Shellfish Aquaculture COVID-19 Rapid Response: Challenges and Opportunities
North Atlantic Regional Team (NART) | December 2020
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Project goals: Coordinate efforts to respond to collapse of shellfish aquaculture industry in the North Atlantic region following COVID-19 pandemic and associated closure of restaurants. Inventory response efforts, refine needs assessment at regional scale to determine commonalities and differences, and identify most pressing areas for coordinated response.

Overview and challenges: Sea Grant programs throughout the North Atlantic region have pursued a number of strategies to help shellfish growers overcome the challenges that COVID-19 has brought to the shellfish aquaculture industry. The impacts have been felt both by the growers of market-sized shellfish as well as the hatcheries they rely on for seed stock. Sea Grant's rapid response programs can generally be divided into three categories can generally be divided into three categories: **alternative market development, restoration buyouts programs**, and assistance with **accessing direct cash relief**. While restoration buyout programs were largely directed towards oyster growers, other types of shellfish (i.e. mussels, clams) were included in alternative market development and cash relief programs as well as in a select few restoration projects.

Alternative market development strategies help growers replace revenues lost from the wholesale and restaurant markets that were their primary source of income. This required growers to quickly establish venues to sell directly to consumers. Sea Grant programs took several actions to enable these new markets, including: publishing direct marketing guides and regulatory guides, building websites for group listings of direct sales outlets, creating community supported fisheries (CSFs), conducting marketing campaigns, offering consulting services for e-commerce and small business coaching, conducting consumer studies, hosting business pitch contests with cash prizes, donating purchased product to food banks, and working to develop local processing capacity to help support the growth of a value-added shellfish product market.

In order to realize the benefits of direct marketing, growers must obtain the correct state dealer permits and navigate other licensing and regulatory hurdles—and Sea Grant programs offered advice to ease their way through the complex process. In states where most or all growers already had dealer permits, growers reported an easier time with accessing direct marketing opportunities. New growers face additional challenges in direct marketing and market development because they typically lack the strong relationships with buyers that more established growers enjoy. Many growers also face challenges in establishing e-commerce businesses due to the high costs of shipping live shellfish as opposed to selling locally.

For example, Massachusetts' restrictive rules about has very strict rules about what kinds of facilities operators must have in order to get a dealers license—meaning that most growers are unable to get one. In order to navigate this hurdle and help growers access lost revenues, WHOI Sea Grant has opted to purchase large quantities of oysters from growers and work with local processors to shuck them before donating them to the Greater Boston Food Bank system.

Conversely, states where most growers already had a dealers permit, such as Maryland, reported an easier time starting to engage in direct marketing.

Restoration buyouts purchase oversize or otherwise unsold oysters to restock existing restoration sites. Some states (e.g. New Jersey, New Hampshire) and municipalities (such as on Cape Cod) started their own restoration projects in order to help growers replace lost revenues. Restoration buyout projects are constrained in scope by the availability of funding as well as by the number of suitable active restoration sites, which are preferred in a rapid response context because they allow product to be moved quickly; this means that the prospect of starting up new restoration sites for COVID rapid response is mostly out of the question. Biosecurity is a primary concern when purchasing oysters to move from one site to another: oysters must be matched with sites extremely carefully to avoid the transmission of diseases and pests. This means that the number of oysters that can be bought for restoration, and their provenance, is quite limited at present. Many states also have regulatory hurdles preventing the movement of oysters for restoration or completely prohibiting the creation of restoration-only reefs.

The largest restoration project in the North Atlantic region is the Supporting Oyster Aquaculture and Restoration (SOAR) initiative run by The Nature Conservancy (TNC) and Pew Charitable Trusts. Because of the same biosecurity and logistical concerns, the SOAR initiative is working with only permitted, active restoration sites which already have monitoring plans in place. SOAR program officers first identified active restoration sites throughout the region and then worked with growers associations to find growers to purchase oysters which could then be moved to the restoration sites[1].

