A Plea for Sanity in Regulations

This spring I’ve heard about case after case where the regulators seem to be going nuts. No doubt we’ve all heard of regulations that make us shake our heads in disbelief. It’s always easier for regulators to say, “No,” and few have the guts to stick their necks out and say, “Yes,” especially if there is a shred of uncertainty involved. This year there seems to be an epidemic of regulatory horror stories. When regulators base their decisions on fear of the unknown instead of on the best available science, they lose all credibility and invite non-compliance. This is not good for anyone.

Outrage in South Carolina

On April 1, South Carolina regulators instituted a moratorium on seed imports from all states to their north. I was hoping that this was an April Fools joke, but it turned out to be true. Apparently MSX had been detected in a seed sample from a Virginia hatchery. At first I thought this indicated that the disease surveillance was working properly: infected seed were detected and not shipped, just as we would hope. But apparently banning this one shipment was not good enough. A total ban was implemented, just as growers who had already sent in deposits for seed were hoping to get their shipments.

I would have supported this action if we were talking about a state where MSX is a rare occurrence. No one wants to introduce a new pathogen. MSX can rip through naïve oyster populations leaving mass mortalities and broken dreams in its wake. However, all the shellfish pathologists I spoke with indicated that MSX was already an endemic disease in South Carolina. It has been there for years and shows no signs of going away.

The typical policy of requiring a pathology inspection prior to shipment would seem appropriate. A wholesale moratorium based on the suspicion that inspected seed might still be harboring undetected pathogens (that are already endemic) seems like a gross over-reaction based on fear instead of science.

Outrage in New Jersey

More than 50 years ago, Dr. Hal Haskin began selectively breeding MSX-resistant oysters at Rutgers University in New Jersey. It was at Rutgers that Stan Allen and Ximing Guo developed the techniques to make tetraploid oysters to produce triploids without the use of chemicals, developments that have proven critical for growers up and down the East Coast.

For decades, Rutgers researchers have been maintaining thousands of precious disease-resistant broodstock, licensing them to hatcheries coastwide. To protect the oysters from ice damage in winter, they move them from their intertidal growout site, holding them under a dock in a marina.

When regulators learned that oysters were being held in uncertified waters, they insisted that these animals be removed from the marina to avoid the possibility of theft and illness. Never mind that the oysters were protected by a locked 8-foot fence and were monitored 24/7 with a high-definition infrared web-cam. Never mind that all the boats in the marina were gone for the winter and the waters were probably bacteria free. Never mind that these oysters have been overwintered in closed areas that pose similar risks. Regulators declared the broodstock a public health risk so they had to go.

So in February the oysters were moved out to the intertidal flats in front of the Cape Shore lab, at the mercy of two “polar vortex” events that killed 98 percent of the tetraploid broodstock. Decades of work and $1.2 million worth of broodstock were needlessly destroyed. Now hatcheries seeking MSX-resistant tetraploid broodstock will have to look elsewhere for the next two years, assuming that new stocks can be reared and safely overwintered.

Outrage on Ice

Recent increases in Vibrio illnesses have everyone looking for ways to reverse the trend. Because there is little we can do to keep shellfish from accumulating these natural bacteria in the water, regulators and industry have concentrated on preventing bacterial growth after shellfish are pulled from the water. Vibrio growth is arrested below 50°F, so a lot of effort has been focused on getting shellfish cold as fast as possible.

Ice is a wonderful thing, but we have some icing regulations that are hard to swallow. Massachusetts has a Vibrio parahaemolyticus (VP) control plan that goes into effect May 19. This past May water temps were just over 50°F, with several days of rainy overcast where the air was just over 60°F. At 60°F the doubling time for Vibrio is about 36 hours! Is 3 inches of ice really going to improve public health under circumstances like this? Maybe we should think about incorporating some leeway and logic into our control plans?

