

A look at Maine's first pre-apprenticeship and apprenticeship programs in the aquaculture industry

By Jessica Picard, MDOL Communications Manager

Career Exploration & Training Pathways

A key piece of sustaining a sector's workforce is ensuring that there is a steady talent pipeline of people interested in the work and learning the skills needed to be successful.

The mutually beneficial [Maine Apprenticeship Program](#), in place since 1941, works with both employers and workers to fulfill workforce talent needs and connect people to training pathways and high-quality jobs. Administered by the Maine Department of Labor, apprenticeship gives workers an opportunity to “earn while they learn,” and receive a nationally recognized, portable credential without accumulating debt.

Registered apprenticeships require at least 2,000 hours of on-the-job training and a minimum of 144 hours formal coursework for each year of the apprenticeship.

It builds in safety training, structure, mentorship, and a clear pathway to advance. Because apprentices are full employees of the business, they also have built in supports that many in coastal industries such as self-employed fishermen lack, such as wage and hour protections, unemployment insurance, and workers' compensation.

A proven hiring, training, and retention strategy, [over 90 percent](#) of registered apprentices nationwide continue to work with their employer once their training is complete.

As of October 2023, the Maine Apprenticeship Program had 1,345 active apprentices, 365 participating businesses, and was continuing to grow.

In January 2022, the Maine Apprenticeship Program launched a \$12.3 million grant opportunity, funded by the [Maine Jobs and Recovery Plan](#) and a U.S. Department of Labor State Apprenticeship Expansion, Equity, and Innovation (SAEEI) grant. Fourteen organizations were [selected](#) for their plans to expand apprenticeship and pre-apprenticeship opportunities across the state. These organizations are expected to create new training and work opportunities for 1,000 new apprentices and 2,000 new pre-apprentices, add more than 150 new employer sponsors, and create new apprenticeships in more than 50 new occupations by December 2024.

While registered apprenticeships have long been used in coastal industries such as shipbuilding, through these grants Maine became the first state in the country to create pre-apprenticeship and apprenticeship programs in the aquaculture industry.

Aquaculture Pre-Apprenticeships

At Bangs Island Mussels in Portland, pre-apprentice Andrew Hoffman has been learning on the job since June.

Hoffman, originally from Chicago and currently living with family in Portsmouth, graduated from Bates College in 2023 with a degree in Environmental Studies.

He then joined the [Aquaculture Pioneers](#), an internship program that was officially recognized as a certified pre-apprenticeship program by the Maine Department of Labor in 2023, and hired by Bangs Island Mussels.

A certified pre-apprenticeship is a training program designed to prepare individuals to enter into and succeed in a registered apprenticeship program. It includes supervised hands-on training, workplace safety training, and at least one agreement with a registered apprenticeship sponsor. Every program also includes a documented outreach plan to increase opportunities for underrepresented, disadvantaged, or low-skilled individuals, and members of historically marginalized communities.

“I’m really interested in the ecology/biology aspect of environmental studies, I’m very interested in the ocean,” Hoffman said. “That’s why I’m here, and I just love the outdoors, I love working outside.”

While Bangs Island Mussels has had interns in the past, this was their first experience with pre-apprenticeship.

“It’s important to us to help grow the next generation of aquaculture professionals,” Matthew Moretti, CEO of Bangs Island Mussels, said.

However, the cost of hiring and training interns for short periods of time can be costly, Moretti said. But through this pre-apprenticeship program, Educate Maine provides employers with a stipend reimbursement.



Pre-apprentice Andrew Hoffman stands on a boat used for mussel harvesting at Bangs Island Mussels in Portland.

“Andrew is paid for, which is amazing, and it’s working out great. That was huge, that really made it doable for us. It helped out a lot,” Moretti said.

Pre-apprenticeships give employers and workers the time and flexibility to try new things and learn skills in a hands-on way.

“Because mussel farming is kind of an obscure industry, nobody we bring on really has mussel experience. Some people have varying degrees of ocean experience, which can be important. But basically we trained Andrew like we would train anyone else, any other crew member. This is how you operate safely on the water, this is what we do,” Moretti said. “A lot of it is on-the-job training because it’s so foreign to everybody that you really have to do it and witness it to understand.”

“I feel it’s a very learn as you go type of job because we could sit in the office and we could outline every little task we do, but that’s not going to do as much as actually seeing it happen. My second day we went to go do a net change, and so they walked me through that. They can’t really explain it to me until we’re out there,” Hoffman said. “And now I definitely feel like I’m one with the crew, I can tell I’m a little less skilled, but I feel like I know what I’m doing at this point.”

