

Pacific Northwest

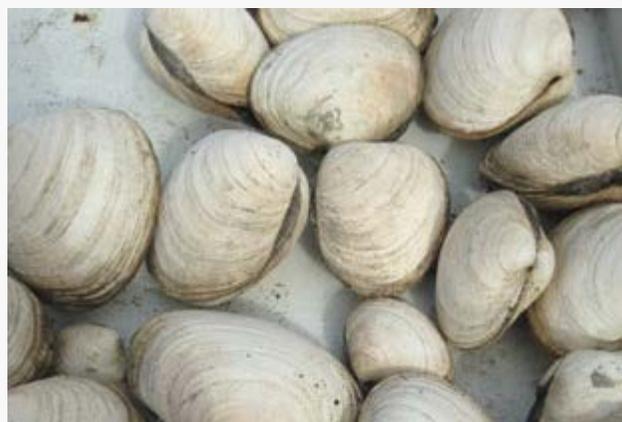
The Swinomish Tribe: Looking to the Past to Preserve the Future



There's a popular saying among indigenous people of the Northwest US coast: "When the tide is out, the table is set." Tribes along the northern Pacific coastline, including the Swinomish Indian Tribal Community in Washington State, have for centuries relied on the bounty of the beach for sustenance and cultural strength. Clams provide an important part of the diet for Swinomish and other regional tribal consumers.

Climate change has put some clam species at risk. Rising acidity in seawater can erode calcium-based shells; changes in water temperature threaten their overall health; and increasingly violent storms erode the beaches in which clams develop and live.

Swinomish Marine Ecologist Courtney Greiner says a recent study examined 40 years of Washington State data on clam populations around Puget Sound and identified a significant downturn in Native Little Neck (*Leukoma staminea*) populations, an important food source for coastal tribes. The Butter Clam (*Saxidomus gigantea*) another favored food, had been increasing until the early 2000s but then started to show signs of its own decline. Among several possible causes for the downturns, says Greiner, biologists point to the North Pacific Gyre Oscillation, a cyclic, broad-scale marine warming and cooling event that can influence bivalve growth and survival. Rises in ocean temperatures associated with the NPGO may be exacerbated by ocean warming associated with climate change.



Butter clams are a staple for many Swinomish tribal members. Photos courtesy of the Swinomish Indian Tribal Community.

Importance of Clams to Northwest Tribal Communities

Swinomish Community Environmental Health Analyst Jamie Donatuto offers several reasons why clams are important to the Swinomish community: "If you're hungry, you can always find clams to eat, and everyone loves clam chowder, clam fritters, different ways to use them; they're integral to food sovereignty—a first food for

coastal tribes. They're a great source for a low-fat, high-protein diet, and they're important in a woman's diet because they're rich in iron. They're also part of Swinomish cosmology."

New Protections, Traditional Approaches

One of the Tribe's "new" strategies for preserving and enhancing clam populations isn't new at all but is based on an ancient practice of NW coastal people, one that has fallen by the wayside for many tribes. To preserve the integrity of local clam populations, Swinomish is developing a community "clam garden." The project is funded by Washington SeaGrant, part of a National Oceanographic and Atmospheric Administration sustainability effort. "Our Fisheries Department is the lead on the project, which launched in April 2018," says Donatuto. "Clam gardens have been used by tribes since time immemorial. They involve building low-lying rock walls below mean low-tide lines, which create terracing [that studies have shown increases clam densities and diversity]; you don't even see the walls unless the tide is very low." A decision on whether to seed the site with clam larvae or let the population expand naturally will be made later in the process.

Along with encouraging the growth of Butter Clam and "Steamer" populations, the gardens can also bolster populations of other clam species such as Manilas and Giant Geoducks (one study shows the structure can increase clam population densities of certain clam species by as much as 300%). Greiner says a number of other species generally gravitate to more-complex habitats such as a clam garden wall, including seaweeds, algae and a variety of invertebrates. The reach of climate change is broad; strengthening an ecosystem to benefit all "near-shore" species could represent an important hedge against its impacts.



Swinomish tribal members harvesting bait clams in Fidalgo Bay, WA. Photo courtesy of the Swinomish Indian Tribal Community.

Sociology of the Harvest

Donatuto says the tribe is excited about renewing the ages-old practice of clam gardening, one that coastal First Nations in British Columbia are revisiting at sites such as Quadra Island, 200 miles north of Swinomish (a team lead by Marine Biologist Anne Solomon of Simon Fraser University has identified 49 ancient clam garden sites on and around the Island). But the Swinomish are taking a more analytical approach as they consider using sites that may not have formerly been clam gardens. "This is a process that hasn't been done before," Donatuto says, "to determine how to identify an area most-suitable for a clam garden. It isn't just about bio-physical indicators of good locations but also social indicators. We're looking at the history of use of place, connections to tribal members, and a host of other aspects."

Determining the social significance of potential sites, she says, will include exploring questions such as, "What has the site been used for in the past? Also, what is its significance to community members? Maybe it's some family's old beach-seining site, or where they dug clams, or it used to be a summer housing site. The clam

garden will be accessible to the whole community, but if a family has a heritage relationship to a site and are interested in regenerating it, that would bump things up higher on the priority list."

"Right now we're developing the questions," she says. "We don't yet know where or how big the site will be. At the end of the two years we will have chosen a site. At that point we won't yet be moving rocks or clearing a space—the US Army Corp of Engineers requires a whole series of permits first. But we will have applied for those permits."

Project members seek to involve the community throughout the process. Tribal residents will be questioned about the significance of potential sites, educated on the clam garden concept and solicited to participate in the construction; they'll also have access to the garden once harvesting is sustainable. Other regional coastal tribes are watching the project at Swinomish with interest, and some have expressed the desire to create their own clam gardens.

The project is part of a vigorous campaign at Swinomish that includes coastal and community protections, building relocations, emergency response planning, and other components of their climate-resiliency plan. "We wrote a climate assessment in 2009 and an action plan in 2010," Donatuto says. "This year we're updating the action plan, which will include an addendum on clam gardens. We've found that health is based on culture and culture is based on place. So anything we can do to increase the sustainability of our natural resources will be good for the health of the community."



Native clam species, Clinocardium nuttalli, aka Nuttall's Cockle, is one of several clam species that play an important role in the diets of NW US coastal tribes. Photo courtesy of the Swinomish Indian Tribal Community.

Resources

Video - Restoring a Coast Salish Clam Garden - Gulf Islands National Park Reserve

□ Youtube: www.youtube.com/watch?v=cv247vHBIIA

This profile was developed in 2018 by Dennis Wall, Institute for Tribal Environmental Professionals, Northern Arizona University, with financial support from the Bureau of Indian Affairs. The profile is available on the Tribes & Climate Change website: www7.nau.edu/itep/main/tcc/Tribes/. The tribal climate change profiles featured on the website are intended to be a pathway to increasing knowledge among tribal and non-tribal organizations interested in learning about climate change mitigation and adaptation efforts.

Special thanks to Jamie Donatuto and Courtney Greiner for their assistance in developing this profile.

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Citation: Wall, D. (2018) The Swinomish Tribe: Looking to the Past To Preserve the Future, April 2018. Climate Change Program, Institute for Tribal Environmental Professionals, Northern Arizona University. Available at:
www7.nau.edu/itep/main/tcc/Tribes/pn_swinomishClams

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