East Coast Shellfish Growers Association

The East Coast Shellfish Growers Association represents over 1,500 shellfish farmers from Maine to Florida and the Gulf states. These proud stewards of the marine environment produce sustainable, farmed shellfish while providing thousands of jobs in rural coastal towns.

The ECSGA informs policy makers and regulators to protect a way of life.

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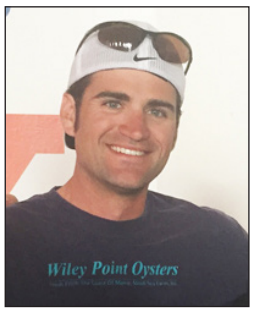
From the President

Give a Hoot



President
Jeff Auger

Early this fall growers on the Damariscotta River will once again organize and participate in our annual "river cleanup." Participants may come and go over the years, but we have consistently been able to attract farms, local environmental organizations and residents to come and spend an afternoon on the waterfront picking up trash and other debris collecting along the shore.

We all know it has become much harder to operate and make our living on the water with an ever-increasing number of riparian land owners opposing us. Small efforts to help build our social license can and do go a long way in the community, but these cleanups are worthwhile to simply pick up trash from our shores. We are fortunate to have jobs that allow us to work on our coasts, rivers and bays; we should do our part to help ensure they stay free of bottles, bags and the numerous other items that are dumped or washed ashore.

The first year we did our cleanup I didn't think we would find much along the shore. We live in pristine Maine, how much pollution could there be? Well, two flatbed trucks later I was shocked. We picked up foam, hundreds of bottles, discarded lobster pots, buoys, and even a full bed frame. Every year we take thousands of pounds of debris out of the river in an exercise that has become rewarding and concerning, but in the last few years we have definitely seen less trash along the shore (so much so that we have expanded the clean-up area).

When the day is done we all retreat to a favorite watering hole, where we talk of grandiose plans for next year (forgetting that we are always too busy to plan out an extensive operation). Last year we even had a group reading of a message we found in a bottle. We are hoping to get more participation in the coming years from riparian land owners. We look forward to working with them to keep our shores clean and build stronger relationships as our businesses grow and we continue to work in the area.

If your local bay, river, pond or estuary doesn't have a similar project I would encourage you to organize one. It doesn't take much planning or effort, and we can apply our extensive knowledge of moving oysters from point A to point B to removing the trash littering our shores. It's also an excellent way to check in with other growers, land owners and members of the community in the area.

Give a hoot.

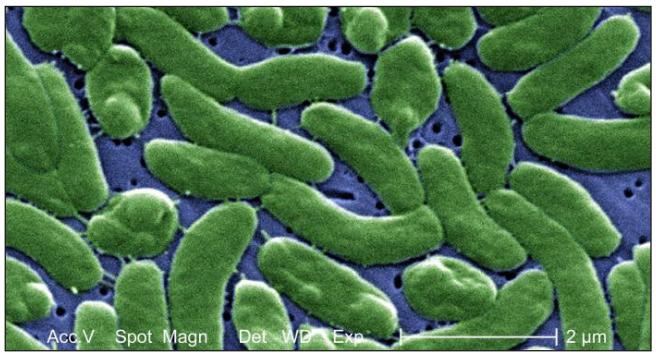
Flesh-Eating Bacteria. Again.

by Robert Rheault,
ECSGA Executive Director

Well, that got your attention!

It seems as if every few years the media becomes fascinated with a few rare illnesses caused by vibrios, and suddenly every news outlet, blogger and food writer feels compelled to run a story with attention-grabbing headlines that end up killing our markets. This summer, three Connecticut residents (two of whom died) and one New York resident (who died) were hospitalized with *Vibrio vulnificus* (V.v.) infections. One of the Connecticut patients had eaten oysters from out of state, although it is unclear if that person died. At least two of the three fatalities had open wounds or cuts and swam in warm, salty or brackish waters along Long Island Sound.

In addition to the cases in the Northeast, three vibrio infections in North Carolina resulted in fatalities. All three patients had been exposed to warm, salty or brackish water and had open wounds, and one of the victims also had eaten recreationally-harvested oysters. On September 1, the U.S. Centers for Disease Control and Prevention (CDC) issued an alert about the hazards of swimming with open wounds, cuts or scratches. Naturally, this triggered another round of breathless reporting. The gruesome nature of the victims' wounds



JANICE HANEY CARR/CDC
COLORIZED BY JAMES GATHANY

A digitally-colorized microscopic image of *Vibrio vulnificus*, the bacteria responsible for six fatal cases of vibriosis on the East Coast this past summer, most of which were associated with open wounds exposed to warm marine or estuarine waters.

and the lethality of the infections kept the story on the front pages for weeks.

Since I have "vibrio" in my google alerts I got a notification on every mention; over three weeks I counted more than 35 articles and TV-news outlets that had picked up the story. My phone was ringing off the hook for comments, and I fielded many complaints from growers and dealers who reported that oyster sales were tanking.

