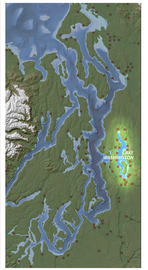
LAKE WASHINGTON: A LOOK TO THE PAST

Shaped by Glaciers and Changed by People, Lake Washington has a Rich History

Some 17,000 years ago, large glaciers carved a deep and narrow trough, marking the beginnings of the future lake. As the ice sheets retreated, they further scoured the land and Lake Washington was formed, becoming the second largest natural lake in the state of Washington (after Lake Chelan).

Prior to the 20th century, Lake Washington was fed primarily by the Sammamish River on the northern end of the lake. Water flowed south to exit through the (now dry) Black River on its way to Puget Sound. This linkage of rivers, lake and Puget Sound fostered salmon runs and the human communities that would grow to depend on them.

The ancestors of modern day tribes in this region thrived in village communities along the shores of Lake Washington. Trading and social gatherings were frequent among villages. Even with the strong cultural and historical roots, changes rapidly followed the first encounters with European-American settlers.



Regional native villages
Based on a map from www.coastsalishmap.org (2015).

1851 1855 1863 1876 1885 1895 1909 1917 1934 1940 1950 1963 1968 1974 2016

FIRST EUROPEAN-AMERICAN SETTLEMENTS ON LAKE WASHINGTON

John Harvey and Edward A. Clark were the first European-Americans to settle along Lake Washington, claiming plots of land near today's Seward Park.

TREATY OF POINT ELLIOTT

Signed on Jan. 22, 1855, this treaty between the U.S. government and multiple Puget Sound tribes established reservations and ceded land to the U.S. It reserved rights for native people to hunt, fish and gather on traditional lands.

Ford Mine top works, Museum of History & Industry
Between 1910 and 1920s the Ford Slope Mine was one of the most productive mines in the Newcastle/Coal Creek area.

COAL MINING

With the discovery of coal, miners rushed to develop the eastern side of Lake Washington. Through a series of tramways and barges, coal was transported to Elliott Bay from mines, like the Coal Creek mine in present day Newcastle.

EARLY EASTSIDE TOWNS

Coal mining, logging and farming attracted more settlers along Lake Washington. Juanita, Houghton, Newcastle and Kirkland were among the first Eastside towns to be established.

Chudugs John and others in a canoe on Lake Union, Seattle, ca. 1885, Museum of History & Industry
Chudugs John, also called Cheshahud, lived with his family north of Seattle on Portage Bay, part of Lake Union. In this photo, Chudugs John and several other people sit in a canoe on Lake Union.

UNIVERSITY OF WASHINGTON MOVES TO LAKE WASHINGTON

Originally located in downtown Seattle, the University of Washington was relocated in 1895 to its present-day location near Union Bay. The new location would better serve the rapidly growing student population.

A LANDMARK WEST COAST CITY

By 1890, Seattle had become the second largest city on the west coast after San Francisco.

Aerial of Kirkland from west, PEMCO Webster & Stevens Collection, Museum of History & Industry
Growth on the Eastside began to take off in 1913 with the introduction of the first car ferry. By 1932, the city of Kirkland was a quickly developing agricultural area.

Alaska-Yukon-Pacific Exposition, Museum of History & Industry
Alaska-Yukon-Pacific Exposition promotional postcard, Seattle, ca. 1909

ALASKA-YUKON-PACIFIC EXPOSITION

The expo showcased Seattle, celebrated its achievements and demonstrated its economic potential to the world.

LAKE WASHINGTON SHIPYARD OPENED

While shipyards on the lake date back to the 1880s, the Lake Washington Shipyard was one of the most notable for the vessels built there. This shipyard built ferries and ocean-going vessels, including warships used during World War II.

Hiram M. Chittenden Locks under construction, PEMCO Webster & Stevens Collection, Museum of History & Industry
For years, there was no easy or cheap way to move logs, coal, and other resources directly from the east side of Lake Washington to Elliott Bay. The Lake Washington Ship Canal was built by the Army Corps of Engineers between 1911 and 1917.

OFFICIAL OPENING OF THE LAKE WASHINGTON SHIP CANAL

One of the most significant changes to shape the landscape of Lake Washington was the opening of the Ship Canal. The canal opened more than 50 years after Seattle pioneers first envisioned a connection between the lake and Puget Sound. Construction of the canal lowered the lake level nearly nine feet and the Black River dried up entirely. The canal and the Hiram M. Chittenden Locks (Ballard Locks) officially opened for boat traffic on July 4, 1917.

