APPENDIX A

Curriculum Vitae—Derek B. Booth

Google Scholar homepage: https://scholar.google.com/citations?hl=en&user=Xq4ZDiAAAAAJ

1. General Biographical Information

1.1. Basic data

Derek Blake Booth

Adjunct Professor, Bren School of Environmental Science & Management; and Researcher IV, Earth Research Institute: University of California Santa Barbara

Affiliate Professor, Departments of Earth & Space Sciences: University of Washington

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publications)

1.2. Educational history

University of Washington, Seattle, Washington, Ph.D. in Geological Sciences, 1984: "Glacier dynamics and the development of glacial landforms in the eastern Puget Lowland, Washington"

Stanford University, Stanford, California, M.S. in Geology, 1980

University of California, Berkeley, California, B.A. in Geology, 1978

Hampshire College, Amherst, Massachusetts, B.A. in Literature, 1974

1.3. Employment history

Current:

Researcher IV, University of California Santa Barbara, Earth Research Institute (2021–present).

Adjunct Professor, University of California Santa Barbara, Bren School of Environmental Science & Management (2011–present).

Affiliate Professor, University of Washington, Department of Earth & Space Sciences, and Interdisciplinary PhD Program in Urban Design and Planning (September 2006–present).

Historical:

Senior Geologist and Geomorphologist (September 2006– December 2024; President, June 2007–February 2011), Stillwater Sciences, Inc.; Senior Geomorphologist, ESA, Inc. (2021– December 2024).

Senior Editor, Quaternary Research (September 2005–December 2024).

Researcher III, University of California Santa Barbara, Earth Research Institute (2016–2021).

Researcher II, Earth Research Institute, University of California Santa Barbara, (2012–2016).

- Affiliate Professor, Department of Geosciences, Colorado State University (2015–2018).
- Affiliate Professor, University of Washington, Department of Civil & Environmental Engineering (September 2006–2018).
- Research Professor, University of Washington, with joint appointment in Department of Civil & Environmental Engineering and Department of Earth & Space Sciences (July 2005–August 2006); adjunct faculty appointments in Quaternary Research Center, College of Forest Resources, Department of Landscape Architecture, and Department of Urban Design and Planning.
- Visiting Associate Professor, Department of Geology and Geophysics, Louisiana State University (2005).
- Research Associate Professor, University of Washington, with joint appointment in Department of Civil & Environmental Engineering (1999–2005) and Department of Earth & Space Sciences (2003–2005).
- Director, Center for Water and Watershed Studies, University of Washington (co-director 2002–2003; director 2003–2004).
- Director, Center for Urban Water Resources Management, University of Washington, Department of Civil Engineering, 1995–2002 (reconstituted Sept. 2002 as Center for Water and Watershed Studies).
- Research Assistant Professor, Department of Civil Engineering, 1995–1999.
- Affiliate Assistant Professor, University of Washington, Department of Geological Sciences, 1984–1995; Department of Civil Engineering, 1992–1995; Department of Landscape Architecture, 1995.
- Manager, King County, Seattle, Washington, Basin Planning Program, 1989–1990.
- Geologist, King County, Seattle, Washington, Basin Planning Program, Surface Water Management Division, Department of Public Works, 1987–1996.
- Geologist, King County, Seattle, Washington, Building and Land Development Division, Department of Parks, Planning, and Resources, 1985–1987.
- Geologist, U.S. Geological Survey, Branch of Western Regional Geology, Menlo Park, California, 1979–1985.

