2020 Sea Grant Programs’ COVID Assistance to Aquaculture and Fisheries

This document compiles Sea Grant response to assist the aquaculture and fisheries industries in the face of COVID-19. As written, some narratives appear in more than one category of response. The categories of response are: webinars, websites and publications; surveys and other analyses; marketing; and research, rehabilitation and restoration. These narratives reflect work that has been self-reported from March 2020 until the present. The responses were collected via a rolling survey organized by the Networks Advisory Council and the Program Mission Committee, as well as part of the Extension Assembly report for the 2020 fall Sea Grant Association Briefing Book. Responses from 24 of the Sea Grant programs are reflected here.

**Webinars, Websites and Publications**

**Alaska**

The COVID-19 pandemic has caused significant economic disruptions, including to Alaska’s seafood industry. With the 2020 summer fishing season just about to begin as the pandemic response set in, Alaska Sea Grant responded early with webinars and print resources for the fishing industry in Alaska. In March 2020, Alaska Sea Grant prepared the bulletin Tips for Managing Risk and Uncertainty in Your Fishing Business to provide fishers with information on increased risk and uncertainty in their businesses due to the COVID-19 pandemic. The document includes links to information on health mandates, guides for managing crew, options for direct marketing fish, and business resources on the Alaska Sea Grant FishBiz website. In April 2020, Alaska Sea Grant organized the webinar COVID-19 Economic Relief for Alaska’s Small Seafood Businesses, attended by 141 people. Information from the webinar was used to create an 8-page bulletin, COVID-19 Economic Relief: Guidance for Alaska Seafood Businesses, with information and links to relief programs through the Small Business Administration, CARES Act, and State of Alaska. To provide guidance for fishers to direct market their seafood during the pandemic, Alaska Sea Grant held the webinar Socially Distant and Locally Sourced: Selling your Seafood Dockside, with 68 attending.

**Delaware**

Consumer demand for seafood has significantly declined due restaurant closures caused by COVID-19. Accordingly, economic output has also declined, and will impact the resiliency of coastal economies nationwide. In response to reduced seafood demand from traditional supply streams, many seafood producers have attempted to shift sales directly to consumers. This transition has not been easy for the seafood producer industry, nor have the difficulties been evenly spread across fisheries and/or supply sectors (i.e. shellfish aquaculture vs. wild harvest fisheries). Delaware Sea Grant mobilized a seafood producer and harvester resource webpage (https://www.deseagrant.org/seafood) to help promote local, sustainable seafood options to the public. To build on consumer network development, DESG implemented a community seafood purchaser network, where DESG collects and relays consumer demand directly to aquaculturists and commercial fishers and hosts pick-up events. The DESG webpage has helped connect consumers with seafood suppliers, while the DESG purchaser’s network helped expand market development, providing supplier exposure and generating over $5,000 in sales over six events. Additionally, DESG facilitated the relocation of 75,000 farmed oysters to an ongoing restoration effort in Rehoboth Bay and commercial harvesters in Delaware Bay. This will provide economic benefits to the aquaculturists and commercial fishers, as well as ecological benefits to Rehoboth and Delaware Bays.

**Florida**

In order to motivate Floridians to seek out and eat locally grown or harvested seafood products, Florida Sea Grant created a series of weekly Facebook Live cooking demonstration videos that provide step-by-step guidance for selecting and preparing seafood. In “Seafood at Your Fingertips LIVE” viewers learn about smart seafood choices, sustainable fisheries, and the health benefits of eating a diet rich in seafood. Agents also teach about the seasonality of Florida seafood and what can be substituted if a certain product is not available at your local market. The recipes are posted and videos are archived at <https://www.flseagrant.org/seafood/seafoodatyourfingertips/>.

**Georgia**

Virtual Training Helps Georgia Seafood Industry during COVID Pandemic. Marine Extension and Georgia Sea Grant offered its first virtual seafood HACCP course May 5. HACCP, which stands for hazard analysis and critical control point, is a proactive system of controlling food safety hazards. HACCP training is mandated for seafood processors. The one-day course, taught by seafood specialist Tori Stivers assisted by US Food & Drug Administration employee Patti Ross, was the fourth such virtual seafood HACCP course ever approved and implemented in the US. One of the participants works for a facility in Americus that manufactures meals for senior citizens. Demand for their products have multiplied because of sheltering-in-place directives, and having a trained employee ensures the company can remain open.

**Hawaii**

Hawaii Sea Grant partnered with the Heeia National Estuarine Research Reserve and two non-profits, Kakoo Oiwi and Paepae o Heeia, to implement a professional development training for workers from the restaurant industry in Hawaii who were unemployed or underemployed through a 6-week virtual course focused on indigenous foods.