INAUGURAL SEAFAIR CELEBRATION

The first Seafair was held in 1950 and the tradition continues today. With hydroplane races and aerial performances, people and boats line the shores and waters of Lake Washington for the annual event.

Lacey V. Murrow passing, Post-Intelligencer Collection, Museum of History & Industry
Lacey V. Murrow passing at the entrance to the Lacey V. Murrow Floating Bridge, Seattle, 1940

I-90: LAKE WASHINGTON'S FIRST FLOATING BRIDGE

Construction of the first floating bridge across the lake had a profound impact on the area's development. The Lacey V. Murrow Floating Bridge enabled people and goods to travel quickly between shores. Cars became the primary mode of transportation across the lake, and in 1950, the last ferry on Lake Washington went out of service.

DID YOU KNOW?

The last tollbooth for the original SR 520 floating bridge closed in 1979. To help pay for the floating bridge construction expenses, commuters paid 35 cents for each crossing. For the new SR 520 bridge, tolls are collected electronically to keep traffic moving.

RESTORING LAKE WASHINGTON'S WATERS

From 1940 to 1963, as the population grew, water pollution in the lake increased dramatically. The large volume of untreated sewage created algae blooms, fouling the waters. Public concern about cleaning up "Lake Stinko" led to investments in regional pollution control and, by 1968, sewage was no longer discharged into the lake.

Ribbon cutting at the Evergreen Point Floating Bridge, August 28, 1963.
Post-Intelligencer Collection, Museum of History & Industry
Seattle Mayor Gordon S. Clinton held the red, white and blue ribbons while Governor Albert D. Rosellini cut them with a giant pair of scissors.

BOLDT DECISION

On Feb. 12, 1974, Federal Judge George Boldt issued a historic ruling reaffirming the rights of Washington's Indian tribes to fish in accustomed places. The Boldt Decision allocated 50 percent of the annual catch to treaty tribes. The Muckleshoot Indian Tribe was able to continue exercising their treaty-reserved fishing rights in Lake Washington and its tributaries.

EVERGREEN POINT FLOATING BRIDGE

On Aug. 28, 1963, traffic opened on the longest floating bridge in the world. Later renamed the Governor Albert D. Rosellini Bridge, the SR 520 floating bridge led to the rapid expansion of many Eastside communities.

A NEW FLOATING BRIDGE FOR A NEW ERA

Out with the old and in with the new – construction began in 2012 on the new floating bridge to replace the aging Evergreen Point Floating Bridge. Constructed with 77 pontoons, the new bridge opened in 2016 and enhances the vital connection for pedestrians, cyclists and commuters from Seattle to the Eastside. All 77 pontoons traveled through the Hiram M. Chittenden Locks to reach Lake Washington.

WANT TO LEARN MORE? *Additional Interpretive Sign Locations:*

1. *Lake Washington: A Look to the Past*
2. *Nautical and Maritime*
3. *Points of Interest*
4. *Ecology and the Environment*
5. *Bridge Construction and Engineering*
6. *Connections to the Eastside*

NAUTICAL AND MARITIME

From Canoes to Hydroplanes, the History of Lake Washington can be Traced Through its Nautical Roots.

NAUTICAL ORIGINS OF LAKE WASHINGTON

The earliest people to navigate Lake Washington's waters were ancestors of modern day tribes in this region. For thousands of years, native people lived along the lake's shores and its tributaries using canoes to gather food, travel and trade.

When non-native settlers first visited Lake Washington they observed a vibrant society in close relationship with the lake and its abundant resources. Canoe travel was a critical part of village life and set the foundation for nautical travel on Lake Washington today.

Salmon Bay Charlie's house at Shilshole with canoe anchored offshore, 1905
FEMCO Webster & Stevens Collection, Museum of History & Industry
Shilshole, near present-day Ballard, was once a large Native American village. Chief Sealth's daughter, the name of Salmon Bay Charlie and his wife Madeline remained. Salmon Bay Charlie was also known as Indian Charlie, but in his own language, his name was Hawchchitsa.

Seattle waterfront,
Anders B. Wilse Collection, Museum of History & Industry
This photo, taken between 1897 and 1900, shows steamboats near the coal docks of the Oregon Improvement Company. These vessels used coal to fuel their steam engines. The "Multnomah" (foreground) made regular runs between Olympia and Seattle.

LAKE WASHINGTON BOATS – PROGRESSING WITH THE TIMES

Canoes were the primary mode of transportation on the lake into the late 19th century. Typically made from cedar trees, carved canoes ranged in size and shape. Small, light canoes were excellent for hunting and fishing, while larger canoes could efficiently transport belongings and other cargo. With the arrival of non-native settlers, row boats were also introduced as another means of traveling the lake's waters.

