EAST COAST SHELLFISH GROWERS ASSOCIATION

Bay Scallops: Challenges and Opportunities

by Robert B. Rheault, ECSGA Executive Director

I've received many questions from growers interested in bay scallops, so I thought I would share what I know. Forty years ago, I built a small hatchery with the noble goal of restoring the population in Rhode Island after a massive brown-tide bloom wiped out all the scallops in the state.

In New England, bay scallops usually spawn in July, but some researchers have described being able to encourage scallops to spawn earlier by providing ample food and mimicking summer water temperatures. I found this challenging, but by adjusting the photoperiod, I was able to achieve spawning success in April and May. Apparently, all those eyes serve multiple functions.

Growing scallop larvae is quite similar to clams and oysters —all can be set on downweller screens. Post-set clams and oysters are happy to stay on the screen, but after scallops set, things get interesting. Because they are programmed to climb up onto eelgrass, if you place scallops in an upweller, they will climb up the sides and will either get trapped at the surface or get sucked out the surface drain. I spent many hours with a paintbrush, pushing tiny transparent post-set scallops back into the water. Eventually I found that I could prevent them from climbing out by adding small tufts of weighted polypropylene to the tanks for them to climb on. Some scallop hatcheries place fibrous material or vertical plates in raceways to serve as climbing structures.

Once they are large enough to go out to the field in 1-mm mesh bags, things get a lot easier.

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Rapid growth and attractive prices make bay scallops strong candidates for aquaculture, but one of the challenges is their short shelf life due to an inability to seal their shells tight. This causes their gills to dry out and leads to death in just a few days.

Scallops grow incredibly fast! I conducted some feeding trials for my thesis work and discovered that scallops pump a much larger volume of water than oysters and clams. They cannot capture really fine particles (smaller than 3 microns) with the same efficiency as oysters, but they make up for it by filtering more water.

The cool thing about scallops is that they will tell you when you overstock them. Similar to mussels, they have a byssal thread that they use to attach themselves to the sides of the bag until they grow to about 1". As long as they are getting adequate food, you will usually see them byssed to the bag. But if they are overstocked, or if the bag gets fouled so they are not getting adequate food, they start swimming around. This can cause them to clamp onto each other, which can lead to disarticulation of the hinge ligament or damage to the mantle tissue, resulting in often-fatal shell deformities. I learned that I needed to stock my bags at about one-third the densities I was using for my oysters to keep scallops happy (your results may vary).

By the end of the summer, I was selling 1" seed. In the fall, I discovered there was a strong restaurant market for 1.5" animals sold whole, live, and in-shell. Chefs loved them on pasta dishes (much like mussels), and customers would take the attractive shells home. In the fall, the little meats sweeten up and develop great flavor. Prices were very attractive for a 5-month crop. Several growers tell me they are doing well selling 2" and 2.5" scallops. At that size, I prefer them cooked, but apparently, some are being sold raw as meats on the half shell.

Delivering scallops at local restaurants was lucrative, but shipping to wholesalers was a nightmare. Since scallops can't seal their shells tight, their gill dries out in a few days (especially in the dry air of a walk-in cooler). That kills them, and in a few days they will start to stink. So if you are selling to a dealer, and it takes two days to get the scallops to the restaurant, they have less than four days to use them. There are probably ways to keep the gill moist for a few more days, and one grower I talked to says he has devised a way to keep them alive for seven days, although he would not share his secret. But most of the growers I have spoken with sell

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Newsletter of the East Coast Shellfish Growers Association — Issue 4 — December 2025

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EAST COAST SHELLFISH GROWERS ASSOCIATION

The East Coast Shellfish Growers Association represents more than 2,000 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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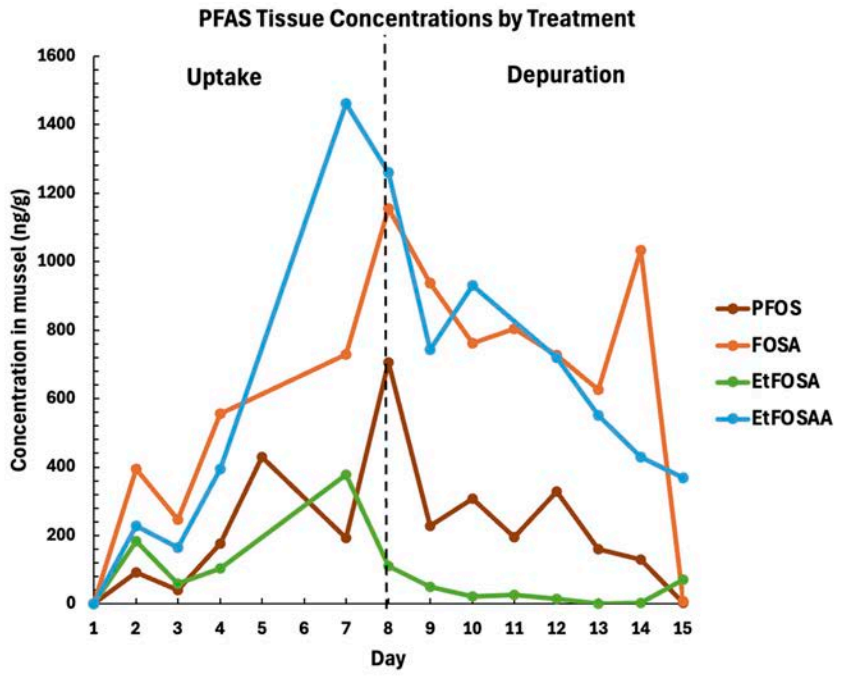
PFAS (Forever Chemicals): The Next Big Thing

by Robert B. Rheault, ECSGA Executive Director

In October I attended a comprehensive all-day workshop on per- and polyfluoroalkyl substances (PFAS) at Bigelow Laboratory for Ocean Sciences in East Boothbay, Maine. The presentations and discussions were interesting and informative. The presenters shared extensive information, and the 60 or so attendees discussed the difficulties faced by regulators and scientists in assessing health risks and conveying a complex message to the media and the public.

