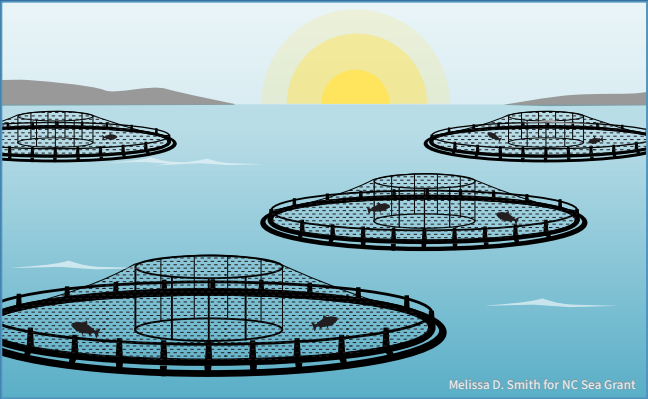
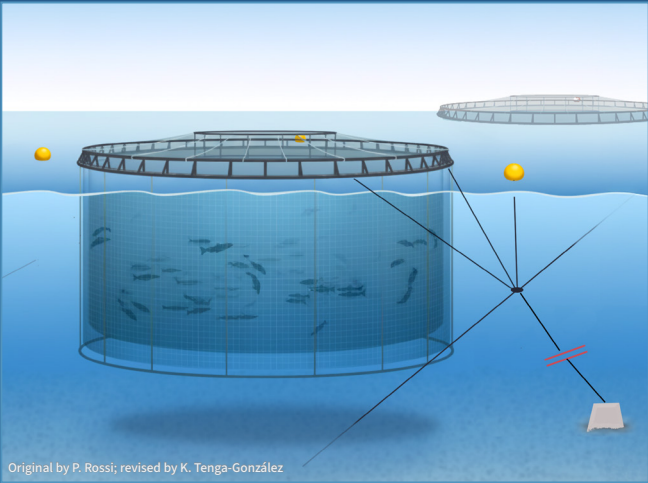


# What Can't I See?

Containment nets extend 30 to 50 feet below the surface, and are attached to the floating pens. The net mesh size is small enough to prevent fish from escaping but large enough to allow water flow. A secondary is net layered around the primary net, which works to prevent predators such as seals and cormorants from getting near the fish. In most cases, a series of net pens are held in place by a checker-board grid of strong lines and multiple anchors that provide stability.



# Why Net-Pen Aquaculture?

Due to consumer demand, the United States imports salmon from other countries like Chile, Norway, and Canada. The utilization of net-pen farms can reduce carbon emissions from import, while supporting a healthy and sustainable aquaculture practice.



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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.

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# What's in the Water?

## NET-PEN FARMING

Maine farmers began to cultivate domestic populations of Atlantic salmon in the 1980s utilizing net pen farming practices, providing high-quality fish to consumers.



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.

# What Can I See?

When looking at a salmon farm, you'll be able to see large, circular, floating net-pens in open bodies of salt water. These floating pens are covered with netting to keep birds from accessing the fish. You may see other floating structures near the pens, such as boats that are equipped for feeding, harvesting, and net-washing. In addition to the farm itself, Maine requires all aquaculture sites to be marked with bright, large, corner buoys that say "Sea Farm".



# Farming Process

Atlantic Salmon are sea-run fish: they spend part of their life in fresh water and another part in salt water. Because of this, farmers raise salmon in on-shore freshwater hatcheries before transporting them to the marine net pens.

## Freshwater Hatcheries

The salmon spend 18 months in a freshwater, land-based hatchery. Here they grow from fertilized eggs to small fish, roughly six to eight inches long. Farmers carefully transport the salmon to saltwater farms during late April or early May when the salt water gets to around 50° Fahrenheit.

## Marine Net Pens

The salmon stay in the saltwater environment for another 18–24 months with routine feeding, monitoring, and sampling by farmers. During this time they grow from three to five ounces to eight to twelve pounds.

## Harvest

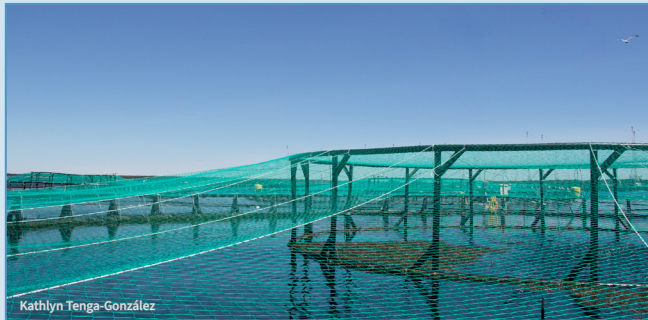
When the salmon reach marketable size, the fish are harvested, cleaned, iced, and shipped to customers.



Chris Bartlett



Craig Brook Hatchery



Kathlyn Tenga-González

Nets cover the pens to keep predators from entering and the salmon from accidentally jumping out



Chris Bartlett

Hydraulic pumps are used to load fish to processing vessels

# Frequently Asked Questions

### What do the salmon eat?

Net pen salmon are fed nutrient-dense dry pellets made of fish meal, plant proteins, vitamins, and minerals.

### How many times a day do the salmon eat?

For the first month or so, young salmon can be fed up to 12 times a day. The transition from fresh to salt water suppresses their appetite, so they're fed more frequently to try to get them back into eating. Once they are comfortable in their new saltwater environment, they are fed on average two times a day.

### How many net-pen farms are in Maine?

There are between 25 and 30 salmon aquaculture leases in Maine. While this is the number of lease sites, not all are active. There are typically up to ten farms raising fish at any one time.

### How many fish are in a pen?

It all depends on the size of the nets and the depth of the water. In Cobscook Bay, where the first commercial salmon farms were located, the average is 25,000 fish per pen.

### Do other fish species ever get into the net pens?

Herring, harbor pollock, and lumpfish are common inside pens in small numbers.



E. Peter Steenstra/USEWS



### How do net pen farms affect surrounding ecosystems?

Proper feeding practices minimize feed waste under the pens. There's a chance of migration by species that like cool, shaded, nutritious environments provided under the pens such as capatella worms, which are food to other nutritious fish like flounder. Likewise, certain species might attach to the net pens, like blue mussels, which are filter-feeding shellfish.



### How far offshore are farms required to be?

While there's no specific requirement as to how far offshore farms need to be, certain factors are taken into consideration when reviewing an application for a lease. These include preexisting commercial fishing practices in the area, whether the site location will create an impediment to existing navigation channels, or whether a farmer would have to cross someone else's property to access their farm. The last example is less likely with salmon farms since they're located in subtidal waters rather than intertidal zones.



### What precautionary measures do I need to take as a boater?

As a boater it's important to be aware of navigational hazards like ropes that can't be seen on the water's surface. Be sure to keep an eye out for buoys to avoid entangling propellers with underwater gear. While kayaking, swimming, and boating near farms is not prohibited, they are private facilities and should be respected and treated as such.



### How do storms affect fish and farms?

Pens are built to be flexible and strong in order to withstand wind, waves, and storms. When choosing a site, prospective farmers look for an area that has cold, oxygen-rich water and tidal flow with enough depth, located near a shore to provide some protection of offshore high energy storms.