**Law Center**

We have been responding by conducting legal research on the CARES Act and other legislation passed in response to the pandemic, as well as a variety of legal issues and questions that are coming up.We have developed a COVID-19 legal outreach program to share the result of research. The audience is primarily SG personnel, to help them tailor and provide information to their stakeholders. We have been disseminating information primarily through webinars and social media. <http://nsglc.olemiss.edu/covid19/index.html>

**Louisiana**

Established 10 extension response teams with weekly zoom updates from each team April – August 2020. <https://www.laseagrant.org/resources/covid19/>: General Business Resources, Seafood Safety, Seafood Marketing and Supply Chains, Oysters, Shrimp and Crabs, Freshwater Species, Recreational Fisheries, Legal Issues and Policy, Education at Home Resources, Personal Wellness and developed targeted outreach on social distancing and public health for seafood processing: <https://www.laseagrant.org/resources/covid19/seafood/>

**Maine**

Pandemic Pivot: innovation and resilience in Maine’s seafood community. The Maine Sea Grant-coordinated Alliance for Maine’s Marine Economy (Alliance) is a responsive network of companies, organizations and individuals dedicated to the growth of a vibrant marine economy for Maine. As COVID-19 forced dramatic changes in seafood markets, supply chains, and infrastructure use and availability, the Alliance developed a webinar discussion series called the Pandemic Pivot, with the goal of providing space to share stories of successful transitions and innovations within the marine economy, and discussions about ways businesses can support one another in trying new things and collaborating with new partners. Five Pandemic Pivot events to date have featured lobster, sea vegetable, and oyster harvesters and processors, as well as seafood dealers, business development organizations, retail markets, and chefs. The well attended events are coordinated and hosted by Maine Sea Grant extension associate and Alliance coordinator, Keri Kaczor, and sponsors include the Maine Technology Institute, Maine Community Foundation, and individual Alliance members.

**Maryland**

Shannon Hood, UMCES, Sea Grant Extension; Matthew Parker, University of Maryland Sea Grant Extension; Donald Webster, University of Maryland Sea Grant Extension. A team of Maryland Sea Grant Extension professionals has developed a field guide to assist the oyster aquaculture industry with early and easy identification of organisms that can have a negative effect on shellfish growth and condition. The Chesapeake Bay is populated by many commercially and ecologically important species. This diversity is valuable to the Bay’s ecology. In oyster aquaculture, colonization by some of these species can cause problems. Biofouling, or plants and animals which colonize oysters and/or cages, can affect profitability. Conservative estimates indicate that 5-10% of total costs to the aquaculture industry are attributed to biofouling control. These organisms can affect shellfish growth and condition. They can also colonize cage materials, which increases weight for handling and reduces critical water flow by clogging meshes in the cage. The field guide is meant to be carried on board the vessel for quick use in identifying common biofouling organisms in the Chesapeake Bay. For each species, “Description” gives an overview of how the organism looks and functions; “Habitat” indicates areas of the Bay where they may be found; “Operational Effects” tells how the species influences oysters, gear or both; and “Control Strategies” provides information on documented treatments that have proven effective in controlling the species on adult oysters. Images of each species will assist with identification.

**Michigan**

Fish producers listening session and related webinars: Michigan Sea Grant offered an online listening session on April 29, 2020, focused on fish producers (both aquaculture and commercial fisheries) to learn, and support their challenges focused on current- and post-Covid-19 timelines. Producers were identified and invited to the discussion and 37 participants met. From that listening session, three main challenges were summarized:   
• Sanitation and social distancing during operations,  
• How to make a change to direct marketing, and   
• Staying current with state regulations.   
To immediately respond these concerns, a Fish Producers Webinar: Sanitation during COVID was held May 15, and 39 participated in the discussion. During this webinar, we offered additional resources and discussed seafood sanitation, and heard from industry and the Michigan Department of Agriculture and Rural Development (MDARD). On June 2, a second webinar, with 47 participants, was held to discuss direct marketing options for fish producers. Experts included a current producer, MSU Products Center, and organizers of a Taste the Local Difference website. The webinars were also recorded, closed captioned and made available at our YouTube channel with more than 90 views between them, expanding the outreach. The listening session and outreach have also led to planning for a web-based, interactive, regional fish and seafood map to connect producers directly with consumers.

**Mississippi-Alabama**

Sea Grant extension publications were produced to assist tourism and fishing industries  
- COVID-19 guidelines for charter fishing and for-hire boats –[http://masgc.org/assets/uploads/publications/1897/covid-19\_guidelines\_for\_charter\_fishing\_and\_for-hire\_boats.pdf](http://masgc.org/assets/uploads/publications/1897/covid-19_guidelines_for_charter_fishing_and_for-hire_boats.pdf%20%20)

- Quick guide to selling the seafood you caught in Mississippi directly to consumers or restaurants –<http://masgc.org/assets/uploads/publications/1896/quick_guide_selling_seafood_in_ms_.pdf>.

- State waters fishing guide for Mississippi and Alabama (to promote fishing) –<http://masgc.org/assets/uploads/publications/1898/state_waters_fishing_guide_for_mississippi_and_alabama.pdf>.

**Mississippi-Alabama**

Horticulture, Marine, and Disaster Economics Outreach Under COVID19 – In response to inquiries on  potential economic impacts, an MASGCsupported economist is developing economic models measuring  the pressures on the affected industries, regions, or states associated with the ingering public health  crisis and looming economic recession. This work attempts to answer questions raised by stakeholders,  which include regulatory agencies, nonprofit organizations, commercial fishing organizations, charter  boats for hire national media, and the general public. Summaries of these economic analyses are  presented at <https://www.youtube.com/playlist?list=PLB0D9oT09EZIg8fXXTWpU9iNFpWqfXJMt>

**MIT**

The MIT Sea Grant Seafood Resources website was established in response to industry and stakeholder needs for accurate and timely COVID-19 information (https://seagrant.mit.edu/seafood-resources/). The website provides access to state, federal, and general resources for the seafood industry during the COVID-19 pandemic that are critical for navigating through the abundance of information on COVID-19 impacts and relief resources.