PFAS are persistent pollutants that raise environmental and public health concerns. Perhaps the best known PFAS, Teflon, was first discovered accidentally in 1938, and a variety of related chemicals and uses were developed in the following decades. Their water-repellent qualities are now widely used in firefighting, stain repellents, and hundreds of consumer products—from carpets and dental floss to makeup, fast food wrappers, rain gear, and permanent markers. Today, thousands of PFAS chemicals are known, and at least a dozen have been linked to health effects like cancer and developmental issues, even at very low levels.



WEBBER ET AL. 2024 UNPUBLISHED DATA

This plot by Webber *et al.* of Bigelow Laboratory for Ocean Sciences in East Boothbay, Maine, shows that blue mussels placed in clean water depurated some PFAS from their tissues almost as fast as they accumulated them.

Following the discovery of their various health impacts, PFAS started to be phased out around 2000. However, some applications, such as firefighting foam, still contain PFAS because effective replacements have been hard to find. Trace amounts are detected nearly everywhere because PFAS are dispersed by airborne deposition, and spread in sewage sludge (biosolids) on farmland, leading to widespread contamination. Toxicological studies have been completed on only a few PFAS compounds, and it is generally assumed that exposure to multiple PFAS compounds has additive effects.

Recently, the Environmental Protection Agency (EPA) developed guidelines and advisories for drinking water, and many states are beginning to establish guidelines for foods. As more research on health effects is carried out, acceptable PFAS limits continue to decrease. The EPA set a maximum level of 4 ng/L for the two most toxic PFAS in drinking water in 2024. This is equivalent to a pinch of salt in ten Olympic-sized swimming pools, or 4 parts per trillion (ppt). For certain compounds, the EPA states that there is no safe level of exposure.

Studies show that in the marine environment, PFAS levels are generally low, except near airports and military bases where firefighting foams have been used or spilled. Fortunately, levels a few miles away from these sources tend to be comparatively low, as dilution is indeed the solution. Soil and food samples from land sources can show a wide range of results depending on their proximity to spills or land-applied biosolids.

We know that organisms can accumulate PFAS through bioaccumulation and bioconcentration (also called biomagnification). Bioaccumulation occurs when an organism is exposed to a compound and gradually absorbs it over time, leading to its accumulation. Many PFAS compounds are lipophilic (fat-loving), so studies of fish tissues often show levels in the liver and gonads that are 4–6 times higher than in muscle tissue.

The opposite of bioaccumulation is depuration. Encouragingly, studies show that shellfish can depurate PFAS rapidly once they are placed in clean waters. In 2024 a Bigelow Laboratory study showed that blue mussels placed in clean water released accumulated PFAS almost as fast as they accumulated them. (See graph above).

Bioconcentration occurs when an organism consumes another organism that has accumulated PFAs from its diet. The higher an animal is on the food chain, the more likely it is to have concentrated higher levels of PFAS in its tissues. Therefore, carnivores tend to have higher levels than herbivores (like shell-

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Update on Study of Oyster Markets

by Robert B. Rheault,
ECSGA Executive Director

For the past two years, I have been working with a small team on a project funded by the National Oceanic and Atmospheric Administration (NOAA) to evaluate the status of oyster production and to predict the future of oyster markets in the U.S. Bobbi Hudson (Executive Director of the Pacific Shellfish Institute) and Matt Parker (an extension agent at University of Maryland specializing in aquaculture business) collaborated on assembling the report, which is now under review. Although pulling together all the state production data was much harder than any of us could have imagined, interviewing dozens of experts from around the country turned out to be a lot of fun. The findings were fascinating, but quite concerning.

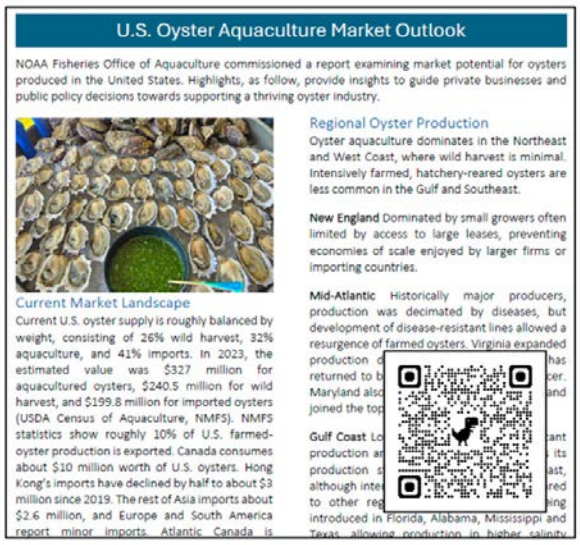
To model the oyster market, you need to capture wild-harvest landings as well as farmed production, but there is not really a bright line between the two. In some states you have hatchery-reared oysters grown intensively in bags, cages, and trays, while in others, you have wild-set oysters that are grown out on private leases. Some states are using hatchery-reared larvae set on shell for private grow-out, public fishery enhancement, and reef restoration. It took most of a year to gather the data, and unfortunately, in many states the data is garbage. Conversions between meat weight, bushels, and counts usually render the data useless, and to top it all off, underreporting is rampant.

Significant regional differences exist in the industry's nature, production methods, trends, and even seasonal consumption patterns. Regulations and leasing laws have a huge impact on production in certain states. On the East Coast, we found strong growth in production from 2000 to 2015, with regular increases in price and production in the major producing states. After 2015, farmed-oyster production leveled off, prices stopped climbing, and inflation-adjusted prices to the growers actually dipped.

West Coast production of Pacific oysters was remarkably constant from 2005 up until the pandemic hit in 2020, but state data (if you can believe it) indicates that production has tailed off. Gulf Coast farmed-oyster production is still largely dependent on wild spat collection, and varies widely year-to-year. Disruptions such as Hurricane Katrina (2005), and the Deepwater Horizon oil spill (2010) have resulted in large swings in both wild and farmed production in Louisiana, the largest producing state in the nation.

