

CARRIE GARRISON-LANEY  
CURRICULUM VITA

EDUCATION

- 2001–2004 & 2011–2017, Ph.D. in Earth and Space Sciences, University of Washington, Seattle, WA. Dissertation: *Tsunamis and sea levels of the past millennium in Puget Sound, Washington*.
- 2009–2012, M.S. in Human Centered Design and Engineering, University of Washington, Seattle, WA.
- 1999–2000, Post-Masters coursework in Geology, Virginia Polytechnic Institute & State University, Blacksburg, VA.
- 1995–1998, M.S. in Environmental Systems (emphasis Geology), Humboldt State University, Arcata, CA. Thesis: *Diatom evidence from a freshwater marsh for repeated tsunami inundation along coastal Del Norte County, Northern California*.
- 1988–1993, B.S. in Geology, San Francisco State University, San Francisco, CA

EXPERIENCE

- 2017–present, Coastal Hazards Specialist and NOAA-PMEL Liaison, Washington Sea Grant, College of the Environment, University of Washington, Seattle, WA
- 2011–2016, Teaching Assistant, Earth and Space Sciences, UW. Classes include: ESS 101 (Intro to Geology), ESS 210 (Physical Geology), ESS 313 (Geobiology), ESS 418 (Geoscience Communication), ESS 447 (Engineering Geology), and ESS 456/556 (Depositional Environments)
- 2013–2019, Adjunct Instructor, Green River College. Taught Geology 101
- 2014–2016, STEM consultant, Logan Center for Education, Institute for Systems Biology, Common Core State Standards Initiative, curriculum updates with public middle school science teachers
- 2009–2010, Research Assistant, HCDE department, University of Washington
- 2001–2005, Research Geologist, US Geological Survey, Seattle, WA. Earthquake Hazards Team, paleoseismic investigations in Puget Sound
- 2000–2001, Research Associate, William Lettis & Associates, Little Salmon fault project, Humboldt County, California
- 1999–2000, Teaching Assistant, Virginia Polytechnic and State University, Blacksburg, VA, Taught introductory geology labs
- 1995–1998, Research Assistant, Humboldt State University, Arcata, CA, Paleoseismic investigations of northern California, Supervisor: Gary Carver
- 1997–1998, Research Associate (contract), William Lettis & Associates, Bolinas and Bodega San Andreas fault project
- 1990–1995, Research Assistant, San Francisco State University, SF, CA
- 1993, National Association of Geologic Teachers (NAGT) awarded internship, US Geological Survey, Branch of Western Regional Geology Menlo Park, CA
- 1991–1992, Physical Science Aid, US Geological Survey, Branch of Paleontology and Stratigraphy, Menlo Park, CA

RESEARCH INTERESTS

Tsunami deposits, tsunami modeling, intertidal paleoseismology, quantitative sea level reconstruction, paleoecology of diatoms, scientific communication, visual communication, science education and outreach

TEACHING EXPERIENCE

- University of Washington, Earth and Space Sciences 101, 210, 313, 418, 465/565
- Green River College, Introductory geology lectures and labs
- Virginia Polytechnic Institute and State University, Physical Geology lab for non-science majors, Historical Geology lab for non-science majors

## FIELD TRIPS

- Geological Society of America: leader of field trip on tsunami deposits in Discovery Bay
- Geological Society of America: co-leader field trip on Puget Sound paleoseismology
- University of Washington: Earth and Space Sciences 101 and 210 field trips to Seattle fault and Bainbridge Island
- Bainbridge Middle School students to Seattle fault on Bainbridge Island
- Green River College: Geology 101 field trips to Seattle fault and Mt Rainier
- Humboldt State University: professional field trips on Cascadia earthquake/tsunami hazards
- San Francisco State University: introductory geology class field trips to the San Andreas fault, and professional field trips to the Hayward fault

## COLLABORATIONS

- Department of Earth and Space Sciences, University of Washington
- USGS Seattle Earthquake Hazards Team
- Department of Applied Mathematics, University of Washington
- Washington Department of Natural Resources
- Washington Department of Emergency Management