When coal was found near the lake's eastern shores, most notably in the Coal Creek mine near Newcastle, steam ships were enlisted to transport workers and coal barges across the lake. In 1872, the steamer *James Mortie* became the first engine-driven boat to travel Lake Washington. Early steam boat travel was slow and laborious – a trip from Madison Park to Bothell could take six hours or more!

As commerce and development in the area grew, steam boats became the primary mode of transportation for people traveling across the lake. Passenger steamers provided scheduled service to "flag stops" at private docks — passengers flagged down passing ferries when they needed a lift — and in the early 1900s, car ferry routes were developed between Madison Park and Kirkland, and between Leschi and Medina.

The tradition of racing gasoline-powered hydroplanes on Lake Washington began more than a century ago. The 1909 Alaska-Yukon-Pacific Exposition hosted the first powerboat races on the lake. The *Wolff II*, built by Captain John E. Wolff of Portland, won the 30-mile circuit race.

With the opening of the Lake Washington Ship Canal and Hiram M. Chittenden Locks in 1917, boats could finally reach the interior waters of Lake Washington from Puget Sound. Several yacht clubs were established and the use of pleasure craft became the dominant maritime activity on Lake Washington.

Leschi ferry dock,
FEMCO Webster & Stevens Collection, Museum of History & Industry
A number of ferries carried people, goods and vehicles across Lake Washington before the building of the floating bridges. Horse-drawn wagons lined up and ready to board the Leschi ferry to cross Lake Washington.

Sailboats in Montlake Cut,
Post-Intelligencer Collection, Museum of History & Industry
Sailboats pass through the Montlake Cut on Seattle Yacht Club's opening day in 1941. The Montlake Bridge was the last of four bascule bridges to be built across the Lake Washington Ship Canal. It opened for traffic in June 1925. On Opening Day of the boating season, the Montlake Bridge is open to allow the boats to pass through the cut.

MARITIME CULTURE ON LAKE WASHINGTON

With the advent of pleasure cruising, a strong maritime culture was established on Lake Washington. Since 1920, local boating enthusiasts have kicked off boating season with the Opening Day celebration.

Opening Day is marked by crew and sailboat races and a celebrated boat parade through the Montlake Cut.

Summers are marked by another important maritime celebration: Seafair.

Thrilling hydroplane races on the lake, triathlon races near Seward Park and aerial performances all make Seafair a memorable event.

Aerial of boats in Portage Bay,
Post-Intelligencer Collection, Museum of History & Industry
Aerial of boats in Portage Bay on opening day of boating season, looking southeast over the Montlake Cut, Seattle, 1965. The Seattle Yacht Club has organized a boat parade on opening day of the boating season since its inception in the early 1900's.

LAKE WASHINGTON LAKE LEVELS

The construction of the Hiram M. Chittenden Locks created a significant drop in the water level of Lake Washington. The drop in lake level affected the ancestors of modern day native peoples, displacing many from their villages along Lake Washington and its tributaries, the Black and Cedar Rivers. The drop in lake level limited available food resources making the area a difficult place to sustain the native peoples living near the lake.

Hydroplane Sla-Mo-Shun, Museum of History & Industry
During the first Seafair hydroplane race in 1950, Stanley Sayres piloted Sla-mo-shun IV to a new world record water speed of 160.33 mph.

Black River, Seattle, 1899
Anders B. Wilse Collection, Museum of History & Industry
Prior to the Ship Canal, the Black River was a navigable waterway connected the level of Lake Washington, the Black River linked lake commerce with Puget Sound by way of the Duwamish River. After the lowering of the lake during the summer of 1916, the Black River dried up and gradually disappeared.

DID YOU KNOW?

The old SR 520 bridge had a center drawspan to allow boats taller than 64 feet to pass through. The floating bridge drawspan was a technical marvel when it opened in 1963, but it also led to delays for drivers when the drawspan had to open for boats. As you can see, there's no drawspan on the bridge today. Just like the I-90 bridge to the south, this bridge includes a 70-foot tall navigation channel on the east side. It also includes a 45-foot-tall navigation channel on the west side.

WANT TO LEARN MORE? *Additional Interpretive Sign Locations:*

1. *Lake Washington: A Look to the Past*
2. *Wetlands and Habitat*
3. *Points of Interest*
4. *Ecology and the Environment*
5. *Bridge Construction and Engineering*
6. *Connections to the Eastside*

POINTS OF INTEREST

What a view! From where you are standing, you can see Lake Washington and adjacent neighborhoods, wetlands and parks. Looking south, you can view the outline of the Interstate 90 floating bridge. It runs parallel to SR 520 and also crosses Lake Washington.

