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# Maine's largest mussel grower ramps up for scallops using Japanese method

By Jason Huffman

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📷 Alex de Koning prepares to inspect his test project scallop lines in Frenchman Bay. Photograph courtesy of Acadia Aqua Farms.

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Theo and Fiona de Koning believe their shellfish aquaculture business to be the largest grower of mussels in the US state of Maine. But if they're successful in their latest endeavor, they could soon become the state's largest farmer of Atlantic sea scallops (*Placopecten magellanicus*), too.

That's what their Trenton, Maine-based company, licensed under three names (Stewardship GEM, Hollander & de Koning Mussel Processors, and Acadia Aqua Farms), wants to grow on the 68-acre site for which they've applied for a 20-year

lease from the state's Department of Marine Resources (DMR). They plan to borrow a page from the huge Japanese scallop industry, using long lines, lantern nets, and ear-hanging droppers.

If all goes well, the de Konings could wind up growing as many as 500,000 lbs (227 metric tons) of scallops annually, adding to the revenue already generated by their 158-acre, five-lease, nearly 500t per year mussel operation, Alex de Koning, the company's production manager and one of the de Koning's two children involved in the business, estimated in a recent interview with *Undercurrent News*.

Such a volume of landings may not compare to the nearly 23,000t, \$550m per year haul generated by the US wild catch scallop industry, largely based in New Bedford, Massachusetts, or the additional 16,500t worth nearly \$200m that are imported by the US annually. But it would dwarf the combined output of Maine's five or so other small scallop farms believed to be operating.

Of course, that's the most optimistic outcome, admits Alex, who describes the scallop farming effort as his personal "passion project" and a way in which he hopes to diversify his family's aquaculture production.

"I can see [harvesting] a million scallops a year, maybe 2m a year off the area. But honestly, it could be anywhere between 500,000 scallops and 5 million. We really don't know yet," he said.



📷 An Atlantic sea scallop. Photograph courtesy of Acadia Aqua Farms.



📷 Fiona and Theo de Koning.

The de Konings estimate that it will take them four years to grow enough scallops to a harvestable age and reach the scale needed to launch a commercial-level sales effort. But they're not starting from scratch. They've been growing scallops on a much smaller scale in the same area of Mount Desert Island's Frenchman Bay for nearly four years as part of a test project, using a state-provided limited-purpose aquaculture (LPA) license.

Maine LPAs allow no more than 400 square feet to be used and require annual renewal, just enough to enable farmers to get started and/or experiment with different growing techniques, locations, etc.

The de Konings have also been helped by a \$57,000 grant received in the spring of 2020 and used to buy a drilling machine from Japan for the purpose of automating the ear-hanging of scallops, saving hours of labor. Alex hopes for the equipment to be operational by spring 2021.

Late last month Fiona and Alex participated in a DMR-organized scoping session on Zoom, answering questions about the scallop farming lease from about 25 local residents, as reported by the *Mount Desert Islander*, a small local news service. One local resident asked if the company had plans to expand, to which the de Konings answered that a lease application for another mussel farming site was also pending with DMR.

"I honestly both hope and expect this is the last lease I will ever apply for in my life," Alex de Koning reportedly said after noting that he is almost 30 years old. "I do not see a path for needing more than this because, quite honestly, it would be more than, as one family, we would be able to handle."

## A state full of aquaculture enthusiasts

The de Konings are part of a growing wave in Maine. Aquaculture generated as much as \$88.4m worth of sales in 2019 in the state, the most recent year for which data is available from DMR, a 42% increase over 2017.

