

# What the Shuck: Recognizing Precolonial, Early Colonial, and Historic Shell Middens in Olympia, WA

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## Abstract

Olympia's shoreline has witnessed millennia of shellfish harvesting. St̓ačas people harvested Olympia oysters (*Ostrea lurida*) and other shellfish that were abundant on Budd Inlet, and when Euro-American settlers arrived in the area, St̓ačas people provided shellfish for trade. As Olympia's shellfishing expanded to include national and international trade, harvesting shifted from local trade to industrial over-processing. Archaeology in Olympia documents the long history of shellfish trade and consumption on the Puget Sound. In this poster we explore the historical context of shellfishing in Olympia and examine species diversity of precolonial, early colonial, and historic shell middens in the southern Puget Sound.



Figure 1. Study sites on 1867 U.S. Coast Survey Chart of Puget Sound.

## Indigenous and American Shellfishing on the Puget Sound

Oysters were a staple of Indigenous diet, culture, and commerce in the southern Puget Sound, where shallow bays provided ideal habitat for the Olympia oyster (*Ostrea lurida*). The earliest commercial oyster industry in the American settlement of Olympia was led by Indigenous women, who sold oysters from South Sound inlets on the Olympia waterfront after Olympia was established in 1850 (De Danaan 2013). Through the mid to late 1800s, Chinese and Japanese laborers worked alongside Indigenous harvesters, selling locally or supplying commercial oyster companies.

The influx of American settlers to the West Coast, including San Francisco's growing demand for oysters, spurred a thriving oyster industry in the southern Puget Sound (Echtle 2017). The commercial over-harvesting of Olympia oysters led to their drastic decline by 1881. In an attempt to meet the market demand for oysters, the Eastern oysters (*Crassostrea virginica*) were introduced to Willapa Bay in 1874. The Eastern oyster did not thrive as well as expected, and so the Pacific Oyster was introduced from Japan in the 1890s (Smithsonian Environmental Research Center, Nims 2020).

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## Exploring Four Puget Sound Shell Midden Sites

We know that native shellfish species were impacted by American colonization of the Puget Sound, but can the archaeological record tell us anything about how shellfish harvest and consumption changed in this region after American settlement? In this poster we compare four shell midden assemblages to support better identification of precolonial, early colonial, and historic shell middens (Figure 1).

### 1. Second Street Shell Midden, 45TN519, Deschutes Estuary

Antiquity Consulting provided archaeological services for a downtown Olympia development from 2019 to 2023 (Mathews 2020). Throughout this project a circa 1840s to 1909 sheet midden, which included native shellfish and dense concentrations of Euro-American refuse and structural debris was observed. A shellfish analysis is presented in Mathews et al. 2025.

### 2. Qwu?gwes, 45TN240, Mud Bay

South Puget Sound Community College and the Squaxin Island Tribe conducted excavations of an ancient intertidal waterlogged site on Mud Bay, in lower Eld Inlet from 1999 to 2009 (Croes et al. 2013). The site is dated to circa 700-300 BP.

### 3. Anderson Creek, 45KP233, Sinclair Inlet

The Washington State Department of Transportation undertook a project to remove fish barriers on Anderson Creek, near Gorst (Kiers et al. 2019). The shell midden site is dated to circa 675-150 BP.

### 4. Alaskan Way Viaduct, 45KI221, Elliot Bay

During excavation for the tunnel boring machine on the Alaskan Way Viaduct replacement in 2014, a historic shell midden was encountered (Elder et al. 2015). The midden is associated with a historic fish house and oyster house operated between 1892 and 1896.

## Comparing Shellfish Ratios at Puget Sound Shell Middens

During our work at the Second Street Shell Midden in Olympia, the question arose: can an archaeologist easily discern whether a midden is precolonial or historic from shell species alone? Here we compare 4 sites to better understand the diversity of shellfish observed in historic-age sites and how this compares to precolonial sites (Tables 1-4, Figures 2-5).

### 1. Second Street Shell Midden, 45TN519, Deschutes Estuary

The Second Street assemblage is comprised of mostly Olympia oysters (71%), with a minority of butter clam (23%), and much smaller minority of littleneck clams (4%). This assemblage indicates oysters were either readily available or preferred here.

Table 1. Second Street Shellfish Summary.

