

Presenters

Carrie Garrison-Laney — WA Sea Grant

When can we expect the next Cascadia tsunami?

Daniel Eungard — WA Geological Survey

Science behind tsunamis: modeling and map production

Keily Yemm — WA Emergency Management Division

NOAA's Tsunami Warning Program

Maximilian Dixon — WA Emergency Management Division

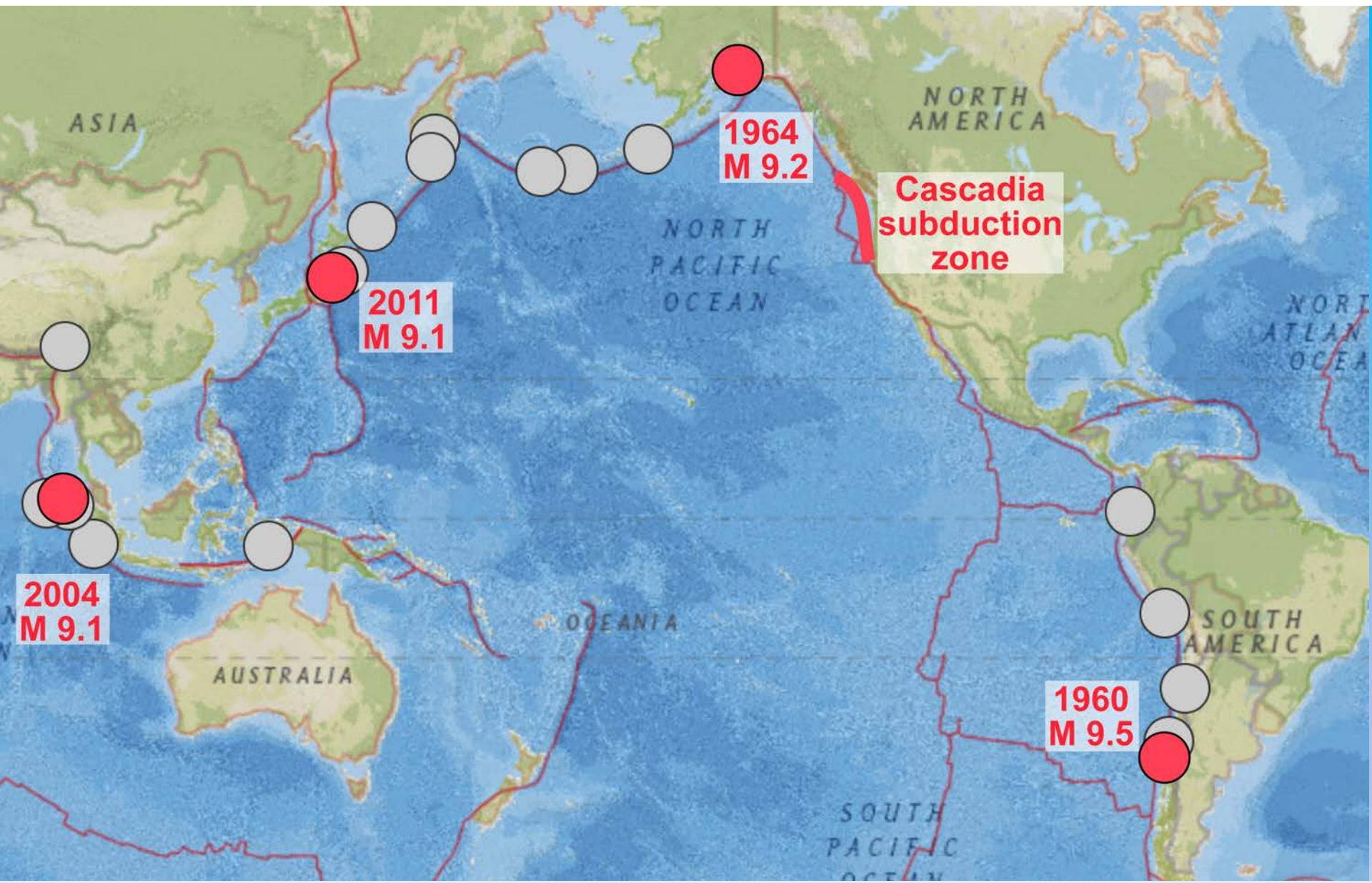
You can Survive the Big One!



When can we expect the next Cascadia tsunami?