Across the board, use of **federal relief funds** have remained high with Sea Grant playing a major role in guiding growers through applications for the most suitable programs. Eligible growers applied in large numbers for Paycheck Protection Program (PPP) and Economic Injury Disaster Loan (EIDL) assistance as well as to the NOAA CARES Act Assistance to Fishery Participants (CAAFP) and the second round of USDA Coronavirus Food Assistance Program (CFAP 2) . Even in states where summer sales recovered, relief funds were needed to replace lost revenues from the spring when business was slow. Many newer growers are at a serious disadvantage in accessing federal relief funds because they lack the multi-year sales history required to demonstrate need. This problem was magnified in Delaware where the shellfish aquaculture industry is primarily made up of newer growers.

Hatcheries have struggled as demand for seed has contracted over the pandemic. The degree of contraction has depended on geography, gear type and years of experience among other factors. The uncertainty of the business outlook over the next year or so has left many growers unwilling to take on additional debts by arranging to purchase more seed. Also, due to lower-than-usual sales this year, many growers simply do not have the space for more shellstock and as such cannot buy more seed; this is generally more of an issue for off-bottom growers who are more space-constrained than for bottom-culture growers. Many growers have reduced their orders, leaving some hatcheries with more inventory than usual. This has resulted in some

[1] More information about the SOAR initiative can be found below in the Appendix.

hatcheries giving away seed or reducing prices in order to move inventory. Hatcheries may have issues with cash flow next year due to slower business this year. However, growers who want to buy seed and have the cash available to do so have generally been able to buy it.

In New England, growers have generally not reported access to seed as a major problem during the COVID-19 pandemic as most hatcheries have remained open; this has meant that in most cases supply of seed has remained consistent. However, some growers have reportedly reduced or dropped their seed orders entirely and some struggled to pay for the seed orders that were placed. In the Mid-Atlantic region, many growers struggled when the Rutgers hatchery went offline and growers particularly in New Jersey and Delaware were forced to look elsewhere for seed. This meant that seed supply has generally been a bigger problem in the Mid-Atlantic than in New England.[2]

APPENDIX

TNC-Pew SOAR Initiative

At the start of the COVID-19 pandemic, The Nature Conservancy (TNC) and Pew Charitable Trusts embarked on the Supporting Oyster Aquaculture and Restoration (SOAR) initiative. SOAR aims to support oyster farmers during the pandemic and accompanying economic downturn by purchasing "surplus" oysters (generally oversized oysters that were not sold due to restaurant closures and became too big for the raw bar market) for use in oyster restoration projects nearby. The program is anticipated to operate for two years (beginning in October 2020) in northern New England, the Mid-Atlantic Region, and Washington state with an operating budget of $5 million, with $4 million to be disbursed directly to oyster growers through buyouts and $1 million to be spent on efforts to make the shellfish aquaculture industry more resilient against future shocks.

The initiative's geographic scope was primarily limited to the North Atlantic and Washington state as a result of donor preference. Beyond that, program officers at TNC and Pew determined that SOAR was not needed or was not feasible in every state in the North Atlantic region either because a purchasing program was already in place for surplus oysters in that state, or the state had no suitable restoration sites where purchased oysters could be legally or safely put.

However, the presence of active restoration projects in a state did not automatically mean that the SOAR project was "not needed"; on the contrary, it has been shown that state-run restoration programs and SOAR can run side by side in a complementary way, as has notably occurred in New Hampshire and New Jersey. For example, in New Jersey, SOAR has benefited from the presence of monitoring programs that were already put in place on active restoration sites before it arrived; since SOAR projects require monitoring for the first year, the presence of operational monitoring programs on active sites is an advantage to the projects.

[2] More information about impacts on hatcheries can be found below in the Appendix.