When this happened several years ago after a few crabbers contracted vibriosis in Delaware Bay, I wrote up a fact sheet to deal with the deluge of

—Continued on page 3

What's the Future of the ECSGA?

by Robert Rheault,
ECSGA Executive Director

Lately the ECSGA Board of Directors has been struggling with some tough questions. After all the hard work we've been doing and the successes we've attained, why did our membership drop for the first time ever this year? Why are so few members renewing, when we continue to tirelessly advocate for shellfish growers? Here is a list of just a few of our many accomplishments of late:

- ❑ We got a bill passed through Congress making aquaculture workers who qualify for state workers compensation exempt from the Jones Act, saving employers thousands of dollars a year and protecting them from unlimited liability lawsuits brought by injured employees.
- ❑ We organized a broad coalition to ensure shellfish growers were eligible for free, weather-related disaster relief through the Farm Service Agency's ELAP crop-disaster assistance program (it's FREE!).
- ❑ We are working with private firms to help the Risk Management Agency develop crop insurance policies for shellfish farmers.

Historically, the ECSGA has grown its membership by about 10% a year, but our annual revenues are less than $100,000, which barely covers expenses. We count 224 growers and 62 dealers/equipment suppliers among our members, but I estimate there are between 1,500 and 2,000 farms on the East Coast. When it is time for me to step aside, it is not clear how the association will have enough resources to attract a suitable replacement. The board has decided we need to undertake a serious recruitment drive, and we plan to hire someone to help take that on.

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—*Continued from page 1*

Flesh-Eating Bacteria

requests for information (ecsga.org/truth-about-flesh-eating-bacteria). It came in handy again this year, but depressingly, only a few of the news writers used the information I gave them. They didn't seem to be moved by the facts or the perspectives I shared. Nor were they concerned about the economic damage their words were having on hard-working shellfish farmers across the country.

I encourage everyone to visit our Vibrio Resources page (ecsga.org/vibrio-resources) so you can be prepared if you ever get cornered for a quote from an intrepid reporter looking to make a splash. Better yet, send them to me! If you do talk to the media, be sure to remind them that *Vibrio vulnificus* is overwhelmingly a wound-infection issue and if they mention eating oysters in the same sentence they are committing journalistic malpractice that will hurt hard-working shellfish farmers.

CDC.GOV

The vast majority of *Vibrio vulnificus* infections that progress to necrotizing fasciitis involve wound exposure to warm, salty/brackish water and are not associated with eating oysters. Immune compromised people are most vulnerable to serious illness.

The facts about vibrios

Vibrios are a large class of bacteria encompassing dozens of species and thousands of strains. Most occur naturally in seawater and have nothing to do with pollution, and they all love warm water. A small subset are pathogenic, but the vast majority are benign, causing no illness and serving as food for filter feeders. Although there are a number of other pathogenic vibrios, V.v. seems to attract a lot of attention because of the high mortality rate and the gruesome, disfiguring lesions and resulting amputations it can often cause. (Do not google this.)

Since 2007, it has been mandatory to interview patients diagnosed with vibriosis and to file a report with the CDC, which has a tracking program to identify the cause of the illness. This COVIS system is meant to identify trends and issue annual reports, which shed a lot of light on the topic. Unfortunately, much of the information published by the CDC seems to have been ignored by the majority of the news reports. (*Note*: the most recent COVIS data on the CDC website when the stories were trending this summer dated from 2014, but in late September CDC posted the 2019 report).

Most recent COVIS data

COVIS reported 2,708 vibriosis illnesses (excluding cholera) in the U.S. in 2019. Of the 606 vibriosis cases where patients reported eating a single seafood item, 47% ate oysters, 20% ate finfish, 17% ate shrimp, 7% ate crabs and 3% ate clams.

As always, the chief culprit in vibriosis cases was *Vibrio parahaemolyticus* (V.p.), with 655 confirmed cases (41% of all confirmed vibriosis cases). Although it typically causes gastroenteritis and is usually self-limiting, V.p. did send 114 patients to the hospital and resulted in seven deaths. Around 78% of V.p. cases were food-related.

Vibrio vulnificus (V.v.) is far less common than V.p., with 158 confirmed cases (10% of total confirmed vibriosis cases), but with far more serious outcomes. In 2019, V.v. sent 125 patients to the hospital and led to 30 deaths. **The key message about V.v. is that only about 10% of illnesses came from foods, while over 66% were the result of open wound contact with warm saltwater or brackish water.** With only 16 cases of V.v. coming from food, and with 215 million farmed oysters harvested from the East Coast annually, the odds of falling ill from V.v. by eating oysters are pretty remote.

Necrotizing fasciitis

Necrotizing fasciitis is the medical term for flesh-eating disease. It results from infection with any type of bacteria that destroys the connective tissue (fascia) under the skin; it is treated with antibiotics and surgery to remove the damaged tissue. *Vibrio vulnificus* is only one of many types of bacteria (including staph and strep) that can cause gruesome and fatal wound infections in people exposed to warm seawater and

—*Continued on page 4*

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—Continued from page 3

Flesh-Eating Bacteria

fresh water (including pools and hot tubs). But for some reason, even though the vast majority of cases of necrotizing fasciitis involve wound exposure, every article I read mentioned oysters in the headline.

