What's in the Water?

Scallop Farming

Atlantic sea scallops (*Placopecten magellanicus*) are a high-value product. In 2022, scallop landings generated $8.6 million in Maine from the wild fishery, and about $100,000 from farms. Growers and researchers in Maine have been exploring how to farm sea scallops for decades. Thanks to methods adopted from colleagues in other countries, practices will continue to evolve with a lot yet to be learned in Maine about their cultivation.

Sea Grant MAINE

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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.

Most scallop farming practices in Maine use gear that hangs from horizontal, underwater longlines, though some producers use cages that sit directly on the seabed.

What Can I See?

When passing a scallop farm it's likely you will only see a series of buoys marking the location of underwater gear. Unlike some other shellfish aquaculture species, scallops can't tolerate open air. They need to be completely submerged in water at all times. All aquaculture sites in Maine are required to have their corners marked with yellow buoys that read "SEA FARM" on them.

Chris Davis

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

What Can't I See?

Every farmer has their own preferred method of farming, and they all look a little bit different. Farms commonly have a 400-800 foot longline that runs horizontally about 10-20 feet under the water. Hanging from the longlines may be different types of nets, or 'dropper lines' for the ear-hanging technique. There are a few different production systems in use.


Dana Morse

Pearl nets are a series of small, pyramid shaped nets tied vertically to each other and hanging from a longline

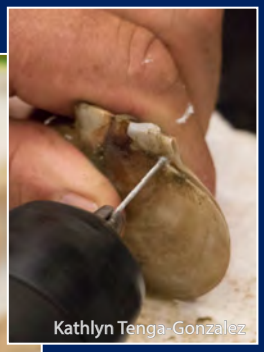

Kathlyn Tenga-Gonzalez

Lantern nets are round, layered, accordion-style nets hanging vertically off the longline


Kathlyn Tenga-Gonzalez

Some farms choose not to use nets at all and opt for **cages** suspended in the water or sitting on the seabed


Kathlyn Tenga-Gonzalez


Kathlyn Tenga-Gonzalez

Ear-hung scallops will have a small hole drilled in the top of their shell. A barbed plastic pin is placed through the hole, and the pins are attached to ropes hung vertically in the water

Farming Process

Scallop farming is a lengthy one-to-three year process that has four steps.

Seed Collection

Farmers collect wild larvae, also called seed, throughout the fall and winter. 'Spat bags' are deployed in waters where scallop larvae are plentiful, and the seed will pass through and settle on the substrate inside the bags.

Nursery Rearing

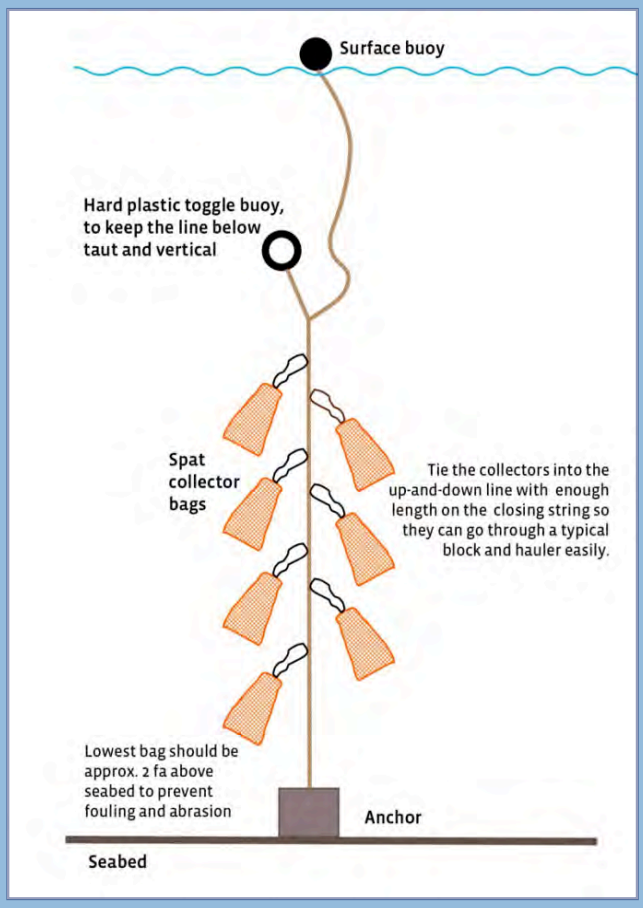
In late spring, farmers transfer the scallops to a nursery. There, the scallops spend eight to twelve months growing in pearl nets, lantern nets, bottom cages, or suspended trays to become large enough to be transferred to growout gear or sold as a product (such as half-shell).