Carrie Garrison-Laney
Washington Sea Grant

20 largest earthquakes 1922-2018

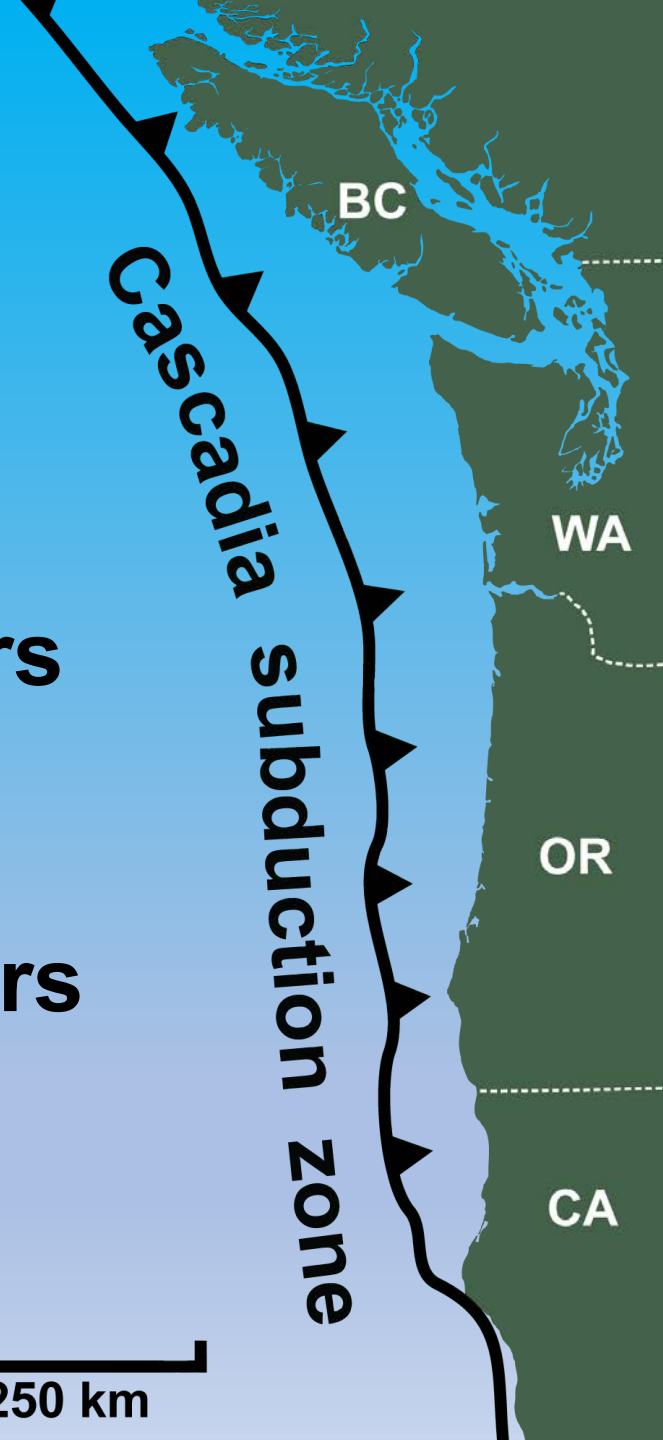


(earthquake.usgs.gov)

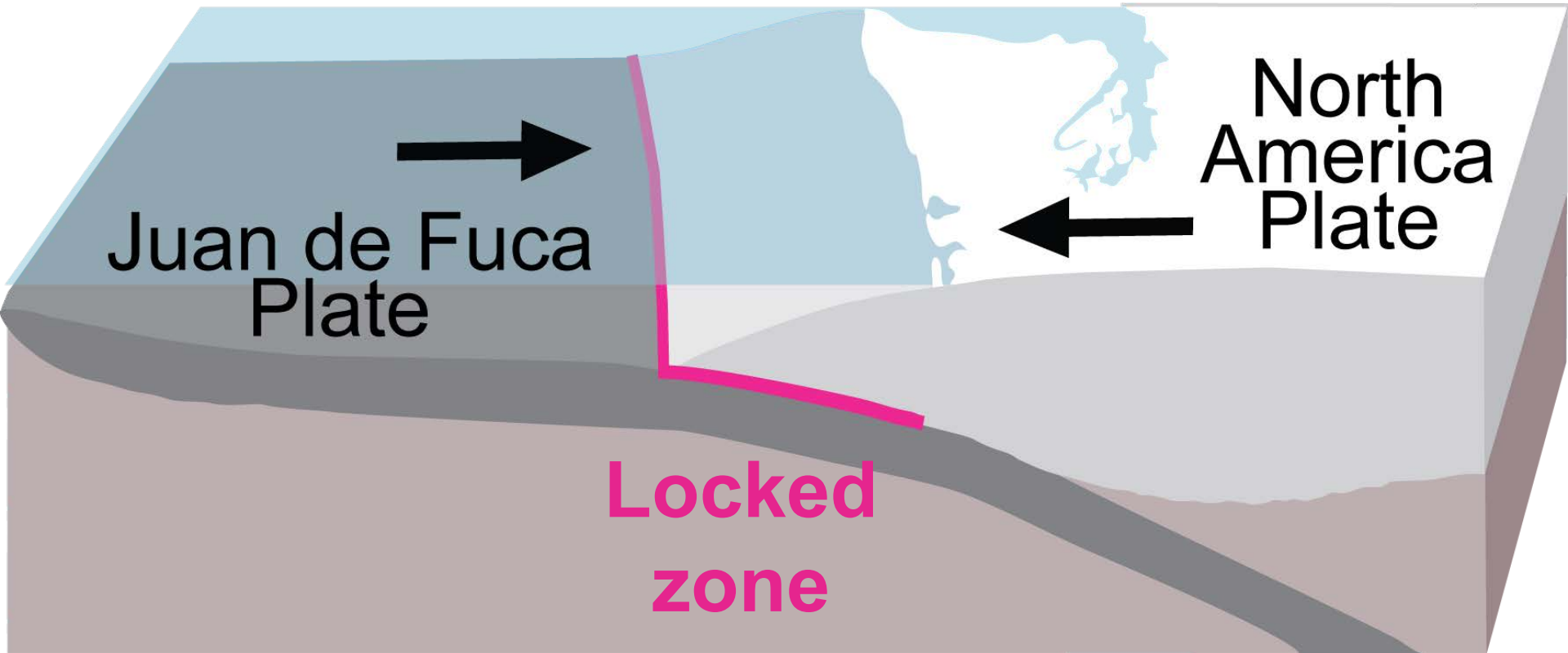
Cascadia earthquakes

- Land records:
7-8 in the last 3,500 years
- Offshore records:
23 in the last 10,000 years

