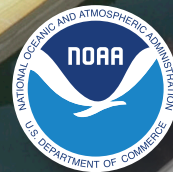


What's in the Water?

Mussel Farming

In the wild, blue mussels (*Mytilus edulis*) are found in tightly packed beds in shallow coastal waters. Harvesting is managed to avoid the possibility of population depletion. To keep up with the commercial demand, farmers are expanding production in Maine's coastal waters.



The Maine Sea Grant College Program at the University of Maine, sponsored by the National Oceanic and Atmospheric Administration (NOAA) and the State of Maine, is a part of a network of 34 NOAA Sea Grant Programs throughout the coastal and Great Lakes states and territories.

There are two principal methods for farming mussels in Maine: raft culture and bottom culture.

Raft Culture



Mussel rafts on a farm

What Can I See?

Rectangular floats support a steel framework with wooden beams mounted on top. Rafts are usually 40 feet on a side with multiple rafts strung together on a single farm.



Mussels on dropper lines

What Can't I See?

Dropper lines are tied around the wooden beams and hang down 40–60 feet in the water below; mussels grow on these lines. Weighted nets line the perimeter of the raft and extend well below the droppers. These nets protect the crop from predation by diving ducks. Rafts are anchored to the seafloor with granite blocks or heavy steel anchors.

Bottom Culture

Bottom culture has no visible gear above water. However, all aquaculture sites in Maine are required to have their corners marked with bright, large buoys displaying the words "SEA FARM." Bottom culture farmers distribute small mussels over an area that would mimic a good, natural mussel habitat.



Markers are required to be labeled with the lease acronym and have "SEA FARM" written in 2-inch high letters.

Farming Process

Mussel farming has three stages that can take up to 36 months to cycle through.

Seed Collection

Farmers collect seed from the wild, though some hatchery production exists. The free-floating larvae attach to collection lines and grow there for 6-12 months.



Chris Bartlett

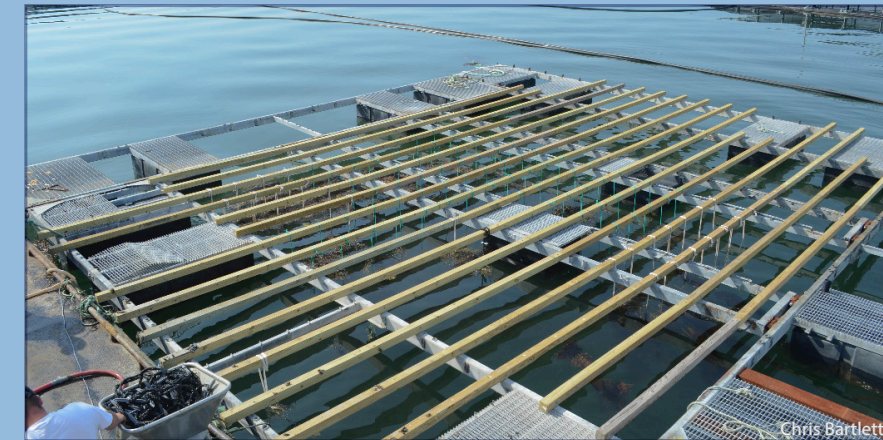


Chris Bartlett

Mussel seed attached to collection lines

Grow Out

For raft culture, the mussels are transferred from collection lines to dropper lines. For bottom culture, farmers spread the seed over the sea-floor. The mussels grow to market size over two years.



Chris Bartlett

Mussels hanging from a raft to grow out on dropper lines

Harvest

Once grown, the mussels will be shaken off from the grow-out lines or harvested from the seafloor by farmers, washed then de-clumped, separated by size, and brought to market.



