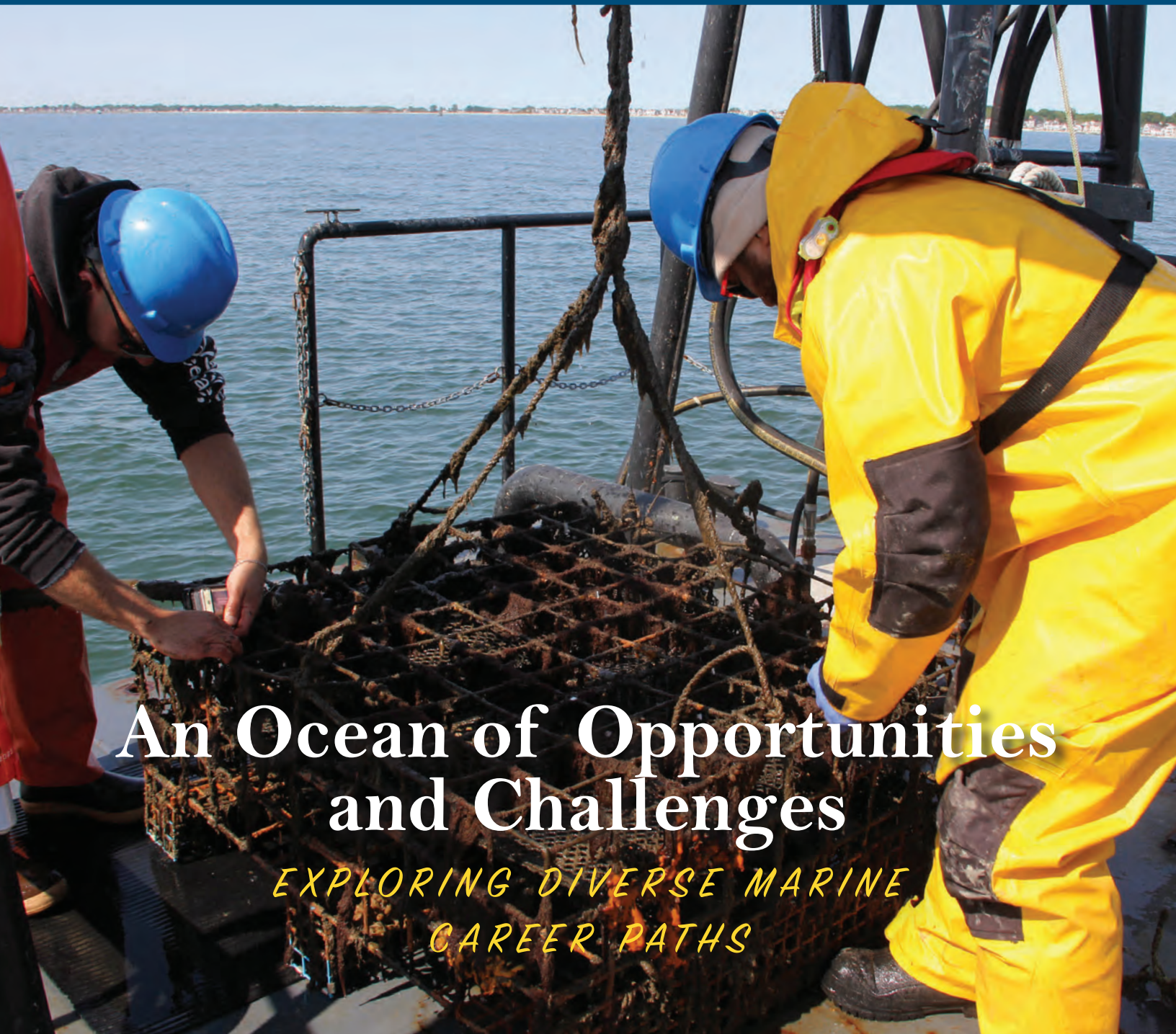




Volume 23, Number 1, Spring/Summer 2023

# WRACKLINES

WHERE CONNECTICUT MEETS THE SOUND



## An Ocean of Opportunities and Challenges

*EXPLORING DIVERSE MARINE  
CAREER PATHS*

EDITOR  
JUDY BENSON

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## From the EDITOR



"Toilers of the Sea," by Rockwell Kent, 1907 Source: Wikimedia Commons

Rockwell Kent painted some of his most iconic images on Monhegan Island in Maine, while living and working there as a lobsterman and carpenter in the early 1900s.

Located 12 nautical miles from the mainland, the island captivated the young artist with its dramatic wave-crashed cliffs, pastoral vistas and the relationship of its people to their chosen place.

There he fell in love with nature and the islanders who made their living amid the harsh beauty and challenges of the cold North Atlantic.

"I envied their strength, their knowledge of their work, their skill in it," he wrote. "I envied them their knowledge of boats and their familiarity with that awesome portion of the infinite, the sea. I envied them their workers' human dignity."

This quote, which first caught my attention a decade ago on a visit to a Maine art museum, came back to mind at the end of April. I was attending a conference in Maine devoted to a means of livelihood that is both ancient and contemporary, that infuses current practitioners and aspirants both with a passion and determination to overcome the hardships of this line of work. There was a strong sense of value in this pursuit—the kind of dignity in one's work that Kent praised.

At the National Seaweed Symposium in Portland, 250 attendees gathered to learn, share, troubleshoot, appreciate and promote all aspects of growing and using seaweed for everything from ingredients in granola bars and beer, fertilizer and animal feed, plastic alternatives and artwork. Keynote speaker Keolani Booth, tribal councilman of the Metlakatla Indian Community in Alaska, told of the central role of seaweed in his culture from pre-Colonial times to the present. Other speakers addressed the economics of seaweed production, the chemistry and biology of food safety considerations, and the global surge in interest in developing this nutritious, environmentally friendly crop through ocean farming.

On the field trip day of the conference, some attendees boarded boats to visit nearby seaweed farms. Others toured Portland's working waterfront. I chose instead a culinary lesson, where chefs in a demonstration kitchen prepared main dishes, teas and dessert using seaweed—all delicious—and asked the group to brainstorm new creations. For me, though, the highlight of the class came at the beginning, when second generation seaweed harvester Seraphina Erhart led a lesson in the types of edible seaweed found on the Maine coast—from kelp to laver to dulse to sea lettuce and more—and showed us the samples she had collected that morning.



Seraphina Erhart shows a ribbon of wild kelp she harvested during a culinary demonstration at the National Seaweed Symposium in Portland, Maine, in April. Photo: Judy Benson

Through typically rough Maine waters and temperatures in the 40s she had guided her boat to the harvesting spot. Though the waves and currents tried to toss her onto the rocks, she managed to cut many different types of seaweed, mindful of how much to leave in place so it regrows. Her parents began Maine Sea Coast Vegetables 50 years ago, and she conveys the same sense of pride in its products and enthusiasm for seaweed that first inspired them.

Now, consider her example as you read about the fishermen, oyster farmers, researchers and scientists in this issue. All of them manifest a unique connection and appreciation of the human relationship to nature in their work. Theirs is a sense of dignity borne of respect for the environment and what it provides, and how we can all do better by it.



Judy Benson  
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COVER PHOTO: Dylan Redman, left, fisheries biological technician at the NOAA Milford lab, and Isaiyah Mayo, biological science technician at the lab, remove GoPro cameras from an oyster cage on May 18 as part of a project to quantify how fish are using cages as habitat. The data will help industry regulators accurately factor in ecosystem services when deciding whether to grant lease applications. Researchers are also teaching industry members about these services to help them market their products more effectively. Photo: Judy Benson

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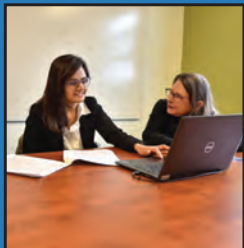
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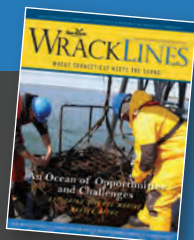
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# About OUR CONTRIBUTORS



## NANCY BALCOM

**Nancy Balcom** is the associate director and extension program leader for Connecticut Sea Grant and a senior extension educator with UConn Extension. Her extension interests range from safe seafood handling and safety at sea to disaster risk communication and community resilience. She has been part of the Sea Grant family for more than 37 years, starting in 1985 as a graduate student. She earned her undergraduate degree from UConn and her masters in marine fisheries from the Virginia Institute of Marine Science, College of William & Mary.