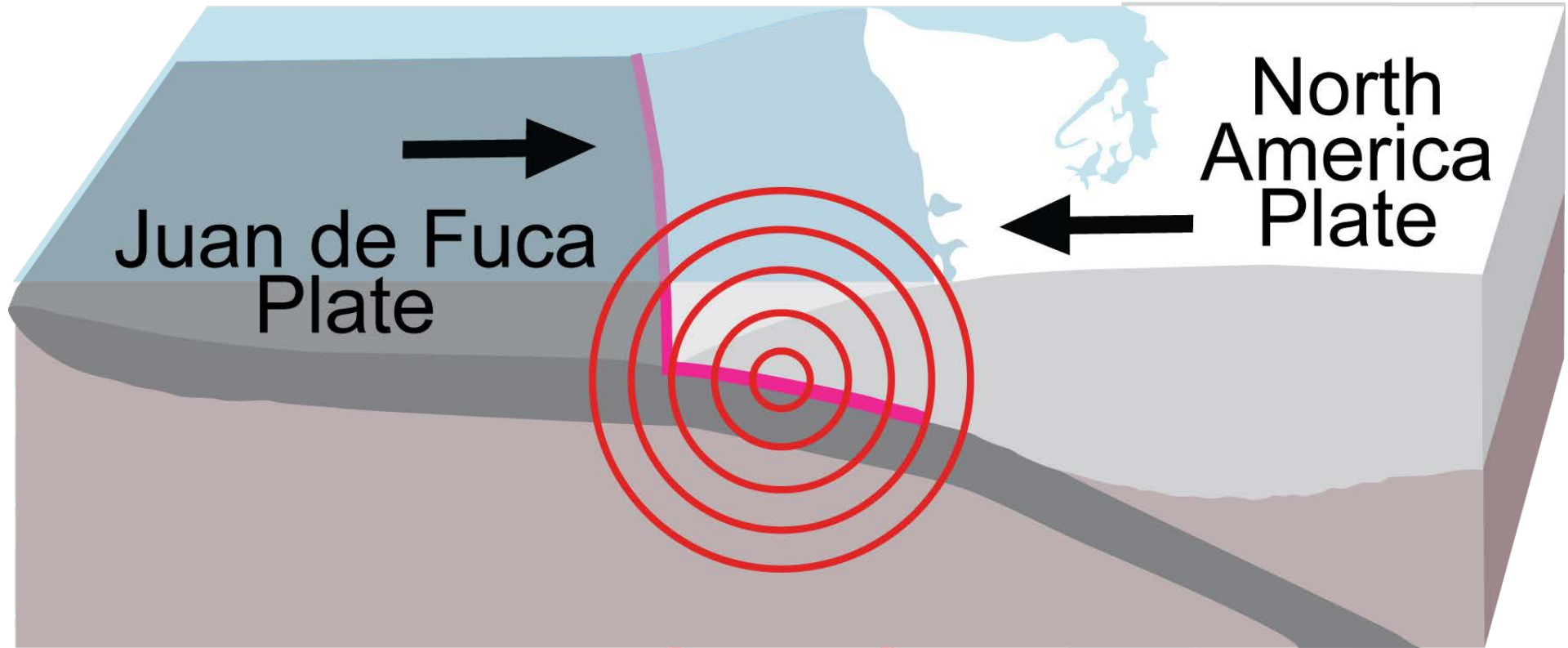
250 km



Cascadia subduction zone



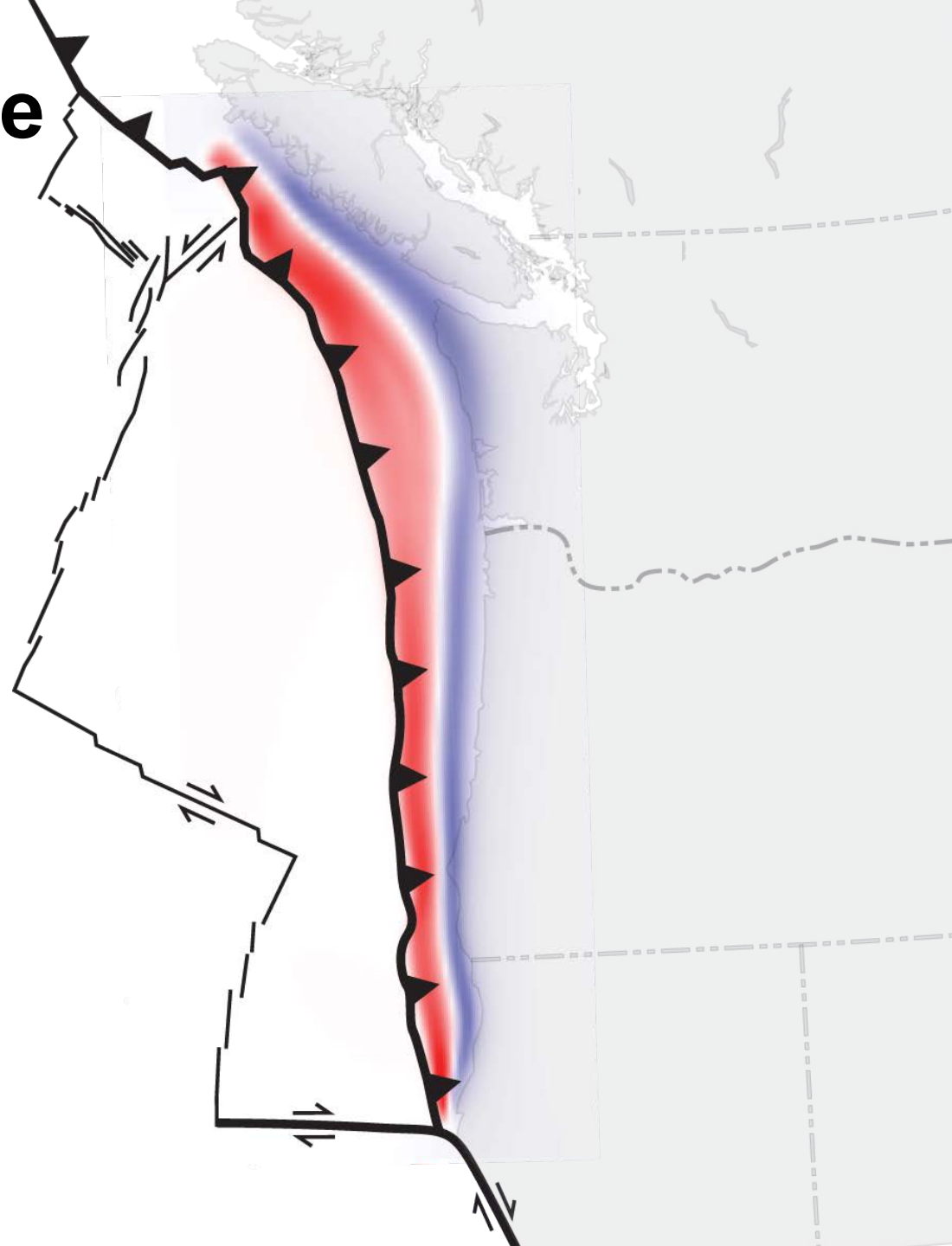
Cascadia subduction zone



