Olympia's Changing Shoreline

by John Dodge

Budd Inlet is the southernmost inlet in Puget Sound and forms Olympia's watery front yard, changing its appearance every few hours with the ebb and flow of the tides. Its shorelines were shaped over a few million years as glaciers advanced from the north and retreated four or more times. As recently as 20,000 years ago, Puget Sound was under a mile of ice and didn't take on its basic, present day shape until about 13,000 years ago when the last glacier retreated, leaving Budd Inlet at the head of Puget Sound.

Budd Inlet, named after Lt. Thomas Budd of the 1841 U.S. Exploring Expedition under Lt. Commander Charles Wilkes, is a relatively shallow inlet with an average depth of about 27 feet and maximum depth of 110 feet near the mouth. It's about seven miles long with an average width of a little more than one mile.

Long before white settlers arrived in the 1840s, Budd Inlet was a popular gathering place for coastal Salish tribes, including the ancestors of present day Squaxin Island and Nisqually tribes. Budd Inlet was a favorite area for digging, drying and smoking clams and other shellfish. Several, if not all, of the five species of native Pacific Coast salmon frequented the saltwater and nearby rivers and streams. It was also a jumping off point for Native American travel from the Puget Sound basin to the Columbia River and other destinations south.

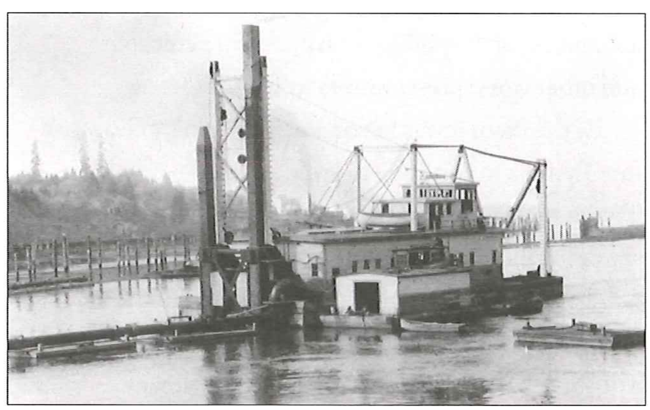
Prior to the arrival of white settlers in 1845 to South Sound, the hillsides flanking Budd Inlet were covered in thick stands of Douglas fir and other conifer trees. Closer to the water's edge were Western red cedar and leafy trees such as alder and maple, interspersed with sloughs and marshy areas covered in a thick tangle of underbrush, including salal, devil's club and salmonberry.

An employee at the U.S. Custom House in Olympia in 1851 had this to say about Budd Inlet: "Clams and mussels abound and ducks of diverse varieties are most abundant."

Jutting into Budd Inlet was a peninsula, which, at high tide, resembled the silhouette of a bear. It was known as "Cheet-woot" (bear) in the Nisqually dialect. The peninsula included a two-acre sandy spit that was the site of the first cabin built in Olympia by Levi Lathrop Smith, who, along with Edmund Sylvester, each claimed 320 acres of land in 1846 in the area.

But perhaps the most distinctive feature of Budd Inlet, and the one that served as an obstacle to growth and development of the young community, was the vast mudflats that encircled the peninsula, extending 1.5 miles from deeper water in Budd Inlet south to the Deschutes River Falls.

"...This is the greatest drawback to the place," the 1872 Business Directory said of the mudflats influence on Olympia. "At high tide, the water is deep enough for any class of vessels, but at low water small boats even are left beached."



Dredging dramatically affected the shoreline of Olympia.
Courtesy Washington State Historical Society.

Aerial view of Olympia, taken from the southeast, ca. 1940. *Courtesy Washington State Archives, General Subjects Photograph Collection, 1845-2005.*

An altered shoreline

Early attempts to manipulate the Budd Inlet shoreline to overcome the tideflats involved construction of docks and wharves, beginning as early as 1854 and culminating in 1885 with a 4,798-foot-long wharf from the end of Main Street (today's Capitol Way) north to deep water. But over time, the wharves were waylaid by the wood-destroying teredo worm, which made a shambles of the pilings in an era before creosote and other wood preservatives were introduced.

By the 1890s it was becoming increasingly clear that for Olympia to continue to grow and compete with Tacoma and Seattle for commerce, and maintain its stature as the state's Capital City, major dredging and filling projects were needed to combat the mudflats.

"A small expenditure of money in dredging out a deeper channel leading to the wharves already built will add immeasurably to the importance of Olympia (maritime) traffic with other Sound ports," an article in the 1890 Business Directory stated. "One cannot help wondering why the Olympians did not bestir themselves at an earlier date."

The first major endeavor occurred in 1893-94 when the U.S. Army Corps of Engineers dredged the shipping channel along Fourth Avenue and deposited the fill material under the Fourth Avenue Bridge.

By the turn of the century, the shellfish harvesting that had been so important to Native Americans in Budd Inlet was just an afterthought.