## ZACHARY GORDON

**Zachary Gordon** is an assistant extension educator focused on regional shellfish aquaculture with Connecticut Sea Grant based at the NOAA Fisheries—Milford Lab. He is working to connect Milford Lab researchers to the Sea Grant extension network and industry members throughout the greater Northeast region from Maine to Virginia. He works to facilitate the transfer of research and ideas between Milford Lab scientists and stakeholders in the aquaculture industry. His work is conducted at the nexus between government, private industry and NGOs.



## BILL HANRAHAN

**Bill Hanrahan** is a senior editor with Yale New Haven Health, writing about Lawrence + Memorial Hospital in New London and Westerly Hospital in Rhode Island. A UConn graduate, Bill worked for many years at The Day and New Haven Register newspapers, and he's written many freelance pieces over the years. When not writing, Bill and his wife, Ellie, can typically be found gardening or entertaining friends in the field behind their New London home. They are also planning a trip to Italy this fall to celebrate their 60th birthdays.



## JUDY BENSON

**Judy Benson** has been communications coordinator at Connecticut Sea Grant and editor of *Wrack Lines* since 2017. Before that, she was a newspaper reporter and editor, concluding her journalism career at *The Day* of New London covering health and the environment. She is the author of a book created in collaboration with artist Roxanne Steed: *Earth and Sky: Nature Meditations in Word and Watercolor*, published in 2021 by New London Librarian. She earned both a bachelor's degree in journalism and a Master of Science in natural resources from UConn.





Sarah Crosby Photo: Judy Benson

# Sarah Crosby:

## A SCIENTIST SOLVING PROBLEMS IN THE REAL WORLD

*By Judy Benson*

regional environmental collaboration in southwestern Connecticut.

“She is a great mentor of mine,” said Nikki Spiller, who is Crosby’s successor as director of Harbor Watch, a water quality monitoring and education program at Earthplace, a Westport-based nonprofit science education organization. “I learned a lot from her about how to be a good scientist, and also how she built relationships to creatively solve problems. We’re very happy to still have her in our corner.”

This spring, Spiller and Crosby were scoping salt marshes in the New Haven area for a joint research project funded by the Environmental Protection Agency’s Long Island Sound Study and managed by Connecticut Sea Grant. They will be studying restored and natural marsh sites to better understand how foundational marsh grass species will respond to climate change-induced warming.

“Being out in the field with her is just fun,” Spiller said.

Richard Harris founded Harbor Watch in the mid-1980s. When he stepped down in 2014, Crosby moved seamlessly into his position to expand both geographically and thematically on what he had established.

“Sarah popped up as a shining star, and I’ve been totally pleased ever since,” said Harris, who now works as a marine scientist for the state’s largest commercial oyster farm, Norm Bloom & Son of Norwalk.

When Harbor Watch began, its mission was focused on bacteria monitoring and source tracing in the waterways of Norwalk and Westport. Under Crosby, it expanded into salt marsh

research and water quality monitoring in Fairfield, Bridgeport, Stratford and other towns in Fairfield County, always maintaining cooperative relationships with municipalities and other partners to address pollution problems. Harris recalled working with her several times to identify sources of contamination flowing into Norwalk harbor that could threaten shellfish beds.

“We identified the contamination in marine waters, and then she took it over into the fresh water and traced it to the leaking septic systems,” he recalled. The work of Harbor Watch, Crosby said, was very satisfying, because it yielded tangible improvements in the local environment.

“You can see it in the water quality data when those problems get fixed,” she said. “It’s important work and Harbor Watch has carved out an active niche as a partner with municipalities and local groups that want to do the right thing, but don’t always have the manpower or the resources.”

In one recent project, Crosby wrote a successful grant proposal with the Norwalk River Watershed Association, a group she already had a strong relationship with from her time at Harbor Watch. The grant funds enabled the nonprofit, all-volunteer association to hire a consultant to prepare a plan to restore a degraded portion of public waterfront park in Norwalk.

“It was originally a salt marsh,” said Louise Washer, president of the association. “We’re hoping to restore the marsh and create a living shoreline. Sarah has taught me so much about how to do this work of protecting the river.”

As a scientist, Crosby said, she is most gratified when she can apply research

**W**itnessing her high school marine biology teacher’s passion for the environment lit a flame in Sarah Crosby that still burns strong more than two decades later.

Growing up near Tod’s Point in Greenwich, Crosby, 38, recalls spending many hours exploring the tide pools, but had little interest in understanding them as a scientist—until that class.

“My teacher was this force of nature, very interested in conservation,” she recalled. “She had this 15-passenger van for the class, and she’d load us in and drive us to the shore and show us cool stuff. Something about that experience with someone like her, who cared so deeply about Long Island Sound, really made it come alive for me.”

That class served as the touchstone that would influence Crosby’s path through college, graduate school and a career in conservation and research focused on the same coastal environment she has loved since childhood. Director of conservation and policy at The Maritime Aquarium at Norwalk since April 2022, she maintains strong ties with Harbor Watch, the organization she led for eight years, and the other groups she worked with there that form the backbone of



Top, Sarah Crosby, right, and a fellow researcher collect data on marsh grass at a site in Groton as part of a 2021 research project. Photo: Judy Benson

Inset, at Veteran's Park in Norwalk, a plan is being prepared to restore a degraded area thanks to a successful grant Crosby wrote with the Norwalk River Watershed Association. Photo: Louise Washer

findings directly to solving real-world problems, and the main reason she chose a career in the nonprofit sector rather than in academia. The position at The Maritime Aquarium offered an appealing new challenge, she said, because it gives her the chance to write a conservation plan for the organization that will guide its work in the state's most important waterway.

"The aquarium's mission is centered on Long Island Sound and is about inspiring people to protect the Sound and the species that inhabit it," she said. "It's a great fit for me."

The theme of the conservation plan, she said, can be summed up in a single question: "How do we take the work we're doing here and bring it out to get people more involved in the Sound?"

One way that question will be answered is in the creation of a new Long Island Sound salt marsh exhibit in a portion of the aquarium that now houses a reptile collection. The marsh project was already planned when Crosby was hired at the aquarium, but she eagerly got involved. Salt marshes have been a research passion since her graduate school project at the University of Rhode Island took her to Fire Island. Her most recently completed salt marsh project began in 2020, when Connecticut Sea Grant funded her research into genetic variations of grasses used in marsh restoration. The findings, she hopes, will improve management decisions.

"When I was studying for my PhD at Brown University, I studied how marshes from Massachusetts to South Carolina are responding to climate change," she recalled. "That work opened up a lot of questions for me that I'm still exploring now."

Oftentimes when Crosby needs a break from crunching data or working on the conservation plan, she walks down the hall from her office to the aquarium's exhibit space. She passes tanks where sharks and sea turtles swim past children with noses pressed to the glass, smiling at diving seals and gathered around the touch tank reaching for cownose rays, crabs and other sea life.

"It's a joyful place," she said. "I love watching a kid touch a ray or see a seal for the first time."

Outside the aquarium building sits a stack of lobster traps that represent another of the projects she's involved in. Crosby is working with Project Oceanology, Save the Sound and former commercial lobstermen to find and retrieve abandoned traps, freeing any animals inside. The traps are either recycled or returned to their owners.

"We've done six trips so far, and pulled up 215 traps," she said. "We're looking at what's growing on the traps and creating a database of that information. We're just getting started on the project."



## EDITOR'S NOTE:

This is part two of an ongoing series about offshore wind development affecting Connecticut. Projects proposed in nearby ocean waters include Revolution Wind, Beacon Wind and Park City Wind. Turbine arrays for all three and at least five other projects would be built in a federal lease area south of Cape Cod. Revolution Wind (a project of the Danish company Ørsted) and Park City Wind (a project of Avangrid Renewables LLC) are building staging and operational support areas in New London and Bridgeport, respectively. Long Island Sound is likely to be directly impacted by underwater cables that will transmit the energy to landing sites in New York and Connecticut. Part one of the series can be found at: <https://seagrant.uconn.edu/?p=9850>.