1.4. Award and honors

Invited committee member, Salmon Science Advisory Group, Puget Sound Partnership, 2021–2024

Invited committee member, National Research Council, National Academies, 2007–2008 Outstanding Contribution to Washington's Water Resources, American Water Resources Association, Washington State chapter, 2004

Merit Award for Environmental Planning, American Planning Association, for the Chico Creek Watershed Planning Project, 2003 (with Mindy Roberts)

Nominee, University of Washington Distinguished Graduate Mentor Award, 2000 and 2001 Fellow, Geological Society of America, 1999

University of Washington Graduate School Fellowship, 1983

Livingston Wernke Scholarship, 1981

National Science Foundation Graduate Fellowship, 1978–1981

2. Publications (ORCID 0000-0002-5242-4089) (12,242 Google Scholar citations 8/2025)

2.1. Refereed archival journal publications (50 total)

- Bilby, R.E., Currens, K.P., Fresh, K.L., Booth, D.B., Fuerstenberg, R.R., and Lucchetti, G.L., 2023, Why aren't salmon responding to habitat restoration in the Pacific Northwest? Fisheries, v. 42(1), pp. 16–27.
- Downs, P.D., Booth, D.B., Fong, C.S, 2022, Process and perturbation in a high elevation alluvial system, Yosemite National Park, USA: Geomorphology, v. 419, doi 10.1016/j.geomorph.2022.108479.
- Scoggins, M., Booth, D.B., Fletcher, T., and 19 others, 2022, Community-powered urban stream restoration: A vision for sustainable and resilient urban ecosystems: Freshwater Science, v. 41(3), pp. 404–419.
- Booth, D.B., Ross-Smith, K., Haddon, E.K., Dunne, T., Larsen, E.W., Roche, J.W., Stock, G.M., and Mahacek, V., 2020, Opportunities and Challenges for Restoration of the Merced River through Yosemite Valley, Yosemite National Park, USA: River Research and Application 36(9), pp. 1803–1816.
- Booth, D.B., and Konrad, C.P, 2017, Hydrologic metrics for status-and-trends monitoring in urban and urbanizing watersheds: Hydrological Processes, 31(25), pp. 4507–4519.
- Cui, Y., Booth, D.B., J. Monschke, S. Gentzler, J. Roadifer, B. Greimann, and B. Cluer, 2016, Analyses of the erosion of fine sediment deposit for a large dam-removal project: an empirical approach: International Journal of River Basin Management, v. 15(1), pp. 103–114.
- Booth, D.B., Scholz, J.G., Beechie, T.J., and Ralph, S.C., 2016, Integrating limiting-factors analysis with process-based restoration to improve recovery of endangered salmonids in the Pacific Northwest, USA: Water, v. 8(5), 174; doi:10.3390/w8050174.
- Booth, D.B., Roy, A.H., Smith, B., and Kapps, K.A, 2016, Global perspectives on the Urban Stream Syndrome: Freshwater Science, v. 35(1), pp. 412–420.
- Walsh, C.J., Booth, D.B., Burns, M.J., Fletcher, T.D., Hale, R.L., Hoang, L.N., Livingston, G., Rippy, M.A., Roy, A.H., Scoggins, M., Wallace, A., 2016, Principles for urban stormwater management to protect stream ecosystems: Freshwater Science, v. 35(1), pp. 398–411.
- Utz, R.M., Hopkins, K.G., Beesley, L., Booth, D.B., Hawley, R.J., Baker, M.E., Freeman, M.C., Jones, K.L., 2016, Ecological resistance in urban streams: the role of natural and legacy attributes: Freshwater Science, v. 35(1), pp. 380–397.
- Booth, D.B., and Fischenich, C.J., 2015, A channel evolution model to guide sustainable urban stream restoration: Area, v. 47(4), pp. 408–421.
- Booth, D.B., Leverich, G., Downs, P.W., Dusterhoff, S., Araya, S., 2014, A method for spatially explicit representation of sub-watershed sediment yield, southern California, USA: Environmental Management, v. 53(5), pp. 968–984.
- Booth, D.B., Cui, Y., Diggory, Z., Pedersen, D., Kear, J., and Bowen, M., 2014, Determining appropriate instream flows for anadromous fish passage on an intermittent mainstem river, coastal southern California, USA: Ecohydrology, v. 7(2), pp. 745–759.

