

EAST COAST SHELLFISH GROWERS ASSOCIATION



The East Coast Shellfish Growers Association represents over 1,300 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.

1623 Whitesville Rd.
Toms River, NJ 08755
ecsga.org

Executive Director
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(401) 783-3360
bob@ecsga.org

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The Mouth of the Bay Summer Is Here...



Executive Director
Bob Rheault

And I know that means you're probably too busy to read this. Which is too bad because often we have gems of information in these newsletters that could save you a pile of cash! When I was in the ECSGA booth up at the Northeast Aquaculture Conference and Exposition I asked every grower who stopped by if they had signed up for ELAP yet. The vast majority responded, "What is ELAP?"

ELAP is the Emergency Livestock Assistance Program and it is a **FREE** crop disaster assistance program that reimburses growers for 70%-90% of the value of their weather-related losses! If you had read the past three newsletters you would have rushed down to your county Farm Service Agency office, registered your crop acreage and signed up. There's still time before the next hurricane or heat wave wipes out your hard work and leaves you scraping for cash, but don't delay.

The ECSGA has been working hard to make your job easier, but we know that our newsletter is often too long to read when you're busy on the farm. However, you owe it to yourself to at least breeze through it.

Cut your Workers Compensation Costs by Up to 70%

by David McCaleb,
Vice President of Marketing,
Bankers Insurance

Ed note: Most shellfish farmers are required by law to carry workers compensation insurance, but rates vary widely from state to state, with many firms paying as much as a quarter of their total payroll annually in premiums. Following are some cost-cutting tips from a recent [newsletter](#) from member David McCaleb of Bankers Insurance, which provides coverage for many ECSGA members.

Because insurance companies use claim history to measure risk of future claims, injuries on the job today can affect workers compensation costs in the future. However, by properly managing workers compensation claims, a business can reduce this impact by 70% right off the top. That isn't a random number: workers compensation claims that are resolved within seven days result

in a 70% lower impact on future insurance costs than those claims that take longer to resolve.

Consider the case of two similar work-related injuries, happening to the same person, working for the same business, protected by the same insurance company. If the first claim is resolved within seven days and the second within ten days, the first will affect future insurance premiums 70% less than the second. This is true in all states where the National Council on Compensation Insurance (NCCI) manages the workers compensation program, (which is most, but not all states). The difference arises because payments for lost wages (indemnity) begin after seven days in most states, and claims that pay only medical expenses receive a 70% credit when applied. The key is keeping a claim medical only. Quickly resolved medical-only injuries receive this credit because they have a much lower chance of turning into protracted claims with long-term costs.

The best offense is a good defense. Avoiding claims altogether is the first priority when strategizing

Several growers also missed out on Coronavirus Food Assistance Program (CFAP) checks last fall because they were not keeping up with our news and were not signed up for our Listserv. The CFAP program paid growers about 5% of their 2019 sales, and for many it was a life saver after a brutal 2020 sales year. You owe it to yourself to sign up for the Listserv because it's the best way for us to get timely information out to our members. Just go to ECSGA.org and click on the [Listserv](#) button under the main menu. It is easy to delete the emails you don't have time to read, but occasionally you might get one that saves you thousands of dollars.

We have been busy at the ECSGA, too. We have a bill nearing passage in Congress that should exempt aquaculture farms from having to pay for Jones Act insurance for their workers. The bill has made it past the House and we have good reason to believe the Senate will pass it before the end of the year. If your workers are eligible for state workers compensation insurance then they will no longer be considered "seamen" under the Merchant Marine Act. This means you'll no longer have to worry about potential unlimited liability lawsuits from injured workers.

We are also heavily engaged in the issues surrounding bird waste on floating gear, and while solutions won't be simple, we hope to offer states guidance that will help them craft regulations that are practical and hopefully not too onerous.



GREENWAVE

Workers on shellfish farms can injure themselves any number of ways. The key to lowering workers compensation insurance costs is to keep claims medical-only and resolve them quickly.

how to reduce the length of time workers compensation claims remain open. Injuries in businesses that maintain a strong safety culture and an established safety program tend to be less severe and claims tend to close faster. We suggest that each business should consider implementing the following:

☐ **Safety program:** Establish a formal safety program for the

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MEGAN K. TERRELL
megan@plauchecarr.com

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Kelp burgers were on the menu in Portland during the 4th annual Seaweed Week celebrations.

NACE/MAS 2022: An Aquaculture Gathering Well Worth the Wait

by Kristen Jabanoski, Science
Communications Specialist,
NOAA NEFSC/A.I.S., Inc.,
Milford, Conn.

After two pandemic postponements, the long-awaited Northeast Aquaculture Conference and Exposition and 41st Milford Aquaculture Seminar (NACE/MAS) was held April 27-29 at the Holiday Inn by the Bay in Portland, Maine. More than 500 aquaculture industry leaders, scientists and ecosystem managers participated in the biennial meeting, representing 20 U.S. states and six countries. A total of 132 growers and at least 59 students attended. The energy and enthusiasm for all things aquaculture was palpable in Portland, which was conveniently in the midst of celebrating the 4th annual Seaweed Week.

"It was a great opportunity to gather with old and new friends and catch up. It is clear that the industry is growing and it's exciting to see the number of young folks getting involved, which bodes well for the future,"



ROB CUDDY

A kelp farm tour during the Midcoast Aquaculture and Marine Science Research Facilities field trip.

said Bob Rheault, Director of the East Coast Shellfish Growers Association. "I continue to be awed by the pace of innovation, and the creativity of our community."