## PUBLICATIONS

- Garrison-Laney, C.E., in preparation, Cascadia tsunamis in Puget Sound, WA.
- Garrison-Laney, C.E., and Miller, I.M., 2018: Tsunami hazards past, present, and future: Deposits, models, and the influence of sea level rise on tsunami hazards along the Salish Sea inner coastline of Washington State, Abstract NH41C-1014, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.
- Garrison-Laney, C. E., 2017, Tsunamis and sea levels of the past millennium in Puget Sound, Washington: University of Washington Doctor of Philosophy thesis, 166 p.
- Garrison-Laney, C. E.; Miller, I., 2017, Tsunamis in the Salish Sea: Recurrence, sources, hazards. In Haugerud, R. A.; Kelsey, H. M., 2017, From the Puget Lowland to east of the Cascade Range—Geologic excursions in the Pacific Northwest: Geological Society of America Field Trip Guide v. 49, p. 67-78.
- Garrison-Laney, C.E., Abramson, H.A., and Carver, G.A., in preparation, A 3,000 Year Record of Tsunami Deposition from the Southern end of the Cascadia Subduction Zone.
- Peterson, C. D., Carver, G. A., Cruikshank, K. M., Abramson, H. F., Garrison-Laney, C. E., & Dengler, L. A. (2011). Evaluation of the use of paleotsunami deposits to reconstruct inundation distance and runup heights associated with prehistoric inundation events, Crescent City, southern Cascadia margin. *Earth Surface Processes and Landforms*, 36(7), 967-980.
- Garrison-Laney, C. E., Abramson Ward, H. F., & Carver, G. A. (2006). A 3,000-year record of tsunami deposition from the southern end of the Cascadia subduction zone. In (pp. 309-323). United States: Friends of the Pleistocene, Pacific Cell, United States.
- Aalto, K. R., Garrison-Laney, C. E., & Robinson, D. T. (2006). Evidence for paleotsunami at Crescent City, Northern California. In (pp. 334-338). United States: Friends of the Pleistocene, Pacific Cell, United States.
- Garrison-Laney, C.E., 2003, Subsidence within the past 600 years at Puget Sound, Washington, Geological Society of America Abstracts with Programs, 2003 annual meeting, Seattle, WA.
- Witter, R. C., Patton, J. R., Carver, G. A., Kelsey, H. M., Garrison-Laney, C., Koehler, R. D., & Hemphill-Haley, E. (2002). Upper-plate earthquakes on the western Little Salmon Fault and contemporaneous subsidence of southern Humboldt Bay over the past 3,600 years, northwestern California.
- Knudsen, K.L, Witter, R.C., Garrison-Laney, C.E., Baldwin, J.N., and Carver, G.A., 2002, Past earthquake-induced rapid subsidence along the northern San Andreas fault: A paleoseismological

- method for strike-slip faults: *Bulletin of the Seismological Society of America*, v. 92, no. 7, p. 2612-2636.
- Garrison-Laney, C. E., Abramson, H. F., and Carver, G. A., 2002, Late Holocene tsunamis near the southern end of the Cascadia subduction zone, *Seismological Research Letters*, v. 73, no. 2, p. 248.
- Witter, R. C., Carver, G. C., Patton, J. R., Kelsey, H. M., Koehler, R. D., Garrison-Laney, C. E., & Page, W. D. (2001). Evidence for progressive folding of the late Holocene tidal marsh deposits along the western Little Salmon Fault, Humboldt Bay, Northern California. *Seismological Research Letters*, 72(2), 270.
- Garrison-Laney, C. E., Abramson, H. F., and Carver, G. A., 2000, Diatom evidence for tsunamis from a freshwater marsh, Del Norte County, California: Penrose Conference 2000, Great Cascadia Earthquake Tricentennial, Program Summary and Abstracts, Oregon Department of Geology and Mineral Industries, Special Paper 33.
- Carver, G. A., Abramson, H. A., Garrison-Laney, C. E., Leroy, T., 1999, Paleotsunami evidence from Northern California for repeated long rupture (M9) of the Cascadia subduction zone: *Seismological Research Letters*, v. 70, no. 2, p. 232.
- Aalto, K. R., Aalto, R., Garrison-Laney, C. E., Abramson, H. F., 1999, Tsunami(?) sculpturing of the Pebble Beach wave-cut platform, Crescent City area, California, *Journal of Geology*, v. 107, no. 5, p. 607-622.
- Abramson, H. F., Garrison-Laney, C. E., and Carver, G. A., 1998, Evidence for Earthquakes And Tsunamis During The Last 3500 Years From Lagoon Creek, A Coastal Freshwater Marsh, Northern California: *Geological Society of America Abstracts with Programs*, v. 30, no. 5, p. 2.
- Garrison, C. E., and Abramson, H. F., 1997, Evidence for repeated tsunami inundation from two freshwater coastal marshes, Del Norte County, California: *Geological Society of America Abstracts with Programs*, v. 29, no. 5, p. 15.