Shellfish Species	Total Weight (grams)	Percentage of Assemblage
Olympia oyster	1,246.98	70.87%
Butter clam	401	22.79%
Littleneck	77.04	4.37%
Unidentified	20.48	1.16%
Nuttall's cockle	9.77	0.55%
Blue mussel	1.99	0.11%
Barnacle	1.29	0.07%
Moon snail	0.75	0.04%
Slipper snail	0.12	0.006%
Total	1,759.42	

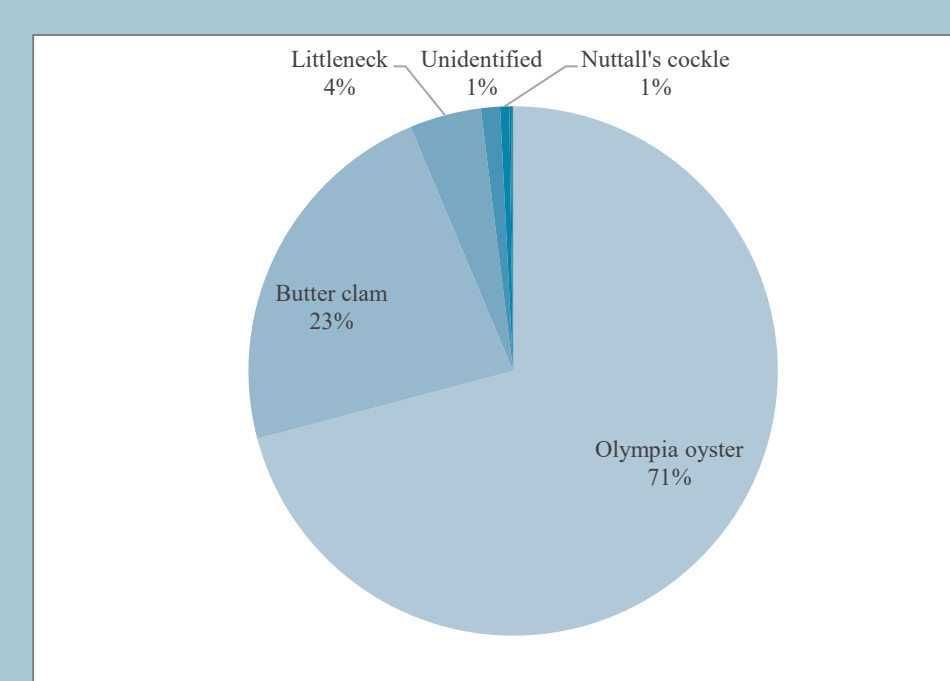


Figure 2. Second Street Shellfish Ratios.

### 2. Qwu?gwes, 45TN240, Mud Bay

One inlet away from the Second Street site, the Mud Bay site has a similarly high ratio of Olympia oysters (74%) and butter clams (18%). The three other bivalve species represented may reflect the natural habitat in Eld Inlet, or Indigenous preference or management for hundreds of years prior to American settlement that favored oysters and butter clams.

Table 2. Mud Bay Shellfish Summary.

Shellfish Species	Total MNI	Percentage of Assemblage
Olympia oyster	56,520	73.46%
Butter clam	14,086	18.30%
Blue mussel	4,703	6.11%
Littleneck clam	1,088	1.41%
horse clam	541	0.7%
Total	76,938	

