

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



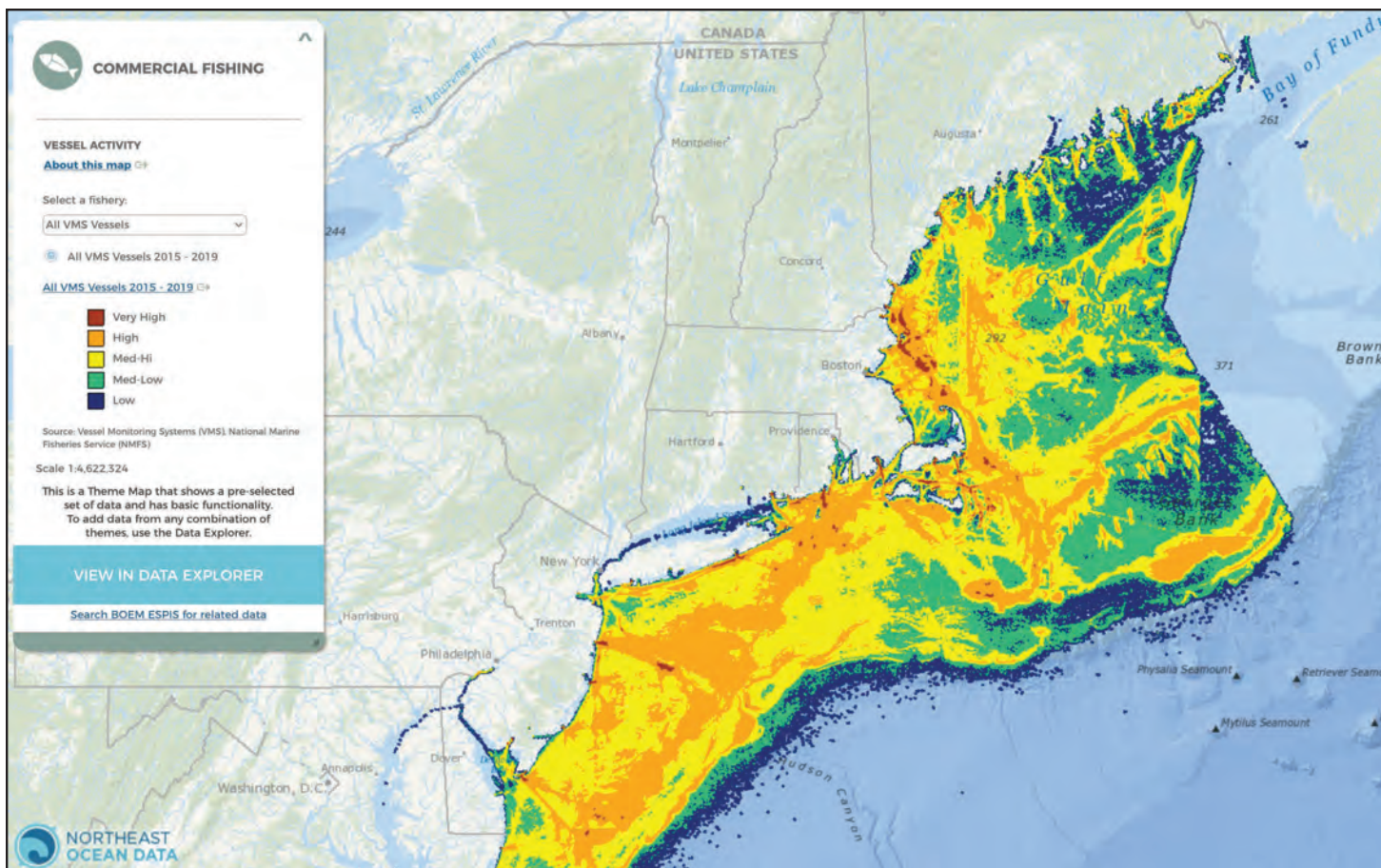
Commercial fishermen share their perspectives on offshore wind development

Historically, 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