On a clear day, you may see the Olympic Mountains to the west and the Cascade mountain range to the east. Two of the area's tallest volcanic peaks may also be visible – Mount Rainier, to the south, is Washington's tallest at 14,410 feet and Mount Baker, elevation 10,781 feet, to the north.

Regional Salish Villages

Lake Washington is an ancestral tribal homeland, playground for boaters, and prime habitat for fish and wildlife. At more than 200 feet deep in places, this glacially-formed lake has supported tribal life, commerce and recreation for thousands of years.

Culturally significant areas and native place names are courtesy of the Muckleshoot Indian Tribe. Text is written in Southern Lushootseed style, (bəq̓əlšuʔucid).

Broadly aligned Coast Salish peoples share a related language with regional dialect variants in the north and south portions of Puget Sound.

MONTLAKE CUT

sx̌ʷəcəqʔiʔ - Formerly *a portage from Lake Washington to Lake Union.*

UNIVERSITY OF WASHINGTON & HUSKY STADIUM

sq̓ʷicqs - *A tiny promontory jutting into Lake Union,* where the boathouse of the University Boat Club now stands.

UNION BAY

This calm bay between the Montlake Cut and Lake Washington is a refuge for birds, fish and boaters alike. When the I-5 Lake Washington Ship Canal opened in 1917, the lake level dropped nearly 9 feet, exposing many acres of land surrounding Union Bay.

sluʔwiɬ - *Like a perforation in a canoe,* the creek in this location runs into Union Bay and was an important fishing site.

LAURELHURST & WEBSTER POINT NEIGHBORHOODS

šubałtxʷ - *A dry house where fish were processed and dried.* This area is now called Webster Point.

WOLF BAY

WINDERMERE NEIGHBORHOOD

SAND POINT NEIGHBORHOOD

łudəxʷadiʔ - *Snowberry place* identified an area where snowberries grew on the northern shore of current day Sand Point.

ćixʷćixʷałtxʷ - *House of osprey.* A location where a fish hawk lived.

sləqʷələqʷəc - *Cedar bark.* An area where cedar bark was harvested at the inner end of the Sand Point promontory.

WARREN G. MAGNUSON PARK

This peninsula was once home to Naval Air Station Seattle. Between 1920 and 1970, hundreds of military planes buzzed overhead on their way to and from the station. Following its decommissioning in the 1970s, the city of Seattle converted much of the peninsula to a park. The park was named to honor U.S. Senator Warren G. Magnuson, a naval officer from Seattle.

sʔəcucid - *Mouth of face.* The mouth of Meleer Creek.

bəsčəxəʔ - *Place has rock.* A location with a large boulder.

FINN HILL NEIGHBORHOOD

JUANITA NEIGHBORHOOD

JUANITA BAY

KIRKLAND

Now known for its beautiful downtown waterfront, non-natives first settled in Kirkland in the 1850s. From 1913 to 1950, a wooden car ferry named *Leschi* carried residents between Kirkland and Madison Park in Seattle.

stałał - *A fathom measurement at a site known today as Kirkland.* A fathom is a term used for measuring the depth of water.

čəxəb - *Water falling off an edge (dripping water).* A spring north of Kirkland.

Augus Wiredrag party of N. H. Heck, 1920
Drowned forest discovered by wiredrag on Lake Washington. Pulling up a moderate-size tree.
CASG Season's Report Heck 1920-47

WHAT'S ON THE BOTTOM OF LAKE WASHINGTON?
There are many unseen features of the lake, like submerged forests – relics of landslides approximately 1,100 years ago.

Divers have found a dozen wooden coal cars from a crash that sit just south of the SR 520 bridge, about 200 feet below the surface. The coal cars sit atop the barge Chehalis that was pulling the load from the Coal Creek mines in Newcastle before it sunk in 1875.

MOSS BAY

HUNTS POINT

šlixʷtixʷqs - *Three promontories with narrow inlets between them.* The present day, Evergreen Point, Hunts Point, and Yarrow Point.

čəqʷus - *By the water.* A place where the trail descends to the water.

čəlqʷəsəbəc - *Becomes added to.* A small creek that flows into the head of Anderson Bay.

MEDINA NEIGHBORHOOD

DID YOU KNOW?

The 1.5-mile SR 520 floating bridge has a unique effect on the lake's water surface. Depending on wind speed and direction, the bridge acts as a wind barrier creating the effect of calm water on one side and choppy water on the other.