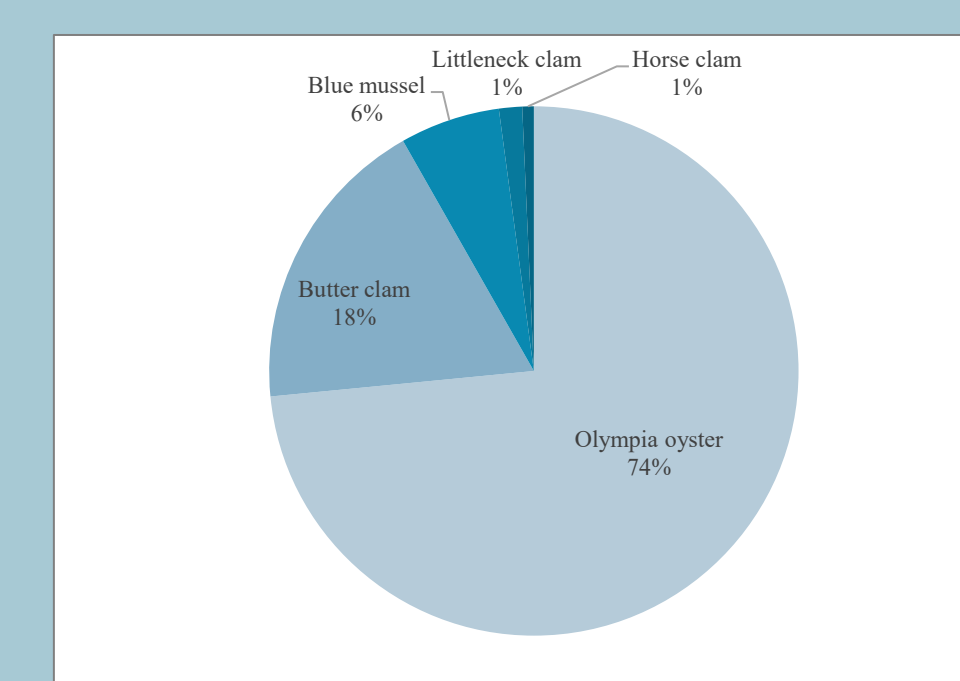


Figure 3. Mud Bay Shellfish Ratios.

## Conclusions

The introduction of non-native shellfish species by American settlers is a reliable age marker for shellfish assemblages, however, when non-native species are excluded from the analysis the difference in species representation is likely more the result of local habitat than rapid cultural change. As a result of our experience at the Second Street site we caution against making decisions on the age or association of a shell midden based on the observation of a small amount of midden.

### 3. Anderson Creek, 45KP233, Sinclair Inlet

On Sinclair Inlet, the Anderson Creek assemblage exhibits a very different pattern from the sites on the South Sound. Although the ratio of identified butter clam is similar (13%), the percentage of unidentified clams dominates the assemblage. Olympia oysters represent only 4% of the assemblage, and the assemblage is more diverse.

Table 3. Anderson Creek Shellfish Summary.

Shellfish Species	Total Weight (grams)	Percentage of Assemblage
Unidentified Venus Clam	28,677.1	46.81%
Frieded Dogwinkle	8,159.4	13.31%
Butter clam	8,086.3	13.19%
Littleneck clam	6,438.4	10.3%
Cockle	2,862.3	4.67%
Olympia oyster	2,372	3.87%
Unidentified shell	1,287.8	2.08%
Horse clam	1,173.5	1.91%
Mussel	847.6	1.38%
Lewis's moon snail	649.9	1.06%
Barnacle	485.7	0.79%
Bent-nosed clam	216.7	0.35%
Limpet	6	0.009%
Periwinkle	0.1	0.00016%
Total	61,262.8	