In addition to learning the typical tasks of working at a mussel farm, Hoffman has been able to incorporate Geographic Information System (GIS) work into his pre-apprenticeship experience.

“I’m mapping all of the infrastructure of the farm,” Hoffman said, showing a detailed map on his computer screen.

“The main project that I’m doing, in addition to learning the ins and outs of the farm, is to provide them with this data that they didn’t have before I got here,” Hoffman said. “I’ve been going out with a diver, we’ve gone three or four times, where he’ll examine all the mooring lines, and then he’ll leave buoys on the mooring blocks in helixes, so that we can go pick



Pre-apprentice Andrew Hoffman showing the Geographic Information System (GIS) work he is doing for Bangs Island Mussels.

them up and I can mark a point, and now we know exactly where they are. And I take notes on everything that he sees down there.”

Hoffman then color-codes the information on the map, such as using yellow for lines that are in okay condition but will need to be replaced soon, versus green where lines are in good condition.



“I’m trying to make this in a way that I can leave it with them where they can easily modify the data and come into the office, look at the map and see okay, we’ve got a problem here, let’s go check it out,” Hoffman said. *Pre-apprentice Andrew Hoffman and Bangs Island Mussels CEO Matthew Moretti at work in Portland.*

Hoffman first learned how to do this type of work in a class his sophomore year, and then worked as a teacher’s assistant for the following two years.

Hoffman attributes that time as a foundation for the work he is doing, as well as for inspiring his interest in the aquaculture industry, including integrated multi-trophic aquaculture, where multiple organisms are farmed together. At Bangs Island Mussels, kelp is grown with the mussels.

While he had some experience on the technology side, Hoffman said he felt supported when learning new skills.

“When I first started doing things, there was always someone with me just explaining everything and if I had any questions I could ask. Everyone’s open, if I’m confused about something I can just ask someone really quick and they’ll tell me or they’ll help me out or show me,” Hoffman said.

“A pre-apprentice through this program is basically a no-brainer,” Moretti said. “It worked out perfectly for us. Andrew was an asset; he brought a particular set of skills and knowledge to us that we had never had before. We would absolutely do it again.”

Pre-apprentices have a straight pathway into the registered apprenticeship program, which Hoffman is considering as he weighs his options for when his 12-week pre-apprenticeship ends in September.

“(The pre-apprenticeship program) is a good jumping off point and it gives me experience and a dip in the field,” Hoffman said. “I think Maine should keep supporting this program. I think aquaculture is huge, and I think especially in Maine it’s really important.”

Aquaculture Registered Apprenticeships



Colin Quinn and Katherine (Kat) Lipp, registered apprentices at Mere Point Oyster Company in Brunswick, put small oysters that had been harvested earlier in the day back into the water so that they may continue to grow and reach market size. (August 2023)

Farther up the coast, aquaculture apprentices Katherine ‘Kat’ Lipp and Colin Quinn have been working at Mere Point Oyster Co. in Brunswick, and apprentice Gabriel Chlebowski at Muscongus Bay Aquaculture in Edgecomb. They all started their year-long programs in the spring of 2023.

“It’s exciting to be part of the pilot program and see the potential of it for the state and beyond. It definitely feels like there’s a lot of people who are backing the program and it feels very well supported,” Lipp said.

While she grew up visiting Maine, where her father’s family is from, Lipp is originally from Ohio. While fishing is not in her family’s background, she studied Marine Biology at the University of Miami, and then lived and worked in Alaska’s seafood industry for eight years.

“I really fell in love with the industry as a whole, from regulation to seafood production, and the communities that they support. There’s no line between a community and working on the waterfront, it’s all very inter-tied and interconnected,” she said. “I knew

about the aquaculture industry here, and the seafood industry, so I thought it would be an easy transition moving east coast. Although they are very far apart from each other, Alaska and Maine are very similar.”

“I think there’s a tremendous opportunity for Maine to continue to attract young professionals to the state,” said Jeffrey Auger, Director of Business Growth and Acquisitions for Atlantic Aqua Farms, the parent company of Muscongus Bay Aquaculture. “Over 50 percent of our workers are under 30, and I’d say over 50 percent moved to Maine for this job. That is pretty unheard of. We’re in the oldest county in the oldest state. There are no other industries that have such a young, passionate workforce. We want to make sure that they don’t get disenfranchised, that they have good jobs to work at, and that we can grow with them.”

When Lipp moved to Maine in the fall of 2022 to be closer to family, she heard about the aquaculture apprenticeship program while networking.

“I knew it was a pilot program, so I was kind of unsure, but it’s really worked out to be a great fit. And it’s kind of exciting to be on it at the ground level, you feel like you can contribute more to the program’s future,” she said.