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ECOLOGY AND THE ENVIRONMENT

More Than Thirty Native and Non-Native Fish Species Live In The Lake Washington Watershed.

Fish names courtesy of the Muckleshoot Indian Tribe. The text is written in Southern Lushootseed style (bagʷšəlucid). Broadly aligned Coast Salish peoples share a related language with regional dialect variants in the north and south portions of Puget Sound.

Fish drawings © Joseph R. Tomelleri

COMPETING AND COEXISTING

Over 30 fish species inhabit Lake Washington, including:

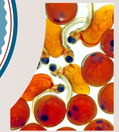
- Sockeye salmon are common and when their numbers are abundant, Lake Washington serves as an important fishery.
- Native sculpins are plentiful but can be difficult to spot because they tend to stay on the lake bottom and have cryptic coloration, like a natural camouflage.
- Lamprey are eel-like fish that lack jaws and have a round sucker-like mouth.
- Non-native species, such as tench and carp, have been intentionally or accidently introduced over the years.

DID YOU KNOW?

Cormorant birds can dive over 145 feet below the surface of the water to fish. Cormorant's feathers are not waterproof like other waterfowl, so after fishing, they need to dry their wings. To accommodate these local seabirds as well as other waterfowl and ensure their ability to move in and out of the pontoon lagoons, special bird ramps were designed and constructed.

A SOCKEYE SALMON'S JOURNEY IN LAKE WASHINGTON

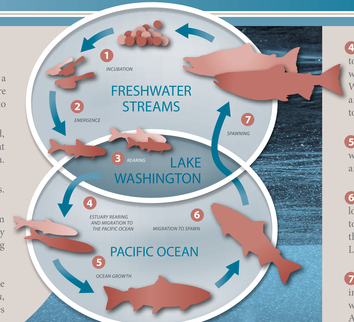
Sockeye salmon rely on Lake Washington's cold, deep waters during a key stage in their life cycle. Salmon are *anadromous*, meaning they are hatched in freshwater, spend their adult lives in the ocean, and return to freshwater to breed.



Salmon Eggs & Developing Alevin, U.S. Fish and Wildlife Service

1. Sockeye eggs are incubated in the gravel of cold, freshwater streams, such as the Cedar River, that connects to the south end of Lake Washington.
2. Young fish, called *alevins*, hatch from the eggs.
3. Juvenile sockeye, called *fry*, make their way from the streams into Lake Washington. Sockeye fry spend several months or more in the lake, including areas near the SR 520 floating bridge.

Fry travel in schools away from the shore, dwelling in deeper parts of the lake during the day. At dusk, they swim upward to shallower waters to feed on *Daphnia*, a small crustacean commonly referred to as the "water flea." The fry themselves are also a food source for many predators in Lake Washington, such as native northern pikeminnow and sculpin as well as non-native perch and bass.



4. As smolts — young sockeye preparing to transition from fresh water to salt water sockeye migrate out of Lake Washington through the Ship Canal and the Hiram M. Chittenden Locks to the Puget Sound and beyond.
5. Sockeye migrate to the Pacific Ocean where they live for about two years, and are often preyed upon by orcas.
6. Eventually, adult salmon begin the long journey back to their native streams to breed. They migrate back through the locks, the Ship Canal, and into Lake Washington during the summer.
7. Each fall, adult sockeye return to spawn in the Cedar River and other tributaries, as well as along Lake Washington's shoreline. After spawning, sockeye salmon die and their decaying bodies return important minerals and nutrients to the river habitat.

HABITAT CHANGES

When the Lake Washington Ship Canal was breached in 1916, the lake's elevation lowered by about 9 feet and transformed the environment. Approximately one thousand acres of marshes were destroyed and shallow-water habitat became dry land. This reduced important habitat for juvenile salmon and other fish, wildlife and plant species. Historically, these habitats included many resident and migratory fish species, kokanee or non-anadromous sockeye salmon, freshwater mussels, waterfowl, and both food and medicinal plants specific to that environment.

Returning water from Lake Union into the Montlake Cut, August 26, 1916. MOHAI Webster & Stevens Collection, Museum of History & Industry.
The Montlake Cut is part of the U.S. Army Corps of Engineers built Lake Washington Ship Canal that connects Puget Sound, Lake Union, and Lake Washington. While digging the Montlake Cut, engineers built a temporary dam to hold back the waters of Lake Union's Portage Bay.