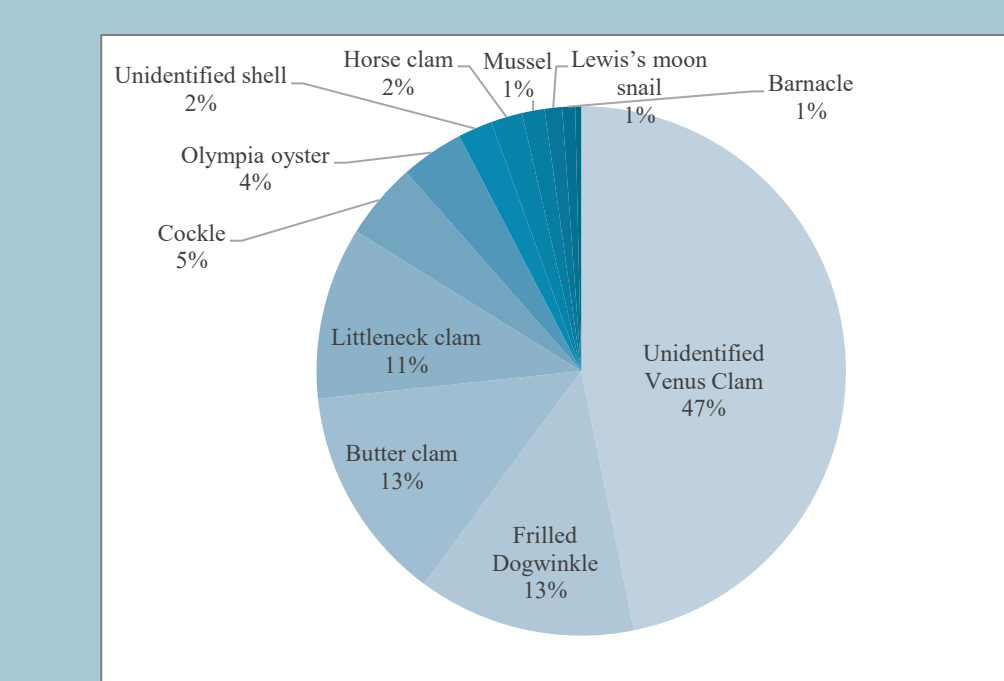


Figure 4. Anderson Creek Shellfish Ratios.

### 4. Alaskan Way Viaduct, 45KI221, Elliot Bay

On Elliot Bay, at the Alaskan Way site, Olympia oyster again dominates the assemblage, and a minor amount of the historically introduced Eastern oyster (8%) is observed in quantity similar to butter clams (11%). The ratio of littleneck clams (16%) is much higher here than at other sites.

Table 4. Alaskan Way Viaduct Shellfish Summary.

Shellfish Species	Total Weight (grams)	Percentage of Assemblage
Olympia oyster	16,921	60.94%
Littleneck clam	2,880	16.07%
Butter clam	1,582	11.06%
Eastern oyster	1,493	8.33%
Bent-nosed clam	238	1.32%
Undifferentiated modusk	65	0.36%
Rock snails	63	0.35%
Blue mussel	59	0.32%
Sea snail	20	0.11%
Barnacle	18	0.1%
Dog whelk	12	0.06%
Mussel (unidentified)	8	0.4%
Acorn barnacle	2	0.01%
Pacific plain limpet	2	0.01%
Unspecified crab	1	0.005%
Unspecified gastropod	1	0.005%
Total	17,919	

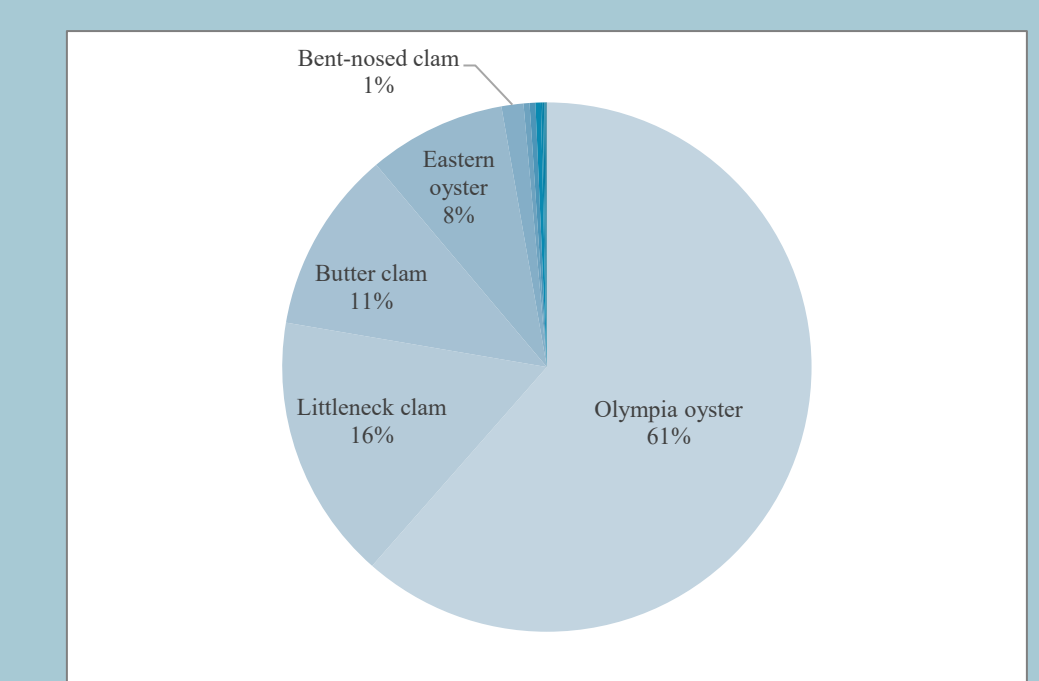


Figure 5. Alaskan Way Shellfish Ratios.