“This is definitely a little bit different than my background,” said Quinn, who moved to Maine from Massachusetts in 2021 and was previously working in beverage production. He had been interested in aquaculture for a while, and jumped at the chance to try it when he saw the apprenticeship pilot.

“It’s really hard to find people who are motivated and want to do this work and have the skills to do this work, so the apprenticeship program bridges the gap there for us,” said Chris Hedberg, Farm Director at Mere Point Oyster Company where Lapp and Quinn are working. “Turnover can be quite high, so Kat and Colin are really tremendous additions to the team.”

“My unique experience with the apprenticeship program is that I’m probably the only apprentice who had no water experience,” Chlebowski said as he worked in the middle of the Damariscotta River. “Coming from rural central Pennsylvania, growing up on and around farms, I didn’t spend much time on the water. Now I have quite the breadth thanks to Nate and my other coworkers.”

“It might seem intimidating, but I think the apprenticeship program eases people in,” said Nathan Cole, the crew chief at Muscongus Bay Aquaculture who



Registered apprentice Gabriel Chlebowski of Muscongus Bay Aquaculture holds oyster seed on the Damariscotta River. (August 2023)

has been training Chlebowski. “The industry is growing, it’s changing, it is for everybody, it is not for a specific type of person. I think it’s a really safe, controlled way to do it, where the understanding is that you are here to learn and we’re here to teach you. Rather than just coming for a job, which can be intimidating.”

While originally planning to go to college, Chlebowski spent time thinking about what he really wanted and decided to hold off. He got a job working construction right out of high school, and then spent some time traveling before moving to Maine in February 2023 after his family relocated to the state.

“I tried very hard in high school and I was very academic, but then I left high school and I worked construction and just absolutely loved it. This kind of melds a little bit of the two together, because I get to do some more academic things, but then at the end of the day I still get to be outside covered in mud and sweat driving around a boat,” Chlebowski joked.

“We have a huge need for labor,” Auger said. “Our industry, one of the limiting factors is getting people to work with us, and the recent climate with workforce is only made that exponentially more difficult. We are always looking for people like Gabe, young hardworking individuals, that want careers. When you’re talking about the vision and the plan for the company, we need full-time, year-round employees that are committed, passionate, work hard, and want aquaculture to be their career. And we want to provide that career.”

“As an employer, you’re worried about who is going to show up, but the process was very similar to hiring anybody,” Auger continued about apprenticeship. “It was really an easy lift for us. There is a need, it was tailored to that need, and it’s not overly burdensome or cumbersome on the company to do it.”

Apprentices started off their training with a 40-hour “bootcamp” that included some hands-on boat work, safety training including AED and CPR certification, talking with oyster farmers, a tour of the Darling Marine Center, and being provided with gear such as personal flotation devices.



Apprentice Kat Lipp, Farm Director Chris Hedberg, and apprentice Colin Quinn stand next to a tumbler that separates harvested oysters by size. Lipp and Quinn are registered apprentices at Mere Point Oyster Company in Brunswick. (August 2023)

“The education that (Chlebowski) is getting is tailored to our industry, because we were able to tailor it for what we were looking for,” Auger said. “Things like boater safety, boater maintenance, basic understandings of shellfish biology, sanitation...those are the types of things that kind of get learned on the fly, but to have candidates show up, even if they don’t have a knowledge of it, knowing that they’ll have a good knowledge of that within a year, is really tremendous.”

As the year-long programs progress, apprentices will take more classes along with their hands-on work. Because summer is the busy season, most of course instruction will take place over the winter.

Apprentices will also have days where they visit each other’s workplaces and show each other what they have been learning.

“There’s so many great farms up here, and also its really cool, it feels a bit more like a community. Obviously there’s competitive businesses, but everybody seems to work together a lot in the aquaculture and oyster industry,” Lipp said. “You could tell people were excited about the program, so it made us excited to be in the program. They also asked us, which was cool, what we’re looking to get out of the program, which was really great that they’re so receptive in that way. We all were really stoked about the Yamaha maintenance – we’re basically getting this really high-end maintenance Yamaha course for free through this program.”



Kat Lipp and Colin Quinn, registered apprentices at Mere Point Oyster Company in Brunswick, work to put a boat onto a trailer so that it can be taken out of the water. (August 2023)

“I got to learn the logistical process of oyster farming. I came into work already knowing the three different lease types, and vibrio certified,” Chlebowski said.

According to the Centers for Disease Control and Prevention (CDC), [Vibrio bacteria](#) naturally inhabit coastal waters where oysters live. Because oysters feed by filtering water, bacteria can concentrate in their tissues. When someone eats raw or undercooked oysters, viruses or bacteria that may be in the oyster can cause illness.