One of the big revelations of the project was significant increases in imported oysters from Canada and Mexico in the years following the pandemic. After 2020, imports of live, fresh oysters roughly tripled to over $75 million, with Canada sending up to $60 million (mostly from Atlantic Canada farms) and Mexico contributing $15 million. An additional $20 million worth of (mostly) frozen oyster meats is coming in from South Korea. Foreign producers also enjoy structural advantages: governmental support, subsidies, and reduced regulatory costs allow the development of very large farms that allow foreign producers to take advantage of significant economies of scale.

In the study, we documented several significant trends impacting U.S. growers. Our ability to raise prices to buyers has been stifled for the past seven to 10 years, but input costs have gone up dramatically. Labor costs shot up sharply after COVID, with wages slightly exceeding the inflationary spike that ensued. The National Restaurant Association



In our April 2025 newsletter we published a story about a project funded by the NOAA Fisheries Office of Aquaculture to study the market potential for U.S. oysters. NOAA has released a fact sheet summarizing the results of that study. To read the three-page fact sheet, scan the QR code in the image above. The full report is in final review and should be released soon.

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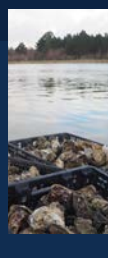


Equipment Dealer Spotlight:
Grandview Welding

by Mason Bailey,
ECSGA Executive Assistant

GRANDVIEWWELDING.CA

Grandview Welding has 30 full-time employees who help manufacture products such as aluminum oyster cages, boats, barges, oyster tumblers, tube sorters, conveyors, trailers, and other equipment related to the oyster industry. In June 2025, the Trump administration imposed 50% tariffs on raw steel and aluminum entering the U.S. from Canada, but fabricated products are currently exempt.

Founded in 2005, Grandview Welding, based in Prince Edward Island, Canada, is a full-service, metal-fabrication house specializing in aquaculture equipment. Thirty full-time employees help manufacture products such as aluminum oyster cages, boats, barges, oyster tumblers, tube sorters, conveyors, trailers and other equipment related to the oyster industry.

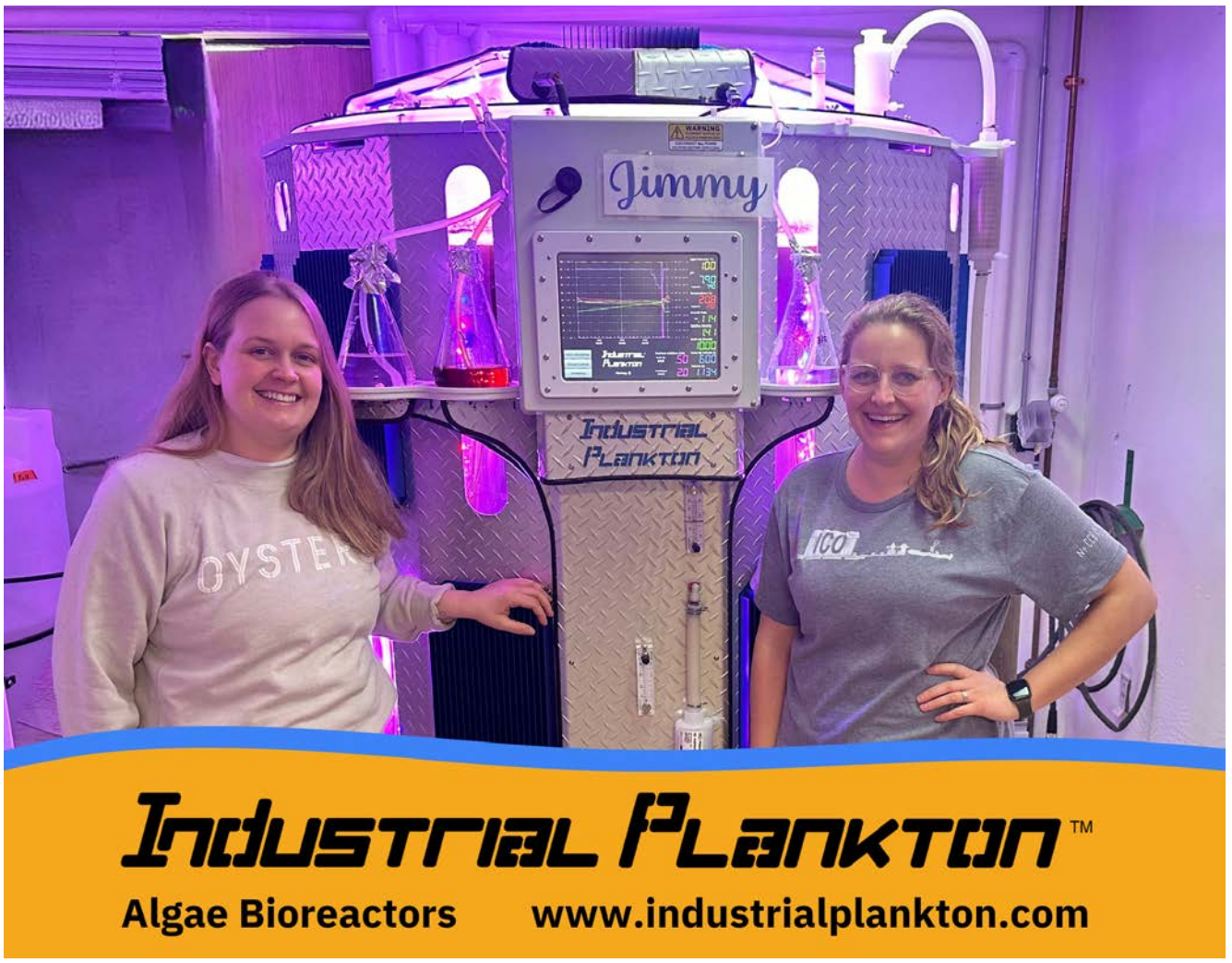
Scott Speelman began working for the company under its founder—his father, Rick—in 2006. He worked his way up from laborer to fabricator and, finally, to his current role as General Manager starting in 2015. He finds fulfillment through the relationships built with customers, which he considers the most rewarding part of the job. Scott and his team strive to add value to growers' operations by incorporating customer feedback into their customized solutions to individual farm needs.

