipment," he said.

But they command a higher price and are more widely consumed than clams. While clams are going for about 13 cents each now, a Chesapeake Bay Oyster goes for 25 cents, Chincoteague Salts sell for about 40 cents each and those from New England command about 75 cents apiece. *Delmarvanow.com*

**News from New Zealand:** An appeal to the government for \$3 million towards a massive environmental clean-up could be lodged by Bay of Islands oyster farmers within the next few weeks.

Eleven oyster farms in Waikare Inlet were forced to close in 2001 after the shellfish were contaminated with a Norwalk-like virus from human effluent.

Farmers had argued that the poorly maintained Kawakawa sewerage plant was a likely cause of contamination but became liable for costs of more than \$300,000 after unsuccessfully suing the district council for \$12 million.

The high court said the contamination could have come from yachts discharging effluent.

The district council has since accepted \$200,000 in lieu of the full amount. *Northern News*

**Virus-hit oyster farmer: “It's been 4 1/2 years of hell and my life's a mess”:**

Alan Tindall told a New Zealand court yesterday that he had lost three-quarters of his business, his home and his wife.

"It's been 4 1/2 years of hell and my life's a mess," said the Bay of Islands oyster farmer. "I wouldn't wish this on my worst enemy."

Mr. Tindall is one of nine oyster farmers whose farms were closed in 2001 after traces of a virus carried in human effluent were found. Yesterday, they began a multi-million-dollar case against the Far North District Council in the High Court at Auckland to get compensation for loss of earnings.

The farmers have identified several sources of pollution into Waikare Inlet, but they largely blame the council-operated sewage plant at Kawakawa. *Northern News*

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Name:	_____		
	Last	First	M.I.
Company/Affiliation	_____		
Address:	_____		
	City	State	ZIP
E-mail:	_____		
Make check payable to NCSGA. Mail to P.O. Box 269, Smyrna, NC 28579			
Annual Dues \$15			

<p><b>Bargain Center:</b></p> <ul style="list-style-type: none"> <li>• Lowest Prices — NCSGA membership discounts for ADPI bags, cages, and netting. <u>Peter and Diane Perina</u>, distributors for ADPI and Coastal Aquacultural Supply. (804) 725-3948.</li> </ul> <p style="text-align: center;"><i>(Members advertise free)</i></p>
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**MAY ALL YOUR CLAMS BE SOLD; MAY ALL YOUR OYSTERS BE BIG**

***North Carolina Shellfish Growers Association***

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