By Nancy Balcom

Above right, the screen of the simulator developed by offshore wind developer Ørsted shows the view of a fishing vessel heading towards a wind farm array. Photo: Nancy Balcom



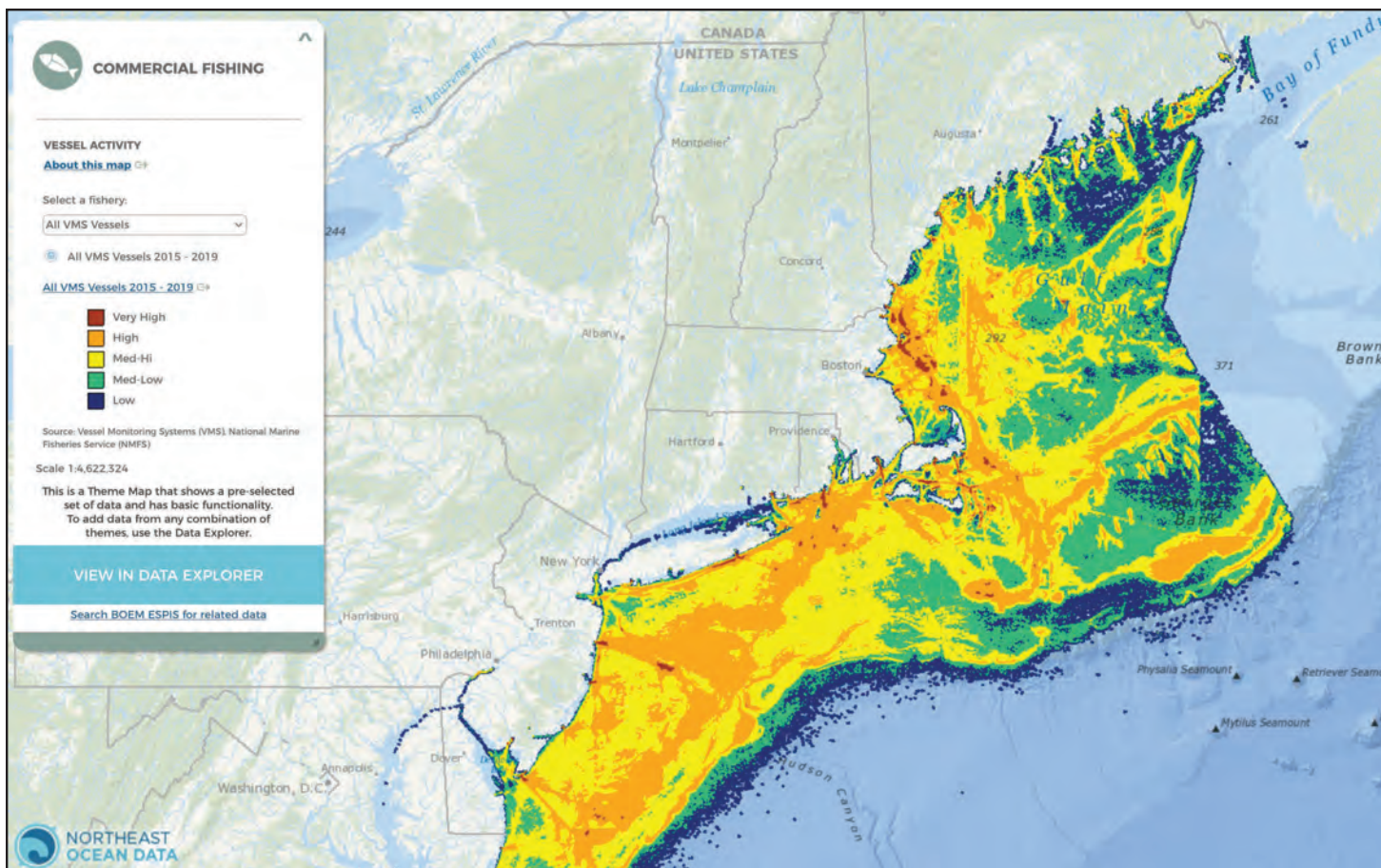
# Commercial fishermen share their perspectives on offshore wind development

**H**istorically, commercial fishermen are adaptable, dealing with constant regulation changes, changing climate conditions and ecosystem shifts to maintain their livelihoods.

Offshore wind development is posing yet another challenge as federal and state governments seek to meet renewable energy goals. Ask commercial fishermen about the installation of offshore wind farms on the East Coast and you'll hear many thoughts about this difficult issue...and many questions.

They talk about protecting traditional fishing grounds that are essential for consumers to be able to continue to enjoy domestic seafood and worry about ecosystem impacts and reasonable environmental protections. Some raise concerns about their ability to safely navigate in and around the wind farms. Others see an opportunity to augment their fishing businesses with alternative on-the-water employment. There are calls for more science-based guidance. Words of frustration are





This map broadly characterizes commercial fishing vessel activity in the Northeast based on Vessel Monitoring System data from 2006 through 2019. The relative amount of vessel activity is indicated qualitatively from high (red) to low (blue). The map does not necessarily distinguish between fishing activity, vessel transit, and other vessel activities. Map courtesy of the Northeast Data Portal Working Group (<https://www.northeastoceanodata.org/>)

expressed as well as the need to find ways to co-exist.

Five Connecticut fishermen with more than 200 years of collective fishing experience took the time to share their perspectives on offshore wind and the impact on their livelihoods. These wide-ranging conversations revealed beliefs that many fishermen remain underinformed about offshore wind. All care deeply for the environments where they work as well as their commercial fishing heritage and they are trying to preserve it as they see best. This is just a sampling of their conversations.

Joe Gilbert is co-owner of Empire Fisheries, based in Stonington. When talking about offshore wind, he passionately advocates for offshore commercial fishing interests as well as for the environment and sustainable, healthy local sources of food. He is demonstrably frustrated with a process that he and other fishermen have been trying to influence over the past decade. “No fisherman I know is against renewable energy or solving climate

change from fossil fuel burning,” said Gilbert. “The problem is that the voice of the fisherman has not been heard or has been underheard. It’s a struggle for fishermen—a steep learning curve, lots of meetings and moving parts. All while trying to run a business.”

Safe navigation and operation of offshore commercial fishing vessels near or within wind farm arrays is a concern, given the projected number of turbine towers for leased areas along the East Coast.

“We are concerned about operational spacing for fishing boats,” said Gilbert. “Now, instead of open sea navigation, we may be playing a pinball game with the towers. Commercial fishermen asked for a 2 x 2 nautical mile array for the turbine towers, but instead the developers ‘negotiated’ a 1 x 1 mile array.

“Traditional safe passage from Connecticut to Georges Bank will be blocked,” he added. “Fishermen will have to navigate through the wind farms or go around them, costing many extra hours of transit time which is not an option when limited by days at sea.



“If they decide to fish within the array, there are concerns about liability,” noted Gilbert. “Fishing vessels with extended gear are restricted in their ability to maneuver. Who pays if a tower is inadvertently hit or if costly fishing gear is damaged? Will our insurance companies refuse to cover us?”

Gilbert has questions about radar scattering and wake effect fog within the tower arrays, which could also adversely affect safe navigation. He is also concerned about potential environmental impacts of the width of the trenches in which the cables will be buried, the methods used for burial and whether they are prone to resurface and need reburial.

To address concerns about navigation, offshore wind developer Ørsted funded development of a computer module that mimics handling of a commercial fishing vessel within the Revolution Wind site. Last December, Connecticut Sea Grant was invited with other Northeast Sea Grant and U.S. Coast Guard personnel to see this simulation program demonstrated. Hosted by John Mansolillo, northeast marine affairs manager for Ørsted, the demonstration was held at the U. S. Maritime Resource Center in Middletown, R.I.

Standing in the darkened ‘wheelhouse,’ one could take the helm and ‘steer’ through the wind farm array of 840-foot towers. Sea conditions could be changed from daylight to nighttime, bright sunshine to pounding wind and rain. The simulated towers were lit and marked according to Coast Guard and Federal Aviation Administration standards. While it seemed realistic, a much more knowledgeable opinion was offered by Gary Yerman, co-owner and operator of R&B Fisheries and New London Seafood Distributors.

“I thought it was well done, a great representation,” said Yerman. “While your feet are planted and you are not moving, you have the sense of movement and different sea conditions...some people even started to feel a bit seasick.”

Commercial fishermen interested in trying the simulator can contact Mansolillo at JOMAN@orsted.com or Rodney Avila, corporate fisheries liaison at RODAV@orsted.com.



