

## Revitalizing Coastal Ecosystems: Evaluating the Costs and Benefits of Restoring Clam Gardens for Indigenous Communities in British Columbia

**Authors :** Daniel Chen, Chengyi Li, Naifu Xu, Shangxuan Yang

**Abstract :** Climate change has led to substantial changes in coastal ecosystems, including elevated ocean temperatures, increased acidity, and disrupted marine habitats. These environmental impacts have also resulted in the decline of traditional Indigenous food sources on the coast of British Columbia, including clams and salmon, which have been essential to the diet and cultural practices of the coastal Indigenous communities. This research evaluates and analyzes the costs and benefits of restoring and building clam gardens, an ancestral Indigenous mariculture technique in the Pacific Northwest. Clam gardens, which involve the construction of intertidal rock walls to enhance clam production, have been shown to more than triple clam yields compared to non-walled beaches. This research analyzes the costs and benefits to Indigenous individuals, including factors such as travel, equipment, time, food supply, and cultural engagement; then it discusses the potential of clam gardens as a significant food resource with additional environmental co-benefits, given the prevalence of clam gardens and coastlines in British Columbia. Moreover, the study concludes with policy recommendations to support the restoration and preservation of clam gardens, highlighting their potential to provide sustainable seafood production, environmental co-benefits, and social-environmental educational opportunities for Indigenous communities and the wider public.

**Keywords :** British Columbia coastline, clam garden, coastal resource management, Indigenous communities

**Conference Title :** ICAEM 2024 : International Conference on Agricultural and Environmental Management

**Conference Location :** Los Angeles, United States

**Conference Dates :** October 28-29, 2024