It's important to remember that healthy people can usually tolerate vibrio infections with just a few days of unpleasant gastroenteritis. On the other hand, immune-compromised people are susceptible to serious infections that can quickly become septic (get into the blood) and turn fatal. This includes people with liver disease, those taking immune-suppressive medications, cancer survivors, young children and others with certain health complications. They are at high risk from a variety of illnesses that would be minor concerns for healthy people. They need to be very careful about eating any raw foods, but especially raw oysters from warm waters. They should always cook their food!

Another point to remember is that hundreds of millions of oysters are eaten each year without any illnesses at all. We see a few hundred cases of gastroenteritis a year, with only a few dozen serious cases in immune-compromised individuals. The fact that there are 43,000 traffic fatalities in the U.S. each year does not seem to deter people from driving or riding in cars. So why are our sales plummeting?

I have rarely, if ever, found media reporting about our industry to be reliable, but their credibility slipped a few more notches covering this last bout of illnesses. Reporters seem intent on disparaging oysters, and the worst culprits are people who hate oysters to begin with. As I am learning over and over that no good deed goes unpunished, my advice to anyone contacted by a reporter is to just say "no comment." If you feel compelled to respond, focus on one or two talking points and repeat them until they give up. Reporters can be quite charming, but they are paid to sell papers and page views with alarming and misleading headlines that will make your blood boil.

Now it's time to go take my blood pressure meds.

Oyster Farms as Habitat—6 Years of the NOAA Milford Lab's GoPro Aquaculture Project

by Kristen Jabanoski, Science Communications Specialist; Renee Mercaldo-Allen, Research Fishery Biologist; and Julie Rose, PhD, Research Ecologist;
NOAA/NEFSC, Milford, Connecticut

The NOAA Milford Lab first set out in 2017 with GoPro cameras to investigate reports from oyster growers that they were seeing wild fish and other animals in and around their gear. In the six years since, "Team GoPro" has collected and analyzed more than 1,600 hours of underwater footage from farms and natural structured habitats (for comparison) in Long Island Sound from Norwalk to Noank.

NOAA/NMFS

Milford Lab team members Dylan Redman (far left), Renee Mercaldo-Allen (second from right) and Bill DiFrancesco (far right) meet with oyster growers Beth and Kris Simmonds (second and third from left) of Stonington Farms Shellfish.

Using the cameras, they've documented 21 species of fish associated with oyster cages, including commercially and recreationally important species like scup and black sea bass. Through environmental DNA analysis of water samples, they've detected more than 30 additional species associated with oyster farms. They've seen all manner of fish behavior around the oyster cages, including feeding, schooling, hiding from predators, looking for mates, and even spawning! The team has collected considerable evidence that fish use oyster gear in a similar way as they use natural structured habitat.

A subset of the videos is available on the project's website[1] as well as the ECSGA's website on the Cool Videos tab[2]. The team recently made their film debut in "Home Sweet Oyster Cage"[3] a five-minute video summarizing the project.

Wanted: Underwater Video from Farms for ECSGA.org

The NOAA Milford Lab created a Citizen Science Guide,[4] a helpful resource that breaks down their methods step-by-step, so that any grower with a GoPro can collect their own footage on their farm. The ECSGA hosts a website where growers can submit interesting videos of marine life associated with aquaculture gear. They are actively looking for more submissions from the community. To have your video considered for posting on their Cool Videos page, please contact Ann Rheault at ecsga.org/contact.

Mike Gilman, co-owner of Indian River Shellfish in Madison, Connecticut, collaborates with the GoPro Aquaculture Project and also collects video with his own GoPro. He has captured fluke, black sea bass, rock gunnel and sea robin around his gear.

Gilman explained, "The GoPro Project helps to give little snippets of how these are acting as artificial reefs in that particular habitat. Having videos of spawning fish and

—Continued on page 8

NOAA/NMFS

"Fish carpet" A group of black sea bass sheltering on top of an oyster cage was captured by a GoPro camera mounted to the cage.

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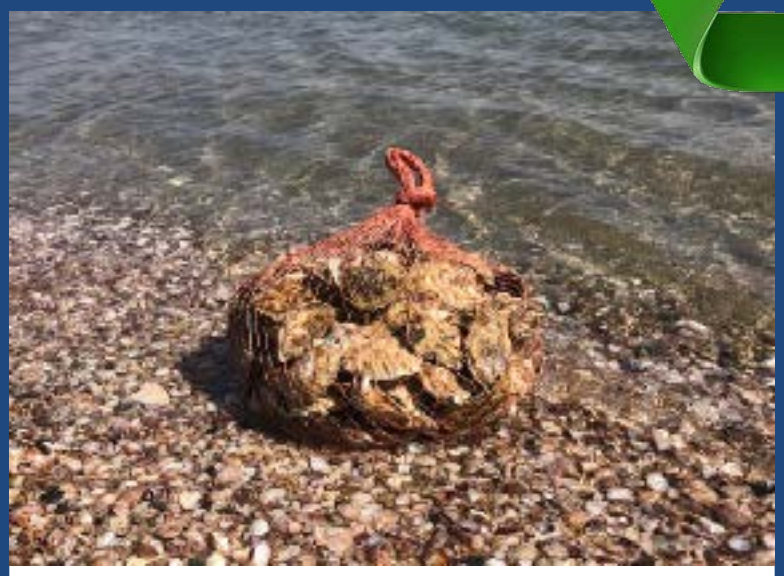