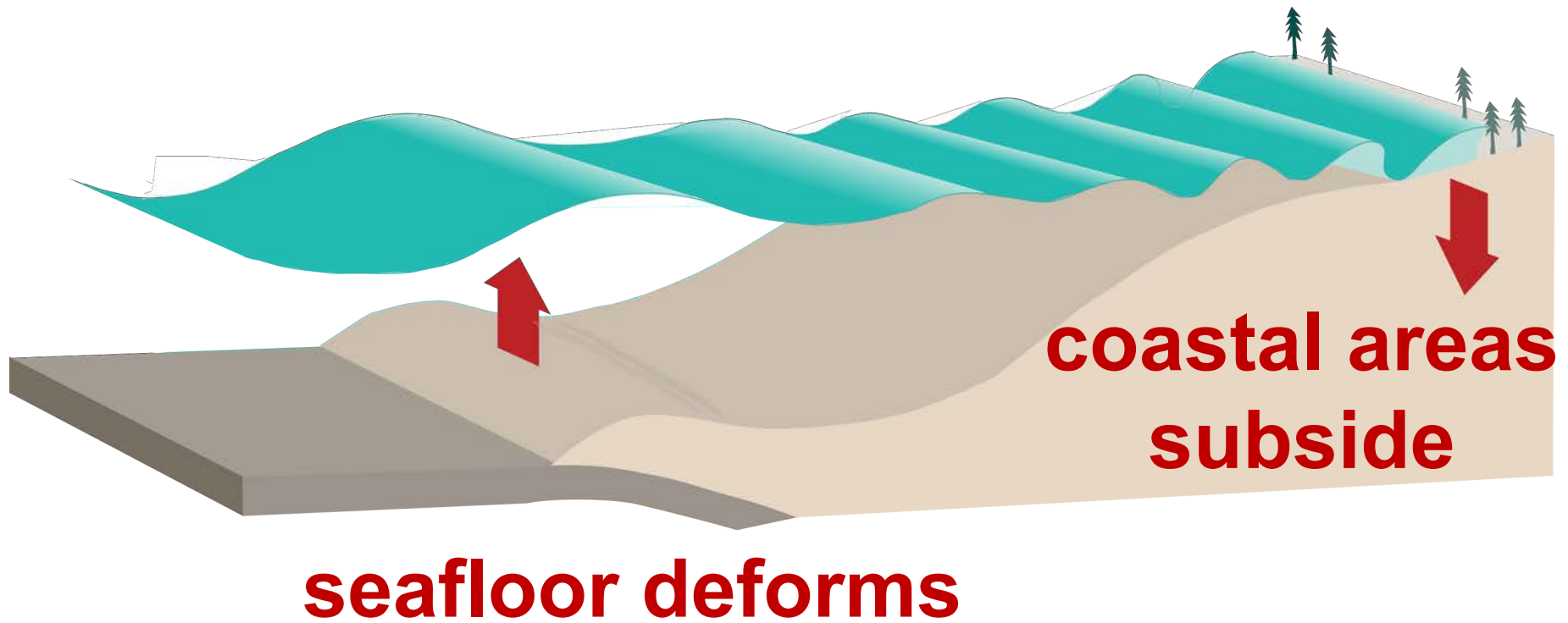
during earthquake

**red shading =
uplift
(land rises)**

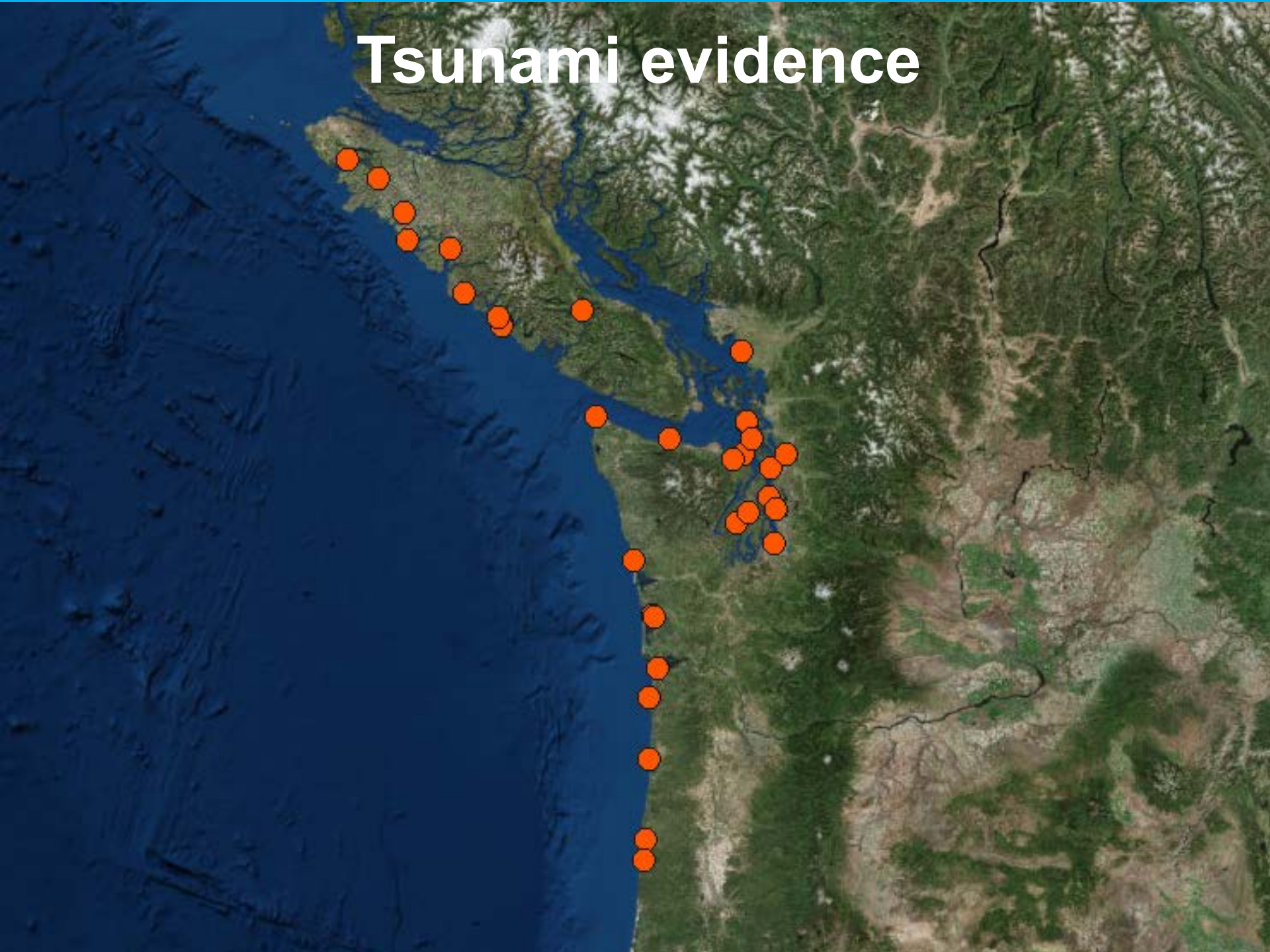
**blue shading =
subsidence
(land sinks)**