Many oyster farmers in the PEI region are facing challenges associated with the deadly protozoan parasite *Haplosporidium nelsoni*, also known as MSX. Scott is hopeful that the shellfish industry will identify an effective path forward through collaborative research on the disease, especially since oysters make up such a vital part of the regional economy.

Thanks to the longstanding shellfish economy on PEI and ample experience developing products for growers, Grandview Welding is poised to maintain strong customer relationships now and in the future. This, paired with a favorable U.S. dollar to Canadian dollar exchange rate, allows the company to provide quality products and services at competitive prices. Speelman admits that some uncertainties exist with tariffs, noting that raw steel and aluminum sold in the U.S. are affected. However, Grandview's fabricated equipment is currently exempt, allowing the company to work with both the U.S. and Canadian oyster industries.

Outside of Grandview, Scott sits on the Board of Directors of the Prince Edward Island International Shellfish Festival. He explained that the "fantastic" event is hosted in Charlottetown each fall and showcases a variety of culinary skills, hospitality, and culture relevant to the region. Scott's commitment to customer service and the wider oyster industry is what drove him to join the ECSGA—to stay connected with U.S. growers and news.

To learn more about Grandview Welding see the ad on page 16 or visit grandviewwelding.ca.



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—Continued from page 1

Bay Scallops

directly to local restaurants.

Many people have asked me about overwintering and shucking the meats the following fall. I found that unless I reduced the stocking densities to very low levels, the scallops would not be able to store up enough glycogen to make it through the winter and most would die in the spring before the water warmed enough for them to resume feeding. A few would make it, but only if I reduced the stocking densities way down early in the fall. (I also learned that despite what you read in the literature, a fair percentage of my 2-year-old broodstock survived to spawn again the following spring!)

Some growers tell me they have been able to overwinter bay scallops, but the economics of shucking for meats simply don't add up. Depending on size, you can get 40–100 meats per pound. Even at $15–$20 per pound, that works out to 15–50 cents per

DAN TORRE

Dan Torre grows scallops in lantern nets on his Aquidneck Island Oyster Company farm in Portsmouth, Rhode Island.

meat. After factoring in the cost of rearing them for an additional year and the cost of shucking, it just doesn't make sense. Growers are telling me they are getting 75 cents to $1.50 each for a 5-month-old product. Quality and sweetness peak in September and stay good for most of the winter, but summer scallops are bland and lack the glycogen that makes the meat taste sweet.

The rapid growth and attractive prices make bay scallops a strong candidate for aquaculture, but several challenges remain. Most hatcheries won't spawn scallops for spring delivery (if they agree to work with scallops at all). Most growers are requesting small quantities, so hatcheries prefer to focus on their main crops and will only spawn scallops after distributing their clam and oyster seed out to the nurseries. Growers should team up so they can place a large enough order to incentivize hatcheries to do an early spawn.

BEN SUKLE/OBERLIN

Ben Sukle of Oberlin restaurant in Providence, Rhode Island, offers whole bay scallops warmed in the wood oven with Sardinian olive oil.

The shelf-life issue must be addressed if you want to produce at scale. There are limits to how many local restaurant deliveries you can afford to make. In the 1990s, Mike Oesterling experimented with freezing bay scallops in a nitrogen tunnel. Chefs were asked to compare fresh with frozen and couldn't tell the difference, but nevertheless they all said they would only buy fresh. I think chefs now realize that fresh-frozen can be just as good, if not better, than live shellfish that has been out of the water for several days. I suspect there are packaging solutions that will keep the gills moist and extend shelf life, but flash-freezing and vacuum-packing is probably going to be the best answer at scale.

Lee Beauchamp from Baywater Seafood gave a presentation at the recent Virginia Aquaculture Conference, confirming much of what I've covered here. They have a great website with beautiful photos, Baywaterseafood.com, and are open to sharing information on how they grow scallops.

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Forever Chemicals

fish). Thankfully, testing of most seafood samples shows that our shellfish products are quite safe, even in areas near known PFAS sources.

In 2022 the Food and Drug Administration (FDA) released the results of a targeted seafood study (www.fda.gov/media/159570/download and www.fda.gov/food/hfp-constituent-updates/fda-shares-results-pfas-testing-seafood) that examined 81 samples of fish and shellfish popular with consumers. The researchers concluded that, "detectable levels of PFAS in most of the seafood samples were determined to not be likely health concerns based on available PFAS toxicological reference values (TRVs) at the time." However, two samples of canned clams from China had alarmingly high levels, resulting in recalls; those firms are now banned from exporting to the U.S. Unfortunately, the media picked up on the Chinese clam results, and some outlets are still advising consumers to avoid all shellfish, when more responsible advice would be to avoid illegally imported canned clams from China! Subsequently, in 2023 the FDA surveyed domestic clams (www.fda.gov/media/184549/download?attachment) from eight states, and all were well below levels of concern.

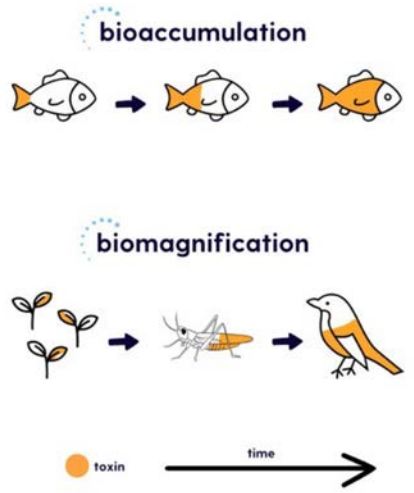
A survey of shellfish from five sites in Great Bay, New Hampshire, found PFAS levels in shellfish well within safe limits, even next to the former Pease Air Force Base, where PFOS firefighting foam was used. Researchers determined that consumers could safely eat 80 grams of oysters a day, 271 days a year, without fear of PFAS-related illnesses.

In 2020 The Maryland Department of the Environment examined oysters from 10 locations in the St. Marys River and detected trace levels in only one of the samples (mde.maryland.gov/programs/Water/FishandShellfish/Documents/St%20Mary%27s%20PFAS%20Pilot%20Study_09242020.pdf). Maine has been a leader in PFAS testing, and in a 2024 report found softshell clams to be well below levels requiring consumption advisories (www.maine.gov/dep/water/monitoring/toxics/swat/2023-2024/2023-2024%20SWAT%20Report%20FINAL.pdf).