The conference kicked off with [six field trips](#), including tours of aquaculture and research facilities in Mid Coast Maine, the University of New Hampshire, the University of New England and Casco Bay, as well as a tour and lunch at Canopy Farms' aquaponics facility, and a walking tour of Portland's working waterfront.

Among 35 special sessions and more than 160 presentations over two days, a few themes loomed large this year, including the developing seaweed and scallop aquaculture industries, COVID and climate impacts, diversity and inclusion, building the aquaculture workforce and social license to farm.

Kelp was clearly having a moment this year, with a seaweed farmer panel and sessions on seaweed farming, processing and product development, and food safety. "Maine is a focal point for the domestic seaweed aquaculture industry, and the interest in seaweed presentations and events in Portland built off of that," explained Jaclyn Robidoux, a member of Maine Sea Grant's marine extension team. "We have over 30 kelp farms on our coast and the conference timing coincided with our kelp harvest season, as well as Seaweed Week, a state-wide food and drink festival featuring seaweed specials in local restaurants, bars, and breweries, as well as seaweed networking hours and

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New Product Spotlight: Compostable Cellulose Shellfish Bags from Ocean Farm Supply

by Robert Rheault,
ECSCGA Executive Director

Many growers are concerned about the plastic waste they generate on their farms, so I was pleased to meet Erin Adams of Ocean Farm Supply in Brunswick, Maine, who is distributing a home-compostable, alternative shellfish bag. The company is the brainchild of two oyster farmers in Freeport, Willy Leathers and Eric Oransky, who founded Maine Ocean Farms in 2017.

As they started to bring their first harvest to market they were dismayed at the plastic waste they were generating—plastic-mesh harvest bags were being used once for a few hours, or days at most, before they ended up in the landfill—so they started to explore more sustainable alternatives.



OCEAN FARM SUPPLY

Co-founder Eric Oransky with Ocean Farm Supply's compostable, beechwood-fiber mesh, which can be tied off with an overhand knot, a steel hog ring or a piece of twine to form an eco-friendly alternative to plastic shellfish bags. Laid flat, the mesh tubes measure 8" wide, but stretch to a full foot when filled with shellfish.

Eventually Leathers and Oransky were able to find a natural-fiber alternative manufactured in Austria by VPZ: the Packnatur™ cellulose bag. The pair worked with VPZ to develop a bag specifically for shellfish harvest, and then teamed up with Adams to import and distribute the bags to growers in the U.S. Their Ocean Harvest Bag™ is made from sustainably harvested beechwood cellulose fibers, and is sold as a mesh tube that comes in 150-meter



lengths. Lying flat the tube measures 8" wide, but stretches to a full foot in diameter when filled with shellfish. They're perfect for 100 counts of oysters, clams or mussels (or smaller volumes for retail packs), and suitable for pretty much anything that gets packed in mesh bags.

What sets the Ocean Harvest Bag™ apart from other harvest bags is its ability to break down in your home compost in just 8-12 weeks. The soft, white-fiber mesh is slightly more expensive than the plastic bags in use today, and harvesters and dealers will need to tie off either end with an overhand knot, a steel hog ring or a piece of twine. The sleeves are also designed to be compatible with automated processing machines.

One 150-meter sleeve retails at \$135, which averages out to 27¢ per foot, or about 20% over what most growers pay for shipping bags. The team offers a bulk discount, so if you buy seven, you get the eighth sleeve free, which lowers the cost to 24¢ per foot. Customers who care about sustainability love the concept; Adams thinks it is a great way to tell the end-product consumer that their shellfish is being sold by an environmentally conscious grower. Ocean Farm Supply will continuously look to offer economically viable alternatives to plastic packaging, passing the savings along to customers as distribution volumes increase and efficiencies are met.

"Our mission statement is to create a new industry standard for shellfish harvest and distribution," said Adams. The bags are certified "OK Home Compostable," and "BPI compostable," and have been tested to bio-degrade in the soil and in water. The beechwood used for the bags is grown in PEFC/FSC controlled forests, meets the Oeko-Tex standard, and is food safe. Adams is also conducting research and development on larger drawstring bags for wholesale use, and Ocean Farm Supply is looking to offer pre-cut lengths in the near future.

The Ocean Harvest Bag™ is currently available in white, but black will be on the market later this summer. Adams is selling the Ocean Harvest Bag™ to shellfish farmers across the country, and would be happy to share a free sample with interested growers. On a recent group video call about plastic use in the industry, everyone was lamenting the amount of plastic used in packaging and growing shellfish. The Ocean Harvest Bag™ won't solve all the industry's plastic problems, but it is certainly one easy step that every grower and dealer can consider to reduce plastic waste.

For more info, visit www.ocean-farmsupply.com, or email info@oceanfarmsupply.com.



OCEAN FARM SUPPLY

The beechwood used to make the fiber bags is grown in PEFC/FSC controlled forests, meets the Oeko-Tex standard, and is food safe. The bags will decompose in home compost in 8-12 weeks, and also break down in water.

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Oyster South Symposium Sells Out Again

by Beth Walton, Executive Director, Oyster South; and Bill Walton, Virginia Institute of Marine Science, William & Mary

As with so many pandemic era meetings, pulling off the 2022 Oyster South Symposium, held April 5-7 in Biloxi, Mississippi, was a journey. It required lots and lots of planning, re-scheduling and (in the last 48 hours before the meeting started) scrambling to find a local lodge that would host the meeting on the first day because a severe-weather threat prevented the event rental company from putting up the outdoor tent at the scheduled location. But we're glad to report that it all came together with the help of many great people, with over 300 attending the sold-out event.