Even within participating states, the primary constraining factor for identifying SOAR initiative sites is the issue of biosecurity. Shellfish aquaculture creates conditions through which diseases and invasive species can be easily spread if shellfish are moved from one place to another. Because of this, state agencies can often take years to permit shellfish restoration sites, where shellstock from one location can be moved to another safely. For that reason, the SOAR initiative is working with only permitted, active restoration sites. These active sites are already determined to be safe from a biosecurity perspective and already have monitoring plans in place—another requirement of the SOAR program. SOAR program officers first identified active restoration sites throughout the region and then worked with growers associations to find growers to purchase oysters from which could then be moved to the restoration sites.

Biosecurity constraints manifest differently in some regions compared to others; for example, oversize oysters from Maine were able to be moved to restoration sites in New Hampshire's Great Bay because seed from Maine is already regularly purchased by growers in Great Bay. This meant that Maine growers could participate in the program even though Maine has no restoration sites. However, in places like Cape Cod, oysters could generally not be moved even relatively small distances due to heightened biosecurity concerns combined with a lack of suitable restoration sites. Many regions such as Long Island require a hyper-local analysis of biosecurity concerns in order to evaluate restoration site suitability. This indicates that perhaps the greatest hurdle to expanding restoration sites is the process of matching oysters with suitable restoration sites, which will often (but not always, as in the case of Maine-New Hampshire sales) need to be located very nearby due to biosecurity concerns.

Some states also have direct regulatory hurdles standing in the way of buyout-restoration programs: for example, North Carolina state regulations explicitly forbids the transfer of farmed oysters to restoration sites. However, when TNC and Pew approached stakeholder groups in North Carolina about this concept, interest was sufficiently great that relevant state agencies are working to change the state regulations in order to make it possible for them to participate in SOAR in the future.

Hatcheries

The question of access to seed can be approached in two ways: either from the demand-side perspective of buyers (growers who are purchasing seed for their farms), or the supply-side perspective of sellers (hatchery operators who are selling seed to growers). The issue looks somewhat different depending on the perspective taken.

In New England, growers have generally not reported access to seed as a major problem during the COVID-19 pandemic as most hatcheries have remained open; this has meant that in most cases supply of seed has remained consistent. However, some growers have reportedly reduced or dropped their seed orders entirely and some struggled to pay for the seed orders that were placed. While hatcheries have generally not yet reported financial difficulties due to reduced orders since they operate on a different fiscal calendar than growers, it is possible that the effects of COVID-19 may register on their balance sheets next year.

In the Mid-Atlantic region, many growers struggled when the Rutgers hatchery went offline and growers particularly in New Jersey and Delaware were forced to look elsewhere for seed. This meant that seed supply has generally been a bigger problem in the Mid-Atlantic than in New England. Demand from growers has varied state by state; for example, it has declined slightly but remained relatively stable in New Jersey while being reported as falling significantly in Virginia. However, Virginia stands out as being a state where all hatcheries but one are vertically integrated into other shellfish aquaculture businesses, which means they are more insulated from market shocks than other hatcheries.

LESSONS FROM STATE SEA GRANT RESPONSES

Maine

Using its NOAA COVID-19 relief funds, Maine Sea Grant created a “Buoy Maine” pitch contest-slash-grant program to distribute relief funds to innovative projects with the potential to positively impact the aquaculture sector. The competition ended up distributing $10,000 in award funds to ten winners with projects ranging from innovative marketing campaigns to finding new commercial applications for marine products.

Since there are no shellfish restoration areas in Maine, oysters from Maine growers could only be used at restoration sites out of state. This was done in the TNC-Pew SOAR Initiative, which purchased oysters from Maine growers to be used at a restoration site in Great Bay, New Hampshire (growers in Great Bay regularly use seed from Maine growers). Both Maine DMR and New Hampshire Fish and Game agreed that, with regular pathology testing, transfer of shellfish between the states could proceed.

Staff also helped Maine growers access direct marketing opportunities by responding to increased inquiries regarding dealer certification. Maine Sea Grant had already compiled a direct sales guide document in the previous year.