While the FDA has yet to set acceptable PFAS levels for food, the EPA has set levels for drinking water. In addition, several states have established levels for soils and issued consumption advisories for various foods. It gets confusing when you look at the PFAS exposure levels that these advisories are based on.

The Centers for Disease Control's Agency for Toxic Substances and Disease Registry (ATSDR.CDC.gov) uses a reference dose of 2.0 ng/kg/day for PFOS, which is 20 times higher than the Environmental Protection Agency (EPA) reference dose of 0.1 ng/kg/day. And in the normally conservative European Union the reference dose is 0.6 ng/kg/day. The EPA has set a non-enforcable health-based goal of 0 for PFOS and PFOA, but for enforcement purposes established Maximum Contaminant Levels of 4 ppt for these two compounds in water (www.epa.gov/system/files/documents/2024-04/pfas-npdwr-presentation_4.9.24_overview.pdf?ref=ambrook).

Although some studies have found elevated PFAS levels in shellfish near spill sites, authorities have quickly closed these areas to harvest. Shellfish sampled a few miles away are typically fine, demonstrating the effects of tides and dilution on pollutants in the marine environment. Some freshwater fish samples have shown elevated levels, leading authorities to issue consumption advisories for certain rivers and lakes, but most of the studies I have seen report very low levels in commercially harvested shellfish.



FRESHWATER CONSERVATION CANADA

Bioaccumulation occurs when an organism is exposed to a compound and gradually absorbs it, leading to its accumulation. Biomagnification, (bioconcentration) occurs when an organism consumes another organism that has accumulated the compound from its diet.

With significant layoffs, as well as staffing and budget cuts in federal agencies this year, efforts to develop regulatory levels of PFAS in food seem to have stalled. Even more concerning, the FDA has significantly reduced inspections of imported seafood. ProPublica reported that inspections of foreign food-production facilities dropped "by nearly half in March compared to the previous two years" due to staffing reductions, and that foreign food inspections were down 30% in June (www.propublica.org/article/foreign-food-safety-inspections-historic-low-fda).

A 2011 study by Johns Hopkins researchers showed that only 2% of imported seafood is inspected for contaminants, while the EU, Japan, and Canada inspect as much as 50% (publichealth.jhu.edu/2011/love-seafood).

It's clear that PFAS compounds are almost everywhere at some levels, but it was reassuring to see that levels in Maine seafood samples were well within safe limits. But that doesn't mean we shouldn't stay vigilant. The media is likely to inflate the risk, and we need to gather as much data as possible to protect ourselves from the next wave of alarmist reporting.

We Cannot Stop Working to Improve Disaster Assistance Programs

by Chris Matteo, Chadwick Creek Oysters, Bayboro, North Carolina

I took the helm of the North Carolina Shellfish Growers Association in 2018—about one month before Hurricane Florence stalled over the state and brought widespread destruction to shellfish farms and growers' homes. As the floodwater peaked around 3 a.m., I stood in my farm waders with a headlamp on, hauling heavy items from the first floor of my flooded home to the second, trying to salvage what I could. I remember pausing to think about how uniquely conditioned shellfish farmers are to work through both minor and major catastrophes.

MATT SCHWAB/
HOLD FAST OYSTER CO

In the early summer of 2023 Hold Fast Oyster Co. in Sneads Ferry, North Carolina, lost close to 600,000 oysters after a drought-induced, high-salinity event that triggered widespread Sudden Unexplained Mortality Syndrome (SUMS). At that time, SUMS was a covered loss, but in 2025 similar claims were denied.

Since then, I've spent much of my time working to improve crop-insurance options and disaster-assistance programs for our industry. In 2021, the National Aquaculture Association (NAA) headed a successful effort to galvanize dozens of aquaculture associations nationwide (including the ECSGA) in pushing for farm-raised fish—including mollusks—to be added to the Emergency Assistance for Livestock Program (ELAP). For shellfish growers, ELAP represents the strongest financial safety net we have ever had. **And it's free.**

Under ELAP, most growers are eligible for compensation covering 70% of the market value of their lost inventory. Socially disadvantaged, female, and veteran producers are covered at 90%. If you also participate in the Noninsured Crop Disaster Assistance Program (NAP), you can receive benefits from both programs. Both NAP and ELAP value losses based on the current size of your crop at the time of loss, not the future farm-gate value—a critical distinction for shellfish aquaculture.

ELAP has supported North Carolina growers through several recent disasters. Covered loss conditions include earthquakes, excessive cold or heat, excessive wind, floods, freeze events, hurricanes, tidal surges, tornadoes, volcanic eruptions, and other conditions subject to county committee review. Any loss not on the list must receive approval from the Deputy Administrator of Farm Programs (DAFP) at the U.S. Department of Agriculture (USDA).

Recently, parts of the East Coast have endured drought-driven salinity spikes into the low 40‰ (ppt) range, causing dramatic and widespread crop losses. Losing 80–100% of one's oysters in a week or two has become disturbingly common. Interestingly, growers farther up-estuary, despite experiencing salinity peaks twice the 10-year average, have not seen the same mortality events.

Over the past year, USDA has undergone significant personnel changes under the Trump administration, including impacts related to DOGE. USDA now has a new Acting Deputy Administrator of Farm Programs from South Dakota. When isolated drought-related mortality events hit this past summer, several North Carolina growers submitted ELAP claims as they normally would.

In 2025, those claims were denied.

USDA officials in Washington, D.C., offered various explanations. One response was simply,

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Depuration of Bacteria from Birds by Oysters

If you have been following this newsletter for the past several years, you are likely aware of the challenges posed by birds roosting on floating gear, and the guano they invariably leave behind when they take off. The Centers for Disease Control (CDC) reports that oyster consumption was implicated

NICOLE RICHARD/URI

Depuration tanks used in the study of *Campylobacter* depuration in oysters conducted at the University of Rhode Island's Narragansett Bay Campus.

in 10 *Campylobacter* outbreaks between 2009 and 2023. *Campylobacter* is a genus of bacteria common to birds, with over two dozen species and thousands of strains. According to the CDC, fewer than 1% of strains appear to be human pathogens, but those strains cause an estimated 1.5 million illnesses a year in the U.S., primarily due to contamination from undercooked chicken and dairy products.