The intent of the symposium is to bring together growers, gear suppliers, chefs, food writers, scientists, students and others to share the latest applied research, discuss market challenges and opportunities, learn about different methods and approaches—and also have a great time! This year the event was postponed from February

to the first week of April, and was held on the grounds of the Ohr-O'Keefe Museum of Art in Biloxi. Attendees were treated to sweeping views of the waters of Mississippi Sound while sitting under a tent on the museum grounds (after the first day, that is, when the severe weather threat had passed) with all the talks held in the local Croatian-American lodge.

Topics included scientific presentations about how wave action and flow can affect the decisions a farmer makes about how to grow oysters, and understanding diploid and triploid oyster mortalities across the region. Other talks covered topics such as: storytelling, farmers working with high-school programs, climate-change effects on shellfish growing, understanding (and valuing) the cultural importance of shellfish aquaculture in communities, grant programs and shellfish trails.

Bob Rheault talked about the work of the ECSGA and Paul Zajicek highlighted the work of the National Aquaculture Association (NAA). In an open discussion with the audience, growers talked about what they loved and hated about their current work boats. Finally,

attendees got to hear about some of the latest innovations, including a mobile hatchery and a string of other great ideas presented in the Three Minute Tech talks, where speakers were clapped off the stage after three minutes on the dot.

Beyond the symposium talks and panels, attendees took tours of the University of Southern Mississippi's oyster aquaculture broodstock, hatchery and nursery operations, thanks to Megan Gima Sadly, a tour of French Hermit Oysters was cancelled due to that severe weather. Attendance was

Oyster South

packed at a workshop about marketing challenges and opportunities

for Southern oysters, led by Mississippi State University's Dan Petrolia. Gima also led a meeting about the potential for forming a Gulf-wide growers association. And the symposium wouldn't have been complete without the tradeshow. Despite some Covid cancellations, this year's tradeshow featured over 15 vendors showing their latest and greatest products.

But for many attendees, the real value of attending the symposium is catching up with old friends and making new ones, all while enjoying a good party. The



BILL WALTON/VIMS

Tony Tesvich of Tesvich Oyster Farms in Empire, Louisiana, served up his oysters at the Shuck and Tell party at the Maritime and Seafood Industry Museum in Biloxi, Mississippi.

welcome reception at the Walter Anderson Museum of Art in Ocean Springs was so well attended that we had to do a beer run part way through the party—which we take as a sign that things were going well. But the Shuck and Tell organized by Vicki Prunte was the highlight of the event. Held at the Maritime and Seafood Industry Museum in Biloxi, over a dozen oyster farmers from across the region served up their oysters, with the crew from the Mississippi Department of Marine Resources (DMR) whipping up an amazing spread of shrimp, fish and gumbo. And Joe Stinchcomb, of Bar Muse in Oxford, Mississippi, made a lot of new friends, pouring his crafted cocktails at both the welcome reception and the Shuck and Tell. We'd be remiss if we didn't recognize our local ace in the hole, Jason Rider of Mississippi DMR, who helped pull together what many attendees told us was the best symposium yet.

Unlike the ECSGA, the NAA or state growers associations, Oyster South is not a lobbying organization (support your industry trade associations!). Rather, it is a charitable 501(c)(3) foundation that works to foster the success of oyster farming in the Southern U.S. by connecting communities and providing small grants.

Each fall Oyster South hosts a ticketed event ("LANDLOCKED") in Decatur, Georgia, as its primary fundraiser to support specific causes for the year. On October

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NACE/ MAS Wrapup

product launches.”

Those products included Seacharrones, an addicting (and vegan) kelp puff snack made by conference sponsor Blue Dot Kitchen that is available in salt and pepper, spicy and umami flavors. Speaking of umami flavors, kelp veggie burgers were also on offer at several Portland restaurants thanks to a partnership between AKUA and Atlantic Sea Farms. They will be available at grocery stores in the fall.

Sea scallop aquaculture also garnered quite a



CHRIS DAVIS

Denise Cilley, Sunrise County Economic Council (left) and Nichole Sawyer, Washington County Community College, talk with conference participants about developing the aquaculture workforce in Maine.

bit of interest this year, with a pre-conference workshop and two sessions devoted to farming sea scallops—one on hatcheries and spawning, and one on grow-out techniques.

Challenges related to recovering from COVID market disruptions and facing climate change were addressed in several sessions. COVID-recovery presentations focused on market impacts, the rise of direct sales and building resilience in the industry. The longer term challenge of climate risks was also emphasized in several sessions. Risks include the increasing rate of large rainfall events in New England, increasing intense storm frequency, unprecedented wind events and ocean acidification. Increasing temperatures are allowing range expansions for pests, predators, algal blooms and diseases. Presentations and an interactive discussion session focused on sharing climate resilience strategies.

The importance of a diverse and inclusive aquaculture industry was recognized at NACE/MAS 2022. It is estimated that women represent 70% of the global aquaculture industry. For the first time, NACE/MAS hosted a women and minorities in aquaculture networking event. “The event was a testament to the empowering and inspiring atmosphere and I was honored to be involved with an event that’s rarely done at aquaculture conferences,” said Imani Black, the



CHRIS DAVIS

Conference participants enjoying the Women and Minorities in Aquaculture Networking Happy Hour.

founder and CEO of [Minorities in Aquaculture \(MIA\)](#), a group that is providing educational opportunities to bridge the gap between minority women and sustainable seafood. “Through this conference, MIA was able to grow our partnership connections, engagement/outreach of the organization’s efforts and goals for the future and our overall presence supporting Maine aquaculture, especially our support for Maine’s women oyster farmers.”