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ISSC: A Wonky Update

by Robert Rheault,
ECSGA Executive Director

After a productive meeting of the Interstate Shellfish Sanitation Conference (ISSC) in March, the Food and Drug Administration (FDA) sent a letter in July to the ISSC Executive Board raising two issues. First, they announced that they were exercising their veto power over Proposal 23-204, which the ISSC approved at the March meeting. This proposal changed existing language mandating that wet storage be conducted at temperatures under 45°F. The proposal tried to rectify what many assumed was an inadvertent or unintended error.

The National Shellfish Sanitation Program (NSSP) dictates that when shellfish are harvested and placed under temperature control, they must be held below 45°F continuously. Many wet-storage operators use higher temperatures because most shellfish are dormant below 50°F and they want the shellfish to spit. Indeed, there is strong data showing that wet storage for three days at 52°F will substantially reduce vibrio counts. There is no evidence to show that properly maintained wet-storage systems at slightly higher temperatures are introducing a hazard.

Nevertheless, the FDA felt it was important to comply with HACCP regulations and Food Code regulations requiring handlers to keep shellstock below 45°F at all times. The ISSC Executive Board tried to push back, but was unsuccessful, so the next edition of the NSSP will keep the old 45°F requirement. I suspect that the Wet Storage Committee will take another run at this with more data at the next conference. Meanwhile, if you have a wet-storage system operating at higher temperatures you should check with your state Authority to see if they intend to enforce this limit (despite the biological and practical issues) until the matter can be properly debated.

The second issue the FDA brought up in the letter was that they were "concerned" about a change that had been passed by Task Force I. The language in proposal 23-104 recommended by Task Force I and subsequently adopted by the General Assembly (the regulators from each of the member states) changed the response that states must take following reports of *Vibrio parahaemolyticus* (V.p.) illnesses. The existing NSSP language is: "States will not be expected to close growing areas based on V.p. cases that are reported more than sixty (60) days [after harvest] when environmental parameters have changed, or monitoring indicates the V.p. risk is reduced." Proposal 23-104 changed the 60-day requirement to 30 days under the rationale that if an illness report came in 31-60 days post-harvest, it was entirely likely that any closures would be punitive instead of preventative. V.p. typically takes less than 72 hours to incubate, and most state illness investigations are supposed to be completed in less than a week.

The FDA asked the General Assembly to reconsider the Task Force I vibrio-closure recommendation at the closing ceremony. The delegates debated and then voted overwhelmingly to support the recommendation, so the FDA asked the ISSC Board to reconsider. Given the overwhelming support for the proposal, the executive board voted to take no action, so the change to 30 days should take effect when the next edition of the NSSP Guide is published (any day now).

If this all sounds pretty wonky, that's because it is. But I think it illustrates how small changes in regulatory language can have big impacts on your business. The process is slow and frustrating at times, but in general I think it works. Progress is being made and we have a way to make our voices heard. These are but two examples of the 100+ proposals that were submitted and considered in an effort to perfect the NSSP. Protecting public health is key to maintaining our markets, and making sure that regulations are workable is critical to the health and survival of our businesses. This is why it is important for industry to stay engaged and participate.

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Milford Lab GoPros

predator activities occurring throughout the cages is proof that… it's being productive as aquaculture, it's offering habitat and refuge for other organisms, and it is functioning in the natural environment."

The Value of Video

The videos are a popular public outreach tool—in fact, the video footage on the project's website has been viewed nearly 17,000 times! The engaging clips are shown at open houses, oyster festivals and schools (accompanied by a STEM activity created by Science Journal for Kids[5]).

The clips allow residents of coastal communities to visit the underwater world in their own backyard and see firsthand how shellfish aquaculture gear provides habitat for native species.

The data is also compelling to decision makers. The team is working with the Greater Atlantic Regional Fisheries Office so that the results from this study can inform the regulatory review process for new and expanding shellfish farms.

NOAA/NMFS

Gillian Phillips (left) and Dylan Redman (right) prepare to deploy an oyster cage with dual cameras and a calibration cube to measure fish body length in videos.