**MIT**

The MIT Sea Grant is conducting surveys of the Massachusetts Aquaculture and Fisheries industry, seeking input from industry stakeholders regarding current and expected financial and practical impacts on short (i.e., 3-6 months) medium (6-12 months) and long (1-5 years) term time horizons. One survey is focusing on oyster restoration in Massachusetts. For the past several months, MIT Sea Grant has been working with industry stakeholders and an MIT Undergraduate Research Opportunity Program (UROP) student to develop two products: (1) a map of existing projects in the state; and (2) guidance on best practices to aid in the success of future projects. The goal is to make this information accessible and valuable to municipalities. We have engaged with representatives of the following organizations who have provided feedback on different aspects of the project: NOAA National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, Northeast Aquaculture Office; Massachusetts Division of Marine Fisheries, Shellfish Program; Shellfish constables from Massachusetts coastal towns. This effort to characterize stakeholder needs and distribution of information to inform stakeholders will continue. A map of oyster restoration projects in Massachusetts has been developed and is available online under the following link: <https://www.google.com/maps/d/embed?mid=18sXI_XAI_ZGyRWb-86O0xBuHcQBuEnUy&ll=42.18810888991143%2C-70.44161082682022&z=7>

**New Hampshire**

Direct Marketing Guidance and Local Seafood Sales – Due to COVID-19 restrictions, the New Hampshire seafood industry experienced a dramatic decline in restaurant and seafood dealer demand. Fishing and aquaculture industry members began shifting to a strategy of direct, off-the-boat sales early in the pandemic. To assist local seafood producers in effective direct marketing and to support a safe and healthy buying experience for consumers, NH Sea Grant extension staff created a series of Direct Seafood Sales guidance documents to help industry members adequately prepare for and conduct direct seafood sales: 1. Crew Health and Seafood Handling, 2. Disinfectants and Sanitizing, 3. Permitting for Direct Sales in NH, 4. Direct Seafood Sales Procedures: Interacting with Customers. (Resources page: https://seagrant.unh.edu/direct-seafood-sales). Additionally, NH Sea Grant’s fisheries extension specialist, Gabriela Bradt, created an ESRI/ArcGIS online Story Map called the “Local Seafood Finder in NH,” which offers a searchable map for consumers to connect with fresh, local seafood. The map features a variety of producers, from groundfishermen to lobstermen to oyster farmers, as well as local community-supported fisheries (CSFs) and brick-and-mortar retailers. It has received over 2,000 pageviews since launch at the end of April, spiking in June and July, and continues to get 5-10 hits per day. (Story map: <https://bit.ly/NH-Seafood-Finder>)

**New York**

NYSG took advantage of webinar technology to continue needed training and outreach… HACCP training courses were also redesigned and moved to a virtual format.

**North Carolina**

NC Shellfish Farming Academy: The Academy is a hands-on, intensive, multi-week program offered by NC Sea Grant and the Carteret Community College, with classes offered in person and online. Each week, Sea Grant trainer Bryan Snyder provides an in-class session and a weekend field session for new and prospective shellfish farmers. Guest speakers join the class online. In-person “field days” are held at the Shellfish Mariculture Demonstration Center located on the Carteret Community College and near the Sea Grant’s central coastal office at NC State University’s Center for Marine Sciences and Technology. Construction of this facility was funded through NOAA Sea Grant, the North Carolina General Assembly, and CCC. There are seven students that are enrolled in the initial Academy and a second session is now being offered through the Carteret Community College Continuing Education program. (<https://ncseagrant.ncsu.edu/news/2020/07/nc_shellfish_academy/>)

**Oregon**

Eat Oregon Seafood:COVID-19 stay-at-home orders and restaurant closures have had profound impacts on Oregon’s seafood industry ($700 million in total economic contributions). Nearly 70% of the seafood Americans consume is at restaurants. The sudden loss of this outlet meant many Oregon seafood products had no clear path to a new market, and many consumers had reduced access to nutritional health benefits of seafood. The Oregon Sea Grant (OSG) team recognized the immediate need to understand the impacts and respond in a way that supported both the seafood industry and consumers. OSG survey results showed that more than 95% of seafood producers, retailers, and processors were already experiencing impacts from COVID-19, and that the loss of domestic markets was the most frequently cited challenge. OSG partnered with the Oregon Department of Agriculture (ODA) and others to launch the Eat Oregon Seafood Initiative. ODA worked to recruit well-known chefs to develop recipes featuring Oregon seafood. OSG built a [website](https://seagrant.oregonstate.edu/eat-oregon-seafood) with information about sourcing, preserving, and cooking seafood at home. With funding from the National Sea Grant Office, OSG will continue expanding web site content to 1) document and share the stories of Oregon’s seafood industry, 2) increase access to Oregon seafood products, and 3) expand consumer understanding of seafood products. We will also be exploring ways to strengthen the resilience of the seafood workforce to emerge from the COVID-19 crisis stronger than before.