Along with diversity, there were several sessions devoted to growing the aquaculture workforce for the future. “Workforce development is critical for the future of Maine’s aquaculture sector, which is why the Maine Aquaculture Association is committed to collaborating with educational institutions, the Department of Labor, and other organizations across the state to train and prepare the next generation of seafood farmers,” said Christian Brayden, a project manager with the Maine Aquaculture Association.

Finally, several sessions highlighted the

increasing importance of communications in building public trust and social license to farm. With an inspiring presentation on grassroots advocacy, Sebastian Belle, Executive Director of the Maine Aquaculture Association, stressed, “As farmers, we haven’t been great at telling our story. We’ve been focused on growing our farms and developing our workforce. But if we don’t tell our story, other people will tell it for us.” A panel discussing the role of industry partnerships in engaging the public with aquaculture literacy included chefs, several NOAA aquaculture professionals and an aquaculture business owner. Another session was devoted to aquaculture’s social license to operate, including presentations on public opinion research and proven strategies for building public support.

Lisa Milke, Acting Chief of NOAA Fisheries’ Ecosystems & Aquaculture Division (NOAA Fisheries sponsors NACE/MAS) and a member of the conference organizing committee reflected, “After multiple postponements, we were so very happy to be able to gather and share information and ideas. It was a great success.”

Chris Davis, Executive Director of the Maine Aquaculture Innovation Center, which sponsors NACE ([all 2022 sponsors are listed here](#)), was thrilled to reconnect with farmers and colleagues alike, and is tremendously grateful to all the people who helped make this event possible. He is looking forward to co-hosting the next NACE/MAS in January 2024.

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Scientists expect hurricanes to increase in intensity as ocean temperatures and sea level continue to rise due to climate change. The impacts on shellfish aquaculture are already being felt.

Climate Change Is Here. What Can Growers Do?

by Robert Rheault,
ECSCGA Executive Director

When you work outside on the water you tend to be quite in tune with the weather. And if you have been doing it for a while you must have noticed some changes. For those of us who have been at it for decades it kind of sneaks up on you and seems almost imperceptible. Sometimes the changes are welcome, like fewer months of busting ice or a slightly longer growing season.

(between 1997 and 2014), a 3-fold increase! Other researchers have documented a 75% increase in significant rainfall events in the Northeast in the past 50 years. These events close growing areas and cause flooding in local communities.

Growers in Maryland had one of the worst growing years ever in 2019, when epic rainfall depressed salinities in the upper Chesapeake Bay for most of the summer.

Happily, we don't experience upwelling-induced acidification on the East Coast as our friends on the West Coast do, but intense rain events can lower the aragonite saturation state and make it harder for shellfish larvae to form shells.



CHARLES KRUPA/AP

Waves from the remnants of Hurricane Ida smacking the coast in Scituate, Massachusetts in September 2021. The storm dumped up to 9 inches of rain on New England and spawned a tornado in Dennis on Cape Cod.

"As a shellfish farmer, I see first-hand the challenges that are facing our shores. It's why we're advocating for efforts to curb carbon emissions and address the impacts on our businesses."

- Bob Earnest
Chebeague Island Oyster Co.



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But recently many of us old salts have been jarred by what we are seeing. It's important to start thinking about adapting to the new normal and planning for how we can farm in the extreme conditions that are on the horizon.

Recent eye-opening climate-related events

Last summer tropical storm Henri came through New England and spawned five tornadoes in Massachusetts, dropping 5"-6" of rain. Nine tornadoes hit Massachusetts in 2021, double the average number. Just nine days after Henri, tropical storm Ida dropped 7" of rain on Cape Cod and triggered wind gusts in the 90-mph range that tore boats from moorings and spawned another tornado in Dennis.

According to a recent paper in the *Journal of Hydrometeorology*¹ the frequency of 6" rainfall events on the East Coast increased from six events a year (between 1979 and 1996) to 25 events a year

Bill Mook of Mook Sea Farms in Maine has been forced to buffer his hatchery water to augment the alkalinity to ensure good sets.

I couldn't find data, but many growers report that the frequency of high-wind work days made farming a misery this past year.

According to C2ES, the successor to the [Pew Center on Global Climate Change](https://www.pewclimate.org/)², the frequency of tropical storms and hurricanes also appears to be on the rise.

Growers in Barnstable, Massachusetts, suffered over \$1million in losses when an extreme low tide hit at high noon during an unprecedented heat wave at the end of June last year.

Cownose rays (voracious predators of shellfish common in the mid-Atlantic and the Gulf of Mexico) have been seen in Stonington, Connecticut, while green crabs have moved north and are wreaking havoc on softshell clam populations in Maine.

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Oyster South a Success

16, 2022 LANDLOCKED will raise funds to support two programs: Peer to Pier (providing travel support for commercial oyster growers from the region to visit other commercial farms to compare notes and learn from other growers' experience), and Shell to Shore, a shell-recycling program based in Athens, Georgia.

With Biloxi wrapped up, we are looking forward to next year's Oyster South Symposium, scheduled for Savannah, Georgia. Stay tuned for dates and details. We hope to see you there!