New Hampshire

As discussed above, the TNC-Pew SOAR Initiative conducted restoration projects on a site at Great Bay in New Hampshire. However, New Hampshire Sea Grant also directed their rapid response funds to aquaculture, supporting experimental shellfish restoration on license sites. The program purchased large and misshapen oysters. By October, the program had moved 10,000 oysters to areas on each of 8 licensed sites (total 80,000); by November it had moved an additional 10,000 to another site, for a total of 90,000 oysters moved to restoration sites. The program is able to fund purchases to fund 9 out of the 20-25 oyster growers in New Hampshire (these were the growers who expressed interest). The program is overseen by NH Fish and Game.

By comparison to the SOAR Initiative program, the NH Sea Grant program required a much looser commitment from farmers, asking them to simply guarantee that they would leave oysters on the site for at least a year. The program also included plans to collect monitoring data for a year (measuring % survival, size range, and recruitment; the project may add vibrio analysis, MSX, dermo, and other parameters later).

Sea Grant is also completing an economic feasibility study exploring the potential capacity for value-added shellfish products (such as canned oysters) in New Hampshire.

MIT

MIT Sea Grant COVID-19 rapid response funding was mostly directed to marketing options for fishery products, including partnerships to direct processed finfish products to the Greater Boston Food Bank.

MIT SG also set up an advisory committee for shellfish aquaculture aimed at overcoming longer-term problems within the industry. This decision was based on an understanding that the issues which came up during COVID are ultimately systemic and require broader solutions, such as market diversification as one example.

Additionally, MIT SG circulated a survey to the 380 growers licensed in Massachusetts as well as wholesale dealers. The survey was aimed at capturing growers and dealers' perspectives on the state of the industry during COVID-19 and how the situation could be improved. The survey was completed in early December 2020.

WHOI

Growers in Massachusetts face significant challenges in using direct marketing and sales to replace lost revenues due to regulatory obstacles. In Massachusetts, all shellfish must be sold through a licensed dealer, and a dealer must operate out of a fixed facility that meets certain standards. Out of the several hundred shellfish growers in the state, only about twenty of them are dealers, and those are the only growers that can access direct marketing opportunities.

In order to accommodate this, Massachusetts growers had to take a different approach than many other states where direct marketing was the first strategy to replace lost revenues. WHOI Sea Grant proposed to help build up a market for shucked shellfish product (mainly oversized oysters), beginning with a survey sent out in August to shellfish growers in the state. WHOI SG then partnered with four local shucker-packers to work with them on the project and helped them to get shucking machines. Using their COVID-19 rapid response funding, WHOI SG is paying growers for their oversize oysters, which growers are then moving to processors; the bulk of the shucked and packaged product is then being donated to the Greater Boston Food Bank system. WHOI SG estimates that about a quarter of oyster growers they work with are participating.

WHOI SG worked with municipal governments to help replenish recreational shellfish beds that were under heavy pressure in the summer of 2020 by giving out $15,000 in mini grants. WHOI has also opened up conversations with regulators to explore the possibility of allowing off-farm sales of oysters in the winter (when it is safer from a food safety perspective).

Rhode Island

Rhode Island Sea Grant began their COVID-19 rapid response work by surveying growers about their needs. Responses to the survey indicated that growers' greatest needs related to obtaining dealer's licenses, reporting assistance, and marketing and website development in order to pivot to direct sales.

In response, RI SG devoted a large portion of its COVID-19 rapid response funds to assisting growers with technology and website setup. This involved helping growers to build websites, track social media numbers, and learn to use Google Analytics to help grow their businesses. They also sent out an e-newsletter to growers each Friday listing events, options for relief money, grant information, and opportunities to be paired up with for one-on-one business development counseling with Venture Cafe.

RI SG also allocated some rapid response funds to other efforts related to marketing. These included a 30-second commercial aimed at persuading viewers to eat Rhode Island seafood, which aired on local television networks. They also helped to create a virtual farm tour with a shellfish grower on Hog Island in Bristol, Rhode Island in order to replace lost opportunities for in-person farm tours, which usually help to drive shellfish sales.

