

# Engineers get acquainted with aquaculture

Unique equipment needs of shellfish farms present new possibilities for innovative designs

By JUDY BENSON

Oyster farmers and engineers have a lot in common.

That wouldn't be obvious, unless you were part of a tour at the Noank Aquaculture Cooperative this summer.

"We're not fishermen, we're farmers," said Jim Markow, president of the co-op, located where the Mystic River flows into Long Island Sound, as he showed the engineers' group the co-op's tanks, docks, vessels and cold room for sorting and packaging oysters.



Jim Markow, president of the Noank Aquaculture Co-operative, leads a group of agricultural and biological engineers on a tour last summer. Photo: Tessa Getchis

The main difference, he told the group, is that while terrestrial farmers rely on good soil and rainfall for their food crops and animal feed, what aquaculture farmers need most are healthy rivers where shellfish grow. Without the engineering systems that clean sewage and control runoff, shellfishing couldn't happen in urbanized waterways like Long Island Sound. Those are just two examples the engineers heard that day about how their skills are critical to this industry that puts fresh local clams and oysters on menus of fish markets and restaurants throughout Connecticut and beyond.

The engineers came to the co-op during the Northeast Agricultural and Biological Engineering Conference in nearby Groton, a field trip to a local site relevant to their work with equipment and systems for farms, food processing plants, laboratories and other workplaces. After three days of technical presentations during the conference, the visit to the co-op gave the engineers a chance to see a real-world application for their expertise in designs for water quality, sanitation, harvesting, temperature control and other areas they may not have considered.

Aside from their mutual interest in devices for unique uses in businesses that rely on plants and animals, the engineers and shellfishermen also share a connection to Connecticut Sea Grant. Extension Educator Tessa Getchis was among four Sea Grant staff participating in presentations and panel

discussions at the conference, and also arranged the trip to the co-op.

"Aquaculture is agriculture, just different plants and animals than farmers typically work with," said Getchis, who works with shellfishermen along the state's coastline who produce its \$30 million annual oyster and clam harvest. "We're trying to give our growers information, tools and resources so they can do their jobs better and faster and as cost-efficiently as possible. We rely heavily on engineers for equipment, but we may take them for granted."

Farmers, she said, "are also innovators." Since aquaculture is still a relatively new industry, the technology used to support it is still developing.

"The needs can be very specific to an operation or a geographic location," she said.

Co-op officer Steve Plant, owner of Connecticut Cultured Oysters, showed the engineers a real-life example of what that's come to mean.

"We had to come up with equipment that can go out and do some heavy lifting in almost no water," said Plant, as he showed the group a 24-foot Carolina Skiff with a custom crane and rake attached. "We're using some innovative designs here."

For conference organizer Glenn Warner, the visit to the co-op was a chance to expand horizons for himself and others who spend their professional lives figuring out ways to solve real-world problems. Warner is professor in the Department of Natural Resources and the Environment at the University of Connecticut and director of the Connecticut Institute of Water Resources.

"We had about 90 students, graduate students and professionals from all over the Northeast and Canada, giving presentations on food engineering, agricultural

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An oyster hatching tank is one of the types of equipment engineers learned about during their tour last summer.  
Photo: Tessa Getchis

engineering, biosystems problems,” Warner said. “Since we were so close to Long Island Sound, we wanted to take advantage of the chance to learn about aquaculture and some practical applications that may be new to us.”

For Getchis, bringing the engineers and the shellfishermen together fit naturally into her supporting role in the state’s growing aquaculture industry. For the past 18 years she’s been working to build relationships along the coast, help troubleshoot problems and shepherd in new techniques to make shellfishing more profitable and productive. Current projects include tests on a new type of gear for oyster farmers, and a new water quality testing method that could expand areas where oysters and clams could be harvested. She also plays the part of diplomat, bringing state or local agencies together with shellfishermen to resolve conflicts, and helps the commercial harvesters through the regulatory and permitting processes.

“I spend a lot of time talking to people about what their challenges are,” she said. “When I started this job, I spent a lot of time on boats with them, learning a lot from them and seeing how hard they work and developing trust relationships.”

But, she is quick to point out, she also considers the concerns of regulators and interested residents, seeking to find ways to balance meeting the needs of industry without risking public health or squandering good will over shared use of the public resources of the state’s waterways.

“We’re doing our best to increase public awareness about Connecticut seafood production and to discuss the importance of marine aquaculture in our state,” she said. “I’ve spent a lot of time talking to farmers, regulators, tour groups and concerned residents.”

The best ideas and creative solutions, she believes, rise out of putting “a bunch of passionate people in a room.”

For the engineers, experiencing the sights, sounds and smells of the oyster co-op stoked some new enthusiasm for applying their problem-solving and technical design skills in new ways.

“The people at the conference were really excited about the possibilities,” Getchis said.



Newly harvested oysters await packaging in the cold room at the co-op. Photo: Tessa Getchis

A group from the Northeast Agricultural and Biological Engineering Conference tour the room where algae grown for juvenile oysters is cultivated in large tanks. Photo: Tessa Getchis

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