To learn more about Oyster South, the annual symposium and the LANDLOCKED fundraiser, follow @oystersouth on social media or visit www.oystersouth.com.



BILL WALTON

A highlight of any Oyster South symposium is the tradeshow. Despite some Covid cancellations, this year's show featured more than 15 vendors showing off the latest and greatest products geared to the shellfish aquaculture industry.

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Reduce Your Workers Comp Costs by 70%

business. Safety programs will vary based on the risks faced by each business and within the industry.

❑ **Employee screening and training:** New employees should be screened to ensure they are able to perform the tasks of the job, trained on job functions and equipment, and familiarized with safety risks.

❑ **Risk management:** Each business should consider their operations objectively and take action to avoid or reduce risk where possible. Ask your insurance agent for a risk analysis, or ask your insurance company for a risk inspection to determine other unseen threats.

❑ **Return-to-Work Program:** Once a claim has occurred, an active, managed, return-to-work program is an effective means of reducing the time an employee spends away from work. Injured workers understand business operations and are often able to fill other roles by returning to payroll early, but operating in a different capacity. Even if the injured worker is only partially productive during this time, their payroll and benefits represent a lower cost than the accumulated impact such a claim will have on future workers-compensation costs, largely because claims affect workers compensation pricing for three years.

The difference can be staggering. However, a return-to-work program must be established ahead of time. Consider what work duties could be performed by injured workers and have them ready when appropriate. Clients of Bankers Insurance can access extensive return-

to-work planning resources by logging in to [MyWave²](https://www.bankersinsurance.com/mywave) and searching for "Return to Work."

Remember that workers compensation claims affect future premium costs for three years. These claims typically do not affect work comp premiums on the immediate renewal, but will kick in for the three-year period following that. Thus, a claim does not have just a one-time effect, but rather accumulates over several years. In addition, several small claims can have just as much, if not a greater, effect than a single large claim.

For more info, visit www.bankersinsurance.com/2021/10/12/controlling-workers-compensation-costs and www.bankersinsurance.com/2021/12/10/the-art-of-overcommunication-managing-insurance-claims

Notes

1. www.bankersinsurance.com/2022/02/14/reduce-adverse-effects-of-work-comp-claims-by-70-percent
2. www.bankersinsurance.com/business-insurance/tools-services-employee-benefits/#mywave



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So what can growers do?

In a recent paper published in [Ocean and Coastal Management](#)³ the authors interviewed growers in California and asked them what they are seeing and what strategies they are employing to deal with changing conditions. While most of these interviews focused on ocean acidification, growers also complained about rainfall closures, runoff and harmful algal blooms. Adaptive strategies included diversification, in both location and species, to allow growers to continue to harvest in one location if another is closed.

One strategy I have seen many of the larger growers in New England adopting is to set up recirculating wet-storage systems so they have product to sell when harvest areas are closed

by rainfall events. Certainly, growers facing increased frequency and intensity of storms should sign up for the Emergency Livestock Assistance Program (ELAP), a crop-disaster assistance program available for **free** through their county Farm Service Agency office. Newly available to shellfish farms, this program can reimburse growers for 70%-90% of their weather-related losses.

Growers also need to consider increasing the size of their anchors and lines, and paying close attention to chafe on lines when storms are approaching. A comprehensive [storm-preparation guide](#)⁴ is available on the University of Florida IFAS website.

Lastly, growers should consider joining The Nature Conservancy's [Shellfish Growers Climate Coalition](#)⁵ and work to put pressure on politicians to wean our society off dependence on fossil fuels. Pound for pound, cultured shellfish protein already boasts one of the

smallest greenhouse-gas-emission footprints, but many of us could do more to cut our own impacts. Fuel-efficient four-stroke engines are a sound investment, and many growers have been able to install solar panels on their land-based structures. Personally, I can't wait to replace my old gas guzzler with an electric pickup truck.

Notes

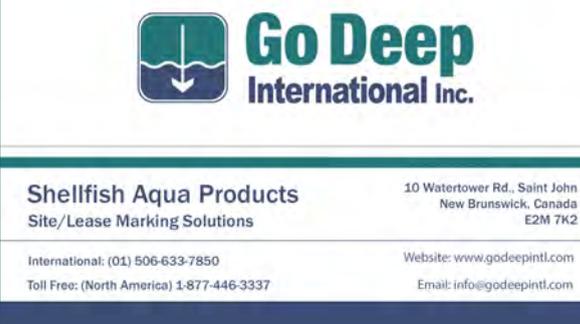
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2. www.c2es.org/content/hurricanes-and-climate-change
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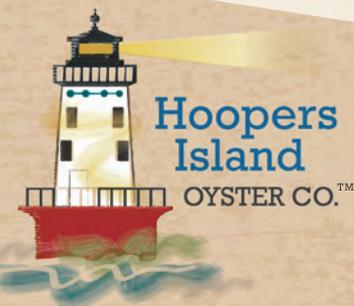
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Keeping Seed Safe

by Robert Rheault,
ECSCGA Executive Director

Growers often complain that they can't get the seed they need when they need it. It may be that hatcheries are having production challenges or are located in other states and their state has strict regulations pertaining to sourcing. Most states require disease inspections on every batch of seed, which can be costly and time consuming; often by the time the pathology report comes back the seed is several millimeters larger and much more expensive. Because pathologists spend all their time doing routine screenings, they don't really have time to look for emerging pathogens of concern.

