



Steve Ringman/Seattle Times

University of Washington Geologist Brian Atwater points to layers from a Duwamish GeoSlice peel in 2017 that provides possible evidence for earthquakes over the past 2000 years in the Cascadia Subduction Zone. The last huge earthquake, the last really "Big One" to hit the Pacific Northwest Coast, struck around 9 p.m. on Jan. 26, 1700 — 321 years ago.

321 years ago Jan. 26, Cascadia earthquake hit the West Coast

TULLAN SPITZ
Oregon Public Broadcasting

At approximately 9 p.m. Pacific Standard Time, Jan. 26, 1700, a magnitude 8 or 9 earthquake occurred on the Cascadia Subduction Zone, a 680-mile stretch between Vancouver Island, British Columbia and Cape Mendocino, California.

What evidence points to an earthquake in 1700?

Oral traditions of native people living in the Cascadia region reference numerous events of shaking and flooding in this time period, but those stories can't be dated to specific calendar years.

Scientists are well aware of the destructive power of other subduction zone quakes — like the 1960 magnitude 9.5 Chilean quake and the 1964 magnitude 9.5 quake in Alaska — so they were eager to chart the history of plate activity in the Cascadia Subduction Zone.

In the 1980s and 1990s, scientists conducting fieldwork found evidence that coastal lands in the Northwest dropped suddenly and were inundated by tsunami waves and mud. All along the Oregon and Washington coast, the rapid advance of seawater had buried delicate marsh plants that were still alive and killed Sitka spruce, leaving behind rotting stumps. Rot-resistant western red cedar survived longer and their remnants became known as "ghost forests."

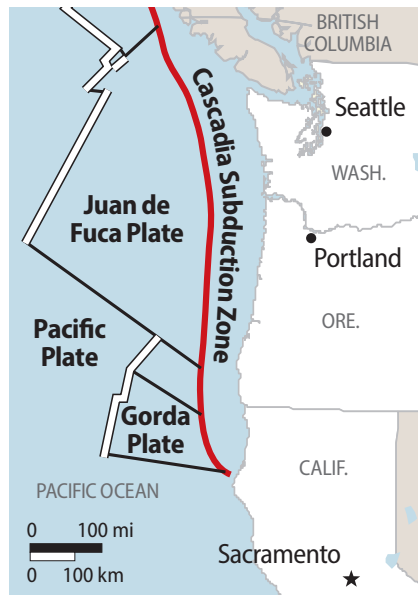
These sudden changes in the coastal landscape pointed heavily to an earthquake and tsunami.

How could scientists know for sure?

American researchers used carbon dating on the spruce, peat and fossilized plants. Sitka spruce as far apart as southern Washington and Northern California died from the high waters during the same few decades — sometime between 1695 and 1720. Their rings were wide right up through the last ring, proving that a sud-

Pacific plates capable of mega earthquake

The Cascadia Subduction Zone is a 680-mile-long fault located 50 miles off the coast of the Pacific Northwest. It is where the Juan de Fuca plate dives beneath North America. In 1700, it caused a magnitude-9 earthquake.



Sources: ESRI, USGS

den event rather than slow sea level rise was the culprit.

How do they know the exact hour of the quake?

After the American scientists published their work, Japan's Kenji Satake published a letter in the journal "Nature" that summarized meticulous records from multiple locations in Japan describing high waves on Jan. 27 and 28.

It was called Japan's "orphan" tsunami because there was no earthquake locally that could have triggered it. There is also

no evidence of a large earthquake in South America or Alaska at that time. The signs pointed to a quake from the Cascadia Subduction Zone.

Satake explained that it would have taken a tsunami about 10 hours to travel from Cascadia to Japan, thus pinpointing the earthquake to about 9 p.m., Jan. 26. Because of the extent of the damage recorded in Japan, Satake estimated that it was approximately a magnitude 9 quake.

Is there any other evidence?

In 1997, scientists used dendrochronology — a method of dating trees by comparing ring patterns to samples of known age — on the ghost forest trees. They were able to determine the trees had stopped growing after completing the 1699 growing season, dating their death to somewhere between September 1699 and May 1700, further confirming the date independently of Japanese records.

More evidence is on the ocean floor. Paleoseismologists have dated core samples of debris from earthquake-induced landslides. This data indicate a large earthquake with a lot of shaking was going on during this period — and that it was happening off the Oregon Coast.

And remember the native stories? Scholarly analysis of nine stories with sufficient details to assign date ranges narrowed the timeline to approximately 1701, remarkably close to the accepted date for the event.

Is the Cascadia Subduction Zone likely to act up again?

Over the last 10,000-years, earthquakes around magnitude 9 have occurred along the length of the Cascadia Subduction Zone 19 times — about every 526 years. The southern section of the zone has seen 19 additional quakes of 8 or higher. Here, very close to home, the average recurrence is every 234 years. With the last major event placed at 315 years ago, we're due.

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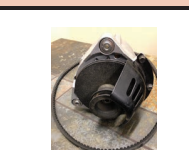
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Legal Notices & Public Notices

Legal Notice
IN THE CIRCUIT COURT OF THE STATE OF OREGON FOR THE COUNTY OF DESCHUTES

In the Matter of the Estate of JEANNE ELLEN EASTERLING Deceased. CASE No.: 21PB00474

NOTICE TO INTERESTED PERSONS
NOTICE IS HEREBY GIVEN that Susan Mason has been appointed personal representative.

All persons having claims against the estate are required to present them, with vouchers attached, to the personal representative c/o Law Office of Paul Heatherman PC, PO Box 8, Bend, OR 97709, within four months after the date of first publication of this notice, or the claims may be barred.

All persons whose rights may be affected by the proceedings may obtain additional information from the records of the Court, the personal representative, or the lawyers for the personal representative, Paul B. Heatherman. Dated and first published on February 4, 2021. /s/ Susan Mason, Susan Mason, Personal Representative

Director Position 1, 4-year term
Director Position 2, 4-year term
Each candidate for an office listed above must file a declaration of candidacy or petition for nomination for office with the County Clerk of Deschutes County, Oregon, not later than the 61st day before the date of the regular district election. The filing deadline is 5 pm on March 18, 2021.

Filing forms are available at the Deschutes County Clerk's office, 1300 NW Wall Street, Suite 202, Bend, Oregon 97703 and online at www.deschutes.org/clerk. Nancy Blankenship Deschutes County Clerk

HOW HAVE YOUR PLANS CHANGED?

Help local businesses...

COVID-19 is impacting our community and local business in many ways. The business uncertainty over the next few months is one of many challenges. The economy and how we shop has changed, yet we do not know by how much or how long.

To help with some of the uncertainty, please take the time to start a survey about your current shopping needs.

This information will help local business and this newspaper get a better understanding of your needs and plans.

\$1,000 will be awarded by Pulse Research to one respondent.

Thank You!
Please start the survey here:
www.pulsepoll.com



We have had great results with Whiteboard Media's digital marketing program. I have a quarterly meeting with Makenna Frickey and Levi Durighello, where they cover everything in detail and help me make any adjustments. They are very thorough and helpful. Can't wait to see our results for this quarter!"

Amy Remick
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Harley-Davidson 2008 FLHTCU Ultra Classic Electra Glide, 33k miles, info at lejhor@rcnemall.com, asking \$2,000