Bonnie Brady, executive director of the Long Island Commercial Fishing Association, holds a summer flounder. Photo: David Aripotch

Bonnie Brady, executive director of the Long Island Commercial Fishing Association based in Montauk N.Y., is not a fan of offshore wind energy.

“Green energy is not green or clean,” she said. “It’s just different energy.”

Brady has been fighting for commercial fishing rights since 2003 when 100 turbines were proposed for squid fishing grounds south of Long Island, N.Y.

She is devoted to learning what she can about offshore wind operations in the United Kingdom, Europe and now the United States, including terminology, impacts of installation techniques on fish and marine mammals, projected versus actual power generation and loss of performance and degradation of equipment over time. She noted that one continuous thread in all the information reviewed is that always ‘more research is needed.’

“It’s easier to put wind turbines offshore where the majority of Americans can’t see them or be directly affected by them,” she said, “rather than install a nuclear plant or gas plant in one small area.

“For decades, the fishery management precaution principle has been to ‘do no harm,’” Brady added.

Her organization is involved in a lawsuit brought by commercial fishing interests and the nonprofit Texas Public Policy Foundation (which receives support from oil and gas companies) against the U.S. Bureau of Ocean Energy Management (BOEM), other federal agencies and the Avangrid Vineyard Wind project. The lawsuit claims BOEM failed to consider impending conflicts when it began its offshore leasing process. The site of the wind farm lease is traditional squid fishing grounds.



Gary Yerman, co-owner and operator of R&B Fisheries and New London Seafood Distributors, is one of the fishermen who used a computer simulator to learn how a commercial fishing vessel would navigate through an offshore wind farm. Photo: Nancy Balcom

“We want them to mitigate harm by not putting them on our fishing grounds,” she said. “The lease areas and cable corridors they have chosen are all on some of our most productive fishing grounds.”

Gilbert agreed.

“Developers think fishermen can go fish somewhere else or concentrate the fishing effort in certain areas,” he

said. “But fish show up where they go and that’s why fishermen follow them. Concentration of effort leads to congestion of vessels and extreme pressure on fish resources in that area.”

In June 2022, BOEM issued a draft framework for mitigating impacts to commercial and recreational fisheries but lacks the authority to administer a mitigation program. Eleven East Coast states partnering as the Special Initiative on Offshore Wind want to establish a “regional fund administrator (RFA) for fisheries compensatory mitigation which would provide financial compensation for economic loss from offshore wind development off the Atlantic Coast.” The final scoping document for establishing an RFA was released in April. A request for proposals for developing the RFA framework will likely be issued this fall. Input from commercial fishermen will be sought.

Gilbert and Yerman don’t agree that employment opportunities tied to offshore wind development can be a positive development for commercial fishermen.

“It’s time for the fishing industry to take advantage of the financial and safety opportunities offshore wind will bring forward,” said Yerman.

“We’re losing talent to the wind companies,” said Gilbert.

Mike Theiler, owner/operator of Jeanette T Fisheries of Waterford, is a longtime advocate for improving the safety culture of commercial fishermen. With Yerman and colleague Gordon Videll, he traveled to Kilkeel, Northern Ireland, in 2020 to learn how a working relationship with an offshore wind developer transformed a struggling fishing community. Fishermen now fish as well as provide guard vessels to protect marine assets and offshore energy projects. Developer investment in upgrading fishing docks and adding a fuel depot, coupled with the influx of income from the contractual work, has kept local fishing families from going out of business and vessels in better repair.

Upon their return, Theiler, Yerman and Videll established Sea Services-North America (SSNA) based on the same model. To work for wind farm developers, captains and crews must meet tougher international standards for safety training than currently required by the U.S. Coast Guard for commercial fishermen, such as gear upgrades, 100-ton licensing for captains and stricter vessel inspections. Through SSNA, commercial fishing vessels are now providing scout and survey services, sharing their expertise and local knowledge.

“Captain Rob Cabral of the F/V *Provider* worked for Ørsted as a scout vessel marking all fixed gear ahead of the survey vessels,” said Yerman. “At the end of his 200-day contract, there had been no knockdowns of fixed gear....Ørsted was shocked. We showed what the fishing industry can bring to offshore wind and what offshore wind can bring to the fishing industry.”

Theiler is no longer with SSNA but has partnered with another

former SSNA colleague, Robert Greenwood, to continue to be an advocate for fishermen and vessel safety.

“A profitable boat is a safe one, a poorly trained crew can’t save a safe vessel, but a well-trained crew can potentially save an unsafe one,” Theiler stated. “Scout vessels like the *Provider* are now being inspected twice a year which keeps them up to snuff.”

Theiler has done some contractual work for Vineyard Wind, mapping areas of fixed gear around the Race (the channel where Long Island Sound meets the Atlantic Ocean) and inshore. Though “not thrilled” with cables and routes coming into Connecticut, he believes that avoiding all fixed gear is next to impossible, and the company is doing a good job to try and avoid most of it.

“Inshore guys are looking at offshore wind farms at the moment with indifference or as an escape plan,” said Theiler.



Mike Theiler, owner/operator of Jeanette T Fisheries of Waterford, stands on the bow of one of his three vessels. Photo: Judy Benson

“The story will be different when cable route options are shared. Developers are not talking openly about cable routes until two or three corridors are identified, and then it will likely be a different story with the inshore fishermen. There are already telecom cables in the area which they are used to working around,” he added.

Theiler also noted that some fisheries will benefit from the turbine structures.

“There will be winners and losers,” he said.

When asked about wind energy transmission cables in Long Island Sound, Kevin O’Brien, supervising environmental

analyst with CT DEEP's Land and Water Resources Division, indicated that Connecticut and New York have applied for funds to support Phase II of the Long Island Sound Blue Plan (<https://portal.ct.gov/DEEP/Coastal-Resources/LIS-Blue-Plan/LIS-Blue-Plan-Final-Draft>). The marine spatial plan for the estuary was created to give the two states the means of looking comprehensively at the Sound. There will be several opportunities for public input and feedback.

Brian Thompson, director of the Land and Water Resources Division, said it will likely be next year before this project gets started.

"We'll take a closer look using previously compiled data on ecological and existing human use sensitivities, in particular some areas where cables may be located," he said.

O'Brien added, "A broader understanding of these data will help us make informed decisions on where infrastructure might be located."

Shellfishermen Paul Henriques, owner of H and H Shellfish, and Dave Hopp, owner of Bell's Shellfish, operate out of a busy waterfront facility in Bridgeport. They talked about Avangrid's Park City Wind facilities slated to be built nearby, and their uncertainty about whether and how the operation might affect their industry.

They both expressed concern about potential adverse effects on shellfish beds due to harbor dredging activities. Thompson later confirmed that the U.S. Army Corps of Engineers is working on a plan to conduct long overdue maintenance dredging in Bridgeport Harbor, unrelated to the Park City Wind project.

He acknowledged that Avangrid might need to do some dredging to facilitate use of its site.

"For the past few years, the Bureau of Aquaculture and shellfishermen have been working hard to renovate our natural seed beds in this area," said Henriques. "We don't want to lose the work or the seed beds to silting or contamination from dredge sediments. These beds are extremely important to the entire shellfish industry, both big and small companies."

When asked about the placement of any offshore wind transmission cables in Long Island Sound to bring the power to the land-based energy grid, they thought the cables should be laid through the middle of the Sound in deeper water, with 'Ts' to the shore passing through the channels. Their bottom line—avoid any oyster or clam grounds.

"Stay off the natural beds and private grounds," said Hopp. "(After) previous dredging near New Haven for a cable installation, the grounds never came back."

For reasons of commercial ship operational safety, bringing energy cables ashore along navigation channels presents challenges, according to Thompson. It can be done but there are costs and risks. Cable placement and burial depth is a standard minimum of six feet in natural bottom habitat and 15 feet in navigation channels, to accommodate anchorage and turning bays and avoid damaging the cables.

Henriques believes that other shellfish companies may not know what's going on related to offshore wind.

"For my part, I want to maintain this livelihood for myself and my children," he said. "I don't want anything to damage what I have now. The shellfish industry doesn't want money thrown at them—they want their livelihoods."

Yerman said he understands these concerns but is optimistic.

"Change is always painful and frightening," he said. "From our own experience, fishermen will adapt—always have, always will. This is an opportunity to have a seat at the table, raise safety standards, provide a good path forward for older fishermen without the rigors of fishing and give younger fishermen and crews a year-round income and good living. We're all in this together and need to work these issues out."