The National Shellfish Sanitation Program requires that growers who use gear that may attract birds or mammals must propose mitigation measures. The Interstate Shellfish Sanitation Conference has formed an Aquatic Bird Risk Assessment Committee to develop guidance on addressing the issue. State Shellfish Authorities are permitted to consider tidal dilution and bird abundance, along with bird deterrents and depuration measures, in their mitigation strategies. Since it is almost impossible to prevent bird activity on some gear types, and birds often acclimate to deterrent measures, several states are requiring resubmergence at depth to allow oysters to purge prior to harvest. Some states even require growers with floating gear to submerge oysters prior to sale, regardless of whether birds are evident. To better inform these requirements, State Control Authorities have requested advice on how long it takes to purge bacteria from oysters that have been exposed to bird feces.

Three oyster depuration studies have been conducted by Nicole Richard, a researcher in the University of Rhode Island's Department of Fisheries, Aquaculture, and Veterinary Science. Knowing the depuration rate will guide how long we need to submerge oysters that may have been exposed to guano before they can be safely harvested. In each study, oysters were exposed to a cocktail of three clinical *Campylobacter* strains for several hours, allowing them to accumulate the bacteria. Oysters were held in flowing, aerated, temperature-controlled water and fed daily. They were sampled periodically over several days, and their tissues were cultured to determine if any viable *Campylobacter* cells remained.

Samples have been frozen and archived, and we hope to have

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Depuration of Campylobacter

molecular data showing the actual rate of depuration soon. At this point, we have only culture data, which indicates presence or absence, but not the concentration of cells. Determining actual cell counts requires sending frozen samples to researchers at the University of North Carolina at Chapel Hill, Institute of Marine Science, where sophisticated digital droplet qPCR tools have been developed. (qPCR, or real-time polymerase chain reaction, is a lab technique that amplifies copies of specific DNA sequences, allowing for quantification.)

In the first study, the initial dose was very high, resulting in tissue levels of 70 million cells per gram. Levels dropped to 0 between day 5 and day 9.

The second trial was conducted with a more realistic starting dose. Only one sample tested positive after 48 hours of purging, and all samples tested negative after four days.

NICOLE RICHARD/URI

The oyster depuration tanks used in the *Campylobacter* purge-rate study were desiged to maintain near-constant temperatures and flow rates. It's hoped that the study will provide guidance to health officials on how long oysters that may have been exposed to bird waste must be purged before harvest.

The first two trials were conducted at 19.6°C ± 0.2°C and 20.9 °C ± 0.5 °C. A third trial was conducted at 12.8°C ± 1.3 °C to examine the impacts of lower temperatures on purge rates. In the third trial three samples (out of four) tested positive after four days, but all samples tested negative after seven days.

It will be interesting to obtain the qPCR data to examine the actual depuration rate. It's likely that levels drop quickly in the first few days, and then it takes longer to purge the remaining cells and reach a non-detectable level. It's hoped that this study will help health officials recommend how long growers should keep oysters that may have been exposed to guano in clean waters before harvest. Published data suggest that as few as 240 *Campylobacter* cells can cause illness. (That is what you might find in a single drop of chicken blood!)

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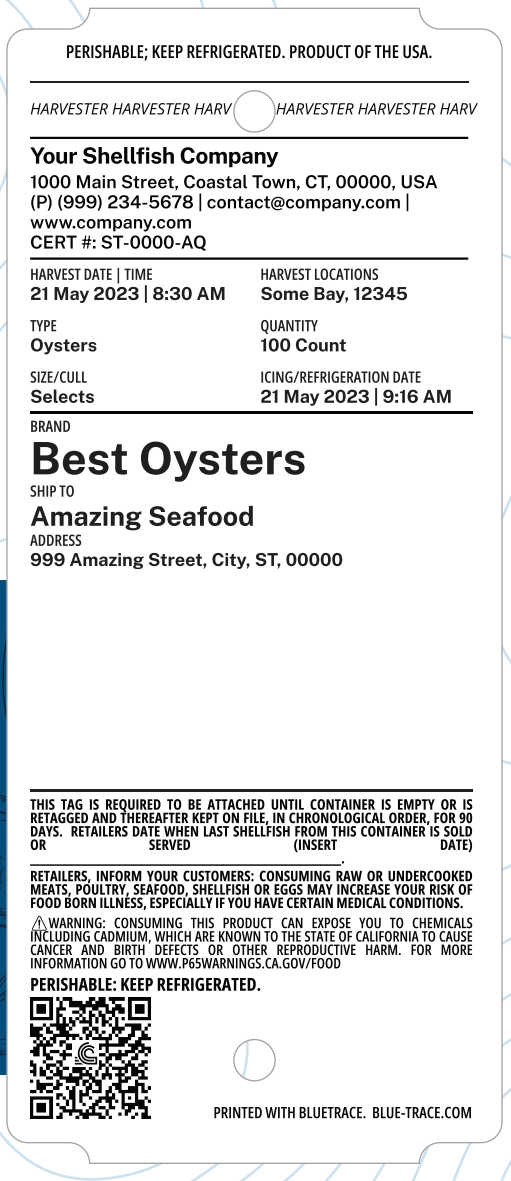

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—Continued from page 7

Improving Disaster Relief Programs

"Drought is not a covered loss." Another was that oysters "need to be grown in a controlled environment, so you should be able to adjust the salinity." Before anyone considers pumping fresh water into creeks or sounds, I'd recommend doing the math first.

As Bob Rheault and I have explained, the "controlled environment" requirement for mollusks refers to gear such as containers, baskets, and net pens designed for protection and containment. It does not mean growers can control every environmental variable, nor has that ever been the intent of the program. In fact, ELAP even provides an exception for mollusks grown extensively (on bottom). Those growers may receive assistance too—but only for losses caused by tropical storms, typhoons, and hurricanes. While the handbook specifies that these mollusks "must be stocked or seeded on the ocean floor," I think we all understand what USDA is getting at.