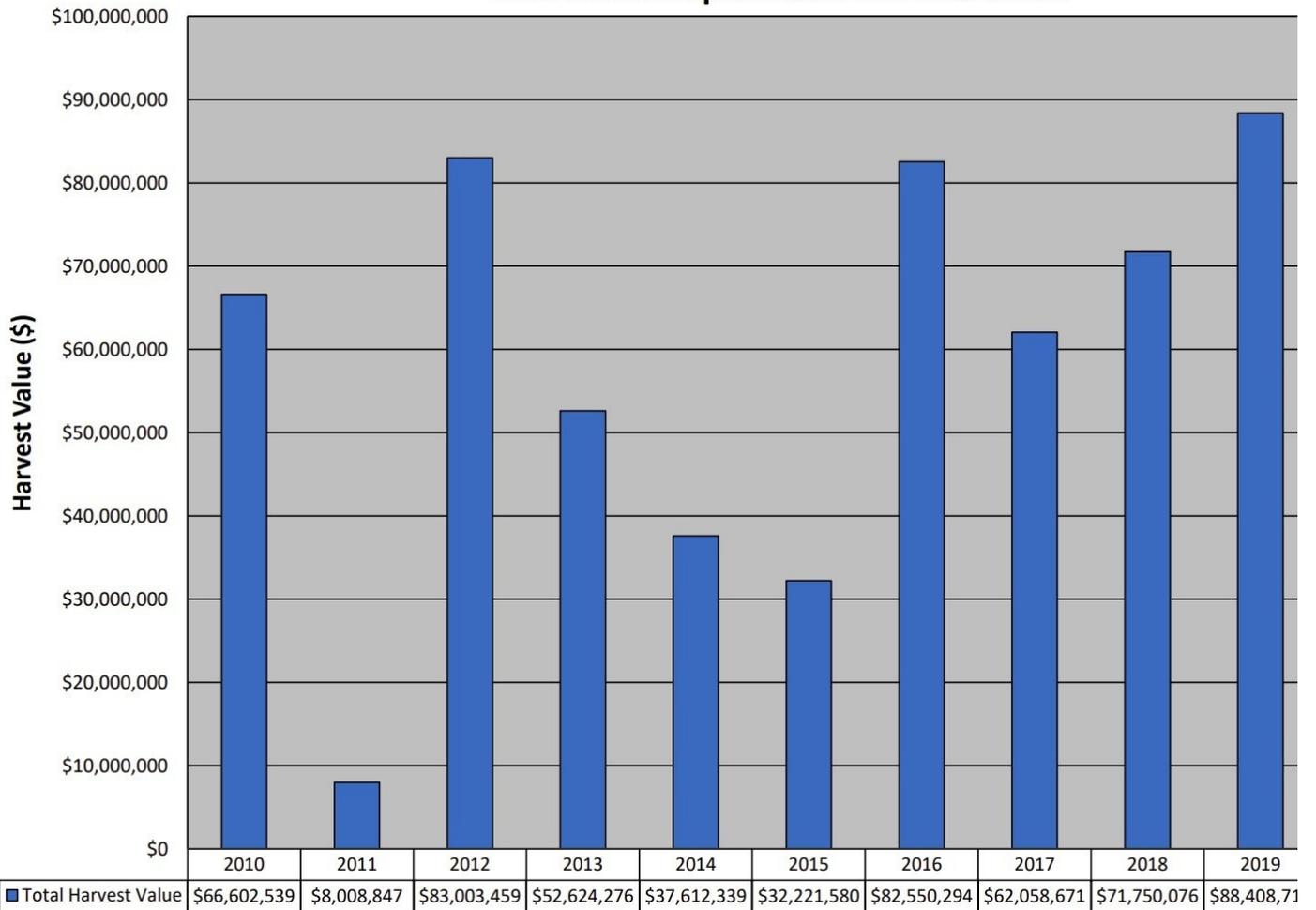
The state's most valuable aquaculture-grown shellfish species is eastern oysters, which accounted for 6,304t worth \$9.7m in 2019. The state also grew 1,043t of blue mussels worth \$4.0m.