**Puerto Rico**

Our program is responding through research by collaborating in an effort to develop alternatives to expand the technology transfer of the Integrated Multi-Trophic Aquaculture (IMTA) system beyond local fishermen by including non-fishers, seafood vendors and distributors, managers and scientists from throughout the US Caribbean. We are proposing to develop bilingual face-to-face and virtual events and educational activities to promote aquaculture among local minority groups. The proposed work will focus on producing a series of high quality instructional videos and online curricula regarding the construction and operation of recirculating IMTA for the production of pompano, oysters, and seaweed. An additional sequence of low-density open environment face-to-face workshops will be available in compliance with Covid19 public health protocols to provide hands-on continuing education at the University of Puerto Rico Marine Sciences Field Laboratory.

**Texas**

Distributed Natl Law Center CARES Act tip sheet to fishing communities. Disseminated CARES Act information through public and social media. Answered numerous calls from Texas coastal fishermen regarding CARES Act funding, Hosted webinars for the fishing industry on COVID-19 PPP resources. Texas Sea Grant is supporting the creation of a webpage designed to help aspiring oyster farmers navigate joining this new industry including the newly formed permitting process. This website is especially needed following COVID-19, given the economic hardships faced by many seafood industries following COVID-19.

**Washington**

Providing Online Resources to Community: At the onset of the outbreak, Washington Sea Grant (WSG) was among the first organizations to reach out to the state’s shellfish industry, providing an online webinar on COVID-19 resources for the shellfish industry which featured speakers from the Washington Department of Commerce. WSG created COVID-19 resource pages for families and educators and for the shellfish industry in the state…In partnership with the Washington Department of Fish and Wildlife (WDFW), are collaborating with commercial fishermen to increase awareness of Washington State’s sustainably harvested seafood products, which has become particularly critical in the face of the current COVID-19 outbreak. A social media campaign was launched this spring, writing and sharing a series of Washington-focused seafood recipes, encouraging Washington consumers to purchase Washington seafood directly from fishers. An advisory group representing all fisheries niches in the state was established by WDFW and now meets monthly with WSG. Web pages providing COVID-19 resources to fishers and consumer COVID-19 resources were created in response to feedback from this group.

**Wisconsin**

Retailers who are listed on [eatwisconsinfish.org](http://www.eatwisconsinfish.org) were contacted and their information regarding curbside pickup was added to the website. Aquaculture Specialist Emma Wiermaa offered a virtual presentation sent to about 200 students about creating an aquaponics system. It also included a virtual tour of the University of Wisconsin-Stevens Point Northern Aquaculture Demonstration Facility. Sea Grant supports Wiermaa’s position at that facility. Aquaculture Specialist Fred Binkowski gave a virtual presentation on yellow perch with a focus on early life history and husbandry. It was the kickoff for a series of up to eight presentations organized by The Farmory in Green Bay, an aquaculture operation and training center. 48 people registered for the talk. The program contributed to a website that will launch in October about RAS raising Atlantic salmon. Staff also planned and participated in the Oct.10 [Great Lakes Aquaculture Day.](https://greatlakesseagrant.com/aquaculture/)

**Woods Hole**

One recent Extension success was converting a planned in-person Chef’s Event to an “At-Home Shucked Oyster Cook-Off”. The participating chefs understood the value of the information that was to be collected, and so readily adapted to the new format even though they were now cooking dishes using local shucked oysters in their kitchens alone, instead of during a live event while being surrounded by fellow chefs. Detailed instructions to the chefs, frequent contact via email and phone, and the availability of funding to pay the chefs for their time helped make it a success. Pictures of the dishes created by the chefs will be shared via social media and via a written report that will be shared with the people who had been invited to the in-person event. Coastal Extension.

**Surveys and Other Analyses**

**Alaska**

Alaska Sea Grant surveyed the Alaska mariculture industry to determine the effects of the COVID-19 pandemic on their businesses in February and March 2020. Survey respondents reported that revenue was down, with 43% reporting losses of more than half of their revenue. More than a third had laid-off employees. COVID-19–related health mandates around the country have temporarily closed nonessential businesses and imposed travel restrictions. While fisheries and aquaculture businesses in Alaska are allowed to continue operations with health safety precautions in place, closures in restaurants and tourism-related businesses have reduced the demand for seafood. As the summer growing season approaches, oyster farmers are concerned that a shortage of labor could lead to the loss of millions of oysters to predation and fouling. Farmers reported the biggest hits to their business were restaurant closures (81%), followed by labor challenges (52%), and reduced opportunity for export (48%). While the oyster industry is established in Alaska, seaweed farming is in its infancy, and farmers are concerned whether their operations can survive. The results of this survey will be used to identify the economic impacts of COVID-19 to guide response efforts by Alaska Sea Grant, National Sea Grant, and the NOAA Office of Aquaculture.