*Wrack Lines will continue to explore various facets of offshore wind development in future issues.*



David Hopp, left, and Paul Henriques are commercial shellfishermen who operate out of a waterfront facility in Bridgeport. Photo: Nancy Balcom





Zachary Gordon measures clams at a New Jersey farm site this spring. Photo: Meghana Parikh

# A boyhood love of the sea grew into a career: 10 questions with Zachary Gordon

*Editor's note: In October 2021 Zachary Gordon became the regional aquaculture extension liaison at Connecticut Sea Grant, a new position created in partnership with the National Oceanic and Atmospheric Administration (NOAA) Northeast Fisheries Science Center (NEFSC) Milford Laboratory in Milford, CT. With the Milford lab as his home base, he works in a broad geographic and topical range, all focused on strengthening the aquaculture sector. This spring, he answered 10 questions posed by Wrack Lines Editor Judy Benson about his unique story and career.*

***1. Your title might sound a little mysterious to readers. Would you explain what it means and describe your responsibilities?***

My area of expertise is shellfish aquaculture, and I serve the northeast, from Maine through Virginia. Hence "Regional Aquaculture Liaison." The Milford Lab has a long history of providing innovation and technical knowledge to the shellfish industry. My job is to broaden these services and help leverage the increasing federal investment in the sustainable growth of the aquaculture industry. Essentially it is to build relationships and trust as a liaison between the aquaculture industry, extension professionals and federal scientists in the northeast. There is a wealth of information within these groups that regularly gets lost in the shuffle because people only have time to focus on immediate needs and not on the bigger picture. I meet growers where they are and understand their needs in relation to the rest of the region. Many growers have important problems that can be addressed with research, but don't have

the time to seek resources, such as applying for and managing a research grant. Many don't have the partnerships with the research community that many grants require.

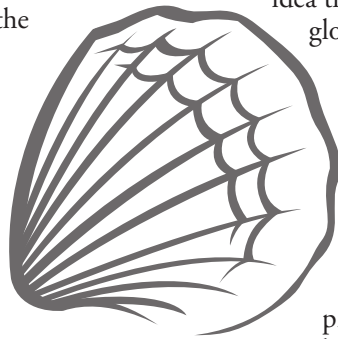
***2. What are some of the projects you have or are currently doing in this job that best represent the geographic and topical range you work in? What are some of the challenges you anticipate working on in the future?***

My role in many of the projects at the Milford lab is to make sure we are addressing the needs and concerns of the farmers in our region, as well as finding creative ways to translate the research for farmers and industry stakeholders in an engaging and useful way. Recently I have been working on developing a nutrient calculator that will allow growers to quantify the amount of nitrogen removed from the environment when they harvest their oysters. This will be paired with short videos on the importance of ecosystem services that are provided by oyster aquaculture.

Another project I am working on is studying hard clam growth and survival in New Jersey. This project came about when a farmer from New Jersey reached out to the lab and explained that the clams on his farm that normally take 2-3 years to grow to market size are now taking 4-5 years, and he is seeing an increase in death among his clams. This is a problem that is affecting many growers in this region of New Jersey. We secured funding to look at both long and short-term growth patterns paired with environmental data to learn whether we can provide some proof that this is occurring as well as investigate possible environmental conditions that may be causing it.

I am working with the wider aquaculture extension community on a professional development, networking, and mentoring program funded by the Northeast Regional Aquaculture Center (NRAC). This project will bring together aquaculture extension professionals throughout the region to conduct a professional development skills workshop and provide mentoring opportunities. The combination of the COVID-19 pandemic and generational turnover in the aquaculture extension community has led to a gap in resources that this project will fill. Extension agents who participate will develop new skills and networks to better serve the needs of aquaculture industry members in their community.

Looking to the future, I am interested in shellfish hatchery systems and genetics. Hatcheries are where the seed oysters are born and grow to about 2-8 millimeters before being sold to farmers, who grow them to market size. This is also an area in which the Milford Lab has world-renowned expertise. These systems are expensive and technical operations and the speed of growth of farms in the Northeast is outpacing the hatchery capacity. Farmers are already struggling to find the



seed they need. There are a variety of research projects getting started now that will help tackle this issue and I think it is something I will be thinking about a lot in the next five years.

***3. How did your educational, professional and personal background prepare you for this job, and what were some of your previous positions?***

Working in a variety of different sectors before this job gave me a really great perspective and helped me understand the best way to communicate with the different stakeholders I interact with on a daily basis. My first job in aquaculture was with a non-profit called The Martha's Vineyard Shellfish Group. Over the years I have worked with a few shellfish farms in the private sector, with state government in outreach and education on marine coastal issues in Maine, and I had an internship with the N.Y. Attorney General's Office in the Environmental Protection Bureau.

I was very lucky to be able to gain varied experience over the last five years, while also getting a professional science masters in Ocean Food Systems at the University of New England. In that program I focused on the intersection of private industry, state government and public health in regards to harmful algal blooms. It taught me a lot about the complications of working with these various stakeholders and addressing everyone's needs.

***4. How did you first become interested in studying and working in aquaculture? Was there a particular experience that was pivotal to setting you on your current path?***

Growing up on the Connecticut coastline I was always very interested in the marine environment, but my interest gradually diminished in my teenage and young adult years. I went to college in landlocked upstate New York and became interested in sustainable food systems. In my junior year of college I joined a study abroad program in New Zealand and took some marine science courses, but never connected it back to my interest in sustainable agriculture. During college I worked and volunteered on land-based farms and thought that was what I wanted to go into. I was really interested in the idea that local food systems could help solve some of our global food problems.

Not until my second job out of college did I become interested in aquaculture and discover how important this little-known food source could become. I had the opportunity to work at The Martha's Vineyard Shellfish Group. I worked in the hatchery where we grew oysters, clams and scallops, and I also worked on shellfish restoration projects including an oyster shell recycling program and nutrient mitigation projects. This taught me about the environmental benefits of shellfish that go beyond just food and really got me hooked on aquaculture.



***5. Do you like to eat shellfish? What are your favorite kinds and ways to eat them? Do you harvest clams and oysters recreationally?***

I eat all types of shellfish. When I worked on a mussel farm, sometimes for lunch break I would just put a couple mussels in a mug and throw it in the microwave for 30 seconds with nothing else. That is a really good snack. Oysters on the grill are my favorite and are easy because you don't have to shuck them. I add a little bit of butter and sriracha hot sauce right after they open.

Steamers, otherwise known as soft-shell clams, are another one of my favorites. Growing up I harvested soft-shells and hard clams with my family regularly. Over the years clam populations have declined a bit in Connecticut, making it harder to find them recreationally, and moving away for many years I lost knowledge of the best spots to go. Since moving back to the area I have been planning to get back into clamming for fun.

***6. What are the most significant ways you believe the work you're doing can contribute to the larger world?***

Introducing people to seafood and aquaculture is one of my favorite things to do, and most people I talk to are fascinated by the process. Seafood will play an increasingly huge role in feeding the world and I am passionate in my belief that Americans should be eating more seafood and should be growing more seafood domestically. We import more than 80% of the seafood we currently eat from other countries, where it is often produced in a less sustainable and less regulated way than what we do here. I don't deny that there can be downsides to aquaculture, but no food source is perfect. The goal is to create more sources of local food, which shellfish can do. There is work to be done to lower the cost and make it more accessible to everyday Americans, but I strongly believe shellfish should be part of the solution.

Each of the projects I work on lend to these larger goals of producing more sustainable seafood in the United States and educating people on the benefits of eating more seafood. I am passionate about aquaculture and enjoy connecting with people of different backgrounds. This job is very fulfilling because it lets me do both.

***9. Would you tell readers about the history of the Milford lab?***

The NOAA Northeast Fisheries Science Center (NEFSC) Milford Laboratory has a long history of applied research and technology transfer in support of shellfish aquaculture. Victor Loosanoff became the first full-time employee of the Milford Lab in 1931. It was founded to help solve the issues facing the oyster industry in Connecticut. Under his leadership, the Milford Lab made fundamental contributions to the understanding of shellfish biology and reproduction. Milford scientists developed methods to spawn bivalve shellfish nearly year-round and to rear all life stages (embryonic, larval and adult). This became known as the "Milford Method" and is still used worldwide in the aquaculture industry. In the 1950s another scientist at the lab, Robert R.L. Guillard, began to develop the microalgae culture collection that we still have today. This is a collection of isolated species of algae that are either commonly used to feed shellfish in hatcheries or are an important species for scientific study. The lab sends starter algal cultures to anyone who requests them for commercial or research purposes.

