



Aboriginal Aquaculture Association Shellfish Facts Cockles



A traditional First Nations shellfish harvesting basket

Cultured Cockles

Cockles (*Clinocardium nuttalli* - Latin name), also called basket, or heart cockles, are native to British Columbia's coast.

As a traditional food source for First Nations, there is growing interest in the potential of farmed cockles and support for the development of a BC cockle aquaculture industry.

However, there is currently no commercial culture of the native cockle in BC.



What do they look like:

Cockles have strong, radiating ribs, grow to 14 cm (5 1/2 in.) in size. The outer shell is yellow-brown. Young cockles often have a russet and brown speckled pattern.

What do cockles feed on:

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

Cultured cockles would require similar upkeep as other cultured shellfish. A fresh, clean aquatic environment, protection from predators, and protecting equipment and netting from fouling.

BC Cultured Shellfish Production 2008

	Harvest '000 tonnes	Landed Value \$ millions	Wholesale \$ millions
Cultured			
Clams, Oysters			
Scallops & Other			
Total	7.2	15.7	27.0

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 to farm cockles:

Cockles are found on the West Coast in intertidal areas as far north as Alaska . Cockles can withstand severe winter conditions, and therefore could represent a good farming opportunity for an intertidal bivalve culture on BC's north coast.

"Market research indicates that cockles would be readily accepted into the upscale food service trade and sushi market"(CAIA).





How to farm cockles:

Farming cockles, as with farming other bivalve species, would begin with the collection or production of larvae - either from the wild or in a controlled hatchery environment.

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 cockle) – a tiny version of the adult cockle.

After the hatchery phase, young bivalves 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 seed is ready for the final grow-out phase it is transferred to the beach or seabed, where it may be reared in one of a variety of systems:



Bin of seed

- **Beach culture:** Using the example of juvenile clams, young cockles would be carefully spread on subtidal regions of the ocean beach where they dig into the substrate and remain there for 2 to 4 years - until they reach market size.
- **Tube or cultch culture:** With this system, the larvae are allowed to set along lengths of plastic tubing or rope where the seed then naturally attaches itself to the surface. The tubing/rope is vertically suspended from a secured flotation device (e.g. raft or buoy) in deep subtidal water.
- **Longline and raft culture:** Cockles are placed in trays or nets which are suspended from a secure flotation device (e.g. raft or longline) in deep subtidal water.

Optimal growing conditions:

Optimal growing conditions are currently being investigated by researchers. Cockles grown in France take 18 months to reach market size.

Harvesting cockles:

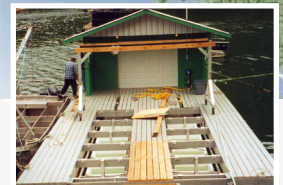
Harvesting techniques for shellfish aquaculture range from hand-harvesting to crew-operated harvest vessels - depending on the volume of production and the type of growout system used.



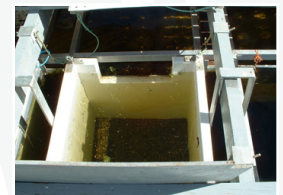
Banner photos: Richard Hardy of Komo Gway Oysters



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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