Shellfish disease and disease introduction is a significant concern for shellfish farmers and resource managers because historically the spread of disease has been associated with the transfer of shellfish seed. For the past 20-30 years the issue of diseased seed being moved from state to state has been largely eliminated through regulation, but in some cases the regulations may be unnecessarily restrictive.



RSSBP.ORG

The Regional Shellfish Seed Biosecurity Program (RSSBP) was developed by shellfish growers, scientists, extension specialists and state resource managers to minimize risks associated with interstate transfers of bivalve shellfish.

Many regulators don't have expertise in the risks associated with seed transfers, leading them to place strict restrictions on what can be imported even if the risk of disease introduction is negligible. I often say you can't introduce a new pathogen into waters where it is already endemic, but resource managers get paid to protect their natural resources, not to take risks.

The 14 states on the East Coast present a confusing patchwork of rules and moratoriums that can often restrict growers' ability to acquire seed. If you can't get seed you can't have a farm,

and sometimes this may force certain growers to skirt the rules.

The shellfish aquaculture community has been working for decades to harmonize these various rules and ensure that they're guided by the best available science, which can be leveraged to make the process safer and cheaper. It seems that finally we are making some progress. In 2015 a two-day workshop in Portland, Maine, with almost 100 participants (including regulators, pathologists and industry members) identified a handful of solutions that we called the "low-hanging fruit." It turns out that each of these solutions turned out to be more vexing than we had initially grasped, but we have made some progress over the years.

I am on a team guided by Ryan Carnegie and Dave Bushek that obtained Sea Grant funding to hold a series of workshops with regulators and industry members. First, we set up a Shellfish Health Advisory Council to help resource managers make decisions on transfer requests by providing them with the best available science. This multi-disciplinary team has broad expertise, but if they don't know the answer to a question, they likely know someone who does.

— Continued on page 15



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Can We Prevent the Spread of Ostreid Herpesvirus in U.S. Waters?

by Robert Rheault,
ECSGA Executive Director

Marketing experts will tell you never to put oysters and herpes in the same sentence, but shellfish pathologists will tell you there are many types of herpesviruses that afflict various species of shellfish and you can rest assured that none of them infect humans.

Of the many types, Ostreid herpesvirus appears to be one of the more significant threats to bivalves, and a microvariant first detected in Europe in 2008 has been causing significant mortalities in several shellfish species globally. Dubbed OsHV-1, the microvariant causes mass mortalities in spat and larvae of the Pacific oyster (*Crassostrea gigas*), and caused steep declines in European production as it propagated throughout the continent. The virus has also spread to Australia, New Zealand and several other Pacific countries.

With the recent reopening of trade between the European Union and the U.S. many American growers began asking what could be done to limit the risk of introducing this herpesvirus into our waters. While OsHV-1 does appear to replicate in the Eastern oyster (*C. virginica*), preliminary data from Dr. Colleen Burge seems to indicate that the virus does not kill this species. However, it can apparently kill bay scallops and European flat oysters. Studies are ongoing to see what other shellfish species might be susceptible to the virus.

Working with the Pacific Coast Shellfish Growers Association (PCSGA) we developed a multi-prong approach to head off an introduction into our waters. We view the risk as relatively small since imported shellfish are eaten and not placed into the waters of the U.S.—and we want to keep it that way. Working with USDA's Animal and Plant Health Inspection Service (APHIS), several shellfish experts from around the world collaborated on a rapid risk analysis to look at potential vectors and risk mitigation measures.

The ECSGA has developed a web page (ecsga.org/oshv) with massive amounts of relevant

information where you can get publications, fact sheets and a full description of the four-pronged approach we are taking in an effort to keep OsHV at bay:

1. We are asking shellfish importers to tag product with free tags reminding customers that it is illegal to place foreign shellfish into the waters of the U.S.
2. We are reminding shell recyclers of the importance of adhering to regulations that mandate a year of drying before using shell for restoration or for remote setting.
3. We are asking state Shellfish Control Authorities to remind wet-storage-system operators that if their systems discharge to the sea (as opposed to the sewer) they must not hold shellfish from out of state.



COLLEEN BURGE, CC BY-ND

Dead Pacific oyster infected with Ostreid herpesvirus variant 1 (OsHV-1). The virus can NOT infect humans.

4. We are alerting growers to be on the lookout for unexpected mass mortalities of seed, and to get a sample tested if they see something out of the ordinary.

Active and passive surveillance efforts are being stepped up on both coasts. If OsHV does reach our shores we want to move aggressively to limit the spread through movements of seed.

It is believed that OsHV-1 spread to the Pacific in ballast water or in fouling organisms on ship hulls, and it will be challenging to avoid these vectors. We hope that the reasonable measures described above can at least minimize the risk, and delay what many see as an inevitable introduction.

Meanwhile, geneticists on both coasts are gearing up capacity to breed lines of animals that are resistant to the virus. This is an approach that appears to have been working well in New Zealand and France, and we expect that this will be the best tool in our toolbox to fend off disaster should OsHV-1 make it to our shores.



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Acuff Center for Aquaculture Will Support Virginia Shellfish Aquaculture

by David Malmquist, News & Media Director, Virginia Institute of Marine Science, William & Mary

Ed Note: The following was excerpted from a press release and lightly edited.

The state of Virginia has once again made a massive investment in shellfish aquaculture: a new 22,000 square foot facility to support shellfish research and breeding. Virginia is the leading producer of farmed shellfish on the Eastern Seaboard, producing around \$38 million in clams and \$16 million in oysters annually.