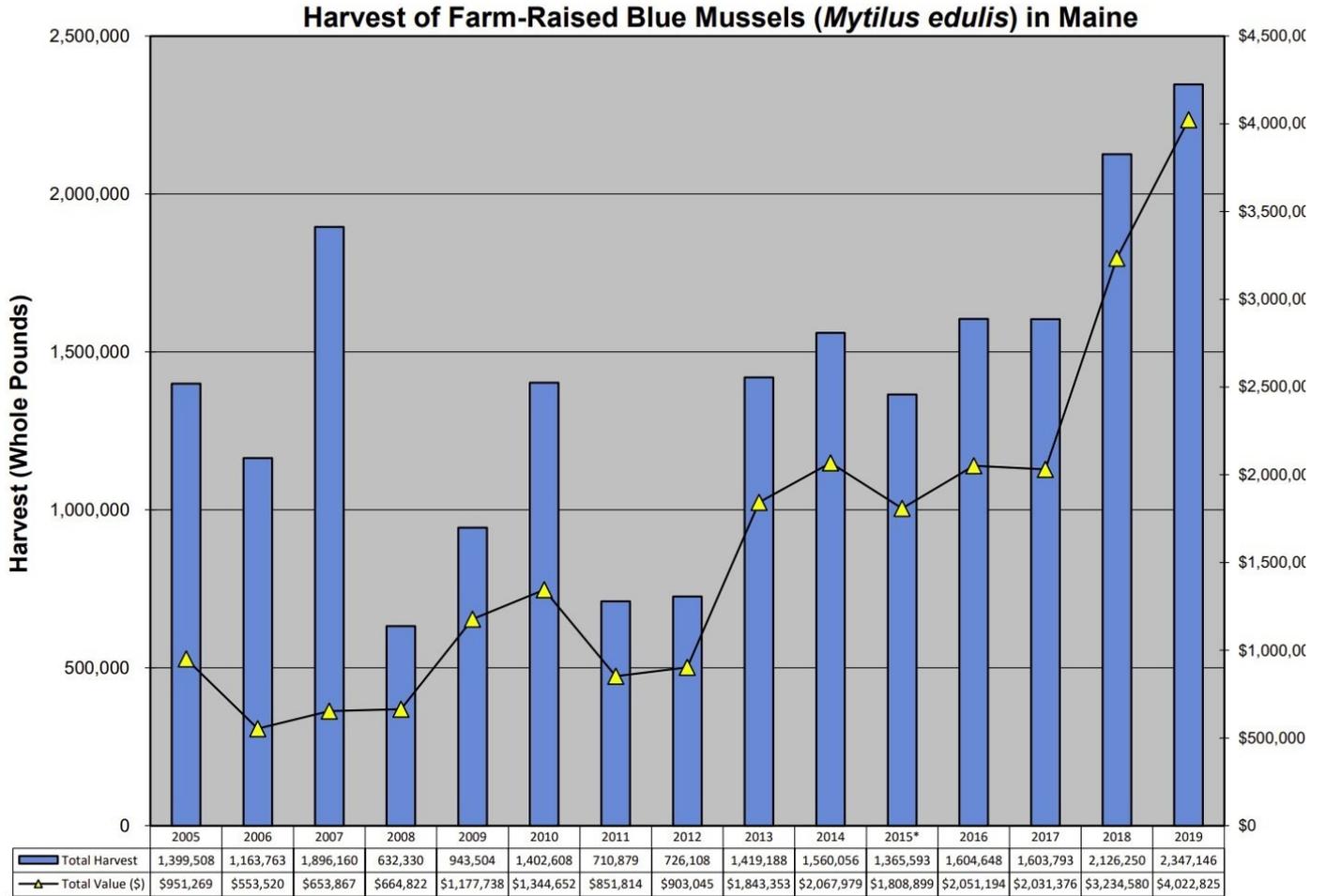
Seaweed is another aquaculture product showing significant promise in Maine, though it has yet to produce much revenue. The 127t harvested in 2019 generated \$176,132, though that represented a growth of 429% in volume and 365% in value in just one year.