**Alaska**

Each summer, around 13,000 workers from outside Alaska travel to the Bristol Bay region to participate in the world’s most valuable wild salmon fishery. The sparsely populated west coast of Alaska is accessible only by air or boat, and medical services are limited. These factors present a particular set of challenges in operating a fishery, worth around $1.5 billion, during a pandemic. Alaska Sea Grant and partners are working on an National Science Foundation funded project focused on the community of Dillingham and the Nushagak fishery. Researchers working with the community have surveyed stakeholders to clarify the costs and benefits of potential mitigation policies and to understand the risk preferences of fishermen, processors, and local residents. This information will be shared with the community to help them plan how best to navigate the risks and uncertainties they face. Risk mitigation strategies developed for this community will be available to the larger Bristol Bay fishery and to other fisheries and fishing communities in Alaska to adapt to their own challenges and priorities. Survey results will be available in late fall and follow-up interviews will be conducted to better understand the information gathered through the survey, and assess challenges encountered during the 2020 fishing season. The findings are expected to be published this winter to aid planning for the 2021 fishing season in the region and around Alaska.

**American Samoa**

Collecting anecdotal reports from farmers (aquaculture, aquaponics, and land) and fishermen on how they are being/have been impacted.

**Delaware**

Delaware Sea Grant's ﬁsheries/aquaculture specialist reached out to the state's commercial ﬁshers and oysters farmers, mostly by phone, to assess and address needs. Most people in this industry either do not use or do not have time to use email, particularly out on the water. For better or worse, Delaware is small and there are only a handful of people working the water. The end-products of these conversations were a local seafood supplier online directory, and a community supported ﬁshery of sorts, that allows for a biweekly, one-stop shop direct market for local ﬁshes, lobsters, clams, and oysters.

**Florida**

Public health measures enacted to mitigate the spread of the 2019 novel coronavirus disease (COVID-19) resulted in production slowdowns and business closures across many sectors of the economy. As a result, sales revenues for many industry sectors have experienced sharp declines, shellfish aquaculture included. As is the case with most disasters, it is critical to provide credible estimates of the losses experienced by different industries to inform decision-making related to disaster relief and recovery. While the COVID-19 situation and data limitations within the aquaculture industry present a suite of different challenges, Florida Sea Grant-affiliated economists in the Economic Impact Analysis Program within the University of Florida’s Institute of Food and Agricultural Sciences (UF/IFAS) worked with UF/IFAS/Florida Sea Grant Shellfish Aquaculture Extension and the Division of Aquaculture within the Florida Department of Agriculture and Consumer Services (FDACS) to collect data and modify tools and methods to estimate sales revenue changes within Florida’s shellfish aquaculture industry resulting from the COVID-19 pandemic. This analysis estimates that the Florida shellfish aquaculture industry lost approximately $1.85 million in sales revenue from March to mid-May of 2020 due to the COVID-19 pandemic. A document containing the survey data is currently in production.

**Illinois-Indiana**

We are assessing the impact of COVID-19 on charter fishing in southern Lake Michigan and developed resources that can help charter operators during this difficult time. In May, we distributed a quick reference guide to help operators with financial aid, legal services and other COVID-19 topics. Because many operators started running fishing trips again, we also produced a best practices guide to help keep captains, crew and customers safe during charter fishing.

**Illinois-Indiana**

Leading a pilot-study project to help aquaculture producers receive critical training so they can process their fish in commercial kitchens during times when normal distribution channels are interrupted.

**Louisiana**

Initiated quarterly economic impact surveys (email and phone) to gauge revenue and labor changes in key fisheries sectors: <https://www.laseagrant.org/resources/covid19/business/>   
COVID-19 Impact Surveying of Louisiana Fishing Sectors (narrated PowerPoint slides) <https://www.laseagrant.org/resources/covid19/business/>

**MIT**

The MIT Sea Grant is conducting surveys of the Massachusetts Aquaculture and Fisheries industry, seeking input from industry stakeholders regarding current and expected financial and practical impacts on short (i.e., 3-6 months) medium (6-12 months) and long (1-5 years) term time horizons. One survey is focusing on oyster restoration in Massachusetts. For the past several months, MIT Sea Grant has been working with industry stakeholders and an MIT Undergraduate Research Opportunity Program (UROP) student to develop two products: (1) a map of existing projects in the state; and (2) guidance on best practices to aid in the success of future projects. The goal is to make this information accessible and valuable to municipalities. We have engaged with representatives of the following organizations who have provided feedback on different aspects of the project: NOAA National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, Northeast Aquaculture Office; Massachusetts Division of Marine Fisheries, Shellfish Program; Shellfish constables from Massachusetts coastal towns. This effort to characterize stakeholder needs and distribution of information to inform stakeholders will continue. A map of oyster restoration projects in Massachusetts has been developed and is available online under the following link: <https://www.google.com/maps/d/embed?mid=18sXI_XAI_ZGyRWb-86O0xBuHcQBuEnUy&ll=42.18810888991143%2C-70.44161082682022&z=7>

**Texas**

Coordinated with other Sea Grant agents (Tony Reisinger, Nikki Fitzgerald and RJ Shelly) to collect feedback from fisheries, aquaculture and seafood businesses on the early impacts being felt by these industries from the COVID-19 disaster.