The elevation change also dried up the Black River, which once connected Lake Washington to Puget Sound. The elimination of the Black River, as well as the rerouting of the Cedar River into Lake Washington, changed the lake's natural drainage pattern and affected the migration routes of native Chinook salmon, and steelhead trout. These changes affected the ancestors of the modern day tribes in this region, who depended on these natural resources for sustenance and for support of the local economy and trade networks.

DESIGNING THE NEW BRIDGE AND HIGHWAY TO EXIST WITHIN THE NATURAL ENVIRONMENT

WSDOT incorporated environmental and sustainability features into the design and construction of the new floating bridge. These features include:

- Stormwater treatment and detention facilities to improve water quality by allowing highway stormwater to settle and separate before it enters the lake
- Lighting fixtures that minimize light spillover to reduce effects to fish and other aquatic species
- A regional bicycle and pedestrian path to provide more sustainable commuting options
- A Leadership in Energy and Environmental Design (LEED) Silver-certified bridge maintenance facility

A bird ramp in one of the new bridge's supplemental stability pontoon lagoons. It is used to help waterfowl navigate out of the lagoon and dry their feathers.

BRIDGE CONSTRUCTION AND ENGINEERING

Washington did not invent the floating bridge, but we have become experts at building them. We have used this unique construction technique to overcome the geographic challenges of our region, and become global leaders in floating bridge construction along the way.

DID YOU KNOW?

The flat section of the floating bridge, called the low-rise, is approximately 10 feet above the top of the pontoons. This makes it easier for maintenance and safety workers to access the pontoons and the underside of the bridge deck. The elevated height of the bridge allows crews to conduct regular maintenance without interrupting traffic.

Evergreen Point Floating Bridge, August 28, 1963, Post-Intelligencer Collection, Museum of History & Industry

The Evergreen Point Floating Bridge, the second continuous roadway across Lake Washington, opened to traffic on August 28, 1963. Thousands of people gathered on the bridge for the official closing of the center span and the dedication ceremony. At the time of the dedication, transportation officials predicted that 15,441 vehicles would use the bridge each day in 1964.

FLOATING BRIDGES - AN ANCIENT TECHNOLOGY

The floating bridge you are standing on today is based on engineering principles developed thousands of years ago. The first floating bridges date back to ancient Persia, China, Greece and Rome, when rows of boats were tied side-by-side with wooden planks layered across the top.

This technique has survived and evolved, and there are now permanent floating bridges constructed throughout the world in places such as the United Arab Emirates, Norway, Guyana, Turkey and of course, four here in Washington State.

WASHINGTON'S FLOATING BRIDGE HISTORY

Inspired by the design of concrete barges used in World War I, Seattle engineer Homer Hadley first proposed using a floating bridge to cross Lake Washington in 1921. For years, local engineers had been searching for a practical means of building a bridge across Lake Washington, and Hadley's vision fit the bill.

The bridge you're standing on is the fifth concrete floating bridge constructed in Washington. The first four bridges were:

- **The I-90 Lacey V. Murrow Bridge** (1940), connecting Seattle to the Eastside across Mercer Island
- **The SR 104 Hood Canal Bridge,** or **William A. Bugge Bridge** (1961)
- **The original SR 520 Governor Albert D. Rosellini – Evergreen Point Bridge** (1963), the precursor to today's bridge
- **I-90 Homer M. Hadley Bridge** (1989), which replaced the Lacey V. Murrow Bridge

WHY A FLOATING BRIDGE?

Lake Washington is over 200 feet deep and its lakebed is composed of very soft soils. Building traditional bridge piers in these conditions can be difficult and costly. To build a traditional bridge across Lake Washington would require bridge piers over 600 feet tall – nearly the height of the Space Needle!

MAKING CONCRETE FLOAT

The floating bridge under your feet is supported by 77 water-tight concrete pontoons. Despite being made of concrete, the pontoons are hollow, which allows them to float. Each pontoon is divided into chambers that can be sealed to reduce the risk of sinking the entire pontoon if one of the chambers takes on water.

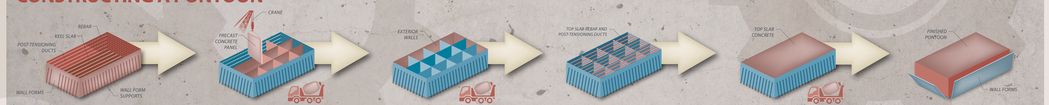
DESIGN INNOVATIONS

This bridge is an example of the ongoing evolution of floating bridge design. It is the world's first floating bridge equipped with a fire detection system.