New Research Directions

After six years, there is still much more to learn. While it's clear that fish hang out around oyster gear, the researchers want to know whether there are more fish because of the habitat created by the gear. Video footage has documented many young-of-the-year fish associated with the cages, pointing to possible increased fish production. The team collected video with their cameras in a special configuration that allows them to measure fish length. This data will allow the researchers to assess the population size structure and ultimately the life-history stages (young-of-the-year, juvenile, adult) of fish using the gear.

There is also an important question about whether oyster gear provides habitat of similar quality compared with natural habitat. To help answer this question, the team used fish traps to collect juvenile black sea bass this summer around oyster gear and rock reefs. With help from collaborators at the University of Massachusetts, they will compare the physiological condition and energy density of fish from the two habitats. With this data, they should be able to determine how oyster gear stacks up to natural habitat.

The project has expanded over the years to include collaborating research groups at Rutgers University in New Jersey, Northeastern University and The Nature Conservancy in Massachusetts, and the NOAA Northwest Fisheries Science Center in Washington. All three groups are collecting and

—*Continued on page 15*

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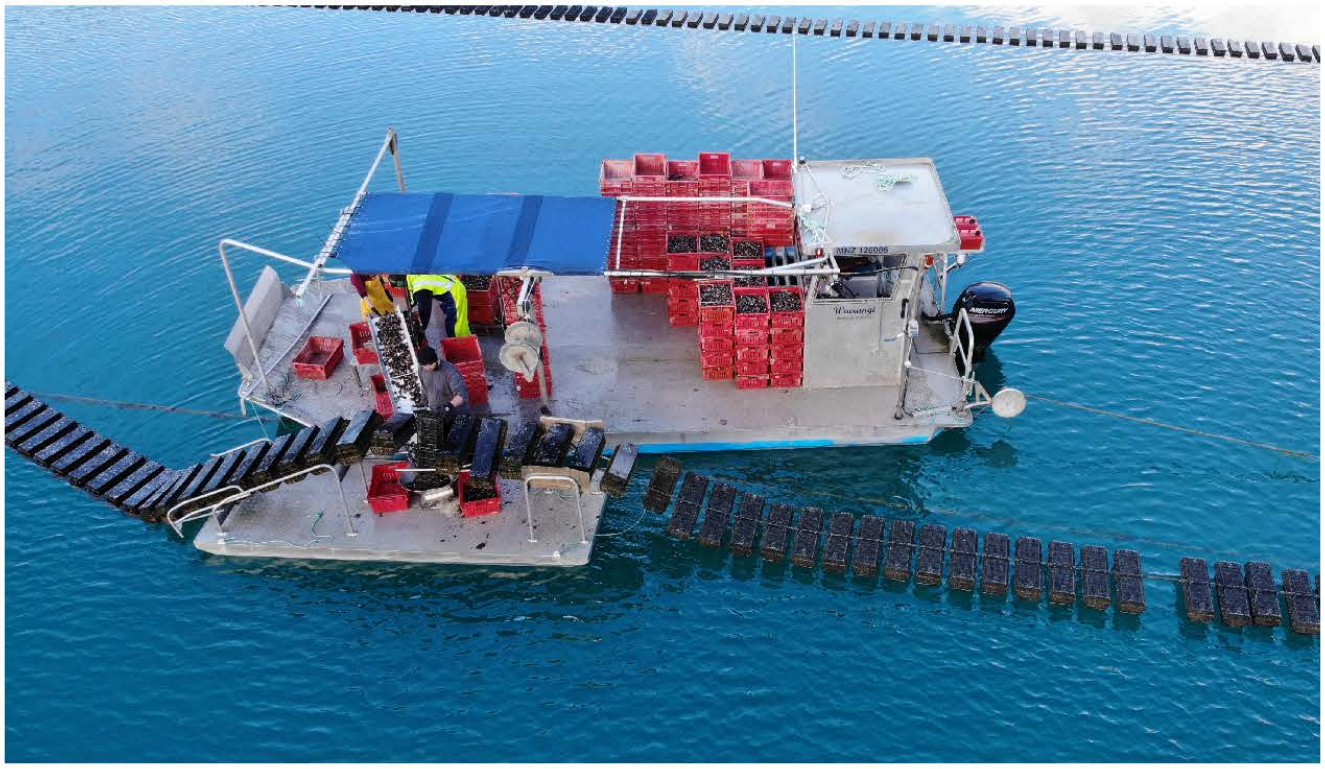

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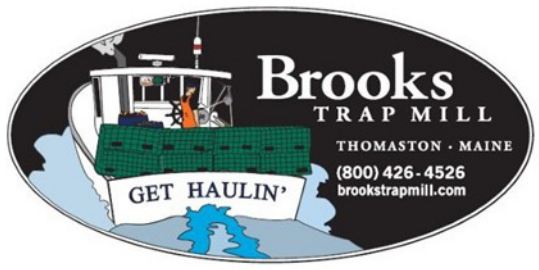

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NACE/Milford Aquaculture Seminar
Jan. 10-12. Northeast aquaculture conference and Milford seminar with trade show. Omni Providence Hotel, Providence, RI.
Visit www.northeastaquaculture.org.