- Booth, D.B., Kraseski, K.A., and Jackson, C.R., 2014, Local and watershed-scale determinants of summertime urban stream temperatures: Hydrological Processes, v. 28(4), pp. 2427–2438.
- Bledsoe, B.P., Stein, E.D., Hawley, R.J., Booth, D., 2012, Framework and Tool for Rapid Assessment of Stream Susceptibility to Hydromodification: Journal of the American Water Resources Association, 48(4), pp. 788–808.
- Segura, C., and D.B. Booth, 2010, Effects of geomorphic setting and urbanization on wood, pools, sediment storage, and bank erosion in Puget Sound streams: Journal of the American Water Resources Association, v. 46(5), pp. 972–986.
- Rosenberg, E.A., P.W. Keys, D.B. Booth, D. Hartley, J. Burkey, A.C. Steinemann, and D.P. Lettenmaier, 2010, Precipitation extremes and the impacts of climate change on stormwater infrastructure in Washington State: Climatic Change, v. 102(1–2), pp. 319–349.
- Binder, L.C.W., Barcelos, J.K., Booth, D.B., Darzen, M., Elsner, M.M., Fenske, R., Graham, T.F., Hamlet, A.F., Hodges-Howell, J., Jackson, J.E., Karr, C., Keys, P.W., Littell, J.S., Mantua, N., Marlow, J., McKenzie, D., Robinson-Dorn, M., Rosenberg, E.A., Stöckle, C.O., Vano, J.A. 2010. Preparing for climate change in Washington State: Climatic Change, v. 102 (1-2), pp. 351–376.
- Downs, P.W., Y. Cui, J.K. Wooster, S.R. Dusterhoff, D.B. Booth, W.E. Dietrich, and L.S. Sklar, 2009, Managing reservoir sediment release in dam removal projects: an approach informed by physical and numerical modelling of non-cohesive sediment: Journal of River Basin Management, v. 7(3), pp. 1–20.
- Visitacion, B.J., D.B. Booth and A.C. Steinemann, 2009, Costs and Benefits of Stormwater Management: Case Study of the Puget Sound Region: *ASCE* Journal of Urban Planning and Development, v. 135 (4), pp. 150–158.
- Roberts, M.L., R.E. Bilby, and D.B. Booth, 2008, Hydraulic dispersion and reach-averaged velocity as indicators of enhanced organic matter transport in small Puget Lowland streams across an urban gradient: Fundamental and Applied Limnology, v. 171/2, pp. 145–159.
- Alberti, M., D.B. Booth, K. Hill, B. Coburn, C. Avolio, S. Coe, and D. Spirandelli. 2007. The impact of urban patterns on aquatic ecosystems: an empirical analysis in Puget lowland subbasins: Landscape and Urban Planning, Vol. 80 (4), pp. 345–361.
- Booth, D.B., 2005, Challenges and prospects for restoring urban streams: Journal of the North American Benthological Society, v. 24, pp. 724–737.
- Konrad, C.P., D.B. Booth, and S.J. Burges, 2005, Effects of urban development in the Puget Lowland, Washington, on interannual streamflow patterns: Consequences for channel form and streambed disturbance: Water Resources Research, v. 41 (7), pp. 1–15.
- McBride M., and D.B. Booth, 2005, Urban impacts on physical stream conditions: effects of spatial scale, connectivity, and longitudinal trends: Journal of the American Water Resources Association, v. 41 (3), pp. 565–580.
- Booth, D.B., J.R. Karr, S. Schauman, C.P. Konrad, S.A. Morley, M.G. Larson, and S.J. Burges, 2004, Reviving urban streams: land use, hydrology, biology, and human behavior: Journal of the American Water Resources Association, v. 40(5), pp. 1351–1364.