***10. Would you tell readers about some of the people working there now and a few of the projects they're working on?***

Today the lab staff is comprised of about 15 research scientists and about 20 contractors and technicians who work on some of the most pressing issues facing the shellfish aquaculture industry for the Northeast region and beyond.



Lisa Guy, left, curator of Milford microalgal collection, shows the collection to Amanda Lawrence of the National Sea Grant office during a recent tour of the lab. Photo: Judy Benson

## A FEW EXAMPLES OF CURRENT PROJECTS INCLUDE:

### *Ecosystem services provided by shellfish aquaculture:*

This project, led by Julie Rose and Renee Mercaldo-Allen, is quantifying ecosystem services to help industry regulators accurately balance the pros and cons of a project when deciding whether to grant lease applications. It is also teaching industry members about these services to help them market their products more effectively.

### *Effects of ocean acidification and climate change on commercially important shellfish:*

Led by Shannon Meseck, Katie McFarland and Matt Poach, this project aims to understand how these species adapt to changing ocean conditions.

### *Disease dynamics of oysters in Long Island Sound:*

Also led by Katie McFarland and Meghana Parikh, this project is looking at diseases that may affect natural oyster populations in the Sound and how restoration efforts can be sited to reduce diseases.

## MORE INFORMATION:

For more information on projects at the lab, visit: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/aquaculture/current-research-milford-laboratory>



# CT Sea Grant fellows: adding nature and humanity to the economic prism

By Bill Hanrahan



Ethan Addicott at a beach in Florida, where he grew up. Photo: Laura Addicott. Bottom, Samjhana Koirala at the UConn campus in Storrs, where she is pursuing her doctorate. Photo: Bill Hanrahan



The first two Connecticut Sea Grant Marine and Coastal Economics graduate fellows come from different countries and vastly different environments.

Yet both share a commitment to research projects that have the potential to change the way we think and respond to coastal realities in a time of climate upheaval.

From his younger days on the shores of South Florida to her early years in the mountains of Nepal, Ethan Addicott and Samjhana Koirala have both followed academic journeys leading them to question how economics, people, the land and the sea all play into our decision making.

From analyzing the value of sand dunes that protect homes, to the social aftershocks of floodwaters that wash away others, the research projects of both Addicott and Koirala carry the promise of changing future policies and funding decisions—locally, nationally, even globally—by expanding our understanding of how ecosystems and economic decisions are—or should be—interrelated.

“Their work is rewarding to see,” said Sylvain De Guise, director of the Connecticut Sea Grant program. “Through this fellowship program, we are providing an opportunity for students to better themselves, and at the same time we benefit as a program and as a society. Smart young people tend to think differently, and we hope we are opening doors to careers that they might not have considered. And, hopefully, we help create the next generation of economists who are going to be interested and focused in their professional careers on coastal and marine issues.”

Addicott and Koirala, as the first and second fellows in the Sea Grant program, respectively, are pursuing CT Sea Grant-funded research projects that have general similarities, yet the details are as distinctive as their own life stories and intellectual curiosities.

## STUDYING HUMAN AND NATURAL SYSTEMS TOGETHER

Addicott grew up between Miami and Fort Lauderdale, about a block from the beach, and yes, he was a scientific beachcomber.

“My high school science fair project was about coastal dunes and sea oats and the relationship between coastal vegetation and beach width,” Addicott said. “So, I went out and measured beach width by hand at different beaches along the coast in high school. That was the first time that I started doing science on coasts.”

Addicott has never really stopped measuring beaches. Today, though, he’s using data from satellites and aircraft lasers. He’s also doing it on a massive scale, with specific projects in Florida, North Carolina, and thanks to Sea Grant, the Connecticut coast. Addicott, who attended Harvard as an undergraduate and holds a doctorate in environmental and natural resource economics from the Yale School of the Environment, is crunching the numbers on beaches, dunes and



sand to uncover something quite profound. He explains:

“In my research, I look at people who buy homes near beaches, and I try to back out what portion of the sale price is attributable to coastal features,” Addicott said. “So, if you have two homes that are identical, except one home is near a wide, pretty beach, and the other home is near a very narrow beach where waves are lapping against the side of the building at high tide, is there a difference in the sales prices for these homes?”

Addicott wants to know if even slight changes to beaches and dunes, such as height and vegetation, impact home values, then tries to back out the value of those varying attributes.

“We don’t have good estimates for many of these coastal features that we use in policy,” he said. “When we don’t have those estimates, we’re essentially treating these ecosystems as though they’re worth nothing. So, even capturing a small portion of their value at least brings them to the table when it comes to making decisions about how we manage coastal areas.”

The granular level to which Addicott is measuring beaches (pun intended) is due in part to his skill in mathematics and his intensive study for years in the fields of biodiversity and economics. But you don’t need an advanced degree to understand the broad implications of his work.

“There’s detailed methodology, but there’s a simple goal,” said De Guise. “The goal is to quantify the value of ecosystems and ecosystem services, specifically, beaches, to the value of your house and the value of houses in your neighborhood. So, if a beach is well protected by dunes that are planted with the appropriate plants, for example, that’s going to offer more protection. There’s a non-monetary value to that, but Ethan is quantifying the monetary value associated with that.... Ethan hopes to refocus the way people think about the value of the shore, beaches and properties in the vicinity. He’s really providing a different lens for people to make decisions.”

Addicott’s former advisor at Yale University was Eli Fenichel, a Knobloch Family Professor of Natural Resource Economics with the Yale School of the Environment.

“Ethan’s research takes seriously the complex ways that ecosystems and people interact,” Fenichel said. “His research accounts for the fact that one natural feature can provide many different services to people, and these services are sometimes competing.

“The other thing that I’m really excited about by Ethan’s work,” Fenichel added, “is the way he approaches research with a clear idea towards ‘How do I scale this? How do I repeat this? How do I make this more than a one-off?’ If we are going to think about including nature in our economic thinking, systematically, then we need to think about how we enable the regular and repeated measurement of the role of nature in our economy. This is something Ethan takes seriously.”

De Guise remembers well the day when Addicott made a presentation to the Sea Grant board at Avery Point in Groton. Addicott informed the board that, in part thanks to his fellowship, he was heading to England, where he had secured a professor’s position at the University of Exeter; he is there today, both teaching and continuing his research.

In March, Addicott returned to the United States to present his work at an academic conference that included sessions on measuring and accounting for environmental public goods; it was the first time he shared publicly his ongoing research, and it was enthusiastically received. He is also hopeful that his work will be considered by the U.S. government as it begins to take more seriously the value of natural resources in economic decision-making, particularly coastal regions under more urgent threat because of climate change.

“If any of this research gets used to influence policy, I’d be thrilled,” Addicott said. “It’s been said that ‘what gets measured gets managed,’ and we’re not managing our resources adequately when we lack measurements... At best, with new information, we may be able to change our decisions to do a little better.”

## TEASING OUT TANGLED STRANDS OF IMPACT

As an undergraduate in Nepal, Koirala surveyed Nepalese farmers to try to determine the impact of climate change on their lives and livelihoods. Like Addicott on the beach, this was only a beginning for Koirala in her passion for understanding and revealing the economic and human effects of climate change.