**Washington**

Research and Outreach Efforts: A local fishery based in Neah Bay, donated or sold over 4,500 pounds of fish to food banks in Washington last May and June. Their surplus of over 8,000 pounds of frozen true cod was a result of the COVID-19 pandemic. Fisheries Specialist Sarah Fisken worked to coordinate the delivery of several boxes of the unused cod to the Jefferson County Food Bank in Port Hadlock, Washington with much of the donated fish going to area tribes. Meanwhile, the Swinomish Tribe is working to revive the traditional practice of building clam gardens. One creative adaptation during COVID-19 was made in July 2020 by Swinomish Indian Tribal Community with WSG social scientist Melissa Poe advising. The team designed a safe and feasible alternative to carry out the social science research goals. They switched up the methods for taking an intercept survey of community members about the clam garden site and created a safe and physically-distanced survey event instead, creating outdoor survey stations kept a minimum of 6 feet apart for each participant; providing and requiring face masks; providing hand sanitizer and a handwashing station; disinfecting pens and stations after each use; and putting completed paper surveys into quarantine. These changes made it possible to continue a robust data collection to gather community input and priorities in a way that was safe, timely, and fun.

**Marketing**

**California**

Ocean to plate- now and for the future. California Sea Grant extension specialists have long assisted seafood producers and handlers to adapt to seafood supply challenges. Resources such as the Market Your Catch (MYC) website and contributions to the establishment of direct to consumer markets have proven useful as communities adapt to food system disruptions associated with the COVID-19 pandemic. Now the team is going even further to assist local communities with new seafood supply challenge. In southern California, Theresa Talley has contributed to Fish to Families, a meal distribution program that purchases responsibly harvested fish from local fishermen and brings it to the plates of people who need it most during the COVID-19 crisis. Together with NOAA Fisheries, Talley is tracking program impacts and producing outreach materials for food service providers and recipients. So far the program has distributed nearly 2400 healthy delicious seafood meals with the help of 2450 volunteer hours; and ten fishermen were able to sell a total of 1800 lbs of their catch. Meanwhile Carolynn Culver and Carrie Pomeroy have responded to questions and are expanding information about direct marketing through their MYC website and, along with Alaska Sea Grant, contributed to an UN FAO report that highlights approaches to direct marketing for diverse audiences to assist small scale fisheries around the world.

**Connecticut**

When the pandemic closed restaurants, shellfish aquaculture sales halted in CT. The state shellfish management plan prioritized public shellfish bed rehabilitation. Closed to harvest of market-size shellfish, the beds are an affordable source of seed for shellfish aquaculture. CT Sea Grant and CT Department of Agriculture implemented a 3-phase project to provide short-term work & income to industry while improving shellfish beds. Impacts: 1) immediate cash flow: during Phase 1 46,540 bushels of clams valued at $1,986,217 were harvested from public beds and planted on private beds for future sale; 2) alternative marketing strategies: some of the clams harvested in Phase 1 were sold to town shellfish commissions to seed recreational harvest areas. COVID19-specific direct marketing guidance was developed and a web page featured shellfish businesses selling directly to consumers; 3) product flooding and related price drops prevented: as wholesale markets opened, some sold clams in lieu of oysters to prevent a glut which could adversely affect market price; 4) condition of natural beds improved through rehabilitation and broodstock planting: industry will access inexpensive shellfish seed in future seasons, supporting long-term economic viability; and 5) aquaculture jobs, businesses and revenue retained: 13 participants in Phase 1, 12 in Phase 2 and 8 in Phase 3 helped retain 33 of 51 licensed businesses through direct benefits (~$125,000 paid for work with Phases 1 & 2).

**Delaware**

Consumer demand for seafood has significantly declined due restaurant closures caused by COVID-19. Accordingly, economic output has also declined, and will impact the resiliency of coastal economies nationwide. In response to reduced seafood demand from traditional supply streams, many seafood producers have attempted to shift sales directly to consumers. This transition has not been easy for the seafood producer industry, nor have the difficulties been evenly spread across fisheries and/or supply sectors (i.e. shellfish aquaculture vs. wild harvest fisheries). Delaware Sea Grant mobilized a seafood producer and harvester resource webpage (https://www.deseagrant.org/seafood) to help promote local, sustainable seafood options to the public. To build on consumer network development, DESG implemented a community seafood purchaser network, where DESG collects and relays consumer demand directly to aquaculturists and commercial fishers and hosts pick-up events. The DESG webpage has helped connect consumers with seafood suppliers, while the DESG purchaser’s network helped expand market development, providing supplier exposure and generating over $5,000 in sales over six events. Additionally, DESG facilitated the relocation of 75,000 farmed oysters to an ongoing restoration effort in Rehoboth Bay and commercial harvesters in Delaware Bay. This will provide economic benefits to the aquaculturists and commercial fishers, as well as ecological benefits to Rehoboth and Delaware Bays.

**Florida**

In order to motivate Floridians to seek out and eat locally grown or harvested seafood products, Florida Sea Grant created a series of weekly Facebook Live cooking demonstration videos that provide step-by-step guidance for selecting and preparing seafood. In “Seafood at Your Fingertips LIVE” viewers learn about smart seafood choices, sustainable fisheries, and the health benefits of eating a diet rich in seafood. Agents also teach about the seasonality of Florida seafood and what can be substituted if a certain product is not available at your local market. The recipes are posted and videos are archived at <https://www.flseagrant.org/seafood/seafoodatyourfingertips/>.