“The vibrio class is a prime example of the teaching and the foundation that the apprentices are coming in with,” Cole said. “Most people don’t know what vibrio is at all. But not only to learn about what vibrio is, but to learn how serious, and the protocols and the steps that we need to take to ensure the safe handling of the oysters - it’s a perfect example of what this program is giving us.”

“I definitely recommend it to anyone, it’s a very good entry into an industry that might be more difficult to get into otherwise,” Quinn said. “I feel like it has given me the tools and the resources that have really made the transition easier, like the program setting us up with gear, and the training, and that path for growth. I can just focus on learning while I’m here.”

Another piece of the apprenticeship program that has really made a difference for Chlebowski is the mentorship component.

“Nate is an incredible teacher, he’s taught me so much,” he said. “He’s been an incredible mentor, so knowledgeable and makes work a great place to come to. I definitely feel a lot of pride working here and being a part of the world that is aquaculture. Recently I’ve definitely felt a little more pride now that some of the hard work is coming to fruition.”



Crew Chief Nathan Cole and apprentice Gabriel Chlebowski of Muscongus Bay Aquaculture deploy oyster seed on the Damariscotta River. (August 2023)

“It was definitely a little bit of an adjustment,”

Nathan Cole, crew chief at Muscongus Bay Aquaculture, said of mentoring an apprentice. “I made sure that my expectations weren’t that he was just another laborer. Not to say that we’re not relying on him and he’s not doing wonderful work, but he’s here to learn. And so to make sure that I’m allowing time and space for that.”

For Cole, teaching another person the ropes has given him renewed appreciation for the work as well.

“Being able to look at the work through the lens of Gabe and everything being new and exciting has reinvigorated my excitement for oyster farming. I’m having to be really conscious of what we are doing because I’m trying to explain it and teach it,” he said. “Many times in my life people have suggested that I go into teaching, it’s something that I particularly enjoy....You do something for long enough, you kind of forget all the nuance, so with Gabe here it’s reminding me of all those nuances, which I think only helps me as well as Gabe.”

All three apprentices mentioned how they enjoy how tasks change from day-to-day, from tasks such as harvesting oysters, to packing orders for shipping, to learning oyster husbandry and working with seed.

“It’s hard to really describe a typical week because it’s always changing, but with that there’s a lot of room for learning and growth because I feel like every week and every day I’m doing a new task, something that I haven’t done before or a new way to do something,” Quinn said.

“I’ve been working a lot in the nursery, which is really cool to see that whole process,” Lipp said. “We buy seed from hatcheries in the state, and then we grow them up to market size in 2-3 years. We make sure that they’re clean and healthy and have room to filter and keep eating. That’s been a neat process to learn.”

Compared to other job training, Quinn said that “there’s more direction with (apprenticeship) and maybe it’s a little bit more quantifiable in making sure I’m taught the way I’m supposed to be taught, and I learn the things that are on the curriculum for the apprenticeship.”

“Right now we’re noticing a pretty big dearth in skilled labor in aquaculture at large. A lot of people think of it as a more general menial labor job, and it’s really not,” Cole said. “The apprenticeship program gives people not only a good foundation of skills and knowledge, but just a good understanding of what to expect.”

“I think it’s awesome that the government has stepped in to help the private sector bridge this gap,” Hedberg said. “Maine’s on the leading edge of this program. We have a booming aquaculture industry, and for the industry to succeed and get to where it needs to go, we need a really strong workforce. Workforce is really the foundation of Maine’s blue



Gabriel Chlebowski, a registered apprentice at Muscongus Bay Aquaculture, shows oyster seed that will be going into the water. (August 2023)



Colin Quinn and Kat Lipp, registered apprentices at Mere Point Oyster Company in Brunswick, sit on the side of a boat within one of the company's leases on Maquoit Bay. (August 2023)

economy for the foreseeable future and what we're able to do. Five-ten years from now, I think it's going to really pay dividends for everyone."

"I think (the apprenticeship program) is just another thing in this state that shows that Maine is at the forefront of this industry and how we are being the innovative leaders for what the future could be for the working waterfront. This is how you develop working waterfront companies and how we maintain the tradition that we all take a lot of pride in of making a living from the beautiful water we all live on," Auger said.

"This job means everything to me. There's something about being on the water that I just find absolutely addicting, and the work is incredibly fascinating," Chlebowski said. "I think the whole apprenticeship format is so nice because you're narrowing in on a specific topic. You're getting isolated lessons that directly correlate to the work that you'll be doing. My family makes fun of me because all I talk about is oysters now."

More information about registered apprenticeship and how to get involved can be found here: https://www.maine.gov/labor/jobs_training/apprenticeship/