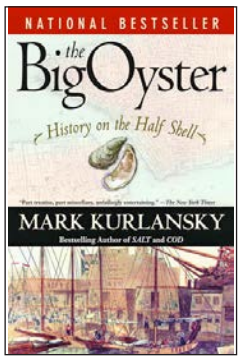
East Coast Commercial Fishermen's & Aquaculture Trade Exposition
Jan. 12-14. Trade show, annual meeting and conference. Powell Convention Center, Ocean City, MD.
Visit marylandwatermen.com/Trade-Show.html.

Aquaculture America
Feb. 18-21. Conference and trade show. San Antonio, TX.
Visit www.was.org/meeting/code/AA2024.

Will Bad Press Kill Our Markets?

by Robert Rheault,
ECSGA Executive Director

Since the 1980s (when I got into the business) we have enjoyed a fantastic run of increased sales and production in farmed shellfish. I estimate that oyster production has grown at about 10% a year since 2000, with prices continuing to inch up. When asked how long this expansion can persist and whether there is a limit to our markets, I have always responded that the key to continued growth is aggressive marketing to areas of the country that have not traditionally had access to fresh shellfish. But the recent plague of bad media coverage about flesh-eating bacteria has me wondering.



Perhaps we should be looking at history to predict the future. In the late 1800s Americans were eating oysters at a much higher rate, perhaps 100-200 times as many per capita! (Everyone should read "The Big Oyster" by Mark Kurlansky.) Back then we did not yet understand that bacteria caused disease, and oysters were being held in waters just outside every major city on the East Coast. When indoor flush toilets became popular around the turn of the 20th century, wastewater treatment infrastructure was primitive compared to modern standards, and coastal waters became a common sewer.

In the mid-1920s, around 1,500 people were infected and 150 died in a typhoid fever epidemic. When health officials finally proved that oysters exposed to polluted water were the cause of the epidemic, oyster markets collapsed. In the wake of the epidemic, the federal government began to oversee shellfish sanitation in 1925, keeping track of state-certified shellfish shippers and conducting shellfish research. Slowly, markets started to recover as consumer confidence returned and oyster-borne typhoid outbreaks ended. Today we can eat raw shellfish with confidence that we are not going to get sick, and the inflation-adjusted price of oysters has finally recovered to what it was in 1900.

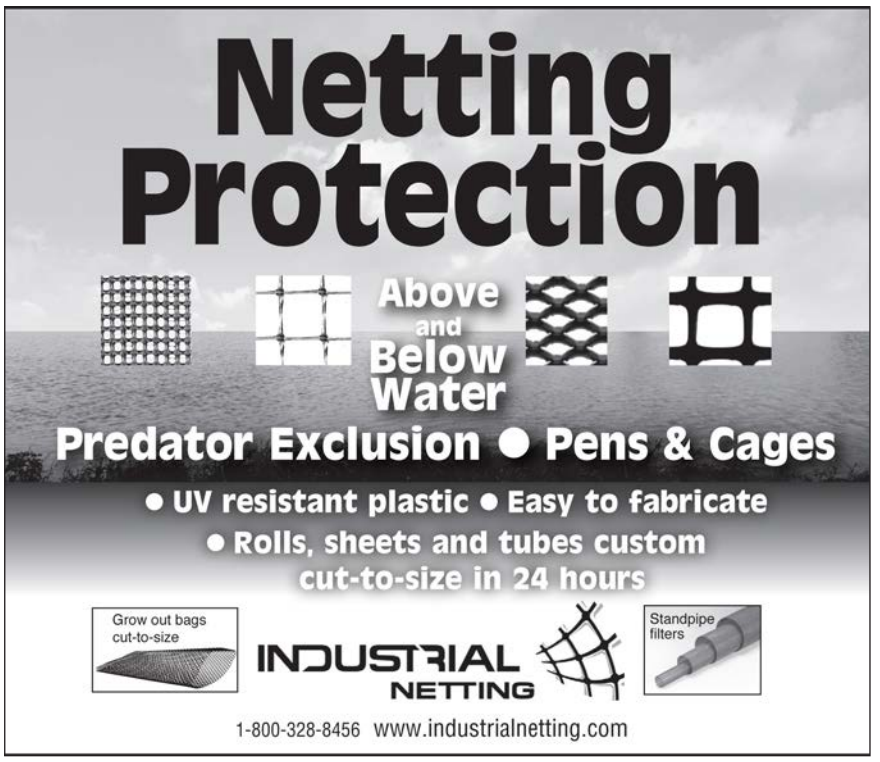
I think it is important to learn this lesson well.

