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Columbia River Navigation

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- Columbia River Navigation and Pilots
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- Credits

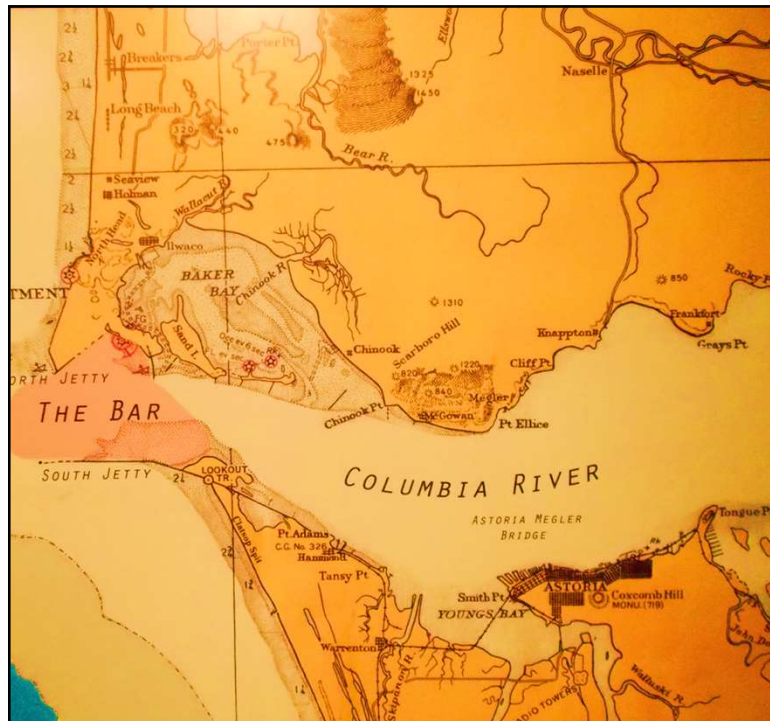
The map shows the Columbia River basin spanning Washington and Oregon. Key locations include Astoria, Cathlamet, St. Helens, Vancouver, and Portland. It also marks the Pacific Ocean, Cascade Mts. Range, and various channels and marinas. A scale bar indicates nautical miles from 0 to 15.

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Columbia River Estuary

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Columbia River Discovery & Exploration From the Sea

- In 1775, Bruno Heceta detected a large bay between two capes.
- in 1788, fur trader John Meares tried to find the river but concluded it didn't exist.
- In 1792, British explorer, George Vancouver, commanding ships Discovery and Chatham, surveyed the west coast and investigated the rumored Great River.
- In April, 1792, off the Olympic Peninsula, the British met the Columbia Rediviva commanded by American trader Robert Gray.
- On May 11, 1792, the Columbia Rediviva entered the mouth of the river. and Gray named it for his ship.
- They sailed about 15 miles upriver, trading for sea otter pelts, remaining for nine days.

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Columbia River Discovery & Exploration

From the continent:

- On November 3, 1805, Lewis & Clark made camp on Government Island, where Interstate 205 crosses the river today.
- As the Corps of Discovery made their way down the Columbia River, they made camp in the area of the Ridgefield National Wildlife Refuge.
 - Clark complained that the sandhill cranes nearby made so much noise it was difficult to sleep.
- They reach the Pacific Ocean on November 16th, 1805 and built Fort Clatsop for their winter quarters.
- Two other important explorations into the Northwest were conducted by David Thompson in 1807-11, and by David Stuart in 1812.
- Hudson's Bay Company established Fort Vancouver on March 19, 1825.



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Cathlapotle Plankhouse

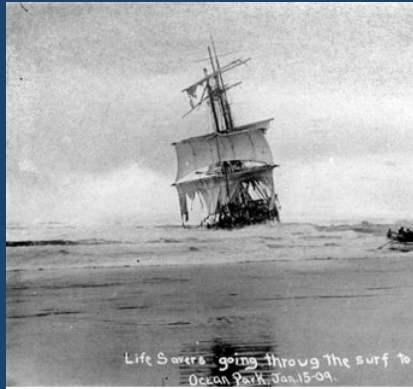
- Clark, November 5, 1805:

“I observed on the Chanel which passes on the Stard Side of this Island a Short distance above its lower point is Situated a large village, the front of which occupies nearly $\frac{1}{4}$ of a mile fronting the Chanel, and closely Connected, I counted 14 houses in front here the river widens to about $1\frac{1}{2}$ miles...”
- A modern full-scale longhouse has been constructed based on findings from the archaeological village site of Cathlapotle.



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Columbia Bar Shipwrecks - Graveyard of the Pacific



Wreckage of the ALICE near Ocean Park, Washington, 1909

- The Columbia River is more than four miles wide as it hurries to a wild rendezvous with the sea at Cape Disappointment.
- It pours into the ocean at an average rate of 273,000 cubic feet a second – half the volume of water carried to the Bay of Mexico by the Mississippi.
- Sand and silt from the river's 259,000-square-mile drainage area pile up at the mouth of the river, forming the notorious Columbia River bar.
- Treacherous sandbars and unpredictable currents make this one of the most dangerous channels in the maritime world.

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Columbia Bar Shipwrecks - Graveyard of the Pacific

- **Members of the Lewis and Clark Expedition gazed with "astonishment" at waves breaking "with tremendous force in every direction" (William Clark, November 18, 1806).**
- **Even today, when protective jetties, periodic dredging, and modern navigational equipment have made the channel less lethal than it once was, mariners still approach the Columbia bar with caution and respect.**
- **Almost 2,000 vessels of all types and about 700 lives have been claimed by the treacherous waters of the Bar and surrounding oceans over the past 200+ years.**

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Columbia River is Navigable for Ocean-Going Ships from Pacific Ocean to Vancouver/Portland

- Vancouver/Portland is 105 miles from the ocean.
- The channel in these lower reaches is maintained at a width of 300 feet and a depth of 43 feet, allowing access to ocean-going freighters.
- In all, some 40 million tons of cargo move through the deep channel between the Pacific Ocean and Vancouver/Portland.



