

NORTHWEST GEOLOGICAL SOCIETY

A regional association of professionals, students & others interested in geology
Please browse www.nwgs.org for more about us

October, 2022 Newsletter

Volume 36, Number 7

October 11 Program Speaker

The [Zoom meeting link](#) will be in the meeting reminder email from [NWGS Secretary](#) to all registered members prior to the meeting.

If you are not a member, please email [NWGS Secretary](#) for the link.

Reservations are not needed.

6:30pm: No-host social hour small group break-out sessions; 7:30pm: Speaker program

Speaker: Elizabeth Davis, University of Washington PhD Candidate

Title: Surf 'n' Turf Earthquake Records in the Seattle Fault Zone

Abstract: The Seattle Fault Zone contains multiple reverse faults, including blind faults and antithetic back-thrusts, and extends eastward beneath the city of Seattle. Hazard estimates allow for a 5000-year recurrence interval for magnitude 7 earthquakes on a main blind thrust, including one large post-glacial earthquake, 900-930 CE. This earthquake raised shorelines on both sides of Puget Sound, including likely along the Duwamish Waterway. A marsh inset into the raised terrace contains liquefaction features that evidence at least two later earthquakes, the first about a century later. These earthquakes may have sources in the Juan de Fuca slab, the subduction zone, or other crustal faults, and contribute to the regional earthquake catalog. Moving offshore, submarine benches in the Salish sea may hold clues to the earthquake history of the Seattle Fault Zone. A work in progress, we are pairing existing NOAA bathymetry, with new and legacy seismic reflection profiles that image the benches. Benches have been attributed to shorelines produced by a sea-level lowstand at least 11,000 years ago (by Ralph Haugerud; doi: 10.1130/2017.0049). If an 11,000 year-old shoreline was deformed during earthquakes, the amount of deformation might constrain the number of earthquakes. By expanding Haugerud's bathymetric dataset and adding tie points from new and legacy seismic reflection data, we are refining the amount and distribution of potential offset. The unpublished legacy data was collected by Mark Holmes (USGS) in 1982 with a minisparker, and the new data we collected in 2019 with higher-frequency CHIRP.

[JOIN THE PROGRAM VIA ZOOM!](#) Join the program by clicking the link in the separate meeting email announcement. Until we start meeting in person again, there is no cost and a reservation is not needed. You may join for both the social hour (6:30 pm) and the speaker program (7:30 pm), or just the speaker program. During the speaker presentation, the host will mute your microphone, and we ask that you please also mute your camera so as to allow sufficient band width for the speaker program. A Q&A session will follow the presentation. If you have a question or comment during the presentation, click **Chat** at the bottom of your screen to type your question or comment to the general audience. You may also click the **Raise my hand** link to ask the speaker a question and the host will call on you. Click on the Zoom link above to join the meeting at the appropriate time as listed above on the day of the meeting. See the [NWGS](#)

Upcoming Speakers and Field Trips

November 8: TBA.

December 13: TBA.

January 10: TBA

February 14: TBA.

March 14: TBA.

If you would like to volunteer to give a talk or lead a field trip for NWGS, please contact President [Matthew Porter](#).

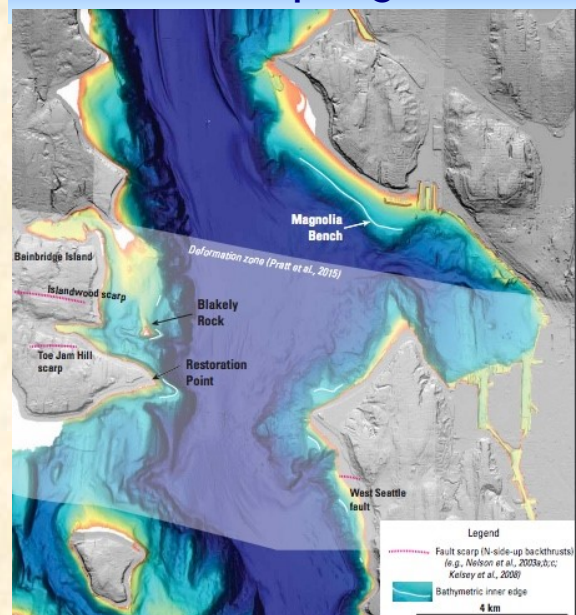
Please see the [NWGS website](#) for detailed announcements.
Contact webmaster [Matthew Porter](#) if you have any announcements to post on the website.

Announcements

- [NWGS](#) has a new, modern [website](#)! You can now update your membership, check out upcoming meeting speakers, access field trip publications, and more! Check it out!
- Carla Whittington has been approved by the Board to fill the recently vacated At-large Board Position. Thanks, Carla, and congratulations!
- NWGS is still seeking a talented volunteer to fill the **President Elect** position. The time commitment is not enormous, and this is a rewarding opportunity to contribute to and help shape the direction of our fine organization. Please contact President [Matthew Porter](#) for more information.
- **Next Board of Directors meeting: October 11, 2022, 5:30 P.M. via Zoom.**

YOU would like to be involved!

Photo Spotlight



The Seattle Fault Zone (extent shown in white shadow) crosses the city of Seattle, Puget Sound, and Bainbridge Island, and continues both east and west. Figure by Elizabeth Davis. Grayscale LiDAR from Washington Geological Survey; colored bathymetry from NOAA.

About NWGS

The [Northwest Geological Society](#) is a non-profit educational organization which provides a forum for information and discussion on Northwest geology and related topics. The Society sponsors talks by leading academic and professional geologists at its monthly meetings, conducts field trips to locales of regional geologic interest, and publishes meeting summaries and field guides based on those activities. Membership is open to anyone interested in regional geoscience issues.

Program meetings are the 2nd Tuesdays, October through May. **Until we are able to meet in person again, meetings are held via Zoom (link is included in the email announcement to all members; nonmembers contact the [NWGS Secretary](#)).** Anyone may attend the speaker program at no cost, and a reservation is not needed.

Field trips (members only): The Society sponsors two overnight field trips each year, one in the fall and one the spring, to locales of regional geologic interest.

Membership is open to anybody with an interest in geology. **Annual dues:** Professional: \$55; Student: \$10. **To join or pay annual dues:** go to the [NWGS website](#), or visit our website for more details. We look forward to seeing you soon!

Recommended Readings

Haugerud, R. A., Troost, K. G., & Laprade, W. T. (2017). Geology of Seattle, a field trip. From the Puget Lowland to East of the Cascade Range: Geologic Excursions in the Pacific Northwest

Moore, G.L., Roland, E., Bennett, S.E.K., Watt, J., Kluesner, J., Brothers, D., Myers, E. (2022). High-resolution marine seismic imaging of the Seattle Fault Zone: Near-surface insights into fault zone geometry, Quaternary deformation, and long-term evolution, Bulletin of the Seismological Society of America

Thorson, R.M. (1981). Isostatic effects of the last glaciation in the Puget Lowland, Washington. U.S. Geological Survey Open File Report 81-370.

Please send your reading recommendations to Newsletter Editor [Tom Bush](#).

To update your account information,, go to [NWGS.org/membership](#).
Questions or comments? Contact President [Matthew Porter](#).

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