Tsunami formation



Tsunami evidence



Tsunami evidence

Discovery Bay



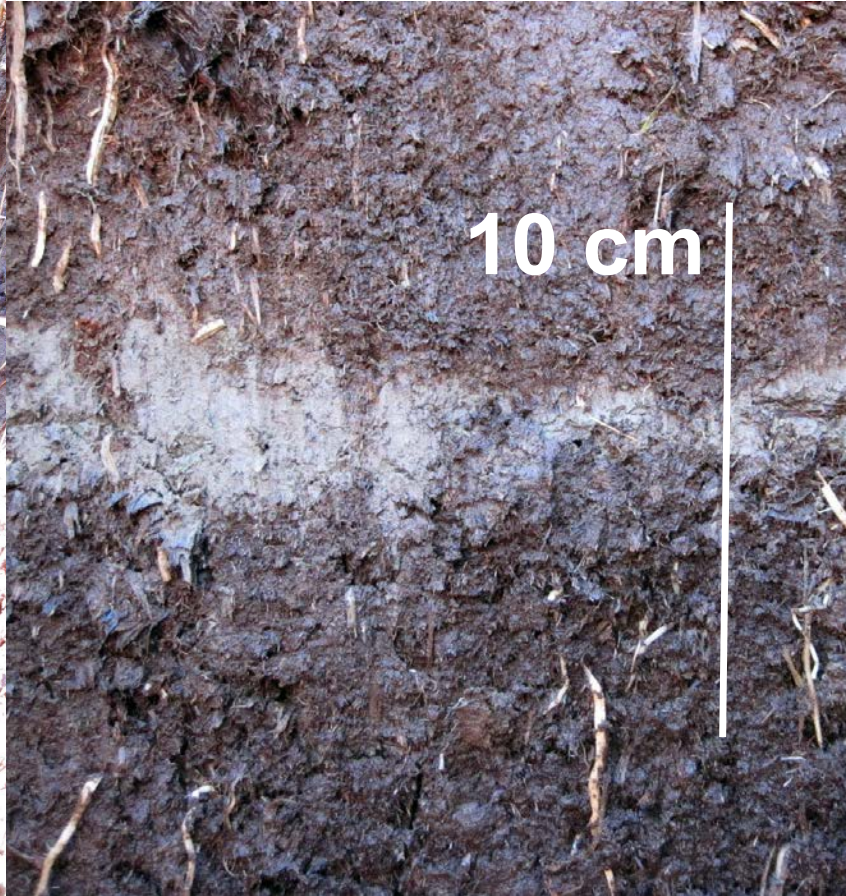
Discovery Bay



Discovery Bay



Tsunami deposits at Discovery Bay



Tsunami deposits at Discovery Bay



1700 AD **Bed 1**

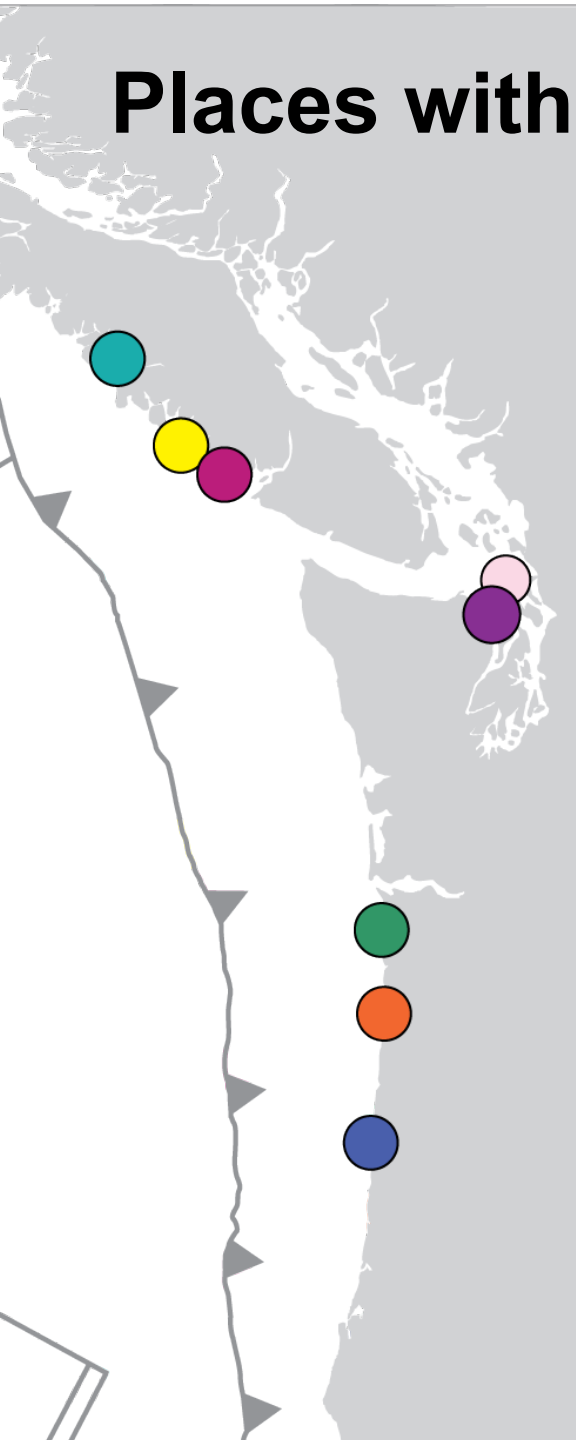
1320-1390 AD **Bed 2**
(New age) ★

940-1280 AD **Bed 3**