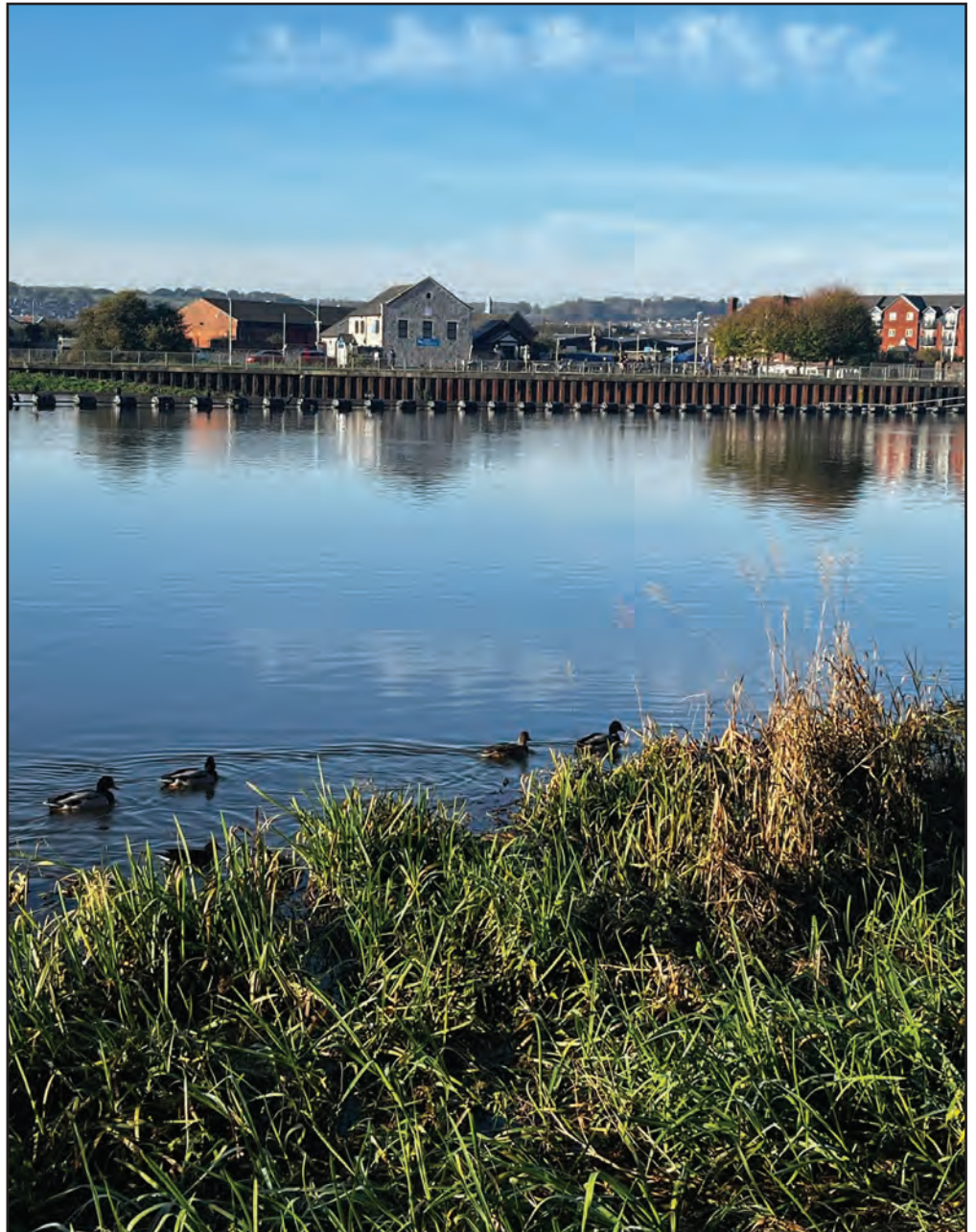
“Having grown up in Majhathana, one of the villages in Nepal, where agriculture was the primary source of livelihood for most families, I witnessed many households leaving for urban areas in search of better prospects, leaving behind a deserted agricultural sector,” Koirala said. “One of the primary reasons for their migration was the impact of unpredictable weather patterns on crop productivity, making it difficult to sustain their livelihoods. This realization piqued my curiosity about the role of climate change in farmers’ decisions to relocate.”

Her curiosity has not waned.



Samjhana Koirala, center, talks with farmers in her home country of Nepal about how climate change is impacting their livelihood. Photo courtesy of Samjhana Koirala

Ducks swim on the River Exe near the campus of the University of Exeter in Great Britain, where Addicott is now teaching and continuing his research. Photo courtesy of Ethan Addicott



Woodmont Beach along with two other neighborhoods in Milford and several in Bridgeport and Fairfield are where Koirala and her colleagues will conduct focus group meetings to hear input from residents about the Federal Emergency Management Agency identifying these areas as having a high likelihood of experiencing flooding. Photo: Judy Benson



“I was motivated to investigate how extreme weather events can shape individual decision-making processes concerning adaptation choices in different parts of the world, and I wanted to pursue my career in this field,” she said.

Moving to the United States, Koirala earned a master’s degree at the University of Idaho. Recently, while working on her doctorate at UConn, her focus included analyzing how varying degrees of snow melt in the American West impact farming, farmers and agriculture.

Today, however, as a Sea Grant fellow, Koirala has zeroed in on the Connecticut shore to try to tease out the tangled monetary and non-monetary factors that impact lives in vulnerable coastal regions. She hopes her work will someday make disaster relief and other coastal programs more equitable and effective for people living in vulnerable coastal communities.

“Sam’s work is exciting for our department,” says Kimberly Rollins, Koirala’s advisor at UConn and also the department head for Agricultural Resource Economics. As an applied economist, Rollins guides her students not only in economic theory and methods, but in ways to analyze difficult societal challenges, to try to determine and define where societal economic problems lie, and what information is needed to help support solutions to such problems.

“That’s how we—and Sam’s work—fit so well into the Sea Grant mission,” Rollins said, “because our Connecticut Sea Grant is focused on human communities that use marine resources.”

It’s also why Koirala’s work is so important, Rollins said, as factors impacting coastal residents are going to be similar to those disrupting the lives of people in other places also suffering natural disasters caused at least in part by climate change.

“Sam’s work is not just going to be for Connecticut,” Rollins said. “We hope that it will be the basis of a methodology that can apply elsewhere. It could even apply to wildfires. People live in areas prone to wildfire risk and they don’t move. Consider Paradise, CA, for example. People wouldn’t leave. Why?”

Koirala wants to answer that “why,” and see if she can offer insights on how policies could be more equitable and accommodating to the real-life variables people face—and their varying responses—when impacted by floods and other natural events.

“The destruction of someone’s house can leave them with no option but to leave their community.” Koirala said. “However, this decision comes with significant social costs. For example, leaving their community would mean losing their social network, uprooting their children, and potentially losing their cultural roots.

“Despite being aware of the potential risks of experiencing extreme weather events and the costs associated with living in a coastal community, some people may choose to stay due to their attachment to their community, friends, and family,” Koirala continued. “They may also have jobs that are linked to the water, such as fishing, which is a part of their identity. Beginning a new life all over again in a new place would be a daunting challenge itself. In addition, there are intangible benefits of living in a coastal community, such as enjoying the view of the water. These cannot be overlooked.”

Koirala will be holding focus group sessions this spring to help design a full survey that will go to select coastal residents in Connecticut later this year. The survey data will be analyzed in many ways.

“We hope to see if existing policies need to be tweaked to take into account some of those non-monetary factors that are the realities of the lives of people in certain communities,” Koirala said. “The question is, ‘Can we target and adapt policies to more vulnerable groups so we can create more resilient communities?’ That is the goal of my research.”

De Guise praised Koirala’s efforts.

“This is exactly accomplishing the goals of our fellowship,” he said. “Sam could have continued her work on snowmelt in the mountains, and gone on to a career out West, but now we’re opening her eyes to other things that could be related to climate adaptation, including storm surge and flooding, and who knows, that may turn out to be the route she chooses to go when she completes her degree.”

The fellowship is achieving its purpose, De Guise said, through the work of both Addicott and Koirala.

“We’re still opening new doors to understanding our coastal communities that struggle with climate adaptation,” he said. “In the end, with work like that of both Sam and Ethan, we’re hopefully going to be able to better understand the decision-making process and achieve our mission to better serve our coastal communities.”



West Beach in Westbrook is one of the areas identified by Addicott with natural features that enhance the value of nearby homes. Photo: Judy Benson



Right: Christopher Mills, technician for UConn's Marine Sciences Department, shows the parts of an outboard motor to students in the "Foundations of Shellfish Farming" class.

Inset photo: Teacher Michael Gilman discusses the importance of vessel size and condition to students in the "Foundations of Shellfish Farming" class. Photos: Judy Benson



# More than just the ABC's of aquaculture

STUDENTS LEARN SCIENCE, PRACTICAL AND FIRST-HAND KNOWLEDGE ABOUT SHELLFISH FARMING

By Judy Benson

Some of the students already earn their living growing oysters. Others aspire to, or want to farm shellfish as a sideline to supply their restaurant.

Still others are avid recreational clammers and conservation-minded citizens who wanted to learn how shellfish benefit the environment, then use that information to enhance local aquaculture. Ranging from young adults to retirees and those in-between, all 18 students shared a common curiosity about the ins and outs of bivalve aquaculture, and the desire to meet others with the same interest.