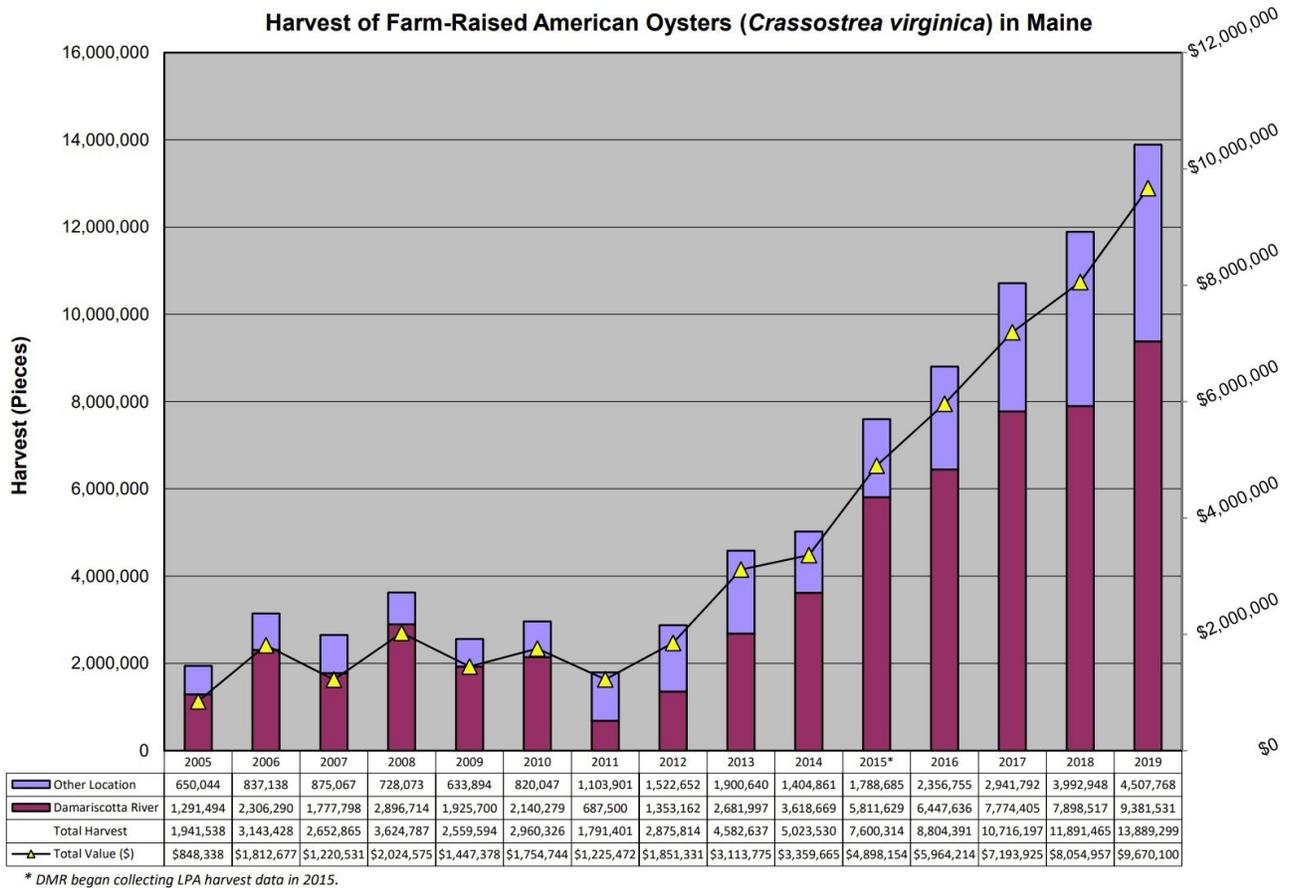
It's likely that Atlantic salmon grown in net pens remains the largest contributor to the state's aquaculture sector, though Maine has declined to share recent data due to there being such a limited number of producers. The state fears it might give away a private business' financials, that business being Canadian seafood giant Cooke, the only company left growing salmon in Maine waters.

In 2010, the last time Maine permitted such data to be published, the state reported that Atlantic salmon production was 10,886t and worth more than \$55m.