#### CONFERENCE/WORKSHOP PRESENTATIONS

- Sound Waters University, February 2019
- Tsunami Roadshow, Washington State locations, April 2018
- Geoscience Symposium, Seattle, WA, February 2018
- GSA Annual meeting, October 2017
- AGU Annual meeting, December 2015
- AMQUA Biennial Meeting, August 2014
- Eastern Edge of Rupture Zones of Great Cascadia Earthquakes workshop, December 2011
- USGS National Earthquake Program/UW ESS Monorail and Engineering Workshops, October 2003
- Seismological Society of America, April 2002
- NOAA/USGS/WDNR/WAMDEMD Puget Sound Tsunami Sources workshop June 2002
- GSA Penrose conference Great Cascadia Earthquake Tricentennial, June 2000

#### PROFESSIONAL MEMBERSHIPS

Geological Society of America  
American Geophysical Union

#### SKILLS

Technical and scientific writing, visual communication design, GeoClaw tsunami modeling, Python, Arc-GIS, Adobe Illustrator, Adobe Photoshop, statistical software packages, radiocarbon age modeling

## RESEARCH

- Current: Investigation of paleotsunamis and sea level rise in Puget Sound, Cascadia and Seattle fault tsunami hazard to Puget Sound, Cascadia subduction zone dynamics. Studies employ numerical tsunami simulations, sedimentology, radiocarbon dating, and diatom paleoecology.
- National Earthquake Hazards Reduction Program (NEHRP)-funded study of Late Holocene deformation of the Little Salmon fault, Humboldt County, CA. Completed analysis of paleoenvironments using fossil diatoms.
- Analysis of modern and fossil diatom paleoecology of the Copper River Delta, as applied to earthquake-induced land-level changes.
- PG&E-funded paleoseismic investigations of northern California coast. Primarily studied tsunami deposits, but also investigated land-level changes in tidal marshes. These investigations included collecting, describing, and sampling cores; analyzing both modern and fossil diatoms; and preparing reports, publications, and figures.
- NEHRP-funded study of earthquake-induced rapid subsidence in a strike-slip setting, Bolinas and Bodega Bays. Activities included collecting, logging, and sampling cores; analyzing modern and fossil diatoms. Preparation of reports, publications, and figures.

## GRANTS/AWARDS

- 5/2015, Joseph A. Vance Endowed Fellowship in Geological Sciences, one academic quarter of support
- 4/2015, Charlotte Schreiber Award, ESS Gala, \$200
- 3/2015, GSA Student Research Grant, \$1,240
- 2/2015, Quaternary Research Center Research Stipend, \$7,000.
- 05/2014, Stephen G. Warren Graduate Student Fellowship in Earth and Space Sciences, one academic quarter of support
- 05/2014, Peter Misch Fellowship & Howard A. Coombs Fellowship in Geological Sciences, one academic quarter of support
- 10/2001, U.S. Geological Survey Doctoral fellowship, three years of academic support
- 5/2001, Alexander Sisson Research Award, Geological Society of America, \$1,200.
- 5/2000, Heath Robinson Scholarship (V. Tech geol. dept. award)
- 1/1997, California State University Graduate Equity Fellowship
- 4/1996, Joseph Woolford (Rotary Club of Eureka, CA) Fellowship
- 1/1996, California State University Graduate Equity Fellowship

## PROFESSIONAL REFERENCES

- Dr. Brian Atwater, USGS/ University of Washington Earth and Space Sciences, [atwater@uw.edu](mailto:atwater@uw.edu)
- Dr. Liz Nesbitt, University of Washington Earth and Space Sciences, [lnesbitt@uw.edu](mailto:lnesbitt@uw.edu)
- Dr. Brian Sherrod, USGS/ Univ. of Washington Earth and Space Sciences, [bsherrod@usgs.gov](mailto:bsherrod@usgs.gov)
- Dr. Juliet Crider, University of Washington Earth and Space Sciences, [juliet.crider@uw.edu](mailto:juliet.crider@uw.edu)
- Dr. Kathy Troost, University of Washington Earth and Space Sciences, [ktroost@uw.edu](mailto:ktroost@uw.edu)
- Dr. Ian Miller, University of Washington, Washington Sea Grant, [immiller@uw.edu](mailto:immiller@uw.edu)