Growout

The scallops grow to market size in pearl nets, lantern nets, cages, or on lines. This usually takes two to three years. Scallops don't like to be crowded, and will damage each other if piled too close together.

Ear-hanging

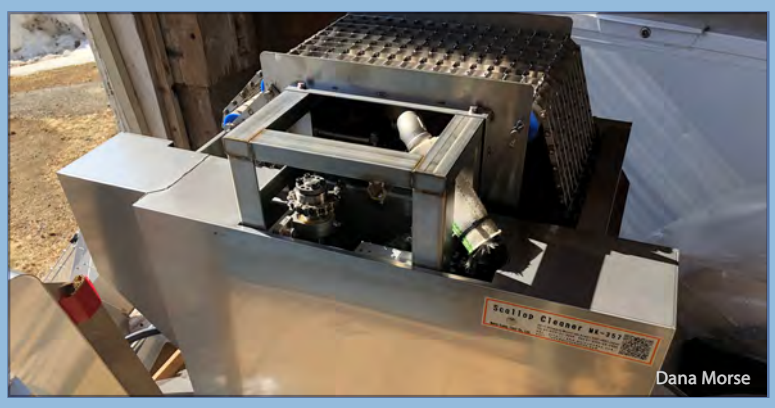
Bottom cage



Typical spat line deployment

Harvest

Farmers pull the nets or lines from the water, remove the scallops from the gear, and bring the scallops back to shore where they'll be separated by size, packaged, and brought to market.



Scallops can be cleaned with high-pressure water. The scallops are pressed between two stainless steel conveyor belts so their shells remain closed while water jets clear away barnacles, mussels, and algae.

Scallop graders use a series of plates with holes in them. The plates move back and forth, so that as the scallops pass over, the smaller individuals fall through; this grades them to a uniform size for later growout or for harvest.

Why Scallop Aquaculture?

Scallop farming requires no land, freshwater, feed, or fertilizer to grow, with minimal environmental impact. In addition, the United States imports an estimated $300 million in scallops annually, so growing them locally has the potential to lower the carbon footprint associated with seafood import.


Dana Morse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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 all efforts for healing and protecting the land and water we share.

Cover photo: Jaclyn Robidoux, Design: Aimee Whitman

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What's in the Water?

Scallop Farming

Frequently Asked Questions

Why are Maine waters a good candidate for scallop 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 provide protection for different culturing methods.

How many scallops are on a farm?
The number of scallops per farm varies based on the size of the site and growout method used, but farmed populations can range from hundreds to hundreds of thousands, and as farms grow, over a million animals are possible.

How do scallop farms affect the environment?
Scallops are filter feeders, consuming free-floating phytoplankton or other microorganisms in their surrounding waters, which means farms have the potential to improve the clarity and quality of surrounding waters.

Who owns the scallop farms?
All equipment, gear, and scallops on a farm are privately owned by the farmer. The farmer holds a state-issued lease to use the waters where the farm is located. While the law doesn't prohibit boaters, kayakers, or swimmers from passing through, it's important to be respectful of the farmers' gear.

Atlantic sea scallops *(Placopecten magellanicus)* are the primary species farmed in Maine, but occasionally, the bay scallop *(Aequipecten irradians)*, is grown as well

Are scallops at risk for predation from other species on a farm?
Since the scallops are floating in enclosed gear, they are actually safer on a farm than growing wild. Major predators include crabs and snails, which reside on the seafloor and would have a difficult time climbing up ropes or getting through cages or mesh bags.

Where are scallop farms located?
Scallops prefer waters with temperatures between 50 and 60°F. Since scallops can't tolerate air or fresh water exposure, you won't see farms in heads of rivers where you might find other shellfish leases, like oysters.

In 2021, approximately $85,000 worth of farmed scallops were landed in Maine, and in 2023 that rose to over $500,000

How large are scallop farms?
Currently, most scallop farms in Maine are only a few acres. As the industry scales up, most functional lease sizes are expected to be in the range of 15-20 acres.

How do storms affect scallop farms?
One of the biggest risks when storms hit farms is the chance of lines breaking loose and/or tangling. Loose lines and tangles can be difficult to unravel, especially with heavy amounts of shellfish inside the gear.

What precautions do boaters need to take around scallop farms?
It is the boater's responsibility to be aware of navigational hazards, including notifications like corner markers of aquaculture leases. If you are uncertain about navigating in a given area, ask for local information, such as from a Harbormaster, fishermen, or a local sailing club.