The stipulation that harvesters use only “approved ice” from a certified source has always struck me as hard to justify. Last summer the FDA produced a study showing how an ice-slurry dip could be used to rapidly chill oysters to less than 50°F, thereby stopping all Vibrio growth. The FDA noted that the slurry gets pretty funky after a few loads of oysters have been dipped. Even though they measured increases in “filth bacteria” in the slurry, they noted that these bacteria were not detected in the meats of the oysters, presumably because oysters don’t open and pump in ice water. So if the FDA’s own data suggest that bacteria in ice are not a concern, why does every state continue to mandate the use of “approved ice” for chilling?
Oyster Farms Could Provide Valuable Habitat for Juvenile Blue Crabs in the Northern Gulf of Mexico

by Eric R. Stewart,
Auburn University, Alabama

While only recently introduced to the northern Gulf of Mexico region, innovative systems and techniques for farming oysters off-bottom are proving to be cost-effective methods for producing high-value oysters suitable for the premium half-shell market. In the past, Gulf oysters were considered a low-value commodity.

Highly productive Gulf of Mexico waters promote desirable oyster growth, but also promote undesirable biological fouling (barnacles, mussels, algae, etc.). This problematic bio-fouling can be eliminated by using an off-bottom farming technique, such as an adjustable longline system (ALS). By using the ALS, oysters can easily be raised from a regular feeding position below the surface to a temporary desiccation position above the surface. Air-drying the oysters in this temporary desiccation position knocks back the undesirable fouling organisms, saving the grower a lot of time and money spent dealing with biofouling.

Growers on the Gulf Coast typically desiccate their oysters once a week, for approximately 24 hours. In addition to producing a premium half-shell oyster, the ALS also benefits host estuaries by providing ecosystem services. Species such as the common blue crab continuously inhabit ALS gear, regardless of the routine desiccation procedure, indicating that the ALS is providing valuable habitat. The juvenile blue crabs use ALS gear as nursery habitats, taking advantage of the structurally complex interstitial spaces between the oysters. Blue crabs are one of the most commercially important species in the Gulf of Mexico, and the amount of available nursery habitat is critical to their success.

Even though there is an abundant blue crab larval supply in the Gulf, populations are critically limited by the quality and quantity of nursery habitat available for juveniles. When nursery habitats become limiting, juveniles can quickly fall prey to larger, more cannibalistic crabs or carnivorous fish. Therefore, any increase in the amount of available nursery habitat within estuaries along the Gulf Coast (such as that potentially provided by oyster farms) ultimately could help augment adult blue crab populations in the region.

As part of my thesis research, I am leading a study investigating whether or not oyster farms are indeed serving as valuable nursery habitats for juvenile blue crabs. To do this I collect data on juvenile blue crab density and survival from within the farms, as well as from other potential nursery habitats. These include bagged oyster shell, which is often used in oyster reef restoration projects; and submerged aquatic vegetation, which is regularly considered to be the gold standard for juvenile nursery habitat.

Granted, it can be challenging to determine whether habitat modifications are merely concentrating crabs in one area or if they are genuinely enhancing the population. Nonetheless, higher abundances and lower mortality rates suggest more favorable conditions. The raw data is still being analyzed, but when the ALS is compared to other potential nursery habitat types other than seagrass, juvenile blue crab density and survival are far greater. In the case of seagrass, ALS density and survival rates are at least the same, if not greater. The bottom line is that oyster farming may actually be improving other commercially important fisheries by providing exceptional habitat value.

The bottom line is that oyster farming may actually be improving other commercially important fisheries by providing exceptional habitat value.

Eric R. Stewart is a graduate student and research assistant at Auburn University’s School of Fisheries, Aquaculture, and Aquatic Sciences. He can be reached at ers0009@auburn.edu.
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New York Oyster Week is a unique celebration showcasing the oyster’s extraordinary role (past, present and future) in the history, culture, cuisine, economy and ecology of New York.

Every September Oyster Week organizers present a curated collection of oyster-centric events in a single master calendar. This year from September 12-28 they’ll offer more than a dozen opportunities for consumers to meet, mix and enjoy oysters together in small, medium or large gatherings. There will be a different oyster-centric event to enjoy each night.

Along with these events, a distinguished collection of participating restaurants known to be (or aspiring to become known as) exceptional oyster destinations will offer their take on oysters with a featured raw and/or composed oyster dish or pairing at their restaurants.

New York Oyster Week strives to promote a wide variety of oysters, oyster culture and aquaculture in fun and engaging ways that fit various personal styles and schedules.