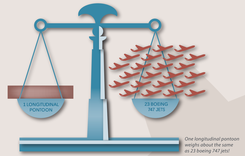
It is also equipped with sensors and monitors so crews can remotely keep tabs on the bridge's condition. If water gets into a pontoon, an alarm sounds at the bridge maintenance facility in Medina. Sensors report the location of the water so it can be quickly investigated and repaired if needed.

Besides having "intelligent" systems, the floating bridge must also stand up to nature – it is designed to withstand winds up to 89 miles per hour, earthquakes and changes in the lake level. The transition spans, located at each end of the floating bridge, are designed to allow the bridge to move up to two feet in any direction, similar to a boat tied to a dock.

CONSTRUCTING A PONTOON



1. Set Wall Forms, Construct Rebar and Post-Tensioning Ducts
2. Install Interior Precast Concrete Panels and Pour Concrete in Keel Slab
3. Pour Concrete for Exterior Walls and Joints Between Precast Concrete Panels
4. Construct Top Slab Rebar and Post-Tensioning Ducts
5. Pour Top Slab Concrete
6. Remove Wall Forms, Perform Post-Tensioning to Add Strength



BRIDGE DESIGN

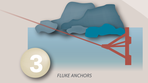
At the time this bridge was constructed it was the world's longest floating bridge. The bridge's largest pontoons, called longitudinal pontoons, are 75 feet wide, 28 feet tall and 360 feet long – as long as a football field! That 75-foot width is important – it was the widest the pontoons could be while still being able to fit through the U.S. Army Corps of Engineers' Hiram M. Chittenden Locks in Ballard. The pontoons were towed from a construction site in Aberdeen, around the Olympic Peninsula, into Puget Sound, through the Lake Washington Ship Canal and onto Lake Washington.

ANCHORING SYSTEMS

Three different types of anchors keep the floating bridge in place.

The bridge's five **shaft anchors** are installed in solid soils near the shore, where the water is relatively shallow. The shaft anchors are drilled into the lakebed, filled with steel-reinforced concrete and cut off just above the lake bottom.

There are eight **gravity anchors** placed in solid soils with sloped topography. These anchors are large concrete boxes that are filled with rock after they are placed in their final location.



The bridge has 45 **fluke anchors** that are sunk into the soft soils in the deepest parts of the lake. After being filled with rock, they work like a boat anchor to resist movement.

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CONNECTIONS TO THE EASTSIDE

The modern communities on the eastern shores of Lake Washington are the result of thousands of years of history. Let us take a look into the Eastside's history to see how transportation and access to development have shaped the region.

SIGNIFICANCE OF THREE POINTS AREA TO NATIVE AMERICANS

The eastern shores of Lake Washington were the indigenous territory of the Lakes People and Sammamish People – the Coast Salish people whose descendants are part of multiple contemporary tribes in the region.

Hunts Point, Fairweather Point, and Yarrow Point (stix^tix^qs) had meaning to native speakers as *"three promontories with narrow inlets between them"* and continue to be special places to the Muckleshoot Indian Tribe as traditional places to fish and gather.

Contemporary tribal fishing boat, 2004.
Photo courtesy of The Muckleshoot Indian Tribe

Native place name courtesy of the Muckleshoot Indian Tribe. The text is written in Southern Lushootseed style: ʔaʔpəlilʔaʔ.
Broadly aligned Coast Salish peoples share a related language with regional dialect variants in the north and south portions of Puget Sound.

DID YOU KNOW?

As part of the development of the new SR 520 corridor, WSDOT replaced barriers to fish migration with eight fish-friendly culverts and restored approximately 3,700 feet of stream channel habitat to improve fish habitats in Yarrow Creek and other Lake Washington tributaries on the east side of the lake.

GROWTH OF THE EASTSIDE AND POINTS COMMUNITIES

Settlers from the eastern United States first arrived on the eastern shores of Lake Washington in 1869. They were drawn to the prospect of new opportunities and natural resources. Those who settled in the Points communities relied on timber, coal, and other natural resources. Food cultivation was challenging in the Points, however farms thrived elsewhere on the Eastside.

In 1900, only 254 people lived in the Points communities. However, with the rapid growth of Seattle during the Klondike Gold Rush, demand for Eastside agriculture grew, and its plentiful berries and vegetables were soon sold in Seattle. Seattle residents also kept summer vacation homes along the lakeshore.

Kirkland Farms, 1918.
PEMCO Webster & Stevens Collection, Museum of History & Industry
The national economic depression of the 1890s ended Kirkland, Washington's plans to become an industrial city. Instead, agriculture gave the city its first stable economic base. Farms in Kirkland and nearby Houghton grew berries, fruit and flower bulbs and raised livestock.