The new \$22.7 million Acuff Center for Aquaculture will serve as the new home for the Virginia Institute of Marine Science's (VIMS) [Aquaculture Genetics and Breeding Technology Center \(ABC\)](#)¹ and will house

wet labs, classrooms, offices and meeting space. The selective breeding work done at the ABC by Stan Allen and his team led to lines of animals that were resistant to MSX and were also regionally adapted to the wide range of salinities found in Virginia. It is safe to say that this work allowed for the resurgence of production of farmed oysters in the Chesapeake Bay and ushered in a renaissance of oyster production in Virginia and Maryland, as well as anywhere MSX has decimated populations. The ABC is also where Allen perfected the methodology for producing tetraploids and triploids, allowing growers to produce plump, sterile oysters year-round.

In remarks during the April 29 dedication ceremony, Acuff Professor of Marine Science and coordinator of the VIMS Shellfish Aquaculture Program [Dr. Bill Walton](#)² said, "The Acuff Center will soon be populated with scientists and millions of baby oysters."

The Center was named after Marshall Acuff Jr., a founding member and past president of the VIMS Foundation Board and a longtime supporter of VIMS and shellfish aquaculture.

"It's a vote of confidence in the work VIMS does and will do for oysters," Acuff said.



© DR. DONGLAI GONG/VIMS

A drone image shows the new 22,000 square foot Acuff Center for Aquaculture (foreground) as well as Andrews Hall (L background) and Chesapeake Bay Hall (R background) on the VIMS campus.

"The research has a huge impact, and the oyster hatchery will provide an economic benefit to those who work on the water." One such waterman was Acuff's father, an oyster harvester on Virginia's Eastern Shore. The Acuff name honors both father and son.

Echoing the economic and cultural importance of oysters was fellow dedication speaker Mike Oesterling, Executive Director of the Shellfish Growers of Virginia. He said Virginia's success in shellfish aquaculture depends on three factors: "First are our hard-working, innovative watermen farmers. Second is a favorable regulatory climate. Third—and why we're all here today—is the industry's long-standing partnership with our academic institutions. The VIMS [Eastern Shore Lab](#)³ is widely regarded as the birthplace of hard-clam aquaculture, and without the VIMS Aquaculture Genetics and Breeding Technology Center, we wouldn't have our vibrant oyster aquaculture industry."

ABC Associate Director Dr. Jessica Moss Small said, "At its most fundamental level, the facility will greatly enhance [ABC's core mission](#)⁴. We'll use it to create genetically distinct groups of oysters for our ongoing breeding work, as well as other grant-funded projects. For ABC, the hatchery will produce hundreds of unique groups of oysters every year, many of which will eventually go to industry as brood stock."

Small added, "The Acuff Center will provide highly filtered seawater via computer-operated pumping and filtration systems at optimal temperatures to grow algae and oyster larvae, and lots of floor space and larval tanks so that production isn't limited or stalled due to space constraints. It will also enable us to do all our spawning work in a single facility, creating valuable efficiencies in personnel and resources."

— Continued on page 14

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Online Program Training Entry-level Shellfish Farm Workers Launched

by Azure Dee Cygler, Fisheries & Aquaculture Extension Staff, University of Rhode Island, Narragansett, Rhode Island

An exciting new “soup-to-nuts” online training program will allow entry-level farm workers to gain the skills and knowledge they need to be successful farm hands in Rhode Island and across the region. The program was funded by the NOAA National Sea Grant Program and was created through a strong partnership between The Education Exchange, lead educator Robert Rheault from the East Coast Shellfish Growers Association, Rhode Island’s Ocean State Aquaculture Association, the Coastal Resources Center/Rhode Island Sea Grant at the University of Rhode Island and Shedlight Productions.



JOSH BEHAN/ JOSHUA BEHAN PHOTOGRAPHY

Although on-line training is a critical part of educating shellfish farm workers, hands-on experience is a must. Students in the aquaculture course at Rhode Island’s Education Exchange intern with local farmers to learn the ropes.

Rheault explained, “We have lots of jobs coastwide for those who are willing to work on the water, but farms typically see lots of new workers wash out in the first week, either because they had an unrealistic image of the job or because they hurt themselves. We needed a way to inject a little reality into their vision and to help them avoid injury, so much of the training is devoted to teaching folks how to avoid the many ways you can injure yourself on the water.”

The course provides visually appealing info-rich video modules, with contributions from knowledgeable and seasoned instructors within the aquaculture industry. Modules include instruction on knot-tying, boating safety, basic shellfish biology, marketing, shucking, safe-lifting practices and much more.

While the course was developed in Rhode Island, Rheault tailored the lessons to apply across the region. Footage from the field,

on farms and in gear workshops allows course participants to see what a working farm looks like, while allowing them to gain a deeper understanding of the demands of the job. Seasoned shellfish farmers like Matt Behan, John and Cindy West, and David Roebuck were filmed doing what they know best and greatly complimented Rheault’s lessons.

While the online course offers complete content for new shellfish farm workers, it is not intended to stand alone in training these next-generation farm hands. The intent, says Rheault, is to continue to encourage farm internships and to pair new workers with farm owners in need of talented recruits. The online program is modeled after the multi-year, successful in-person aquaculture training offered by The Education Exchange in Peacedale, Rhode Island, and taught by Rheault and other experts. That program continues to be offered once a year in the spring, and originally was offered through The Aquaculture Partnership under the Real Jobs RI initiative, led by former Governor Gina Raimondo (now serving as the U.S. Secretary of Commerce), and funded through the Rhode Island Department of Labor.