**Maine**

Maine Sea Grant helps open new markets for the seaweed industry. In May 2020, Maine Sea Grant celebrated Seaweed Week, an annual statewide food festival that showcases edible seaweed and supports Maine’s burgeoning kelp industry. Maine Sea Grant partnered with Seaweed Week organizers to develop consumer-friendly outreach materials and a direct marketing campaign to help the state’s seaweed farmers adapt to the pressures of COVID-19. Sea Grant extension team member Jaclyn Robidoux worked with Seaweed Week partners, seaweed farmers, and seafood safety professionals to develop recipes, educational resources, guidance, and an online platform for kelp sales, for farmers to use to market their fresh kelp direct-to-consumers. Already, this has resulted in more than 250 direct sales opportunities for Maine kelp farmers, establishing new and responsive markets for this unique crop.

**MIT**

MIT Sea Grant applied COVID-19 Rapid Relief funding to create a Fishing Vessel-to-Food Banks Alternative Markets Development Program, “Saving a Community Fishery, Feeding People in Need”. This vessel-food bank program provides short-term COVID-19 financial relief for stakeholders, with the added benefit of establishing a long-term permanent program that will provide lasting relief, alternative markets, and revenue streams in support of local fishermen and needy families who depend on the state’s food bank program. MIT Sea Grant facilitated the partnership between the Cape Cod Commercial Fishermen’s Alliance, the Massachusetts Food Bank Network, and MA Department of Agriculture Emergency Food Assistant Program. MIT Sea Grant worked closely with the New England Fisheries Management Council, NOAA Fisheries Service, and Massachusetts Division of Marine Fisheries during this process as well. MIT Sea Grant COVID-19 Rapid Relief funding enabled the development and implementation of this beneficial program in support of the local fishing community, state food assistance programs, and families that depend on them.

**Washington**

Research and Outreach Efforts: A local fishery based in Neah Bay, donated or sold over 4,500 pounds of fish to food banks in Washington last May and June. Their surplus of over 8,000 pounds of frozen true cod was a result of the COVID-19 pandemic. Fisheries Specialist Sarah Fisken worked to coordinate the delivery of several boxes of the unused cod to the Jefferson County Food Bank in Port Hadlock, Washington with much of the donated fish going to area tribes. Meanwhile, the Swinomish Tribe is working to revive the traditional practice of building clam gardens. One creative adaptation during COVID-19 was made in July 2020 by Swinomish Indian Tribal Community with WSG social scientist Melissa Poe advising. The team designed a safe and feasible alternative to carry out the social science research goals. They switched up the methods for taking an intercept survey of community members about the clam garden site and created a safe and physically-distanced survey event instead, creating outdoor survey stations kept a minimum of 6 feet apart for each participant; providing and requiring face masks; providing hand sanitizer and a handwashing station; disinfecting pens and stations after each use; and putting completed paper surveys into quarantine. These changes made it possible to continue a robust data collection to gather community input and priorities in a way that was safe, timely, and fun.

**Woods Hole**

One recent Extension success was converting a planned in-person Chef’s Event to an “At-Home Shucked Oyster Cook-Off”. The participating chefs understood the value of the information that was to be collected, and so readily adapted to the new format even though they were now cooking dishes using local shucked oysters in their kitchens alone, instead of during a live event while being surrounded by fellow chefs. Detailed instructions to the chefs, frequent contact via email and phone, and the availability of funding to pay the chefs for their time helped make it a success. Pictures of the dishes created by the chefs will be shared via social media and via a written report that will be shared with the people who had been invited to the in-person event. Coastal Extension.

**Research, Rehabilitation, Restoration**

**California**

A roller coaster of a year for salmon. California Sea Grant Extension Specialist Mariska Obedzinski and the Russian River Salmon and Steelhead Monitoring Program were able to creatively adapt to the many challenges presented by the COVID-19 pandemic. Despite restrictions on field work, followed by major wildfires, the program managed to avoid gaps in a decade of monitoring data, provide new research findings to managers, and contribute to a fish rescue that saved nearly 2,000 endangered salmon. They collaborated with a local winery to reconnect a stream during the peak of the smolt outmigration, allowing hundreds of coho salmon smolts to move downstream towards the ocean. They also completed data collection on a research project that fills critical data gaps on the response of salmon to streamflow. Results will enable managers to build more effective strategies to help salmon and steelhead populations in the face of climate change. The team documented the highest counts of naturally-spawned juvenile coho salmon in the watershed in two decades. But while it has been a good year for salmon in the Russian River, 2020 has also been exceptionally dry which has implications for salmon. The team was able to identify drying streams where salmon were dying and help the California Department of Fish and Wildlife prioritize and conduct fish rescue operations that saved nearly 2000 stranded fish.