Chris Bartlett

Mussels going through a grader to be separated by size for commercial production

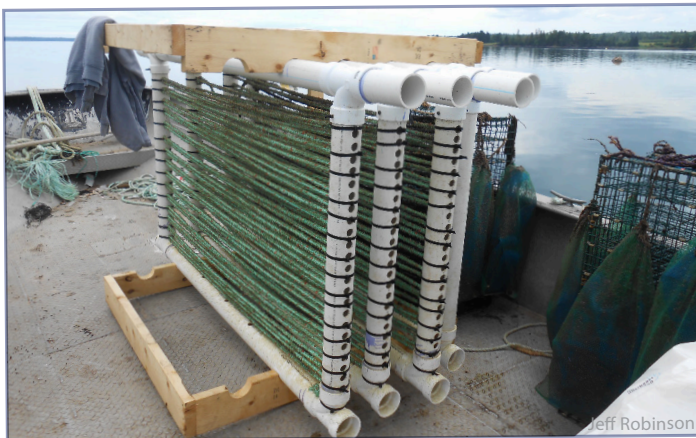


Chris Bartlett

Mussels being harvested and transported to land for market

Why Mussel Aquaculture?

Demand for mussels exceeds the ability of natural populations to sustain themselves. Mussel farming is a low-impact, year-round farming process that requires no dry land, fresh water, or feed. Farms can provide job opportunities, diversify working waterfronts, and supply communities with a local and sustainable source of seafood.




Want to learn more?

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Maine Sea Grant's work across Maine, from the Piscataqua River to Passamaquoddy Bay, is carried out on the lands and waters of the Penobscot, Passamaquoddy, Maliseet, and Mi'kmaq. We thank them for their stewardship and continued strength and resilience in protecting it. We support efforts for healing and protecting the land and water we share.

Cover photo: Chris Bartlett, Design: Aimee Whitman

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What's in the Water?

Mussel Farming

FREQUENTLY ASKED QUESTIONS

Why are Maine waters a good candidate for mussel farming?

Maine waters contain a great amount of nutrients, are in the right temperature zone, and have a diversity of environments along the coast that can provide protection for raft culture.

How many mussels are on a farm?

The number of mussels depends on the size of the farm. A 40-foot raft might produce 50,000 pounds on a two-year rotation, and a bottom farm might produce 20,000-30,000 pounds per acre on a two to three year rotation. As of summer 2023, there are two bottom-culture farms in the state and four raft farms.

The blue mussel (*Mytilus edulis*), is the native species of Maine and the primary species of mussels that farmers raise on their sites

Where are mussel farms located?

Mussel farms are usually located in fairly protected areas, since heavy waves can cause mussels to drop off the lines, or damage the raft itself. In Maine, rafts can be found in sheltered parts of embankments or up in coastal rivers, where the water is still quite salty but away from storm surge and big waves.

How do mussel farms affect the environment?

Mussels are filter feeders, pulling plankton and bits of organic material out of the water to eat. Mussel farms have the potential to improve the clarity and quality of surrounding waters.

In 2022, over 8 million pounds of mussels (wild and farmed) were landed in Maine, with an estimated value of over \$8.2 million



What happens in the winter when the water surface might freeze?

In order to stay afloat with the accumulation of ice and snow, rafts are built with more buoyancy than what is required for the mussels alone. The mussels themselves stay covered with water and are protected, but in extreme cases, farmers need to visit the rafts and break off the ice.



Can I swim over bottom culture farms?

Yes, kayaking, swimming, and boating over bottom farms is allowed, but any equipment or buoys are the private property of the farmer and should be respected and treated as such.



How large are mussel farms?

Bottom culture farms are anywhere between 20 and 40 acres, and raft culture farms are typically between six and ten acres.



How do storms affect mussel farms?

Storms may deposit sand or mud on top of mussels on bottom culture farms. Depending on the storm's severity, mussel rafts can be damaged. Since rafts are expensive, farmers make sure to choose sites that are protected.



What precautions do boaters need to take around mussel farms?

It is the boater's responsibility to be aware of navigational hazards. Keep an eye out for buoys of any type, and seek local information if you are unfamiliar with navigation in a given area.