### Total Maine Aquaculture Harvest Value







📷 Graphics courtesy of the Maine Department of Marine Resources.

It's for the same reason that DMR said it won't provide data on scallop farming production. But Dana Morse, an extension agent with the Maine Sea Grant program who's been working to help individuals get into the business, told *Undercurrent* last week that he believes there were roughly 40,000 to 50,000 scallop pieces sold last year in the state, adding that 2020 was a bad year due to the pandemic and typical production would be greater.

For perspective, consider that Maine's wild-catch scallop harvesters landed 1,588t worth \$4.4m in 2019, nearly half of the volume and value they generated in 2017.

Morse remains cautiously optimistic about scallop farming though, pointing to the 10 years it took for Maine's mussel sector and the 15 to 20 years it took the state's oyster sector to make a commercial dent.

However, scallop farming isn't easy, he stressed.

"Sea scallops are finicky," he said. "They don't like to be crowded. They don't like extremes in temperature. You can't handle them very much. They're not like oysters. You need a lot of gear to spread them out, which equals a lot of labor and equipment. You need the right site. You need to manage biofouling. And so, when all is said and done, you're talking about a crop that commands a good farm-gate value, but it's expensive to raise."

"...We can definitely grow a nice, big scallop," Morse said of his state. "The technical part is not the problem. The problem is, can you do it and make money?"

Regardless, an increasing number of entrepreneurs are dipping their toes in the water on scallop farming.

Maine now maintains as many as 30 approved scallop aquaculture leases for a combined 298 acres, including 10 approved in the past two years, though many are for multiple species and it's likely that few of the leases are yet being used to grow scallops, according to data from DMR. Also, some of the leases are approved for the raising of bay scallops (*Argopecten irradians*), a smaller and typically less lucrative species.

Only three of the approved leases are for scallops only, Cheyenne Adams, a scientist on DMR's aquaculture staff, told *Undercurrent*.

"It's a very common practice to list multiple species on a lease so that they are permitted for future expansion, innovation, etc. when the leaseholder has no immediate plans to culture that species, and this is especially the case with a relatively new crop like scallops," she explained.

The approved scallop leases, one of which dates back to 1987, range from a half-acre to 36 acres, well below the size of the de Konings' application. The de Konings' application is one of 11 filed for scallop-included leases between early 2019 and early 2021 that have not yet been approved.

Additionally, of Maine's 700 LPAs, 98 are for either sea or bay scallops, and 44 are for scallops only.



📷 Blue mussels. Photograph courtesy of Acadia Aqua Farms.



📷 The Stewardship, the do-everything vessel used by the de Konings in their blue mussel and fledgling scallop farming efforts. Photograph provided by Acadia Aqua Farms.

## The shipwreck that started it all

The story behind the handful of Maine aquaculture enthusiasts trying their hands at growing scallops using Japanese farming techniques dates all the way back to 1889, Hugh Cowperthwaite, the fisheries project director at Coastal Enterprises Inc. (CEI), recounted for *Undercurrent* during a visit to Portland, Maine, in late 2018.

That's the year the Chesebrough, a 204-foot American merchant ship birthed in Bath, Maine, got caught in a typhoon and sunk off the coast of the Aomori Prefecture. Local villagers risked their own lives in the storm to rescue four of the drowning 23 crew members.

In commemoration of the tragedy and heroism, in 1994, Maine governor John McKernon established a sister relationship between his state and Aomori. It led to many visits between the two areas over the years in which both cultures traded their successes on a multitude of projects and topics, from education and energy to seafood production.

Cowperthwaite himself was invited on a trip to Aomori in 2010. He recalled spending 10 days there, taking copious notes on the scallop industry, and then took the next six years to organize a return trip.

For the 2016 visit of Aomori, Cowperthwaite managed to get funding to bring with him 10 Mainers interested in learning more and willing to each put up \$1,000 of their own money. The group, which included oyster and mussel farmers and a

lobster harvester, spent another 10 days in the prefecture and even took boats out onto the water in order to explore all aspects of Japan's scallop industry.