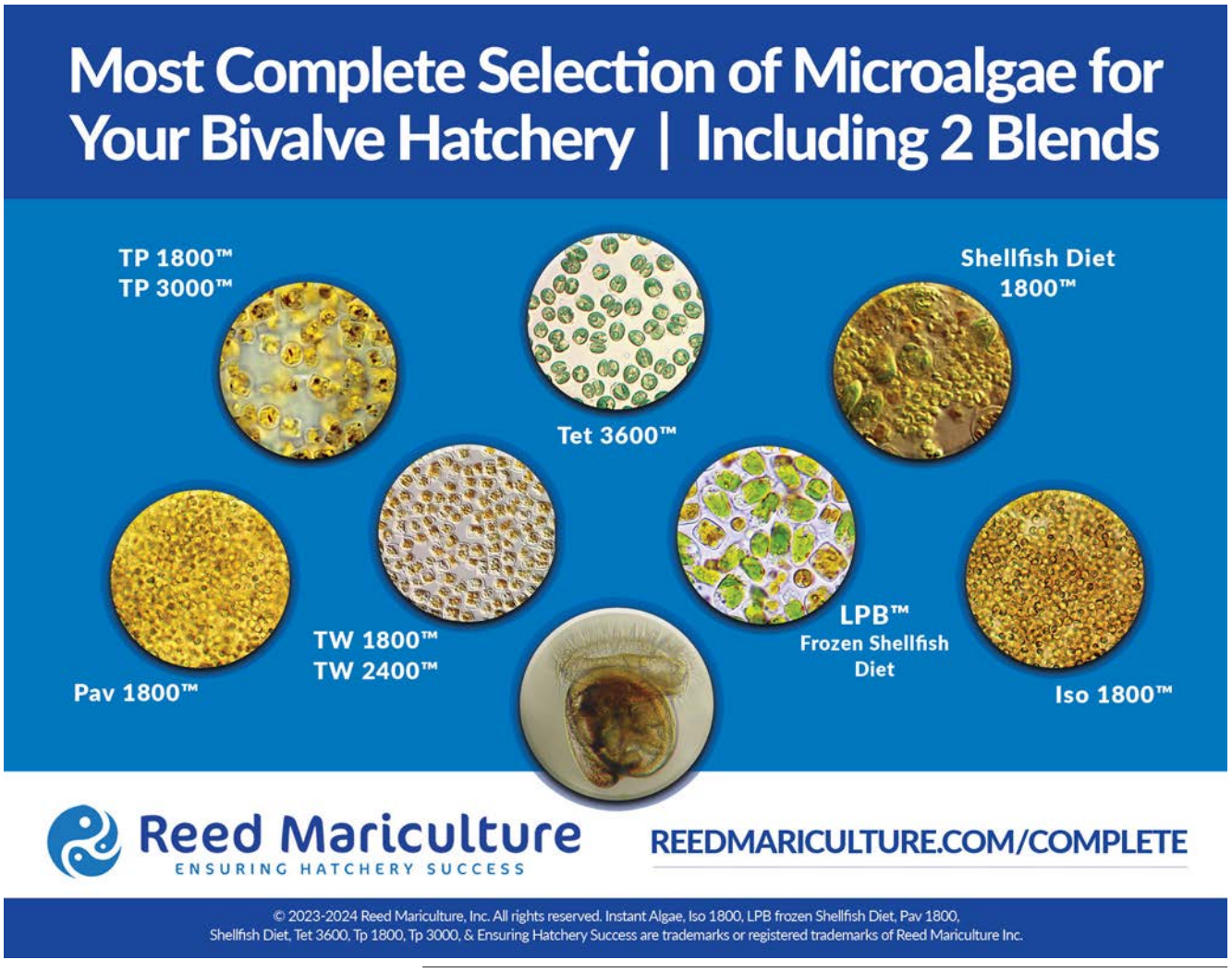
The strength and growth of our markets rely on the safety of our products.

Growers who have been in this business for a while remember several dips in demand. We endured a short collapse in sales after 9/11 when people stopped flying to meetings and conferences for a month or so, but by the end of the year sales had snapped back. In 2005 a red-tide event in New England tanked oyster sales in the region for months. Even though nobody got sick and all the shellfish on the market came from safe waters, the incessant headlines about red tide collapsed local shellfish markets. Then with COVID, oyster sales went to practically zero overnight, as we learned that 97% of sales were tied to restaurants. But thanks to generous COVID relief checks, most of us survived and sales have since recovered.

Dealers tell me that the recent spate of media coverage about flesh-eating bacteria has triggered yet another dip in demand. Despite the fact that the number of severe illnesses due to eating shellfish is small (See story on page 1), the incessant drumbeat of sensational news makes even long-time oyster lovers ask questions. I am starting to think that the real danger to our markets is the media and its ability to influence consumer confidence. Facts don't seem to matter—if it bleeds it leads.

Even though I am pushing back as hard as I can, I need a bigger megaphone. The media's fascination with *Vibrio vulnificus* will probably die down when winter ushers in cooler waters, but I fear for the future of our industry if we can't find a better way to inject facts into the national dialog. In the meantime, growers should be doing all they can to ensure their product is kept cold and that everyone is doing the right thing. If you see someone cutting corners on ice or refrigeration, it is probably wise to drop a dime to preserve our markets.