**California**

Endangered white abalone are flying high. The COVID-19 pandemic has posed a number of challenges for the White Abalone Captive Breeding Program run by California Sea Grant Extension Specialist Kristin Aquilino. This marine snail was the first invertebrate added to the federal endangered species list, and the white abalone laboratory at Bodega Marine Laboratory is the main facility for spawning and rearing the animals. Aquilino has had to figure out how to keep the lab running in the midst of shutdowns and, by coincidence, one of the worst red tides in years that caused her aquarium system to come to a screeching halt. Despite these challenges, Aquilino has kept the lab running, the animals alive and healthy, and has still found ways to continue her outreach work. Unable to host her popular public tours, she led a virtual tour using Facebook Live that engaged over a thousand viewers. She has also maintained a popular social media presence to keep the public engaged in her research and the progress of recovery efforts, giving followers a view into the lab through Facebook, Twitter, Instagram, and even TikTok. On 24 June 2020, 4500 abalone were loaded onto a plane and flown to The Bay Foundation in Santa Monica for grow-out and then outplanting in hopes of enhancing the wild population. More white abalone were in the air that day than are left in the ocean!

**Connecticut**

When the pandemic closed restaurants, shellfish aquaculture sales halted in CT. The state shellfish management plan prioritized public shellfish bed rehabilitation. Closed to harvest of market-size shellfish, the beds are an affordable source of seed for shellfish aquaculture. CT Sea Grant and CT Department of Agriculture implemented a 3-phase project to provide short-term work & income to industry while improving shellfish beds. Impacts: 1) immediate cash flow: during Phase 1 46,540 bushels of clams valued at $1,986,217 were harvested from public beds and planted on private beds for future sale; 2) alternative marketing strategies: some of the clams harvested in Phase 1 were sold to town shellfish commissions to seed recreational harvest areas. COVID19-specific direct marketing guidance was developed and a web page featured shellfish businesses selling directly to consumers; 3) product flooding and related price drops prevented: as wholesale markets opened, some sold clams in lieu of oysters to prevent a glut which could adversely affect market price; 4) condition of natural beds improved through rehabilitation and broodstock planting: industry will access inexpensive shellfish seed in future seasons, supporting long-term economic viability; and 5) aquaculture jobs, businesses and revenue retained: 13 participants in Phase 1, 12 in Phase 2 and 8 in Phase 3 helped retain 33 of 51 licensed businesses through direct benefits (~$125,000 paid for work with Phases 1 & 2).

**Delaware**

Consumer demand for seafood has significantly declined due restaurant closures caused by COVID-19. Accordingly, economic output has also declined, and will impact the resiliency of coastal economies nationwide. In response to reduced seafood demand from traditional supply streams, many seafood producers have attempted to shift sales directly to consumers. This transition has not been easy for the seafood producer industry, nor have the difficulties been evenly spread across fisheries and/or supply sectors (i.e. shellfish aquaculture vs. wild harvest fisheries). Delaware Sea Grant mobilized a seafood producer and harvester resource webpage (https://www.deseagrant.org/seafood) to help promote local, sustainable seafood options to the public. To build on consumer network development, DESG implemented a community seafood purchaser network, where DESG collects and relays consumer demand directly to aquaculturists and commercial fishers and hosts pick-up events. The DESG webpage has helped connect consumers with seafood suppliers, while the DESG purchaser’s network helped expand market development, providing supplier exposure and generating over $5,000 in sales over six events. Additionally, DESG facilitated the relocation of 75,000 farmed oysters to an ongoing restoration effort in Rehoboth Bay and commercial harvesters in Delaware Bay. This will provide economic benefits to the aquaculturists and commercial fishers, as well as ecological benefits to Rehoboth and Delaware Bays.

**Mississippi-Alabama**

Assisting Industries in Need. Concerned Oystermen Restoring Estuaries (CORE) Alabama and Mississippi Program –MASGC and partners are funding a program to purchase a portion of oyster farmers’ large (3”+) single oysters to use in a pilot study of the oysters as “reef jump-starters”. <https://us11.campaign-archive.com/?e=&u=f8dd8647742f7d0bc73b45db2&id=f2e18d4b5e>

**New Hampshire**

Rapid Response Oyster Industry Support – As a result of the COVID-19 pandemic, New Hampshire shellfish growers lost virtually all of their business, exposing vulnerability of operations dependent on sales of raw oysters to restaurants. Despite slow restaurant re-openings, NH oyster growers estimate being able to sell 10% of their market-size oysters this year. Leaving farmed oysters in the water forces growers to allow them to grow past optimal market-size, impacting revenue. In response, NH Sea Grant’s aquaculture extension team was awarded rapid response funding from the NSGO for a project that will provide economic relief to oyster growers by: 1. exploring additional revenue for oysters outside of the raw, restaurant markets, and 2. contributing to ecosystem services by enhancing oyster populations on farms. A feasibility study will identify opportunities and barriers for value-added products (assessment of an oyster canning operation and oyster stew). For population enhancement, oyster growers in NH’s Great Bay will use a portion of their lease site for restoration research. Growers will sort and collect restoration oysters (misshapen or exceed max market size). Those oysters will be seeded on the bottom at enhancement sites. Oyster growers and NHSG’s aquaculture team will monitor the site to assess re-planting effort. Monitoring data will allow analysis for an initial economic assessment of the ecosystem benefits generated as a result of the oyster purchasing program.

**Washington**

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