- Booth, D.B., K.G. Troost, and J.T. Hagstrum, 2004, Deformation of Quaternary strata and its relationship to crustal folds and faults, central Puget Lowland, Washington: Geology, v. 32, pp. 505–508.
- Booth, D.B., R.E. Wells, and R. Givler, 2004, Chimney damage in the greater Seattle area from the Nisqually earthquake of February 28, 2001: Bulletin of the Seismological Society of America, v. 94(3), pp. 1143–1158.
- Booth, D.B., and B.O. Brattebo, 2004, Permeable pavement update: Journal of the American Planning Association (research note), v. 70(1), p. 98.
- Brattebo, B.O., and D.B. Booth, 2003, Long-Term Stormwater Quantity and Quality Performance of Permeable Pavement Systems: Water Research, v. 37, pp. 4369–4376.
- Hagstrum, J.T., D.B. Booth, K.G. Troost, and R.J. Blakely, 2002, Magnetostratigraphy, paleomagnetic correlation, and deformation of Pleistocene deposits in the south-central Puget Lowland, Washington: Journal of Geophysical Research–Solid Earth, v. 107(B4): art. no. 2079 Apr 10 2002.
- Konrad, C.P., D.B. Booth, S.J. Burges, and D.R. Montgomery, 2002, Partial entrainment of gravel bars during floods: Water Resources Research, v. 38 (7), 10.1029, pp. 9-1 9-16.
- Booth, D.B., D. Hartley, and C.R. Jackson, 2002, Forest cover, impervious-surface area, and the mitigation of stormwater impacts: Journal of the American Water Resources Association, v. 38, pp. 835–845.
- Nelson, E.J., and D.B. Booth, 2002, Sediment budget of a mixed-land use, urbanizing watershed: Journal of Hydrology, v. 264, pp. 51–68.
- Larson, M.L., D.B. Booth, and S.M. Morley, 2001, Effectiveness of large woody debris in stream rehabilitation projects in urban basins: Ecological Engineering, v. 18(2), pp. 211–226.
- Scholz, J.G., and D.B. Booth, 2001, Monitoring small urban streams: Strategies and protocols for humid-region lowland systems: Environmental Monitoring and Assessment, v. 71(2), pp. 143–164.
- Mazer, G., D.B. Booth, and K. Ewing, 2001, Factors contributing to vegetation growth in biofiltration swales: Ecological Engineering, v. 17(4), pp. 429–443.
- Henshaw, P.C., and D.B. Booth, 2000, Natural restabilization of stream channels in urban watersheds: Journal of the American Water Resources Association, v. 36(6), pp. 1219–1236.
- Comings, K.J., D.B. Booth, and R.R. Horner, 2000, Pollutant Removals by Two Wet Ponds in Bellevue, Washington: ASCE Journal of Environmental Engineering, v. 126(4), pp. 321–330.
- Booth, D.B., and J. Leavitt, 1999, Field evaluation of permeable pavement systems for improved stormwater management: Journal of the American Planning Association, v. 65(3), pp. 314–325.

- Booth, D.B., and C.R. Jackson, 1997, Urbanization of aquatic systems—degradation thresholds, stormwater detention, and limits of mitigation: Journal of American Water Resources Association: v. 33(5), pp. 1077–1090.
- Booth, D.B., 1994, Glaciofluvial infilling and scour of the Puget Lowland, Washington, during ice-sheet glaciation: Geology, v. 22, pp. 695–698.
- Booth, D.B., and B. Hallet, 1993, Channel networks carved by subglacial water: Observations and reconstruction in the eastern Puget Lowland of Washington: Geological Society of America Bulletin, v. 105, pp. 671–683.
- Booth, D.B., 1991, Glacier physics of the Puget lobe, southwest Cordilleran ice sheet: Geographie Physique et Quaternaire, v. 45, pp. 301–316.
- Booth, D.B., 1991, Urbanization and the Natural Drainage System—Impacts, Solutions, and Prognoses: Northwest Environmental Journal, v. 7, pp. 93–118.
- Booth, D.B., 1990, Stream-channel incision following drainage-basin urbanization: Water Resources Bulletin, v. 26, pp. 407–417.
- Brown, N.E., B. Hallet, and D.B. Booth, 1987, Rapid soft-bed sliding of the Puget glacial lobe: Journal of Geophysical Research, v. 92 (B9), pp. 8985–8998.
- Booth, D.B., 1986, Mass balance and sliding velocity of the Puget lobe of the Cordilleran ice sheet during the last glaciation: Quaternary Research, v. 25, pp. 269–280.
- Booth, D.B., 1986, The formation of ice-marginal embankments into ice-dammed lakes in the eastern Puget Lowland, Washington, U.S.A., during the late Pleistocene: Boreas, v. 15, pp. 247–263.
- Booth, D.B., 1981, Macroscopic behavior of freezing saturated silty soils: Cold Regions Science and Technology, v. 4, pp. 163–174.