The organizers hope to create more consciousness and appreciation of the oyster growers, distributors and restaurateurs who bring these products from dock to dish.

This year the primary beneficiary is, again, New York Harbor School and the Billion Oyster Project. Oyster week co-founder Kevin Joseph says he hopes to “continue to raise significant funds and awareness for these amazing causes and people.”

Joseph added that, “Our extended mission is to take Oyster Week to as many as 20 cities world-wide, and to build a global community and experience for oyster lovers everywhere. Coming soon: San Francisco Oyster Week, DC Oyster Week, Tokyo Oyster Week, Paris Oyster Week…and many more.”

For more info visit www.oysterweek.com.
Rethinking the Relationship Between Oyster Density and Disease

by Tal Ben-Horin
Rutgers University, New Jersey

Conventional wisdom says that dense populations of oysters are more prone to infection, but this intriguing research suggests that the reverse actually may be true. – Ed.

Improving water quality. Removing excess nutrients. Protecting shorelines. The benefits of healthy oyster reefs for nearshore ecosystems are well documented. But what about filtering out pathogens? Can healthy and abundant oyster populations also help reduce the risk of diseases such as Dermo and MSX that led to the declines of wild oysters in recent decades?

Collaborative research conducted among the Haskin Shellfish Research Laboratory at Rutgers University in New Jersey; shellfish biologists, geneticists and oceanographers at the Center for Coastal Physical Oceanography at Old Dominion University in Virginia; and the Gulf Coast Research Lab at the University of Southern Mississippi suggests this may be the case.

For infectious diseases such as Dermo and MSX, pathogens are transmitted through seawater when oysters inadvertently filter infectious particles during feeding. We have found that filtration by oyster populations reduces the seawater concentration of *Perkinsus marinus*, the pathogen that causes Dermo disease. High concentrations of this pathogen in seawater lead to high infection rates in oysters. Dense oyster populations actively compete for particles in seawater, and this competition reduces the pathogen dose delivered to each individual. When the dose filtered falls below thresholds for infection to occur, Dermo is removed from the system with little to no effect on oyster populations.

This result may partially explain patterns seen in Dermo epidemics of the Delaware and Chesapeake Bays. Dermo was first recorded in both bays in the 1940s and 1950s, but at first its impact was insignificant. It was not until oyster populations crashed in the 1980s, due to another disease, MSX, that the effect of Dermo became very apparent. MSX conformed to many predictions of how infectious diseases operate. That disease, which was accidentally introduced to Atlantic estuaries, rapidly swept through naïve oyster populations and killed just about everything in its path. The few oysters that remained became highly resistant to MSX, but were soon overwhelmed by Dermo by the early 1990s. Dermo continues to be a problem, even though the density of remaining oyster populations is low. This opposes our classic understanding of how infectious diseases operate. Infectious diseases should fade out when the density of host populations declines. We are now testing whether the opposite may be the case for Dermo. Does disease intensity decline in high-density oyster populations? Our ongoing interdisciplinary work addresses this question and additional complexities of diseases in marine and estuarine systems. This includes the effects of nearshore circulation on disease spread and the consequences of variability in susceptibility to Dermo disease within and between oyster populations.

Our initial results hold good news for wild oyster populations. If Dermo is kept at bay for a few years – for example, during periods of cool and wet climatic conditions that inhibit disease proliferation and spread – conceivably oyster populations could recover enough to “over-filter” disease. We have a new lens to view the relationship between oyster abundance and long-term patterns of Dermo disease, and are rethinking our previously held ideas for the optimal management of disease-impacted oyster populations.
Seventeen years ago Ben Lloyd developed an interest in seafood while he was a Marine Affairs student at the University of Rhode Island and also happened to be working on my oyster farm. At this year’s Boston Seafood Show we had the opportunity to catch up.

After graduation Ben worked as a shellfish buyer and salesperson for Captain Marden’s Seafood outside Boston, but it wasn’t long before he broke out on his own. Soon he had started not one, but two, shellfish businesses. In 2001 he founded Pangea Shellfish Company, a shellfish wholesale operation located in Boston. A few years later he decided to start his own oyster farm, Standish Shore Oysters in Duxbury Bay. In addition, Ben sells custom engraved oyster knives through his Boston-based business, My OysterKnife.