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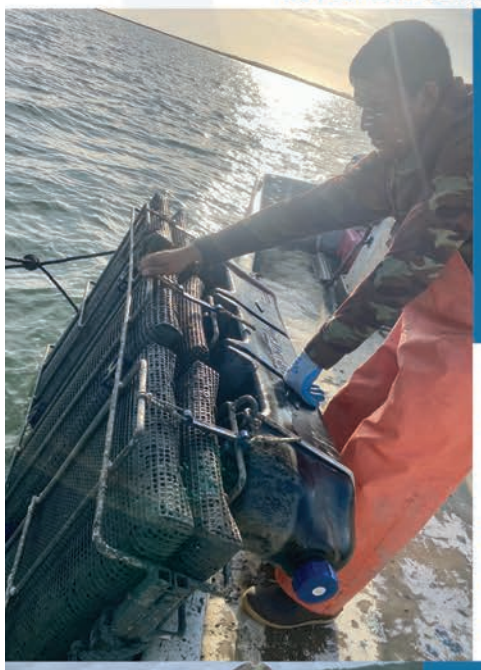

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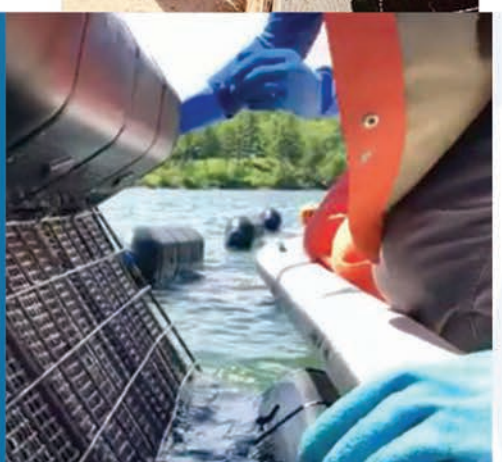

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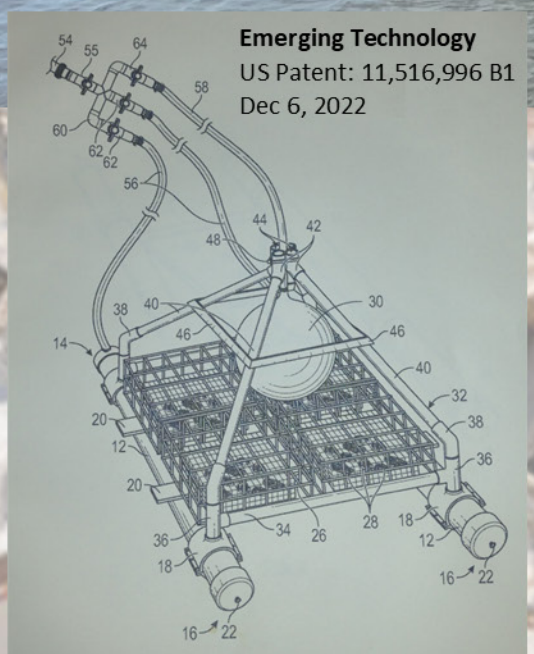

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—Continued from page 8

Milford Lab GoPros

analyzing underwater video footage from oyster farms in their region.

Several collaborators are also developing artificial intelligence tools to automate parts of the video analysis. This is a formidable challenge because of limited visibility in Long Island Sound, but would be a big time-saver for the scientists. As the technology advances, great strides are being made. The project team looks forward to presenting their latest results in January at the 2024 Northeast Aquaculture Conference and Expo.[6]

NOAA/NMFS

Predation: A tautog eating a spider crab next to an oyster cage was captured by a GoPro camera mounted to the cage.

The GoPro Aquaculture Project is funded by the Northeast Fisheries Science Center and the NOAA Office of Aquaculture. At least 10 students have contributed to the research, each breaking off a summer internship or master's thesis-sized chunk of the larger project and doing a deeper dive.

The team couldn't have collected their extensive footage without the enthusiastic participation of the region's shellfish farmers. An upcoming story map written by Hollings Scholar Grace Cajski will highlight five of these collaborating oyster growers' stories in their own words. Stay tuned!

Hyperlink End Notes

1. www.fisheries.noaa.gov/new-england-mid-atlantic/aquaculture/milford-labs-gopro-aquaculture-project
2. ecsga.org/cool-videos
3. www.youtube.com/watch?v=Yjf8ZVwzrOI&ab_channel=NOAAFisheries
4. www.fisheries.noaa.gov/resource/peer-reviewed-research/using-underwater-video-observe-aquaculture-gear-long-island-sound
5. www.sciencejournalforkids.org/articles/how-can-oyster-farms-create-homes-for-fish
6. www.northeastaquaculture.org

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Member Type	Gross Annual Sales	Dues
Grower	$0 to 50,000	$100
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Grower	$100,000 to 300,000	$500
Grower	$300,000 to 1 million	$1,000
Grower	$1 million to $3 million	$2,000
Grower	over $3 million	$3,000
Shellfish Dealers and Equipment Suppliers		$250
Restaurant Ally		$100
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