2.2. Fully refereed conference proceedings and other non-journal refereed publications (10 total)

- Booth, D.B., Dusterhoff, S.R., Stein, E.D., and Bledsoe, B.P., 2010, Hydromodification Screening Tools: GIS-based catchment analyses of potential changes in runoff and sediment discharge: Technical Report 605, Southern California Coastal Water Research Project, Costa Mesa, CA. (http://www.sccwrp.org/researchareas/RelatedPublications.aspx?id=ea6e7471-fa97-4ff9-8dd8-9bb0ab052096).
- Whitely Binder, L.C., Barcelos, J.K., Booth, D.B., and 17 others, 2009, Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate—Washington State Department of Ecology, Olympia, WA (http://cses.washington.edu/cig/res/ia/waccia.shtml#report).
- Booth, D.B., K.G. Troost, Scott A. Shimel, Michael A. O'Neal, and A.P. Wisher, 2006, New geologic mapping and geologic database for the urbanized Puget Lowland, western Washington State, USA: in D.R. Soller, ed., Digital Mapping Techniques '05 -- Workshop Proceedings: U.S. Geological Survey Open-file Report 2005-1428, pp. 259–266.

- Booth, D.B., C.P. Konrad, S.A. Morley, M.G. Larson, J.R. Karr, Sally Schauman, S.J. Burges, and Mindy Roberts, 2003, Strategies and limitations for urban watershed planning: EPA/625/R-03/003, National Conference on Urban Storm Water, Chicago, IL, February 17–20, 2003.
- Konrad, C.P., and Booth, D.B., 2002, Hydrologic trends resulting from urban development in western Washington streams: U.S. Geological Survey Water-Resources Investigation Report, 02-4040, 40 pp.
- Kay, J., R.N. Handcock, A. Gillespie, C. Konrad, S. Burges, N. Naveh, and D.B. Booth, 2001, Stream-temperature estimation from thermal infrared images: International Geoscience and remote Sensing Symposium, 9–13 July, 2001, Sydney, Australia.
- Packman, J.J., K.J., Comings, and D.B. Booth, 1999, Using turbidity to determine total suspended solids in urbanizing streams in the Puget Lowlands: *in* Confronting Uncertainty: Managing Change in Water Resources and the Environment, Canadian Water Resources Association annual meeting, Vancouver, BC, 27–29 October 1999, pp. 158–165.
- Booth, D.B., D.R. Montgomery, and J.P. Bethel, 1997, Large woody debris in urban streams of the Pacific Northwest: *in* Roesner, L.A., ed., Effects of watershed development and management on aquatic ecosystems: Engineering Foundation Conference, Proceedings, Snowbird, Utah, August 4–9, 1996 (invited).
- Horner, R.R., D.B. Booth, A. Azous, and C.W. May, 1997, Watershed determinants of ecosystem functioning: in Roesner, L.A., ed., Effects of watershed development and management on aquatic ecosystems: Engineering Foundation Conference, Proceedings, Snowbird, Utah, August 4–9, 1996 (invited).
- Booth, D.B., and C.R. Jackson, 1994, Urbanization of aquatic systems—thresholds and the limits of mitigation: American Water Resources Association, Summer Symposium on "Effects of Human-Induced Changes in Hydrologic Systems," Jackson Hole, Wyoming, pp. 425–434.
- Booth, D.B., 1988, Land-use planning in the mitigation of seismic hazards: in "Workshop on Evaluation of Earthquake Hazards and Risk in the Puget Sound and Portland Areas", U.S. Geological Survey Open-File Report 88–541, pp. 199–204.