A portion ($10,000) of the rapid response funds were also given to the Ocean State Aquaculture Association (OSAA) to have on hand to take on rapid response projects quickly, such as offering incentives to respond to surveys. OSAA serves about half of the growers in the state.

Finally, a portion of the rapid response funds were also used to boost ongoing regional projects with Massachusetts and Connecticut focused on outreach, education, and training for growers, including the support of an online permitting portal.

Connecticut

Since Connecticut does not have any restoration-only oyster reef projects at present (although one is currently in development), so restoration buyouts in the typical sense were not part of CT Sea Grant's strategy for replacing lost revenues. However, Connecticut has a number of large natural shellfish beds stretching along the western half of the state's shoreline which are managed by the state and serve as a source of seed for the local aquaculture industry. CT SG created a three-phase rehabilitation program for those natural shellfish beds, which had fallen into poor condition. In the first phase, CT SG hired shellfish growers to work on rehabilitation of natural shellfish beds, and growers were permitted to keep any clams they found on oyster

beds. In the second phase, growers were hired to work on rehabilitating shellfish beds in exchange for cash payments, with each grower earning about $4,300. The third phase used COVID-19 rapid response dollars to pay growers for their oversize oysters and used them as broodstock on the natural oyster beds; total payments for that phase exceeded $70,000. Thirty-three of Connecticut's fifty-one aquaculture businesses (67% of the industry) participated in the program. These efforts worked to get needed cash to growers, while at the same time preventing market flooding and price drops in the shellfish market.

CT SG reports that, among growers, the switch to alternative markets in spring and summer 2020 happened quickly and successfully—noting that virtually none of the growers were engaged in direct marketing to consumers before COVID-19 disrupted the restaurant industry. CT SG was prepared with direct marketing guides which were updated ahead of time before the impacts of COVID-19.

New York

New York Sea Grant opted to put its COVID-19 rapid response dollars into documents which help to guide growers through the direct marketing process. NY SG created three regulatory guides, one of which is specific to molluscan shellfish. The guide primarily explains which regulations apply to which kinds of products and sales and how to comply with them. Staff are currently developing the flow charts in the guides into interactive PDFs, which were nearing completion as of fall 2020. The idea to create the guides began with the input of a task force representing government agencies, nonprofits, and industry groups involved in seafood in New York State.

NY SG has also created a number of several supplemental seafood guides to add details onto the three major guides. These supplemental guides focus on things like proper sanitation and food labeling for specific types of seafood. NY SG reports that the transition to direct marketing has nonetheless been challenging due to consumers' hesitations around eating live shellfish at home. Processing capacity is also a challenge in New York State. Nonetheless, New York growers have reported interest in direct sales.

New Jersey

New Jersey Sea Grant's COVID-19 rapid response spend plan had two major components. The first was a large reef restoration project which purchased 66,000 oversized (3 inch) oysters from sixteen New Jersey growers and distributed them to three restoration sites in the first round of the project. With some leftover funds, a second round of plantings were done with about 10,000 oysters in early December. All of the restoration projects in New Jersey were done on pre-permitted restoration areas. Two of those areas were on state public oyster grounds with a limited fishery where the state is able to rotate harvestable areas; the third area was an ongoing ecological research site being managed and monitored by Stockton University.

The second component of the NJ SG rapid response plan provides the foundations for the

establishment of a “shellfish exchange” which can help restoration practitioners collaborate with shellfish growers over the long term. Stakeholders are still working out how the exchange would work or where it would be housed—such as at an existing local nonprofit or possibly at a new organization.

In general, NJ SG anticipates significant future potential for additional restoration work and emphasizes the need to prepare in advance for future adverse events that could be disruptive to the shellfish market for other reasons, like hurricanes.

