



A traditional First Nations clam harvesting basket

Clams

Clams are a traditional food staple for coastal First Nations. They have been prepared many ways including steamed, fried and smoked, clams preserve well and were often dried.

First Nation clam gardens were widespread up and down the west coast reflecting the importance of clams to coastal peoples. Clam gardens are shoreline terraces built to expand and protect the clam beaches. Historically these gardens were worked and managed to cultivate clams thereby increasing their production; an early form of aquaculture.

Today shellfish aquaculture can offer significant economic and social benefits to First Nations communities and can be done in a way that is consistent with traditional values and practices.

Cultured Clams:

- Butter clam (*Saxidomus gigantea* - Latin name)
- Littleneck clam (*Protothaca staminea*)
- Manila clam - Japanese Littleneck (*Tapes philippinarum*, or *Venerupis philippinarum*)

Butter and littleneck clams are native to the west coast and are still harvested as a commercial fishery.

The Manila clam, inadvertently introduced to BC around 1936, is now the main clam species farmed.

BC Cultured Shellfish Production 2008			
	Harvest '000 tonnes	Landed Value \$ millions	Wholesale Value \$ millions
Cultured			
Clams	1.3	7.0	8.9

Source: <http://www.env.gov.bc.ca/omfd/fishstats/graphs-tables/farmed-shellfish.html>
 Visit site to view shellfish production statistics from 1999 - 2008

Where are Manila clams farmed:

Manila clams have been harvested as a commercial fishery in British Columbia since the 1970's.

It is only since 1985, however, that the Manila clam has been farmed on Vancouver Island and the Sunshine Coast.



Butter clam



Littleneck clams



Manila clams

What do they look like:

Butter clam: is round to oval in shape and grows to 13 cm (5 in.). The outside shell is white to grey, with a grooved sculpture. The interior is a smooth and white.

Littleneck clam: is round to oval, grows to 8 cm (3 in.). White to brown with angular pattern and a lattice sculpture.

Manila clam: is oval - elongated, grows to 7.5 cm (3 in.). Lattice sculpture, white to grey in colour with a purple or yellow interior.





What do clams feed on:

Like other bivalves (shellfish with two matching shell halves), clams 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 clam to filter out the water through a second outgoing siphon.

Clams 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.

How are Manila clams farmed:

Clam farming begins with the collection or production of clam larvae and juveniles. All larvae for the BC clam industry come from spawning adult broodstock produced in a controlled hatchery environment.

The larvae are kept in hatchery tanks of circulating seawater and fed algae. In a few weeks they are transformed into tiny seed (juvenile clams) – a very small version of the adult clam. After the hatchery phase, the young clams are transferred to nursery facilities until they reach a larger size.

A common nursery system used in British Columbia is called a 'Floating UPwelling SYSTEM' (referred to as a 'FLUPSY') that is housed on a raft on the ocean. The seed or juveniles are kept in compartments on the FLUPSY, surrounded by the flow of the nutrient rich ocean water. They remain there until they reach a larger size for the final grow-out phase.

Grow-out Phase: When the clam seed or juveniles leave the nursery they are ready for the grow-out phase. The juvenile clams are carefully spread on subtidal regions of the ocean beach where they dig into the substrate. Netting is used to cover and protect the growing area from potential predators.

Clams remain on the beach for 2 to 4 years - until they reach market size - approximately 7.5 cm or 3 inches.

Optimal growing conditions:

5-20° C clean water of 24 ‰+ salinity, on the lower 1/3 of a gently sloping beach.

Harvesting Manila clams:

Clams are usually harvested out of the substrate by hand using a long tined rake. The substrate is turned with the rake, and the clams are brought to the surface in the process. They are hand-picked and collected into mesh bags.

The use of mechanical clam harvesters is still in the experimental phase.

Annual clam production can be over 2 kg per square meter on well-managed plots.



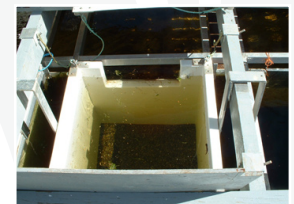
Banner photos: Richard Hardy of Komo Gway Oysters, Fanny Bay Oysters processing plant



A hatchery facility with tanks of circulating seawater



A nursery raft is called a "FLUPSY" - Floating UPweller SYSTEM



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

Did you know....

- Bivalves are mollusks that 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.

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