2.3. Published geologic maps (all peer reviewed) (28 total)

- Booth, D.B., K.G. Troost, and R.W. Tabor, 2015, Geologic Map of the Vashon 7.5' Quadrangle and Selected Areas, King County, Washington: U.S. Geological Survey Scientific Investigation Map 3328, scale 1:24,000 (http://pubs.usgs.gov/sim/3328/).
- Tabor, R.W., D.B. Booth, and K.G. Troost, 2014, Lidar–Revised Geologic Map of the Poverty Bay 7.5' Quadrangle, King and Pierce Counties, Washington: U.S. Geological Survey Scientific Investigations Map SIM 3317, scale 1:24,000 (http://pubs.usgs.gov/sim/3317/).
- Tabor, R.W., R.A. Haugerud, D.B. Booth, and K.G. Troost, 2014, Lidar–Revised Geologic Map of the Olalla 7.5' Quadrangle, King, Kitsap, and Pierce Counties, Washington: U.S. Geological Survey Scientific Investigations Map SIM 3277, scale 1:24,000 (http://pubs.usgs.gov/sim/3277/).

- Booth, D.B., T.J. Walsh, K.G. Troost, and S.A. Shimel, 2012, Geologic map of the Issaquah quadrangle: U.S. Geological Survey Scientific Investigation Map SIM 3211, scale 1:24,000 (http://pubs.usgs.gov/sim/3211/).
- Booth, D.B., K.G. Troost, and S.A. Shimel, 2009, Geologic map of the Seattle NE quadrangle: U.S. Geological Survey Scientific Investigation Map 3065, scale 1:12,000 (http://pubs.usgs.gov/sim/3065/).
- Booth, D.B., K.G. Troost and, S.A. Shimel, 2005, Geologic map of northwestern Seattle (part of the Seattle North 7.5' x 15' quadrangle), King County, Washington: U.S. Geological Survey Scientific Investigations Map 2903, 1:12,000 (http://pubs.usgs.gov/sim/2005/2903/).
- Booth, D.B., and K.G. Troost, 2005, Geologic map of the Olalla 7.5-minute quadrangle, Washington: U.S. Geological Survey Scientific Investigations Map 2902, scale 1:24,000 (http://pubs.usgs.gov/sim/2005/2902/).
- Troost, K.G., Booth, D.B., Wisher, A.P., and Shimel, S.A., 2005, The geologic map of Seattle: U.S. Geological Survey Open-File Report 2005-1252, scale 1:24,000 (http://pubs.usgs.gov/of/2005/1252/).
- Booth, D.B., and H.H. Waldron, 2004, Geologic map of the Des Moines 7.5-minute quadrangle, Washington: U.S. Geological Survey Scientific Investigation Map SIM-2855, scale 1:24,000 (http://pubs.usgs.gov/sim/2004/2855/).
- Booth, D.B., H.H. Waldron, and K.G. Troost, 2004, Geologic map of the Poverty Bay 7.5-minute quadrangle, Washington: U.S. Geological Survey Scientific Investigation Map SIM-2854, scale 1:24,000 (http://pubs.usgs.gov/sim/2004/2854/).
- Tabor, R.W., D.B. Booth, J.A. Vance, and A.B. Ford, 2002, Geologic map of the Sauk River 1:100,000 quadrangle, Washington: U.S. Geological Survey Miscellaneous Investigations Map I-2592, 2 sheets with pamphlet (http://pubs.usgs.gov/imap/i2592/).
- Tabor, R.W., V.A. Frizzell, Jr., D.B. Booth, and R.B. Waitt, Jr., 2000, Geologic map of the Snoqualmie Pass 30-minute by 60-minute quadrangle, Washington: U.S. Geological Survey Miscellaneous Investigations Map I-2538, scale 1:100,000, 57 pp.
- Booth, D.B., 1995, Geologic map of the Maple Valley quadrangle, King County, Washington: U.S. Geological Survey Miscellaneous Field Studies Map MF-2297, scale 1:24,000.
- Tabor, R.W., R.A. Haugerud, D.B. Booth, and E.H. Brown, 1994, Preliminary geologic map of the Mount Baker 30-minute by 60-minute quadrangle, Washington: U.S. Geological Survey Open-File Report 94-403, scale 1:100,000.
- Tabor, R.W., V.A. Frizzell, Jr., D.B. Booth, R.B. Waitt, Jr., J.T. Whetten, and R.E. Zartman, 1993, Geologic map of the Skykomish River 30- by 60-minute quadrangle, Washington: U.S. Geological Survey Miscellaneous Investigations Map I-1963, scale 1:100,000.
- Booth, D.B., and J.P. Minard, 1992, Geologic map of the Issaquah quadrangle, King County, Washington: U.S. Geological Survey Miscellaneous Field Studies Map MF-2206, scale 1:24,000.