After 13 years in business, Pangea Shellfish Company now sells over 10 million oysters a year. Ben sells to distributors and restaurants across North America, and is dabbling with markets in Asia.

At his facility in Boston, (next door to Araho Transfer) Pangea operates one of only five state-approved, wet-storage systems in Massachusetts, which is used for holding and purging soft-shell clams and other species.

Ben uses the same approach for his Standish Shore Oysters, explaining that, “only the highest grade of oysters goes into each of our bags. We take great care in growing them and cull them by hand to ensure our customers get only the best.”

Ben buys about 2.5 million oyster seed every season, starting them in a floating upweller. When they reach a size of 6mm or more they go into 4-mm nursery bags that are placed into clean 6-mm, 9-mm, and 14-mm mesh bags for continued nursery growth into their first autumn. He spreads some seed on the bottom in the fall, and the rest go into long-line bags on the bottom for the winter. In April, he tumble the over-wintered oysters one last time, then bottom-plant them until they are ready for harvest.

In October, Ben starts to dredge-harvest his crop, but he also heads out to the flats on negative tides to hand-pick his oysters, his “favorite part of the job.” Once collected, he and his crew rigorously hand-cull to separate them by size and grade, and then purge them in cages on his lease for at least three days before sale to allow the oysters to spit any sediment they might have picked up.

Ben says his greatest challenges are balancing supply and demand, and helping his customers understand how weather plays into supply. He is constantly juggling orders from dozens of demanding customers from across the country, while at the same time trying to modulate the supply from dozens of suppliers up and down both coasts of the U.S. and Canada.

When I asked Ben why he is an ECSGA member, he said, “Industry organizations give a big voice to small companies. I don’t have time to take on all of the issues that the ECSGA tackles. The ECSGA is working to maintain a workable regulatory environment and I think it’s important to support that effort.”
It’s that time of year again! We’re actively planning the 2014 Milford Oyster Festival, set for Aug. 15-16, where we expect to serve more than 25,000 oysters grown by ECSGA members to a crowd of 50,000 or more. This is our biggest annual fundraising effort, with the proceeds covering most of the association’s operating expenses for the year. We need your help!

Every year, our two booths are staffed with hard-working volunteers (but, then, hard work is not a problem for shellfish farmers!) who always have lots of fun. Please consider lending a hand to an organization that does so much for our industry. You’ll have a chance to meet other growers and have a great time while promoting your products.

We need volunteers for all sorts of tasks, so if you have free time Friday, Aug. 15 for Oyster Eve; Saturday, Aug. 16 for the festival; or even Sunday, Aug. 17 for clean up, we can put you to work! Even if you cannot commit to the full event or a full day, we would really appreciate any help you can give us.

The ECSGA has become quite an important presence at the festival. At our large booth located in the food-court area we will serve raw and cooked shellfish on Saturday. Across the harbor at Lisner Landing, we’ll have raw-bar and chowder offerings at the pre-festival “Oyster Eve” on Friday evening and again all day Saturday. And of course we’ll organize the now-famous Oyster Shucking Contest, inviting some of the world’s fastest shuckers to help out at the main booth for the chance to compete for cash prizes.

The festival will be held, rain or shine, 6 p.m. to 9:30 p.m. Friday, Aug. 15; and 10 a.m. to 6 p.m. Saturday, Aug. 16.

The featured band Friday night will be “Beatles Faux Sale,” a musical tribute to live Beatles concerts. Beer, wine, oysters and other great food will be available both days.

Admission to the festival on Saturday is free, with Bret Michaels headlining at the Festival Main Stage.

In addition to the Main Stage entertainment, which includes local bands, the event features the Children’s Stage, the Harbor Stage and Festival Car Show, Big Toys, 200 arts and crafts vendors, amusement rides, schooner cruises, a canoe and kayak race, and the food court.

For more information visit www.milfordoysterfestival.com.

If you would be willing to volunteer, please contact Kathy Rhodes, ecsga@comcast.net or (203) 623-2819.
On April 30, New York Harbor School and New York Harbor Foundation launched the Billion Oyster Project with a fundraising gala at the New York Yacht Club in midtown Manhattan. The project aims to restore one billion live oysters to New York Harbor, and in the process engage thousands of New York City public-school students in the restoration of their local environment. Through this work, students drive boats, SCUBA dive, grow oysters, build and operate ROVs and carry out authentic scientific research.