CEI followed the visit with the purchase of several pieces of equipment, including a scallop drill for ear-hanging, a scallop washing machine, and also a grader to sort the scallops by size. Later a Japanese delegation visited Maine and provided some instruction on how to use the equipment, which is now being shared by a handful of scallop harvesters in the state, Cowperthwaite told *Undercurrent* this week.





📷 Hugh Cowperthwaite demonstrates the difficulty of threading scallops for the purpose of ear hanging. Photographs taken by Undercurrent reporter Jason Huffman during a 2018 trip to Portland, Maine.

## 'We are brothers in arms'

Alex de Koning explains that his company's approach is actually one of two used in Japan. Like the farmers in Aomori, the de Konings put their spat collectors to catch the tiny scallop seeds floating in the ocean toward the end of September or the beginning of October, placing them in lantern nets between April and June.

The nets have been hung in an area about a mile from shore on horizontal ropes that are about 2,000 feet long and suspended roughly 25 feet below the surface of the water.

After a year in the lanterns, the scallops reach the size of about two inches in diameter or larger, and they are then poked with holes and ear hung on the same ropes for another two to three years before they are harvested.

Unlike wild-caught scallops, the harvesters of farmed scallops in Maine nearly all sell their products whole, as they can fetch a better price, Morse told *Undercurrent*.

Maine's largest scallop farmer, at least until the de Konings succeed in their launch, is PenBay Farmed Scallops, in Stonington, a business managed by the father and son team of Marsden and Bob Brewer. The Brewers have been gathering information and building their scallop operation for 20 years, but only began



📷 A Japanese-style lantern used by the de Konings to grow scallops. Photograph courtesy of Acadia Aqua Farms.

selling commercially three years ago, Marsden told *Undercurrent*.

The PenBay website offers a 50 count of its whole scallops for \$25 and a 10 count of medium-sized scallops for \$12.50, which it boasts is a wholesale price. It also provides [an extensive list of recipes](#) for cooking with whole scallops.

Selling whole scallops, however, comes with the costs of additional food safety tests, as the digestive gland, roe and other parts of the scallop are capable of containing biotoxins, such as saxitoxin and domoic acid.

PenBay Farmed Scallops warns on its website: "Whole or roe-on scallops MUST be purchased through a certified dealer operating under carefully monitored environmental conditions. Under no circumstances whatsoever should one assume that it's safe to eat any part of wild-caught

scallops except the adductor muscle."

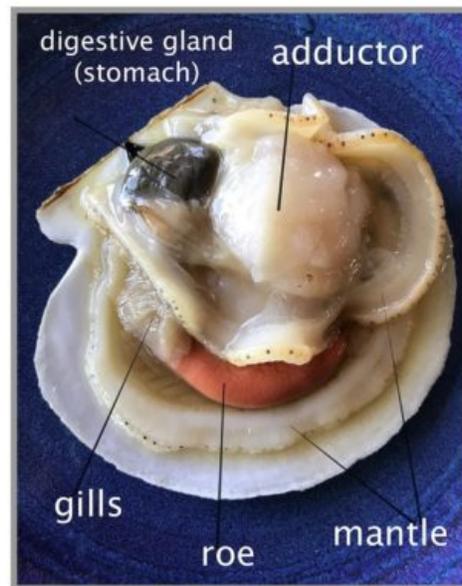
The extra risk and expense associated with whole scallops are one of the reasons the de Konings have decided that they will sell the scallop adductor muscles only, just like the wild-catch harvesters. That might mean fetching slightly less of a premium, but the de Konings shouldn't have to drop their price too much given the prices being paid now for wild-caught scallops in Massachusetts.

As reported recently by *Undercurrent*, the average being paid at the New Bedford auction house is \$14.42/lb, though U-10s – the largest size – are commanding more than \$20/lb.

The de Konings are watching those prices closely as they continue to make progress with their farming effort. And they continue to work collaboratively with other scallop farmers in the area, sharing experiences and resources when able.