Importantly, the handbook also notes that "disease is not a recognizable cause of loss unless it can be tied to damaging weather or other adverse natural occurrences." This language is important as we learn more about Sudden Unusual Mortality Syndrome (SUMS) in oysters.

North Carolina growers affected by the recent ELAP denials are currently appealing their decisions. Bob and I have spoken with Congressman Greg Murphy's (N.C.) office about the issue. My hope is that the ECSGA, North Carolina Shellfish Growers Association, Florida Shellfish Aquaculture Association, and the NAA will be able to educate policymakers and agency staff on the toll drought is taking on oyster crops. We must ensure that ELAP continues improving—and continues serving the needs of shellfish growers who face increasing environmental volatility and more frequent disasters. At the very least, we must encourage the USDA's Acting Director of Farm Programs to approve drought as a covered loss condition for oysters on a case-by-case basis.

Training and Education for Growers

Check out ecsga.org/grower-training for instructional videos; links to training classes, presentations and webinars; and info about hands-on courses all along the coast. We have resources for newbies and old hands alike, and it's free!

Virginia Aquaculture Conference 2025: A Resounding Success

by Karen Hudson, Shellfish Aquaculture Extension Specialist
Virginia Institute of Marine Science, Gloucester Point, Virginia

Virginia's premier gathering of aquaculture professionals took place November 14–15, 2025, bringing together an impressive mix of industry leaders, researchers, agency and NGO partners, and shellfish suppliers. Most of the 220 registrants were from Virginia, but the event also welcomed a handful of attendees from the broader East Coast and Gulf regions to catch up on the latest trends and talk face-to-face with others who care about the future of aquaculture in Virginia and beyond.

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Attendees cited networking and information exchange as the most valuable features of the conference.

The conference was hosted by the Virginia Institute of Marine Science and Virginia Sea Grant, with guidance from a steering committee of key representatives from the Shellfish Growers of Virginia, Virginia Tech Seafood Agricultural Research and Extension Center (AREC), Virginia Department of Agriculture and Consumer Services, Virginia Farm Bureau, Virginia State University, and the Virginia Department of Wildlife and Forestry.

Our trade show floor was packed with vendors sharing products and information—creating an energetic hub of discussion. Attendees cited networking and information transfer as the top draws—hallmarks of this popular biennial event that is enhanced by its smaller-scale size.

Our program featured concurrent sessions that catered to diverse interests, including bivalve-shellfish aquaculture and other emerging areas within the industry. This year's bivalve-focused programming featured a range of content from oyster markets, the application of genetic tools to support breeding, opportunities and innovations in farming, and shellfish health and biosecurity. A few crowd favorites included:

- ❑ Three-minute tech talks delivering practical insights and innovations.

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The panel discussion offering regional perspectives on bivalve farming featured (Left to Right) Conor MacNair of North Carolina, Cainnon Gregg of Florida, Ellis Chapman of Texas, and Jeff Auger of Maine and Virginia.

- ❑ An early-morning hatchery session hosted by Virginia Institute of Marine Science (VIMS) Acuff Center for Aquaculture, where experts from research and commercial facilities shared tips and tricks.
- ❑ A panel discussion offering perspectives from other regions, fostering a broader understanding of industry challenges and opportunities.

We extend our sincere appreciation to the sponsors who made this conference possible, and to everyone who contributed to making the event a success—your participation and expertise are what makes these gatherings so valuable. We look forward to continuing the conversation and building on this momentum in the year ahead!

For more info on the biennial Virginia Aquaculture Conference visit vaaquacultureconference.com.

ECSGA Newsletter Going Virtual

This will be the final printed edition of the ECSGA newsletter. After polling our members and advertisers we decided to make the leap to publishing exclusively online. A small percentage of members indicated that they prefer a printed version, so we can give you instructions on how to print your own copy if that is your preference.

We are proud of the content and information we provide, and we hope we won't lose any readers by making this move. The online version has several advantages over the printed edition. All of the links in the online version are live, so if you click on an ad (or the contact info in an ad), or a hyperlink in an article, your browser will bring you right to the web location.

DARIA ZLOBINSKAYA/UNSPLASH

All past editions dating back to 2016 are available for download at ecsga.org/newsletter-archives, and the most recent edition appears there in the Yumpu reader. Every page on our website has a Google-enhanced, keyword search box so you can quickly locate past articles. Going full electronic also means you can easily share content, and you will never lose or misplace your paper copy (or kill any trees unnecc-esarily).

If you are a paying ECSGA member, you will automatically receive a Constant Contact email notifying you when new issues are posted (unless you have unsubscribed). If you're not an ECSGA member, but would like to receive Constant Contact emails, visit ecsga.org/newsletter-archives/#constant and enter your email in the form.

We will also send out an announcement on our Listserve and on social media whenever a new issue drops. You can join the Listserve by sending us a request through our contact page at ecsga.org/contact.

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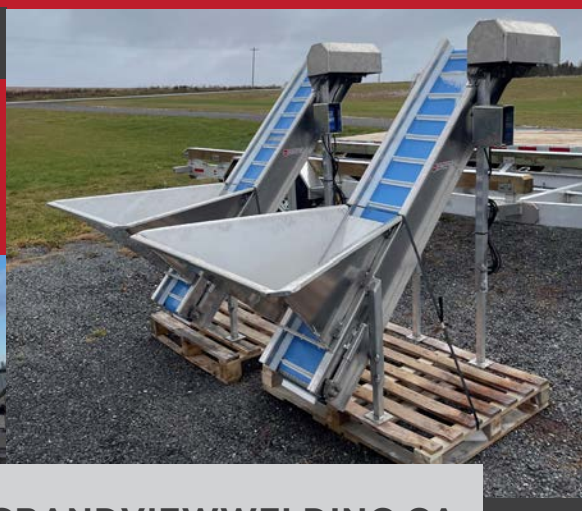

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Funding Cuts and Layoffs Cripple Research

by Robert B. Rheault, ECSGA Executive Director

About five years ago, I was finally able to get significant funding allocated to an oyster breeding program after a 15-year lobbying effort.