830-1200 AD **Bed 4**

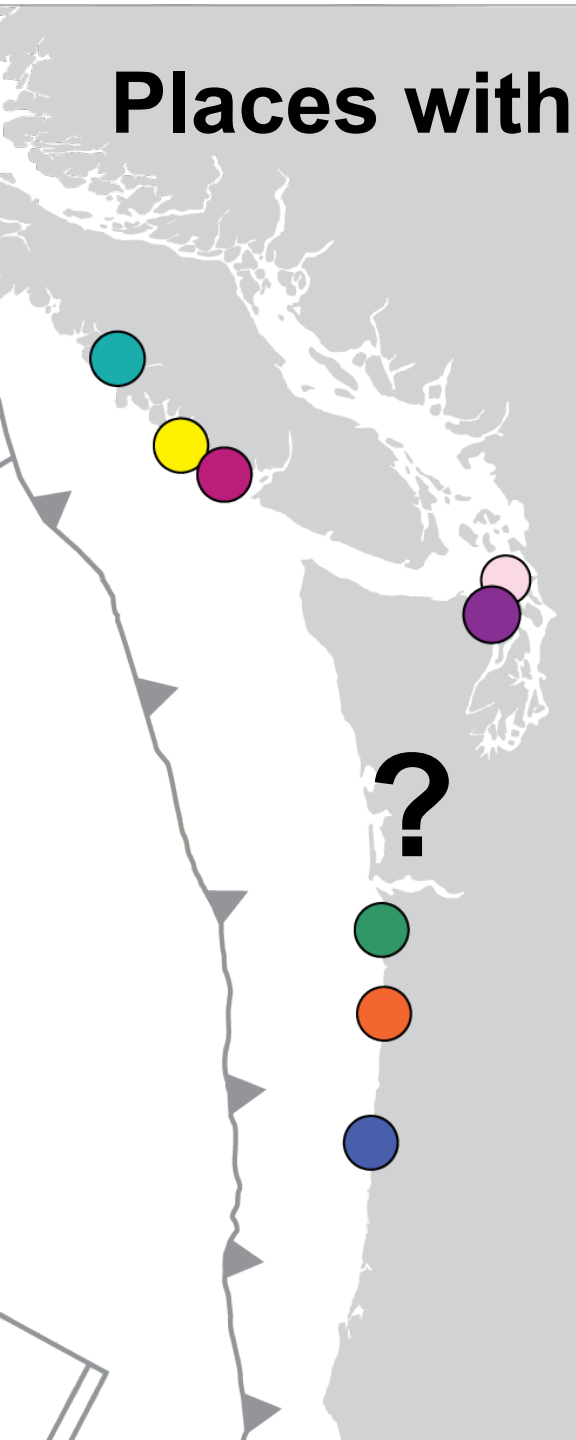
+5 more below

Places with 600 year old tsunami deposits



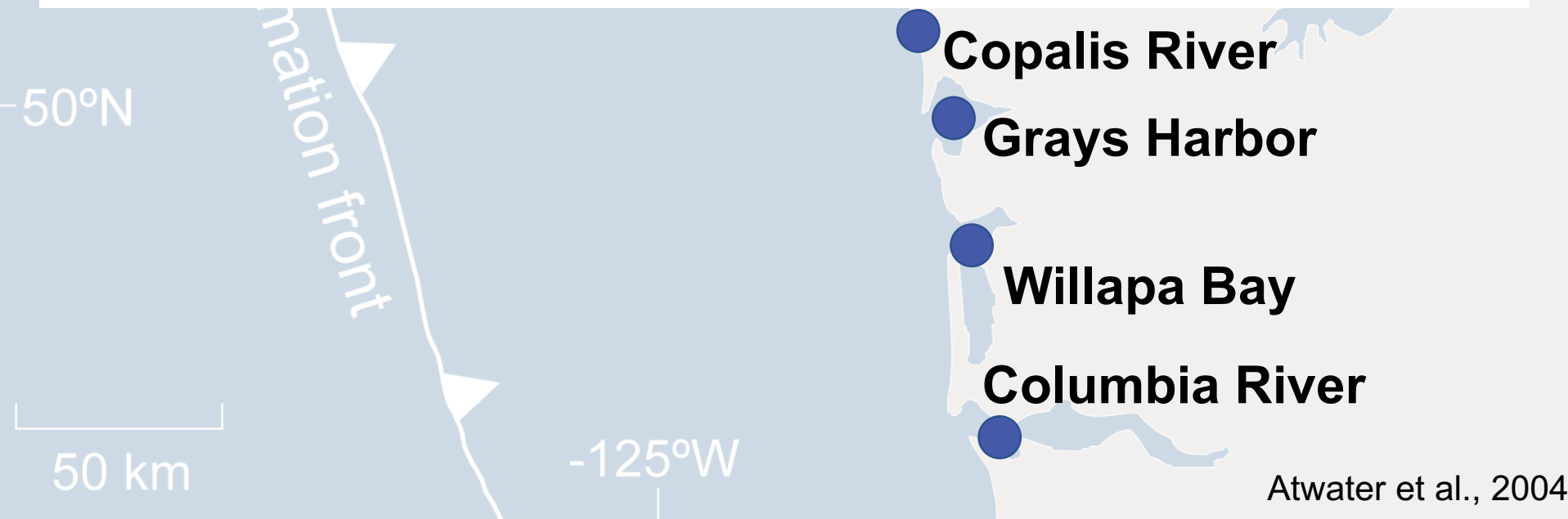
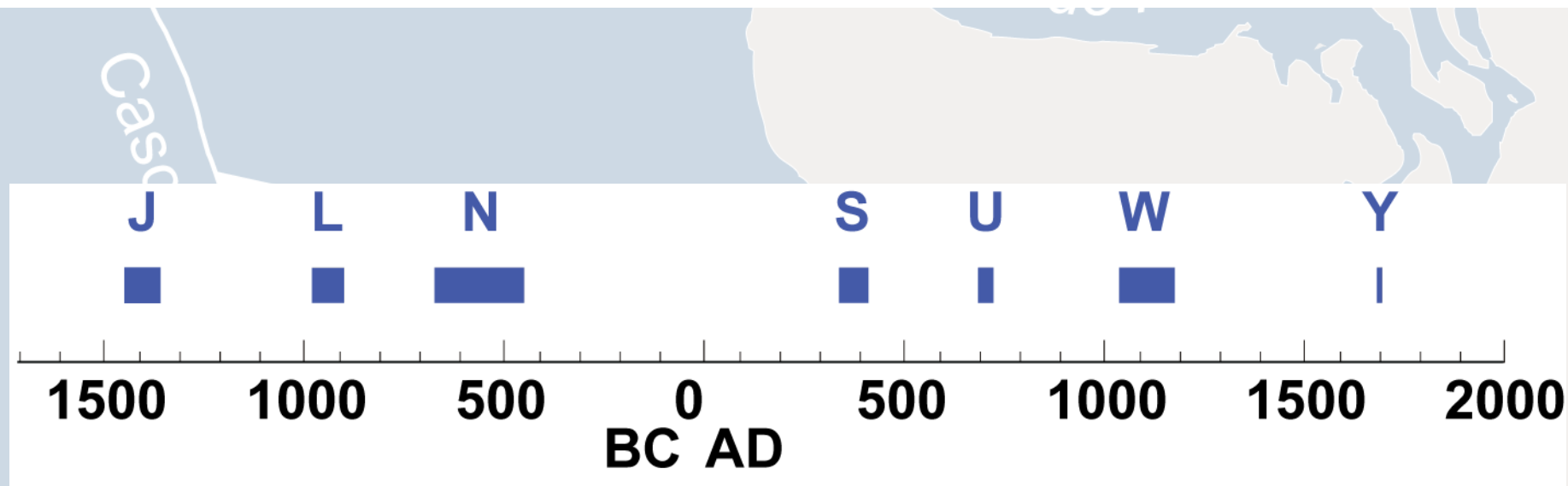
- | | |
|------------------|-----------------------------|
| ● Deserted Lake | New ages 2017 |
| ● Tofino | New work in progress |