Delaware

Delaware Sea Grant has used a number of different approaches to help shellfish growers replace lost revenues. DE SG has worked to create a Community Supported Fishery (CSF) to facilitate networking between growers and suppliers. As of the fall, the CSF had generated nearly $10,000 in sales. They have also developed a web page with contact information and resources for growers.

Recognizing that online sales had become much more important during the response to COVID-19, DE SG also saw the need to help growers increase their digital footprint. They proposed to offer training sessions to growers on managing online transactions and long-distance shipping of product, but that project is still in development. DE SG is also working with growers to help them get dealers licenses for both intrastate and interstate sales.

DE SG reports that, while the finfish and shellfish industries both suffered in the wake of COVID-19, the shellfish industry has been more deeply disrupted. Also, because the shellfish aquaculture industry in Delaware is relatively new, most of the growers have not been eligible for federal funds because of insufficient sales history. Nevertheless, some growers have managed to rebound by selling based out of local businesses like bait shops.

Maryland

Maryland Sea Grant has focused its COVID-19 response efforts on marketing assistance for growers. One quarter of their rapid response spend plan is being spent on seafood marketing campaigns. MD SG is also partnering with Virginia Tech on the development and distribution of a marketing survey which asks potential consumers about their shellfish preferences. The survey has a particular focus on determining what kinds of shellfish people are comfortable eating at home, with the aim of determining potential demand for direct sales; the survey also hopes to determine demand for ready-to-eat or specially packaged foods. As of fall 2020 the rollout of the survey had been delayed.

MD SG reports that some growers in the state have found success in selling directly to consumers, while others have partnered with other “middleman” businesses like farmers markets. Many growers in Maryland had the advantage of already having dealer’s licenses, which made it easier for them to begin selling directly to consumers quickly.

Independently from Maryland Sea Grant, TNC and Pew have also started to implement their SOAR Initiative restoration project in Maryland. Maryland reportedly considered including a restoration project in their COVID-19 rapid response spend plan, but it was not approved internally.

Virginia

Virginia Sea Grant responded to the COVID-19 pandemic by focusing primarily on direct marketing assistance. VA SG reported that growers have put more energy into direct marketing, focusing on opportunities like farmers markets, pop-up events, online sales (particularly on Facebook), and even selling out of the backs of their trucks. Small-scale growers who never did direct marketing in the past are increasingly pivoting and getting the certifications they need to sell directly. Processors who had sold to restaurants have increasingly pivoted into selling shucked product in grocery store supply chains. VA SG noted that even as restaurants are increasingly open once again, growers are not planning to give up their direct marketing strategies.

VA SG offices found that, while some growers were already doing direct marketing, they could still provide support to growers who had been considering it. This support consisted of first providing simple and clear information about regulations to growers. VA SG also hired consulting groups to do marketing and promotions for events like shuckings and tastings, as well as demonstrate how to put together baskets or subscription boxes. Sea Grant also contracted with an e-commerce consulting firm to hold webinars teaching growers necessary skills for running an e-commerce business, namely setting up social media pages and websites and how to get set up for nationwide shipping. Growers have been able to access one-on-one consultations with e-commerce consultants, which have been very popular. Sea Grant has also been working to make sure these consultants understand the regulatory environment in which growers are working.

Virginia Tech is also spearheading a consumer survey aimed at determining demand for shellfish products in what has primarily become an at-home market. The survey has a particular focus on determining what kinds of shellfish people are comfortable eating at home, with the aim of determining potential demand for direct sales; the survey also hopes to determine demand for ready-to-eat or specially packaged foods. As of fall 2020 the rollout of the survey had been delayed.

Virginia Tech researchers also conducted a separate survey into the impacts of COVID-19 on aquaculture, aquaponics, and allied businesses; results are now available for Q1 and Q2 on their website.

VA SG reported that there was internal interest in doing a state-run restoration/buyback program as part of their COVID-19 response, but that state agencies were not open to it due to logistical and biosecurity concerns.