- Booth, D.B., 1991, Geologic map of Vashon and Maury Islands, King County, Washington: U.S. Geological Survey Miscellaneous Field Investigations Map MF-2161, scale 1:24,000, 6 pp.
- Booth, D.B., 1990, Surficial geology of the Skykomish and Snoqualmie Rivers area, Snohomish and King Counties, Washington: U.S. Geological Survey Miscellaneous Investigations Map I-1745, scale 1:50,000, 2 sheets with pamphlet.
- Booth, D.B., 1989, Surficial geology of the Granite Falls 15' quadrangle, Snohomish County, Washington: U.S. Geological Survey Miscellaneous Investigations Map I-1852, scale 1:50,000.
- Pessl, F., Jr., D.P. Dethier, D.B. Booth, and J.P. Minard, 1989, Surficial geology of the Port Townsend 1:100,000 quadrangle, Washington: U.S. Geological Survey Miscellaneous Investigations Map I-1198F, 2 sheets with pamphlet.
- Minard, J.P., and D.B. Booth, 1988, Geologic map of the Redmond quadrangle, King and Snohomish Counties, Washington: U.S. Geological Survey Miscellaneous Field Investigations Map MF-2016, scale 1:24,000.
- Tabor, R.W., V.A. Frizzell, Jr., J.T. Whetten, D.A. Swanson, G.R. Byerly, D.B. Booth and others, 1980, Preliminary geologic map of the Chelan 1:100,000 quadrangle, Washington: U.S. Geological Survey Open-File Report 80-841.

2.4. Books and editing

Chapters and co-authorship of edited books (19 total)

- Booth, D.B., 2021, Urban Waterways: Chapter 58 *in* Douglas, I., D. Goode, M. Houck, and R. Wang, eds., The Routledge Encyclopedia of Urban Ecology, 2nd Edition, pp. 749–761.
- Booth, D.B., 2019, Watersheds: Chapter 8 in Quinn, T., Wilhere, G., and Krueger, K., eds., Riparian Ecosystems, Volume 1: Science synthesis and management implications: Washington Department of Fish and Wildlife, Olympia. WA, pp. 237–264. Available at https://wdfw.wa.gov/sites/default/files/publications/01987/wdfw01987.pdf
- Downs P.W., and D.B. Booth, 2011, Geomorphology in environmental management: in Gregory, K.J. and Goudie, A.S.,eds., The SAGE Handbook of Geomorphology, SAGE Publications, London, pp.78–104.
- Booth, D.B., and B. Bledsoe, 2009, Streams and urbanization: Chapter 6 in L.A. Baker, ed., The Water Environment of Cities: New York, Springer, 375 pp.
- Committee on Reducing Stormwater Discharge Contributions to Water Pollution, 2009, Urban Stormwater Management in the United States: National Academies Press, Washington, DC, 598 pp.
- Troost, K.G., and D.B. Booth, 2008, Geology of Seattle and the Seattle area, Washington: Chapter 1 *in* Baum, R.L., Godt, J.W., and Highland, L.M., eds., Landslides and Engineering Geology in the Seattle, Washington, Area: Geological Society of America Reviews in Engineering Geology, v. XX, pp. 1–36.
- Booth, D.B., 2008, "Stormwater Management": Chapter 284 in Trimble, S.W., ed., Encyclopedia of Water Science, Second Edition: New York, CRC Press, pp. 1163–1166.