| ● Ucluelet | New work in progress |
| ● Whidbey Island | New work in progress |
| ● Discovery Bay | New ages 2017 |
| ● Ecola Creek | New ages 2008 |
| ● Netarts Bay | Original work 1994 |
| ● Yaquina Bay | New ages 2015 |

Places with 600 year old tsunami deposits

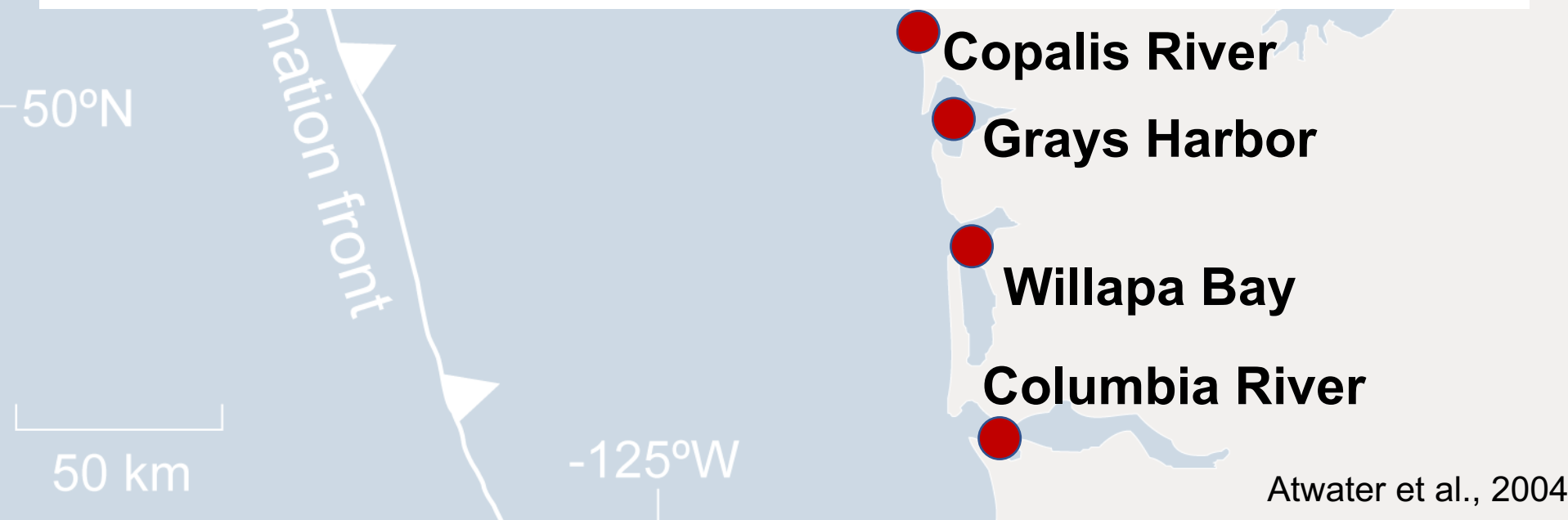
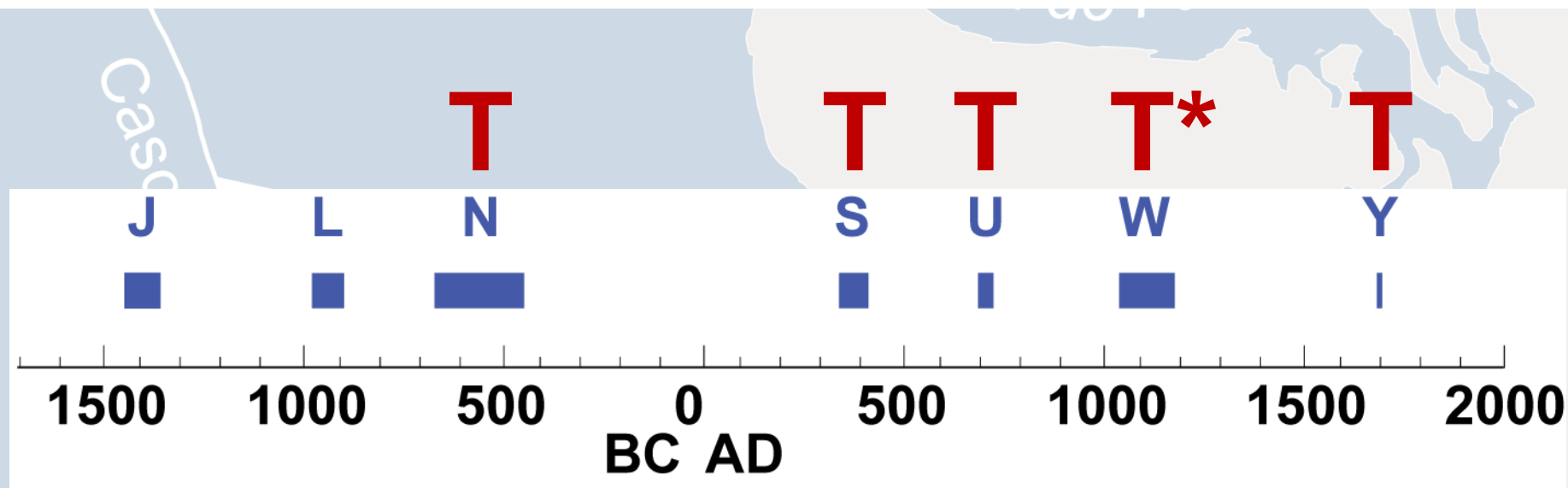