The Billion Oyster Project extends far beyond the walls of Harbor School, seeking to engage New York City public school students and teachers in the real work of environmental restoration through oyster gardening at sites throughout New York Harbor. To date over 7.5 million oysters have been restored by Harbor School students, while 20 middle schools have partnered with Harbor School to implement the Oyster Gardening Curriculum.

The launch would not have been possible without the donations of time and oysters by some very generous oyster farmers. Their generosity and commitment were an inspiration to our students, their oysters were delicious and everyone had a blast.

Huge thanks to: 401 Oysters, 40 North Oysters, The Behan Family Farm, Blue Island Oysters, Cape Shellfish, Chadwick Creek Oysters, Coastal Steward, Cutthunk Shellfish, Fishers Island Oyster Farm, Great North Bay Oysters, Island Creek Oysters, Montauk Shellfish Company, Salt Water Farms, Thimble Island Oyster Co., Watch Hill Oysters and Wellfleet Shellfish Co.

Watch for a repeat performance next spring.

For more info on the Billion Oyster Project visit www.billionoysterproject.org.

Harbor School students Gerard Ortega and Beni Nedrick shucking oysters from Island Creek Oysters and Montauk Shellfish Company.
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Scientists at Bangor University in Wales got a bad rap when ill-informed reporters ran with an erroneous story claiming the researchers had killed "Ming" an ocean quahog (Arctica islandica), just to prove that it was the oldest living animal on record. In fact, the clam was one of 200 cohorts dredged up off the coast of Iceland in 2006 for a study investigating climate change over the past 1,000 years. All the clams were frozen aboard ship at the time of collection and only later examined in the lab, when scientists discovered that this specimen was around 507 years old. For a fascinating account of how the media garbled this story, read Paul Butler's article, "Reassessment of the age of 'Ming' the clam leads to a media firestorm," at www.bangor.ac.uk.

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Specimen 061294, aka Ming, the 507-year-old clam

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As we say good riddance to this particularly brutal winter, I am hearing many accounts of winter kill from growers who saw unusual mortalities from Virginia to Maine. These were not rooky growers who overstocked their bags, but seasoned veterans who more often than not sent samples in to check and see if some sort of parasite or disease was at work.

Because many of us endured much harsher winters in the 1990s, we know the species can handle cold waters. So what could be the cause?

If you are seeing unusual mortalities as your crop starts to come out of hibernation there are a few potential causes. My first thought is that your animals might have gone into the winter with inadequate reserves. When this is the case they often survive right up until spring only to perish as the water warms. There are three potential causes of food-limitation that can lead to winter kill:

1. Overstocking your gear might be causing the animals inside to compete for too little food.
2. If you got behind in your fouling control, the flow of food to the animals in your bags or cages was probably restricted.
3. Sometimes Mother Nature lets us down and we get blooms of lousy algae or not enough algae and the crop goes into the winter looking thin and watery.

If you tried to overwinter small seed you might have discovered the hard way that these animals have tiny metabolic reserves, so even though they might have made it through a short winter, they can't handle a long, drawn-out one. (Oysters and clams don't feed when water temperatures drop below about 10°C (50°F)).

One piece of advice I have for new growers is to have a few bags of animals that get the “royal treatment.” These bags of special pets should be under-stocked and well maintained. Check on them regularly and swap out the gear often. If your pampered pets are doing well while the rest of the crop is suffering, then you know you can fix the problems with better husbandry and lower stocking densities. But if your pets are suffering too, then it is time to send a sample to the pathologist to determine if there might be a disease at work.

— RBR

**Growing Tips From an Old Salt**

**Do you sell shellfish at farmers markets or other retail outlets?**

For less than $3 each you can buy custom-imprinted, six-pack-sized, soft-sided insulated lunch boxes (along with a gel pac) so that customers can keep their shellfish purchases cool on the ride home.

Internet vendor MarcoPromotionalProducts.com sells lunch totes for as low as $2.59 each (for 50).