



NORTHWEST GEOLOGICAL SOCIETY

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



March 2014 Newsletter

Volume 28, Number 3



March 11 Program Speaker

Speaker: Chris Brummer, Senior Engineer, King County Water and Land Resources Division

Title: Developing a sediment budget and geomorphic response scenarios for two levee setback projects on the Lower White River

Abstract: King County is embarking on two levee setback projects on the Lower White River in King County to reduce flood risks for hundreds of residential and commercial properties and to restore approximately 150 acres of off-channel rearing habitat for ESA-listed salmonids. The project reach is located on an actively aggrading alluvial fan that receives a relatively high sediment load supplied by Mt. Rainier. The project reach is also responding to the legacy of past and ongoing floodplain land-use development that has benefitted from historical sediment removal actions that ceased in the mid-1980s. The proposed projects will set back century-old levees and allow the channel to safely avulse into the undeveloped historical floodplain. Understanding the geomorphic response to the proposed levee setback projects and meeting the long-term, flood-protection and habitat-enhancement goals of these projects required developing a sediment budget and future geomorphic response scenarios that were integrated with two-dimensional hydraulic modeling to ensure the setback levees are designed to elevations that achieve the long-term flood protection goals in this aggradational environment. Our results show that since the 1980s, the annual deposition of about 20,000 cubic yards of sediment in the 1.3-mile project reach has reduced the channel capacity by 50 percent. If the current trend in aggradation continues, the active channel near the King-Pierce county line is predicted to substantially fill with sediment in 15 years and avulse through commercially and industrially development floodplain areas. The additional area for sediment storage provided by the setback projects will decrease the rate of sediment aggradation by about 50 percent, but the levees will require an additional 3 feet of "reserve" freeboard (in addition to the desired 3 feet of design freeboard) to maintain the 100-year level of flood protection over the project's service life.

5:30pm: No-host social hour

6:30pm: Buffet dinner

7:30pm: Speaker program

All are welcome to attend –
reservations are required
if coming for dinner.

► [Reservations here](#) 

PROGRAM DINNER RESERVATIONS: NWGS members: **\$40**; Non-members: **\$45**; Full-time students : **\$20**. Add \$5 for LATE REGISTRATION. Make your reservation and payment on-line at www.nwgs.org (or mail your payment to *Northwest Geological Society, 4616 25th Ave NE #397, Seattle, WA. 98105* (must be received by Thursday prior to meeting)). Contact Secretary [Beth Tanner](#) with questions about dinner reservations.

If attending the speaker program only, a \$5 voluntary donation to help defray the meeting room cost is requested.

Location: Pacific Dining Hall at the [Talaris Conference Center](#), 4000 NE 41st St., Seattle, WA. Ph 206-268-7000. **Directions:** See [on-line directions with map](#), or: from I-5 northbound or southbound in Seattle, take Exit 168B (NE 45th St.). Drive east on NE 45th St. past UW down the hill and past University Village. Turn south (right) onto Mary Gates Memorial Drive at the 5-way intersection. MGM Drive will curve east (left) and become NE 41st St. Continue several blocks to the [Talaris Conference Center](#) entrance on the north (left) side. We meet in the Pacific Dining room on the left.

Upcoming Speakers and Field Trips

April 8: Jim Aldrich, the Olympic Mountains.

May 13: Anne Truhe, Oregon St. Univ., NSF Cascadia Initiative and the collection of multichannel seismic data off our coast.

Spring, 2014 Field Trip: Ralph Haugerud, USGS UW, the Seattle fault zone on Bainbridge Island, May 17, 2014.

Fall, 2013 Field Trip: TBA.

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

Please see the [NWGS website](#) for detailed announcements.

Contact webmaster [Julie Masura](#) if you have any announcements to post on the website.

Announcements

- NWGS now has a [Facebook page](#)! Check it out and "Like" us!
- Heather Vick is working on **T-shirts and baseball caps** with the official color NWGS logo. Watch for these to be on sale soon.
- Eric Cheney will lead his Leavenworth-Ellensburg-Peoh Point field trip again in conjunction with the GSA Annual Meeting in Vancouver, B.C. this fall. See [GSA](#) for details.
- Please contact [Grace Winer](#) if you would like to be added to the NWGS Speakers Bureau.
- The [Tobacco Root Geological Society](#) will be running a field conference in NE WA, July 31-Aug. 3. Contact [Skye Cooley](#) for more.
- [College of S. Idaho geology](#) professor Shawn Willsey will lead the GSA Geoventure trip entitled *Geology of Dinosaur National Monument Yampa River Trip*, June 5-11, 2014. Cost: \$1675 (\$1575 GSA members). Info: swillsey@csi.edu.
- Next **Board meeting**: Contact President [Dan Smith](#) for schedule.

YOU would like to be involved!

Photo Spotlight



1916 photograph looking upstream on the White River north of the King-Pierce county line showing the recently completed levees and concrete revetments that will be removed by the proposed levee setback projects. Photo submitted by Chris Brummer.

About NWGS

NWGS, a regional association of professionals, students & other persons interested in **geology**, provides a forum for the presentation and discussion of a wide range of geologic topics, emphasizing those of the Pacific Northwest of fundamental scientific interest.

YOU would like to be involved!

Program meetings: 2nd Tuesdays, October through May in the Pacific Dining Hall at the [Talaris Conference Center](#) in Seattle (see 1st page). Anyone may attend the speaker program, but a reservation is necessary for those wanting dinner (see 1st page). **Field trips (members only)**: one in late spring/early summer and one in late summer/early fall, usually of 1-3 days in length. **Membership** is open to anybody with a professional or amateur interest in geology. **Annual dues**: Professional: \$30; Student: \$5. **To join or pay annual dues**: send a check payable to NWGS to Secretary [Dan Smith](#), 10203 40th Ave SW, Seattle, WA. 98146. Please include your name, address, home phone, email, and employer/affiliation (if any). Professional dues may now also be paid at www.nwgs.org.

YOU would like to be involved!

Recommended Readings

Collins, B. D., and Montgomery, D. R., 2011, The legacy of Pleistocene glaciation and the organization of lowland alluvial process domains in the Puget Sound region, *Geomorphology*, v. 126, p. 174-185, . <http://gis.ess.washington.edu/grg/publications/pdfs/collinsprocessdomains.pdf>

Czuba, J.A., Czuba, C.R., Magirl, C.S., and Voss, F.D., 2010, Channel-conveyance capacity, channel change, and sediment transport in the lower Puyallup, White, and Carbon Rivers, western Washington: U.S. Geological Survey Scientific Investigations Report 2010-5240, 104 p. <http://pubs.usgs.gov/sir/2010/5240/>

Czuba, J.A., Magirl, C.S., Czuba, C.R., Curran, C.A., Johnson, K.H., Olsen, T.D., Kimball, H.K., and Gish, C.C., 2012, Geomorphic analysis of the river response to sedimentation downstream of Mount Rainier, Washington: U.S. Geological Survey Open-File Report 2012-1242, 134 p. <http://pubs.usgs.gov/of/2012/1242/pdf/>

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

To report a change of email or postal address or request to be removed from mailings, notify Membership Chair [George Bennett](#). Questions or comments? Contact President [Dan Smith](#).

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