FERRIES AND BOATS – THE ONLY WAY INTO TOWN

Early settlers often faced tough conditions when rowing or canoeing across Lake Washington – wind and stormy weather could make the two-mile trip from the Eastside challenging. Yet another option was introduced in 1884 when the *Squak* steamboat embarked on its first passenger trip from Kirkland to Madison Park. The establishment of the *Squak* and other ferries eased cross-lake travel, opening the door to other private steamers.

Development on the Eastside began to increase in 1913 with the introduction of the first car ferry, *Leschi*. Eastside residents could easily and reliably commute to downtown Seattle in 30 to 45 minutes.

Ferry "Lincoln of Kirkland"
PEMCO Webster & Stevens Collection, Museum of History & Industry
The ferry "Lincoln of Kirkland" was launched in 1914 from the Anderson Shipbuilding Corporation in Houghton, on Lake Washington. The ferry ran between Leschi and Madison Park to Kirkland until 1945.

TRANSPORTATION INNOVATIONS LEAD TO GROWTH

Construction of new waterways, roads and bridges contributed to the transformation of growing Eastside communities. Completion of the Lake Washington Ship Canal by the U.S. Army Corps of Engineers and the Lacey V. Murrow Memorial Bridge along I-90, as well as World War II industrial production, led to explosive population growth on the Eastside. Property values increased, agriculture declined and suburban development took hold.

Canoes rack up at their final destination on the Paddle to Muckleshoot, 2006. Allen Frazier, Nisqually Tribe
The Tribal Canoe Journey is a yearly tradition that retraced the Tribal Canoe Journey which routes through Lake Washington. The Tribal Canoe Journey is a yearly tribal tradition, hosted by a different tribe each year, and honors centuries-old customs of transport and trade by the coastal tribes of the Northwest.

1854 From 1854-1855, following treaty signings, ancestors of present-day tribal communities were displaced to reservations, and Euro-American settlers moved in to inhabit former native village sites.

1869 Coal discovered on the Eastside and settlers followed.

Opening of Seattle, Lake Shore & Eastern Railway.
Museum of History & Industry
The Seattle, Lake Shore & Eastern Railroad Company was formed in 1885 and by 1887, it ran from the Seattle waterfront to Smith Cove, across Salmon Bay, and along the northwest side of Lake Washington. Some of the old subbed is now the Burke-Gilman Trail, used by hundreds of cyclists, roller bladers, runners, and walkers each day.

1889 Seattle Lake Shore and Eastern Railroad connects to Redmond to support the timber industry.

1900 Population tops 250 people in the Points communities; which thrive on revenue from coal, timber and agriculture.

1905 Kirkland incorporates as a city.

Old Main Street school with students on the steps, Bellevue, Washington, ca. 1905.
University of Washington Libraries, Special Collections, UW 36749
In 1889, Isaac Lewis donated land to the Bellevue School District for the construction of a new schoolhouse. The two-room house with bell tower stood at Main Street and 100th Avenue SE. It was fed by the Clyde Hill, Beaux Arts, Medina, and Bellevue areas. The school operated there until 1930.

1913 Car ferry service begins between the Eastside and Seattle.

1917 Lake Washington Ship Canal and the Hiram M. Chittenden locks opens allowing boat travel between the Puget Sound and Lake Washington.

1920 New road connects Points communities, while ferries provide a link to Seattle.

1910 Schools open in Medina and Hunts Point.

Promotional brochure for the original Lake Washington Floating Bridge, c. 1940.
Image courtesy Eastside Heritage Center
"The Biggest Thing Afloat in the World!" Promotional brochure for the original Lake Washington Floating Bridge from the Washington Toll Bridge Authority. This bridge was the first to cross Lake Washington; communities along the lakeshore had previously been served by ferries.

1940 Lacey V. Murrow Memorial Bridge connects Seattle to Eastside via Mercer Island.

1953 Bellevue and Clyde Hill incorporate as cities.

1955 Medina and Hunts Point incorporate as cities.

1959 Yarrow Point incorporates as a city.

1963 SR 520 Evergreen Point floating bridge opens and the Eastside continues to grow.

1963 Tribal members organized fish-ins as the fight for equal fishing rights begins.

2006 The Muckleshoot Indian Tribe welcomed over 60 canoes on Lake Washington during the annual Tribal Canoe Journey.

WANT TO LEARN MORE? *Additional Interpretive Sign Locations:*

1. *Lake Washington: A Look to the Past*
2. *Nautical and Maritime*
3. *Points of Interest*
4. *Ecology and the Environment*
5. *Bridge Construction and Engineering*
6. *Connections to the Eastside*