"I wanted to establish more of a connection with people getting into it, and learn more about the biology of shellfish," said Jake Simonds, 19, employee of the Stonington Oyster Farm, owned by his father, stepmother and their friend. Simonds and the other students comprised the first class of "Foundations of Shellfish Farming," a new course created by Connecticut Sea Grant to enhance the state's aquaculture industry by tapping into growing interest from would-be farmers and the public.

"There is tremendous interest in shellfish farming, but the occupation isn't for everyone," said CTSG Senior Extension Educator Tessa Getchis. "Marine aquaculture is a serious undertaking with major capital investment. Many also underestimate the challenging conditions associated with working on the water year-round. While our purpose is to train future farmers, we consider it just as much a success if a student decides not to pursue farming."

The course was developed by Getchis and Michael Gilman, aquaculture extension assistant and part owner of Indian River Shellfish in Madison, in consultation with the state Department of Agriculture Bureau of Aquaculture. A former high school science teacher and now adjunct professor at a local college,

Michael Gilman, aquaculture extension assistant for Connecticut Sea Grant, shows one type of oyster dredge to the class. Photos: Judy Benson



Eighteen students enrolled in the "Foundations of Shellfish Farming" course, taught at UConn's Avery Point campus over 11 weeks this winter and spring.

Gilman is equally at home in front of the classroom or on the water, so the course gave him an ideal opportunity to marry both skills.



"There's a lot of things I myself learned the hard way," Gilman told the class on the first of the 11 evening sessions that began in January. "One of my goals is to make it easier for you, to minimize some of your headaches."

Meeting at the UConn Avery Point campus in Groton where Connecticut Sea Grant is based, the course began with a short lesson on the history and various types of marine aquaculture, including farm-raised fish, shellfish, crustaceans and seaweed grown for food, and species that are grown for ornamental use, bait and biomedical purposes. They learned about the global trend of increasing amounts of seafood being raised through aquaculture, and less coming from wild-caught fisheries.

"The number of prospective shellfish farmers is growing, and we're working to fill the training gap," Gilman said.

There are many growing pains, he cautioned, that the course sought to help the students understand and navigate. While there is a robust regulatory process to protect existing public interests, instructors stress the importance of shellfish farmers being good neighbors. They also gave plenty of practical advice on topics such as shellfish suitable to grow in Connecticut waters, the various types of containers that are used to grow them, the best gloves for handling

shellfish and the human, animal and environmental hazards that farmers need to be aware of. Students heard about the importance of site selection and appreciating each area's unique characteristics for growing shellfish. An entire two-hour class was devoted to the basics of boat mechanics and operations, taught by Christopher Mills, technician for UConn's Marine Sciences Department.

"You really need to pay attention to your engine," he told the students, standing between two trailered UConn vessels in the parking lot near the Avery Point campus docks. "It's the lifeblood of your business. And you've got to get the right boat for the job, and know your boat's limitations. Don't overload it."

In another class, students heard from two leading scientists at the state Bureau of Aquaculture. Lydia Bienlien, shellfish pathologist, and Emily Marquis, environmental analyst, explained how shellfish and water quality are monitored in growing areas, and the farmer's responsibilities to ensure safe seafood harvest.

Sabrina Lyall, one of the students, said the detailed explanations about shellfish hazards, boat operations and the complexities of running a shellfish business were just what she was hoping for when she signed up. Lyall, 26, has worked on a shellfish farm, a shellfish hatchery at Roger Williams University and was due to start a new position at a federal oyster hatchery, but wanted to fill in some gaps in her knowledge.

"I knew the big picture, but I really wanted to get into the nitty gritty," said Lyall, who hopes to own her own oyster farm one day. "It's been very informative, and it's been great to get to work on my networking."

Throughout the course, Gilman reiterated a key message: growing shellfish is the easy part, relatively speaking. Being a successful farmer requires much more than knowing how to raise them.

"You're going to have to deal with the public," he said. "You probably never thought you'd have to get into politics, but you're going to have to go to the shellfish commission meetings, the harbor commission meetings. You may get asked to talk to the elementary school science class. And you should be at farmers markets, festivals. Having public support is a really good thing."

Shellfish farmers also need to be adept at marketing their

product by establishing brand identity, and have a web and social media presence that effectively tells their personal story and how their product benefits the environment, he emphasized. And they need to be able to tell that story when presenting a business plan to a bank loan officer, to a boater who pulls up beside the oyster cages to ask questions, and at the public meeting about a shellfish grounds lease.

"You have to understand what these animals are doing, so you have that lesson plan in your head to take to public forums," Gilman told the class. "They're a safe and healthy food source, they create cleaner and clearer water, they provide habitat for marine life, they help stabilize sediment and prevent erosion, they support recreational activities and are part of our maritime heritage and culture. Being able to describe the ecosystem

services of aquaculture is a really big deal. Use it to help you when engaging with the public."

Peter McGinnis, 68, is a retired engineer and longtime recreational clammer. He enrolled in the class so he could offer his services as a knowledgeable volunteer for projects with the shellfish commission in Groton where he lives. Although he has no plans to be a commercial shellfish farmer, he found Gilman's frank descriptions of the ups and downs of being one both refreshing and engaging.

"He portrayed the business honestly," McGinnis said. "We were being taught by somebody who really knew what he was talking about, which was great. Overall, it was a great value for the \$300 fee."

Gilman and Getchis are making plans to offer the course again, perhaps providing an all-virtual option along with the in-person one. Gilman said the mix of students and experience levels in the inaugural class yielded a lot of good discussions and information sharing. That

was just the sort of collegial atmosphere he

and Getchis are hoping to foster in the state's aquaculture industry that will help it continue to grow and prosper.

"One of the things we really wanted them to get out of this was a network of resource sharing and to push the philosophy of working together," he said. "And we wanted to build their confidence and let them know that you can make mistakes and still be comfortable with the decisions you make."

#### **MORE INFORMATION:**

For information about future shellfish aquaculture courses, contact Tessa Getchis at: [tessa.getchis@uconn.edu](mailto:tessa.getchis@uconn.edu) or Michael Gilman at: [michael.gilman@uconn.edu](mailto:michael.gilman@uconn.edu).

***“Being able to describe the ecosystem services of aquaculture is a really big deal. Use it to help you when engaging with the public.”***

MICHAEL GILMAN





## TALK TO US

Send comments and questions about this issue to: [judy.benson@uconn.edu](mailto:judy.benson@uconn.edu)

We'll share as many as possible, along with our responses, at: [seagrant.uconn.edu](http://seagrant.uconn.edu)



Sheila Stiles, research geneticist at the Milford lab, describes her work on blue mussels to a Sea Grant group on a recent tour of the facility. Photo: Judy Benson



A couple walks near the wrack line at Woodmont Beach in Milford in April. Photo: Judy Benson

## What's in our names?

What are wrack lines? The word wrack is a term for various kinds of seaweed, and wrack lines are the collections of organic matter (sea grass, shells, feathers, seaweed and other debris) that are deposited on shore by high tides. More generally, wrack lines are where the sea meets the land.

With our magazine *Wrack Lines*, we tell stories about the intersection of the land, sea and Connecticut Sea Grant. So what is Connecticut Sea Grant? One of 34 Sea Grant programs across the country, it helps residents make the most of our coastal resources and inland waterways.

It addresses the challenges that come with living by the water or within the Long Island Sound watershed, in a state with 332 miles of shoreline and three major tidal rivers. This NOAA-state partnership based at UConn's Avery Point campus works with aquaculture farmers, fishermen and seafood purveyors to help their businesses prosper.

It funds research essential to understanding and managing our changing coastal and inland environments. It provides communities and local leaders with the information they need to make better land and shoreline decisions that result in more resilient communities and healthier watersheds. It educates students as well as teachers and adults of all ages about the marine environment.

Connected to experts and residents who live, work and recreate in the Sound and its watershed, it brings diverse interests together around a common purpose of working for mutually beneficial solutions to problems.

Small in staff but big in impact, Connecticut Sea Grant is like a pilot boat that navigates the way for large vessels toward safe harbors. Since 1988, Connecticut Sea Grant has supported "Science Serving the Connecticut Coast."

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Conch pots and lobster traps are stacked on the docks in Bridgeport, where the commercial shellfish businesses owned by Paul Henriques and Dave Hopp are based. Photo: Nancy Balcom

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