Thanks to Rhode Island Senator Jack Reed, congressionally directed funds were allocated to the U.S. Department of Agriculture's (USDA) Agricultural Research Service. The program was initially funded at $2.5 million a year and has grown annually to $3.5 million.

The original vision called for hiring up to five geneticists and 12–15 technicians to breed 100 families of oysters and grow them out on commercial farms in five states. The goal was to develop lines of regionally adapted, disease-resistant oysters. Hiring the team has been challenging due to the complex federal hiring process and the highly specialized skill sets required for the work.

Last year we had three geneticists supported by eight technicians, but only one commercial grower was under contract to deploy the families. When the Trump administration took over in January 2025, we were in the process of interviewing two additional geneticists, exploring contracts with additional growers, and gearing up for this season's spawning work. However, the hiring freeze halted the interviews, and a couple of technicians took the government's buy-out option, gutting the team. Efforts to negotiate contracts with additional commercial growers were put on hold and the project was set back by at least a year.

I have been trying to set up a meeting with Secretary of Agriculture Brooke Rollins to see if we can get some dispensation on the hiring freeze to continue our work. If this administration is serious about advancing the Blue Economy and reducing the $20 billion seafood trade deficit, then we need to invest in aquaculture—increasing landings in wild fisheries is not a sustainable option. In order to improve oyster production, developing disease-resistant lines is almost a prerequisite.

We have made progress, but it has not been easy. COVID blocked hiring, and technicians were not allowed to visit the lab to keep broodstock fed. I was shocked that the University of Rhode Island was unable to allocate office and lab space for the USDA team. The setbacks caused by DOGE and the hiring freeze have dealt a huge blow to the project.

We have made progress, just not at the pace I expected. NOAA has stepped up and made significant investments in upgrading the facilities at its Milford (Connecticut) Laboratory, where spawning and larval rearing are slated to take place. They have set up space for 50 larval rearing chambers and 50 bottle wellers, aiming to conduct two sequential spawns to reach the goal of 100 family crosses. Four Industrial Plankton continuous algal bioreactor units have been purchased and are churning out food for broodstock, and improvements have been made to the Bigelow Laboratory for Ocean Sciences in East Boothbay, Maine.

Although I may not be very patient, I am very persistent.

Coming Events

2026 East Coast Commercial Fishermen's and Aquaculture Expo. Jan. 16–18. Trade show. Powell Convention Center, Ocean City, MD. Visit www.marylandwatermen.com/events.

Oyster South. Jan. 29–31. Symposium and trade show. InterContinental Houston by IHG, Houston, TX. Visit www.oystersouth.com.

Aquaculture America. Feb. 16–19. Conference and trade show. Paris Hotel, Las Vegas, NV. Visit was.org/meeting/code/AA2026.

Seafood Expo North America. March 15–17. Trade show and conference. Menino Convention Center, Boston, MA. Visit www.seafoodexpo.com/north-america.

National Shellfisheries Association. March 22–26. 118th annual meeting. Marriott Portland Downtown Waterfront, Portland, OR. Visit www.shellfish.org/annual-meeting.

2026 North Carolina Aquaculture Conference. March 25–27. Crystal Coast Civic Center, Morehead City, NC. Visit ncaquaculture.com

Northeast Shellfish Sanitation Association. April 8–9. Conference and annual meeting. Harraseeket Inn, Freeport, ME. Visit www.issc.org/nessa.

—*Continued from page 3*

Oyster Market Study Update

reports that labor costs now account for up to 40% of operating expenses, up from 30% pre-pandemic. In addition, growers have had difficulty even finding affordable help, while at the same time cage wire, rope, fuel, and shipping costs have risen sharply. These trends of rising input costs, flat demand, and stagnant farm-gate prices is clearly putting the squeeze on growers' profit margins.

Meanwhile, restaurants have raised prices to keep up with rising food costs and labor inflation, with over half of fine-dining establishments reporting declines in patronage as many budget-conscious diners are favoring takeout and "fast-casual" options. Oyster prices in restaurants have increased dramatically, to the point where many diners won't even consider ordering a dozen.

Our interviews with oyster professionals revealed a broad consensus that oysters have traits that should attract a wide range of customers. Our report recommends investing in marketing to increase demand. We have great stories to tell—sustainability, nutritional value, and a reputation for being a great food for celebrating—all should help us expand markets.

But getting that message out to new consumers, especially young diners and diners who may never have experienced a fresh, raw oyster's magnificent flavor, is a challenge we must face head-on. The days of being able to sell everything we grow without having to spend money on marketing are probably behind us. How we organize thousands of small growers and dealers into a concerted marketing effort is a question I will try to answer in the years ahead. I hope you have ideas and possible solutions to share.

Correction

Alert reader Amanda Ellis, PhD, pointed out an error in our October article titled, "Bills Supporting Maine's Aquaculture Industry Signed into Law." Dr. Ellis, who serves as the director of the Aquaculture Division at the Maine Department of Marine Resources, noted that our summary of LD 1722 reflected "the bill as originally proposed rather than as enacted... LD 1722 does not require the Department to renew a lease as soon as possible upon receipt of a complete application, nor does it direct the Department to update its rules or forms. Earlier this year, the Department distributed a summary of LD 1722, including key changes, to members of the aquaculture industry, the public, and other stakeholders." Those updates are posted at www.maine.gov/dmr/sites/maine.gov.dmr/files/inline-files/LeaseRenewalLawChange.pdf.

ECSGA Dues Categories

Growers, dealers and equipment suppliers enjoy full voting rights. (If you are both a grower and a dealer simply ask yourself where most of your revenue comes from.) If you don't fall into one of these industry categories please consider joining as a non-voting associate member.

Member Type	Gross Annual Sales	Dues
Grower	$0 to 50,000	$100
Grower	$50,000 to $100,000	$200
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
Non-voting Associate		$50

You can pay your membership dues online with a credit card or mail this form with your check to:

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