"There were a few small attempts to raise Olympia oysters in the Deschutes River estuary where Capitol Lake is today, but nobody followed through," noted longtime oysterman Dave McMillin. Meanwhile pollution from human waste—Olympia didn't have a sewage treatment plant until 1951—turn of the 20th century garbage dumping into the tidelands and the proliferation of sawmills, log rafts and other elements of the timber industry sealed the Olympia waterfront's industrial fate. And early on, use of the Deschutes Falls to generate hydropower for mills altered the natural habitat of the river canyon.

Still, the area's natural beauty was used as a selling point in a 1905 Olympia Chamber of Commerce brochure trying to draw newcomers to South Sound: "Fringing every bay, and covering the hilltops, painting their images in the crystal waters, are dark, evergreen forests which have no equal elsewhere on this continent."

The Olympia waterfront underwent a major alteration with a dredging and filling operation in 1909-1911. In a span of three years, approximately 2.3 million cubic yards of mud, enough to fill 230,000 dump trucks, were pulled from Budd Inlet and used to create 29 city blocks, including the beginnings of the Port of Olympia peninsula.

The so-called Carlyon Fill was named after P. H Carlyon, who came to Olympia in 1884 to practice dentistry, but became one of Olympia's most well-known civic boosters and political figures, serving as mayor in 1904 and as a state legislator from 1907 to 1929.

All but $58,000 of the $250,000 project—$6.1 million in 2008 dollars—was financed by townspeople who paid an average of $450 per lot, or nearly $11,000 in 2008 dollars.

The Carlyon Fill and associated dredging projects paved the way for more industry on West Bay and the expanded peninsula, which in 1922 became home to the Port of Olympia and its deepwater port.

All together, the Olympia land base grew by some 434 acres through dredging and filling operations, changing the topography and trajectory of industrial growth forever.

Construction of Fifth Avenue Dam in Olympia, December 1949. *Courtesy Washington State Archives, Susan Parish Photograph Collection.*

"Olympia would be a sleepy little hollow, if not for the dredging and filling and expansion of the 1920s and 1930s," noted local historian and former The Evergreen State College professor Tom Rainey.

While the expansion of buildable land created downtown Olympia as we know it, there were some unintended consequences.

The fill area made downtown more vulnerable when major earthquakes struck in 1949, 1965 and 2001. In a strong earthquake, the sandy, loosely packed fill material is the first to lose strength and collapse, a process called liquefaction.

Almost all of the area in downtown Olympia most vulnerable to sea level rise, which includes the north side of the port peninsula and the downtown area around Capitol Lake is within the expanded—not the historic—Olympia shoreline.

"Under the sea level rise scenario, the old shoreline becomes the new shoreline," said Doug Myers, science director for the conservation group, People for Puget Sound.

Damming the Deschutes River

As early as the 1890s, Olympia civic leaders, including Carlyon, were lobbying the Washington State Legislature to build a dam where the Deschutes River flowed into Budd Inlet; the dam would create a freshwater pond beneath the yet-to-be-developed state capitol grounds—and rid Olympia of more mud flats.

The project gained traction in 1911 when the Wilder and White architectural plan for the state Capitol mentioned the lake as a design feature.

But it wasn't until 1937 that the State Legislature laid the foundation for creation of Capitol Lake, however, the project was suspended with the onset of World War II.

In 1947, just prior to adjourning, the State Legislature approved $1 million to begin construction of the dam, with a total project cost, including the construction of Deschutes Parkway and Fifth Avenue, estimated at $2.9 million.

In a July 7, 1948 story, *The Daily Olympian* heralded the funding for the lake: "Instead of the unsightly mud mired tide flats, the Deschutes River will fill the lower tip of Budd Inlet on Puget Sound with a fresh water lake."

The Capitol Lake project was completed in 1951, forming the 260-acre manmade lake. It wasn't until nearly 20 years later that an engineering study showed that the lake was steadily filling up with sediment transported down the river, some 35,000 cubic yards a year, enough sediment to cover a city block three feet deep.

Despite dredging projects in 1979 and 1986, the lake continued to fill with sediment. By 2008, the lake held about 60 percent less water than it did in 1951.

A lake management study completed in 2009 weighed the pros and cons of keeping the lake versus restoring the Deschutes River estuary. The study concluded the estuary would be cheaper to maintain and would improve water quality in lower Budd Inlet. But it would also unleash sediments into the Inlet, home to public and private boat marinas and the Port of Olympia shipping terminals.

Furthermore, many Olympia area residents loathe the idea of the lake reverting to what they consider stinking mud flats, unraveling all the visions and hard work by previous generations to create the lake in the first place.

Complicating the lake-versus-estuary issue is the discovery of dioxin and other toxic chemicals in the Budd Inlet sediments, a legacy of pollution from Olympia's industrial and population growth, which, ironically, was made possible by the filling and dredging projects 100 years ago.

The dredging, damming and filling that altered Olympia's shoreline is a story that has played out all up and down Puget Sound and other coastal population centers across the United States. It is a story of progress, growth, unintended consequences, environmental degradation and, in some cases, ecological rebirth.

The story continues.

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