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Columbia River is Navigable for Ocean-Going Ships from Pacific Ocean to Vancouver/Portland

Recent Data

- The Columbia-Snake system is the nation's major wheat handler, annually moving about 40 percent of U.S. wheat exports.
- Some 10 million tons move through 14-foot deep waters from Portland and Vancouver to Lewiston.
- The navigation channel is maintained for barge traffic to Pasco on the Columbia and to Lewiston on the Snake, 465 miles from the ocean.



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Columbia River is Navigable for Ocean-Going Ships from Pacific Ocean to Vancouver/Portland

Ship Parking

- On any given day, up to 10 ships can be found at anchor in the Columbia River along the Astoria waterfront, waiting for berths to open upriver.
- The river includes 11 federally designated anchorages with more than 40 parking spots between Astoria and Vancouver, Washington.



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Columbia River is Navigable for Ocean-Going Ships from Pacific Ocean to Vancouver/Portland

Channel Improvements

- Much of the increased need for anchorages on the Columbia is driven by the U.S. Army Corps of Engineers' \$200 million channel deepening project, completed in 2010.
- The project increased the shipping channel depth from 40 feet to 43 feet, to accommodate the growing sizes of ships.



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Columbia Bar Navigation and Pilots

- The Oregon Board of Maritime Pilots, determines how many licensed pilots are required to service the Bar and sets pilotage fees.
- A Bar Pilot boards the vessel several miles out into the ocean by boat or helicopter.
- He or she then uses their experience to maneuver the ship through the Bar and a series of jetties into the river's navigation channel.
- Once safely inside the bar, the Bar Pilot trades places with a River Pilot who will navigate the vessel to its port of destination.



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Columbia River Navigation and Pilots

- River Pilots guide every large ship—oil tankers and cruise ships, car carriers and container ships like nautical valets.
- Vessels navigate the Columbia River 24 hours a day, 365 days a year and in all weather conditions, making bar and river pilots an essential part of the journey.
- When Pilots oversee a crew that doesn't speak English, a bilingual officer is often needed to translate for the ship captains.
- Pilots are aware of each bend in the river, shallow or rocky area, island, bridge and navigation as they guide more than a thousand ships along the river each year.



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Crossing the River

Astoria-Megler Bridge

- Highway 101 Steel cantilever through truss bridge.
- Longest continuous truss bridge in North America.
- Opened in 1966.
- Fourteen miles from the Pacific Ocean.
- Bridge is 4.067 miles long.
- Final segment of U.S. Route 101 to be completed between Olympia, Washington, and Los Angeles, California.



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Crossing the River

Wahkiakum County Ferry

- This ferry is the last regularly scheduled car ferry to cross the Columbia River between Washington and Oregon.
- Located at the terminus of State Route 409, and actually departs from Puget Island, Washington, which the Julia Butler Hansen Bridge links to the mainland.
- Ferry runs hourly, 5 a.m.-10:15 p.m., 365 days a year.



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Crossing the River

Lewis and Clark Bridge

- Longview, Washington to Rainier, Oregon.
- Opened on March 29, 1930, as a privately owned bridge.
- Designed by Joseph Strauss, engineer of the Golden Gate Bridge.
- At the time it was the longest and highest cantilever bridge in the United States.
- The state of Washington purchased the bridge in 1947.
- Bridge is 8,288 ft long with a 1200 foot main span and 210 ft of vertical clearance.



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Crossing the River

Northern Pacific Railroad Bridge 9.6

- Built by the Spokane, Portland and Seattle Railway (SP&S) and completed in 1908.
- Designed by Ralph Modjeski.
- It was the first bridge of any kind to be built across the lower Columbia River.
- The 2,807-foot-long bridge has a swing span of 467 feet, which pivots on its base to allow for the passage of taller ships.
- Bridge is used by BNSF, Union Pacific Railroad, and Amtrak.



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Crossing the River

Interstate I-5 Bridge

- Northbound bridge opened to traffic in 1917 as a single bridge carrying two-way traffic.
- Southbound twin bridge opened in 1958.
- Each bridge carries three traffic lanes in each direction and two narrow sidewalks.



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Crossing the River

I-205 Glenn L. Jackson Memorial Bridge

- Segmented bridge.
- Segments, weighing upwards of 200 tons, were cast 4 miles (6.4 km) downstream and barged into place.
- Opened on December 15, 1982.
- Twin structure with four lanes in each direction and a bicycle and pedestrian path in between.
- The bridge is 10,580 ft long.

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Columbia River Ports – Astoria to Washougal

- Oregon Ports
 - Astoria
 - St Helens
 - Portland
- Washington Ports
 - Ilwaco
 - Chinook
 - Wahkiakum I & II
 - Longview/Kelso
 - Kalama
 - Woodland
 - Ridgefield
 - Vancouver
 - Camas-Washougal



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Credits

- City of Vancouver *Our History* Webpages
- The Northwest Power and Conservation Council
- Whitman College and Northwest Archives
- UW Special Collections
- Library of Congress
- National Park Service
- Columbia River Inter-Tribal Fish Commission
- The Daily Astorian
- USA Today
- Seattle Met Online Magazine
- The Portland Bridge Book
- Wikipedia



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