"It's a very niche market," said Fiona de Koning. "We are brothers in arms."

**'Mussels are our bread and butter'**



📷 The anatomy of an Atlantic sea scallop. Graphic from the Penbay Farmed website.

The de Konings are no strangers to adversity in the aquaculture industry. The family traces its roots in the business back to Holland in 1773 when Theun de Koning played an integral part in helping to settle a fierce fight over how to handle mussel farming leases in the country.

More than 230 years and many generations later, in 2006, it was Theo de Koning's idea to take his family's mussel legacy to foreign lands, so he moved with his wife, then of 10 years, and their three children to the US state of Maine and partnered with a mussel processor.

Younger son Max now captains the mussel farm's harvesting vessel, the *Stewardship*, while a daughter, Charlotte, has left the business to become a school teacher.

As Alex de Koning explained, his father believed that, in a multi-generational family business, each generation should add something to the equation.



📷 This photograph, courtesy of the de Koning family, shows mussels being sold in wheelbarrows in Antwerpen, Belgium, after being brought there from Holland by sailing vessels.

However, it didn't go exactly as planned, as the de Konings' US partner experienced financial difficulties and went out of business, forcing them to take over the leases as well as the processing operation.

The family was challenged again when, in late 2015, a just-finished processing plant was burned to the ground the day before it was scheduled to begin operations. Insurance covered much of the loss, but the de Konings were still out about \$40,000 Fiona de Koning

related.

Unlike some other mussel growers in the state, the de Konings employ the bottom culture approach used in Holland. Fiona de Koning listed several advantages of the approach, including the thicker shell the mussels develop from being in a more "abrasive environment", which she said made them less likely to crack when being shipped.

Being on the seafloor also makes the mussel more likely to pick up minerals, giving them a bolder flavor, she said.

*Undercurrent* earlier reported on Portland, Maine-based Bangs Island Mussels, which refers to itself as the "the largest rope-grown mussel producer on the US east coast". The company, which looks to finish 2021 growing 317-340t of mussels. However, unlike Acadia Aqua, Bangs Island hangs its mussels from rafts on ropes -- 26 rafts on 24 acres, to be precise.

It takes about 18 months for mussels to reach a harvestable size, the de Konings estimate, assuming they survive that long. There are plenty of predators, from the growing number of green crabs and starfish that feast on the seed to the ducks that dive in and eat the larger mussels.

In recent times, the business also has had to work to overcome a 62% loss in annual sales due to the pandemic, though it has benefited from federal assistance. Also, it's made a few moves to help itself.

The company traditionally has sold its mussels in 10-lb bags to high-end wholesalers, who service restaurants along the eastern seaboard, as far west as Ohio and as far south as Florida and Texas. It uses saltwater ice, as it stays colder longer and better preserves the mussels during shipping.

Recently the de Konings bought a new machine from Italian seafood equipment manufacturer Luciano Cocci that will enable them to more quickly process mussels into two-pound bags, better for retail sales in the local communities and for donations to local food pantries.



📷 Alex de Koning inspecting a line of ear-hung scallops.



📷 A blue mussel. Photograph courtesy of Acadia Aqua Farms.

Acadia Aqua Farms has not yet embraced online orders.

"We want to put all of our energy into production and the quality of farming," said Fiona de Koning. "So we have chosen the path that is the most simple to get the products to people so that they still taste like good mussels from Maine."

She added: "We are in a fortunate position that we've been operating well enough for long enough that we are able to sit tight and get by. "Now what we are doing is putting the effort into the scallop project and improving our equipment. We're poised to be very efficient coming out of this. And we're

very lucky that we don't have to worry too much about cash flow right now."

Regardless of how successful the de Konings are at scallop farming and even if the new species commands much higher prices, Fiona can't imagine her family business ever giving up on its mussel operation.

"Mussels are our bread and butter," she said. "Our mussels are great. Our idea is to diversify, not become dependent on one other species. The idea is to have both."

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