- | | |
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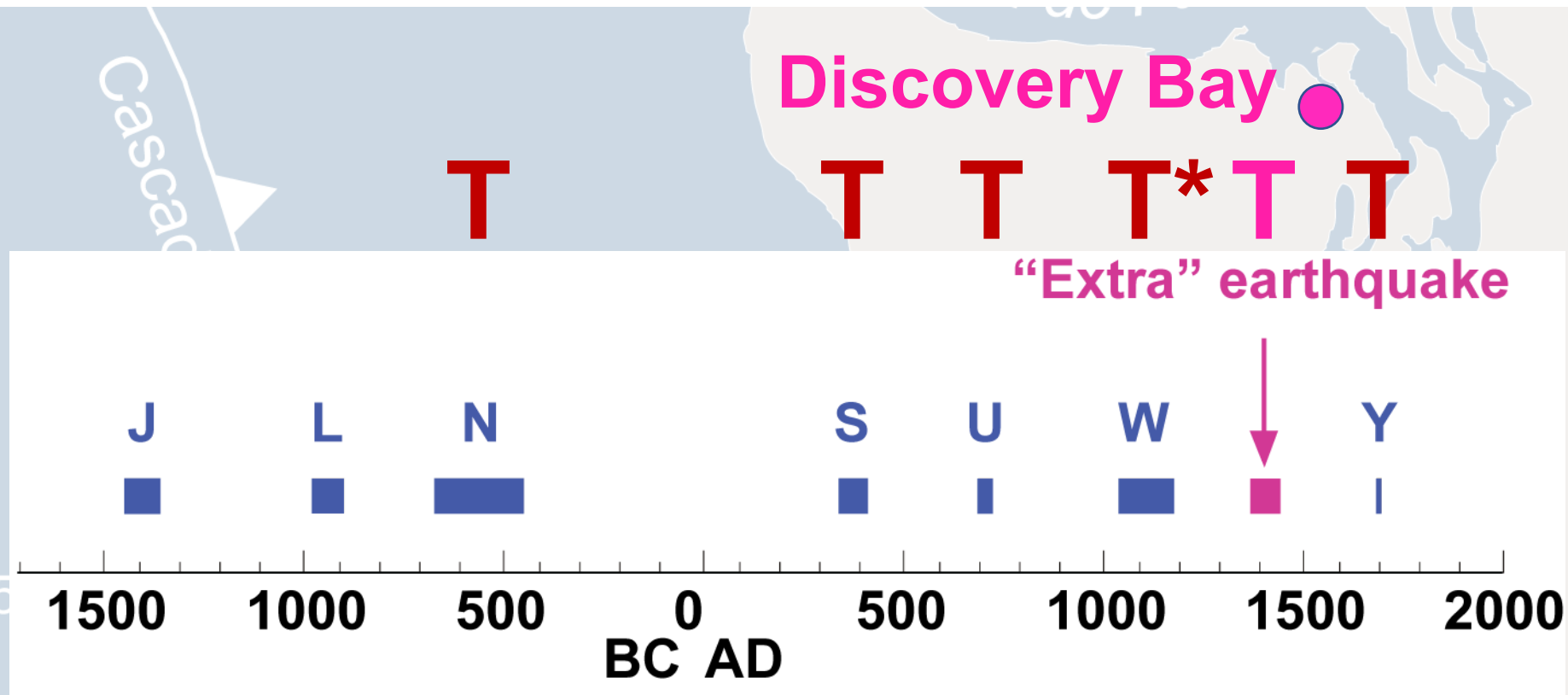
Land records of Cascadia earthquakes in Washington State



Land records of Cascadia tsunamis in Washington State



Land records of Cascadia tsunamis in Washington State



50 km

-125°W

Atwater et al., 2004;
Garrison-Laney and Miller, 2017