



Aboriginal Aquaculture Association Shellfish Facts **Mussels**

Mussels

Mussels are a traditional food source for coastal First Nations.

Clams and mussels are among the favoured foods at potlatches.



A traditional First Nations clam harvesting basket

Cultured Mussels:

- The Blue mussel (*Mytilus edulis* - Latin name)
- Mediterranean mussel (*Mytilus galloprovincialis*)
- Penn Cove mussel - known also as Foolish mussel (*Mytilus trossulus*)

Farmed on the east coast of North America since the early 1970's, attempts to culture the Blue mussel in BC waters started in 1980's.

Where are mussels farmed:

On the Pacific coast, the Mediterranean and Penn Cove mussels are grown successfully in Puget Sound, WA.

Growing mussels commercially in BC has been challenging because of BC's cooler water temperature and predators, (e.g. ducks). This has resulted in a high mortality rate before the mussels reach market size.

However, off the coast of southern Vancouver Island growers are starting to see greater success using deep water suspension methods.

What do mussels feed on:

Like other bivalves (shellfish with two matching shell halves), mussels are filter feeders. They feed on tiny plants called plankton, and other organic material, by drawing water in through an opening called a siphon. The water and nutrients flow in through the incoming siphon. The gills then trap the food inside the shell while allowing the mussel to filter out the water through a second outgoing siphon.

A mussel will filter 45-70 liters of water (10-15 gal.) per day. Mussels require a fresh, clean aquatic environment, and protection from predators. This includes protecting their equipment and netting from fouling by organisms and marine life that accumulate on the nets and trays, and compete for food.



Blue mussels



Mediterranean mussels



Penn Cove mussels

What do they look like:

The Blue mussel grows to 11 cm (4 1/2 in.) and are usually harvested at a size of 5 cm (2 in.). They range in colour from blue to black, often with flecks of tan and brown, and are triangular to elongated in shape.

The Mediterranean mussel grows to 15 cm (6 in.) and has a dark triangular shell that is flared with a pointed curved beak.

The Penn Cove mussel can grow to 9 cm (3 1/2 in.) but are usually harvested at 50-60 mm (2-3 in.). The outside shell can be black, blue or brownish. It has thin elongated shells, a smooth exterior with fine concentric lines.





How are mussels farmed:

Mussels native to BC are unsuitable for culture and for collecting seed. Therefore, mussel growers must start with seed produced in a hatchery.

In hatcheries, all larvae come from spawning adult broodstock. The larvae are kept in hatchery tanks of circulating seawater and fed algae. Within a few weeks larvae are transformed into seed (juvenile mussel) – a tiny version of the adult mussel.

After the hatchery phase, the juveniles are transferred to nursery facilities until they reach a larger size.

Mussel growers can either buy seed after it has set - at about 1 mm in size, or after the initial nursery phase in upwellers - an additional 3-6 weeks at a size of 2-3 mm.

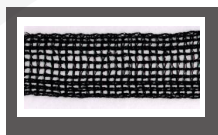
The mussel seed can be set directly on material (e.g. ropes) used for grow-out, or the seed is transferred to an appropriate surface for nursery rearing.

Island Scallops Ltd. on Vancouver Island is developing framed screens for remote setting. These screens are placed in a floating nursery system. When the mussel seed is hard set, they are moved from the frames and placed in fine mesh bags and hung on longlines. This complete nursery phase takes about three months. The seed is then stripped from the bags and “socked”.

Socking:

Mussels are transferred to tubular mesh material forming “sausage-like” socks of varying lengths, depending on the water depth. The socks are then hung on longlines or rafts for grow-out.

Predator control (from ducks and other waterfowl) is more challenging on longlines. Growers using longlines will often surround the socks or culture ropes with lantern nets for added protection.



Optimal growing conditions:

Blue mussels grow best in 16-22°C clean water of 27 ‰ + salinity, down to a maximum depth of ~10m. It takes 12-14 months for mussels to reach market size of 65-85mm (2 1/2 - 3 1/2 in.).

Longline of mussels

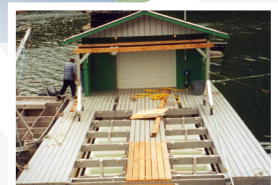


Harvesting mussels:

When mussels reach between 50-60 mm (2-3 in) in shell length, they are ready to harvest. The mussels are retrieved from the rafts or longlines using a hoist and winch.



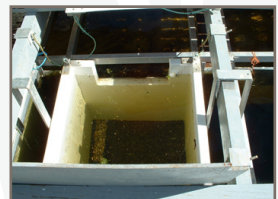
A hatchery facility with tanks of circulating seawater



A nursery raft is called a “FLUPSY” - Floating Upweller System

Did you know....

- Bivalves are mollusks have two halves or valves. Bivalves that have not yet matured and set are called **larvae**.
- Most bivalve larvae will set between 16 - 28 days after fertilization.
- **Remote setting** refers to the process of transporting bivalve larvae from the hatchery to the grow-out site.



Large bins with screened bottoms are lowered into openings in the frame and suspended in the seawater.

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