

# Columbia River

## The place: Geology of the Columbia River Basin; Ice Age Floods

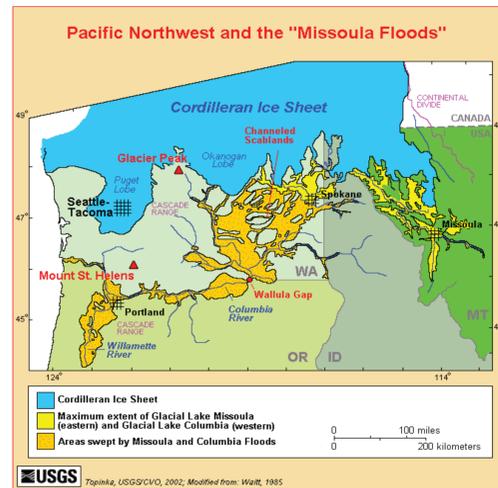
## Columbia River Heritage Trail



The Columbia River defines and shapes the landscape of North Morrow County. Volcanic basalt underlying the Columbia River Basin was created

from one of the largest basalt flows in the world. These basalt flows left a depression in the earth's crust and formed the Columbia River Basin.

The Columbia River is 1,214 miles long and drops 2,500 feet from its source in Canada, eventually spilling into the Pacific Ocean. Large boulders seen on the landscape were carried here by a series of catastrophic floods. Glacial ice sheets dammed the Clark Fork River in Idaho and created the monstrous Lake Missoula. Periodically, the ice dams failed. Enormous floods sent huge columns of water, ice and granite boulders through and over this area, traveling at speeds of 60 to 70 miles per hour, in depths of 900-1,000 feet.



*"A mass of compressed air preceded the towering wall of flood water. The roar would have increased in intensity beginning a half hour before the onrushing flood struck. The winds reached hurricane strength, uprooted trees, created a blinding dust storm and caused a shift in micro-climate, resulting in sudden and severe rainfall."*

Source: Ice Age Floods Institute

The Umatilla Basin became a temporary lake covering 1,300 square miles. Boulders, gravel and sand deposited by the repeated Ice Age floods created Blalock and Sand Islands in the Columbia.

Lewis & Clark visited and camped with local Native Americans on Sand Island October 19, 1805. Their Journals noted Indian burial sites on Blalock Island, a 4,000 acre island in the middle of the Columbia west of Irrigon. Early commercial ventures on Blalock Island were fruit orchards and a dairy.

Various attempts were made to mine gold. As late as 1957, over \$4,000 was taken out in ore. The remaining granite, gold, Native American relics, and ancestral burial grounds are now under the backwaters of the John Day Dam.

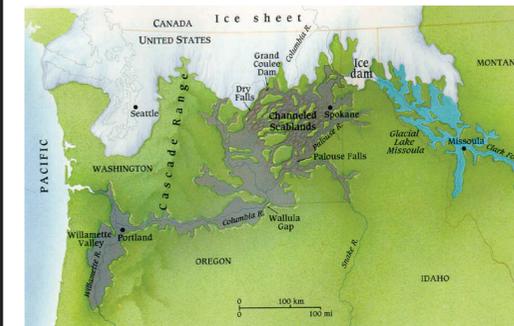


Meriwether Lewis



William Clark

## Missoula Floods



The ice dam on the Clark Fork River stood about 3,000 feet high and blocked the river's flow. Failure of the ice dam released a 2,000 foot wall of water that rushed

to the prairies of eastern Washington. The river's channel could not contain this vast flood and the waters spilled across the Palouse region, eroding a series of intertwining canyons (coulees) across eastern Washington. Flood pathways converged in the Pasco Basin. The narrow Wallula Gap was the only exit. Floodwaters backed up above Wallula and formed a 1,200 foot deep lake covering over 3,500 square miles. Other temporary lakes were created near Hermiston, The Dalles and Portland, OR.

The Missoula Floods are the largest known floods on earth in the last two million years. However this might not be a unique event. Geologic evidence indicates there could have been about 40 floods during the Pleistocene Age, with the last flood occurring 13,000 years ago.

Text and art from the Internet

