

# Everything is One

## Case Study: Clams

### Overview

**Range:** Beaches along the Pacific coast of BC and as far north as Alaska and as far south as northern California.

**Habitat:** Estuaries, mudflats, and intertidal zones

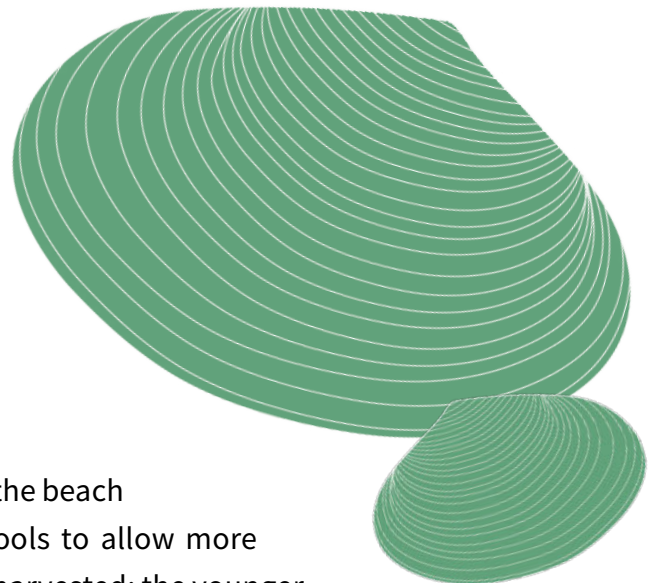
Along the Pacific coast, First Peoples laboriously moved boulders and rocks to build extensive rock walls parallel to the shore at certain, selected locations where the water currents and waves were just right. Thousands of these rock walls have been found along the Pacific coast of BC and as far north as Alaska and south as northern California. Some rock walls were up to two meters high! Why do you think people worked so hard to do this?

High tides and currents brought in sediment, mud, and nutrients, trapping it above the rock walls, creating a “clam garden”. This changed the beach, making it long and sandy and gently sloping—the perfect place for clams to live! Clams live under the sand where they feed on microscopic plankton in the water. You might be able to tell if clams are below the sand if you see them squirting water up through holes in the sand. Many species could be found in a clam garden including

Butter clams, Littleneck clams, Horse clams, and cockles.

Clam gardens were cultural gathering places and a hub of activity. In the past, clams and cockles were a dependable food source. People could almost always find a good supply of shellfish, summer or winter. They are a nutritious and favoured source of food. Even kids could help with the shellfish harvest. Clams were eaten fresh, preserved by smoking them over a fire, and were traded with interior First Nations.

Kelp and sea lettuce were removed from some rocks and the beach sand was turned over and loosened with specialized tools to allow more room for creatures to grow. Only the mature clams were harvested; the younger, smaller shellfish were left to grow bigger, ensuring that there would always be enough clams in the future. Some people had the job of being guardians of the clam gardens, to decide if harvest could occur and to make sure that not too many were taken and that they were healthy and thriving. Sometimes small clams were “transplanted” from beaches with abundant clams to other areas.



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People knew the signals in nature that indicated when it was time to harvest. For example, when the dogwood trees bloom, the WSA NEC people of southern Vancouver Island know that the butter clams are ready to harvest. In warmer months people knew that some clams might not be safe to eat. They could be polluted by a toxic microorganism that causes “red tide.” People knew how to tell if shellfish were safe to eat by observing the water for colour changes and by watching if animals like gulls and otters were eating the clams.

Numerous native species benefitted from clam garden management, including many intertidal organisms that lived on and under the rock walls and under the sand, such as various types of clams, chitons, urchins, sea cucumbers, and octopus.

## Invasive Species Impacts

The European green crab modifies intertidal habitat by cutting up eelgrass, an important and protective “nursery” for hundreds of species. It also impacts the marine food chain by eating many native species, including fish, crabs, and clams. Other invasive species that aggressively takeover habitats in the intertidal zone include the New Zealand mud snail, Violet tunicate, Japanese oyster, and Varnish clam.

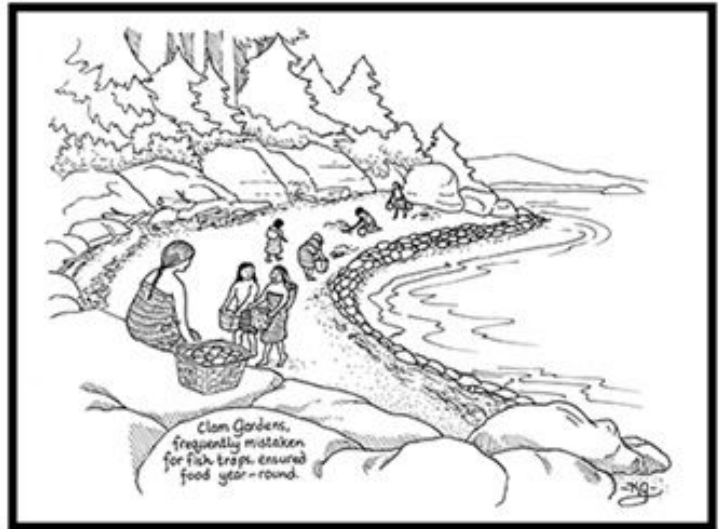


European Green crab damaging eelgrass. Maria Mitchell Association

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### Clam Garden Images



**Photograph:** Tracey Island clam garden showing raised wall. Photo by Kim Recalma-Clutesi (2004).

**Illustration:** Clam gardens belong to individual families. Clams were roasted in their shells at the edge of fires, steamed in bentwood boxes, or braided into chains, smoked, and stored. Illustration by Karen Gillmore. Images from Chapter 7, A Window into the Indigenous Science of Some Indigenous Peoples of Northwestern North America by Gloria Snively and John Corsiglia in *Knowing Home: Braiding Indigenous Science with Western Science*, Book 1, Edited by Gloria Snively and Wanosts'a7 Lorna Williams, UVic Press 2016.

### Clam Gardening: Restoring Traditions

- » On the Pacific Northwest coast, Indigenous groups are reinvigorating the ancient practice of clam gardening, Video (3:55). Hakai Magazine (Digital Publishing Awards, 2018). <https://www.hakaimagazine.com/videos-visuals/wall-worth-building-making-clam-habitat-great-again/>
- » The Clam Garden Restoration Project, Video (3:26). Parks Canada. <https://youtu.be/j2wPVx4sCN0> Parks Canada is learning with WSÁNEĆ and Hul'q'umi'num' Nations about the importance of caring for “clam gardens.” The Clam Garden Restoration Project at Gulf Islands National Park Reserve works with Elders, resource managers and Indigenous youth. Together, the group hopes to restore two clam gardens for the benefit of present and future generations.

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**Clams Under the Sand** Briony Penn, from *A Year on the Wild Side*, Touchwood Editions, 2019