In addition to teaching on-farm skills, the in-person training also provides ServSafe certification and a pathway to U.S. Coast Guard Captain’s training, as well as a stipend and connections to on-the-job training on local shellfish farms. This caliber of high-touch, in-person instruction is tough to replicate online. Rheault encourages participants and state programs that might assist with the trainings to ensure that recruits get complementary on-farm training to help them succeed, which in turn will help shellfish farms to prosper with a trained and dependable workforce.



JOSH BEHAN/ JOSHUA BEHAN PHOTOGRAPHY

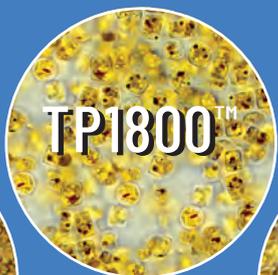
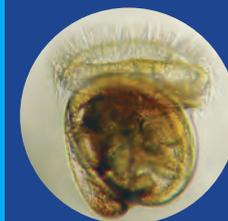
Students taking the in-person course at Rhode Island’s Education Exchange spend time in the Cedar Island Oyster Co. workshop, where they learn the ins and outs of gear construction and maintenance, knot tying and other skills necessary for success.

“You can learn quite a bit from the online modules, but nothing on a computer really prepares you for working on the water, so for this program to be effective we strongly encourage states to develop an internship element to go with it. We also provide a detailed roadmap to help other states that might want to set up their own training. It covers key elements for success such as trainee screening, insurance and how to access assistance programs for veterans,” Rheault advised.

To access the training modules, visit: the-education-exchange1.teachable.com/p/entry-level-oyster-farm-worker then click on “Enroll in Course” and look for The Aquaculture Jobs Training Program. The modules are free and the training is self-guided, with intermittent quizzes and a Certificate of Completion available to those who finish all the modules.

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— Continued from page 12

Acuff Center for Aquaculture

Walton is also excited to see the facility open. “The Acuff Center will allow VIMS to better serve stakeholders in several ways,” he says. “First, it will allow us to conduct experiments in systems comparable to what growers currently use, and thus position us to conduct more research at a ‘real-world’ scale. Second, it will be an ‘open-source’ hatchery available to stakeholders to see and assess new systems. Third, it will be a premier training ground for those interested in shellfish aquaculture.”

Both Small and Walton express particular enthusiasm for the collaborative opportunities the new facility will offer. “With the Acuff Center,” says Small, “we’ll be able to work side-by-side as needed with collaborators in a shared space, rather than having to shoe-horn people as in our current facilities. Also, building staff can supply things like filtered water, algae, larvae, or spawning tanks to others



L. GREGG/VIMS

Larval culture tanks in the state-of-the-art Acuff Center. VIMS scientists are aiming for their first spawn in late June or early July.

at VIMS, so that our expertise in ABC will be available as needed for guidance.”

Walton, like Small, sees the facility’s potential for collaboration, innovation, and leadership. “Our vision,” he says, “is that the Center will

allow VIMS to work with Virginia’s shellfish aquaculture industry to solve problems and seize opportunities, as well as position VIMS as a global leader in the field of shellfish aquaculture science.”

Although contractors are still applying the finishing touches, scientists are working around them, setting up for algal and larval culture. They are still on schedule to complete the first spawn in late June to early July, and hope to have their first batch of larvae in time for the celebratory July 4th fireworks on the York River.

Notes

1. www.vims.edu/research/units/centerspartners/abc/index.php
2. www.vims.edu/newsandevents/topstories/2021/walton_welcome.php
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4. www.vims.edu/research/units/centerspartners/abc/about/history_mission/index.php



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— Continued from page 9
Safe Shellfish Seed

Our second goal was to map the ranges of the known pathogens to pinpoint where diseases are established and where they are rare, focusing on minimizing the risks of introduction. With this information regulators might have fewer concerns about transferring seed with light Dermo infections across state lines into waters where Dermo is already endemic. Right now the mapping tool is in beta testing, but by the time you read this it may be live. I can tell you the mapping tool is amazing and provides a huge amount of information about pathogen prevalence in all the states that have disease surveillance data. We are also working on expanding the data into the Gulf of Mexico. The tool also identifies where hatcheries and nurseries are located so you can see the endemic disease concerns in the area where your seed is coming from.

The third focus area was to identify seed that present negligible risk because they have never been exposed to raw, unfiltered seawater. It is clear that larvae and small seed maintained on filtered seawater are rarely infected with pathogens. We developed a Hatchery Certification Program for hatcheries that are willing to adopt certain Best Management Practices and undergo an annual audit. Many states have agreed to accept seed from certified hatcheries without the need for batch inspections. So far, four hatcheries have met the criteria, but several more are lined up to participate and we expect more states will sign on as the program gains momentum. For now these seed are mostly smaller than 2 mm because it is challenging to grow enough algae to feed larger seed, but we hope to develop protocols to allow the certification of larger, nursery-reared seed.

Although the entire Regional Shellfish Seed Biosecurity Program is still in development, we have an active website: RSSBP.org, and the team is seeking funding to expand the group of trained auditors and get more hatcheries certified and more states on board with the program. The program has received high praise from the USDA's Animal and Plant Health Inspection Service; we hope that we can continue to make seed acquisition easier and safer to help the industry thrive.



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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
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