- Hinman C.H., and D.B. Booth, 2008, "Low-Impact Development": Chapter 174 in Trimble, S.W., ed., Encyclopedia of Water Science, Second Edition: New York, CRC Press, pp. 734–737.
- Konrad, C.P., and D.B. Booth, 2005, Ecological significance of hydrologic changes in urban streams: chapter in L.R. Brown, R.H. Gray, R.M. Hughes, and M.R. Meador, editors. Effects of Urbanization on Stream Ecosystems. American Fisheries Society, Symposium 47, pp. 157–177.
- Booth, D.B., Troost, K.G., Clague, J.J., and Waitt, R.B., 2004, The Cordilleran ice sheet: Chapter 2 in Gillespie, A., Porter, S.C., and Atwater, B., eds., The Quaternary Period in the United States: International Union for Quaternary Research, Elsevier Press, pp. 17–43.
- Chapters in: D.R. Montgomery, S. Bolton, D.B. Booth, and L. Wall, eds., 2003, Restoration of Puget Sound Rivers: University of Washington Press, 505 pp.
 - D.R. Montgomery, D.B. Booth, and S. Bolton, *Puget Sound rivers and salmon recovery*, pp. 1–13.
 - D.B. Booth, R.A. Haugerud, and K.G. Troost, Geology, watersheds, and Puget Lowland rivers, pp. 14–45.
 - J.M. Buffington, R.D. Woodsmith, D.B. Booth, and D.R. Montgomery, *Fluvial processes in Puget Sound rivers in the Pacific Northwest*, pp. 46–78.
 - S. Bolton, D.B. Booth, and D.R. Montgomery, *Restoration of Puget Sound rivers: Do we know how to do it?*, pp. 483–490.
- Booth, D.B., and P.C. Henshaw, 2001, Rates of channel erosion in small urban streams: chapter <u>in</u> M. Wigmosta and S. Burges, eds., Land Use and Watersheds: Human Influence on Hydrology and Geomorphology in Urban and Forest Areas: AGU Monograph Series, Water Science and Application Volume 2, pp. 17–38.
- Booth, D.B., and J.P. Bethel, 1998, Approaches for seismic hazard mitigation by local governments—an example from King County, Washington: chapter in Rogers, A.M., Walsh, T.J., Kockelman, W.J., and Priest, G.R., Assessing and Reducing Earthquake Hazards in the Pacific Northwest: U.S. Geological Survey Professional Paper 1560, v. 2, pp. 537–542.
- Booth, D.B., 1998, Implementation of stream restoration projects: section in Federal Interagency Stream Corridor Restoration Handbook: Washington, DC, Interagency Production Team (USCOE, USBLM, USEPA, USFWS, USDA) (http://www.nrcs.usda.gov/technical/stream_restoration/newgra.html).
- Booth, D.B., 1989, Runoff and stream-channel changes following urbanization in King County, Washington: chapter in Gallster, R., ed., Engineering Geology in Washington, Vol. II: Washington Division of Geology and Earth Resources Bulletin 78, pp. 639–650.
- Booth, D.B., 1987, Timing and processes of deglaciation along the southern margin of the Cordilleran ice sheet: chapter in Ruddiman, W.F., and Wright, H.E. Jr., eds., North America and adjacent oceans during the last deglaciation: Boulder, Colorado, Geological Society of America, The Geology of North America, v. K-3, pp. 71–90.

Books edited

Montgomery, D., S. Bolton, D.B. Booth, and L. Wall, eds., 2003, Restoration of Puget Sound Rivers: University of Washington Press, 505 pp.

Journals edited

Senior Editor, *Quaternary Research* (Cambridge University Press) (2005–present) Editorial Board, *Quaternary Science Reviews* (Elsevier Science Press) (2015–2016) Editorial Board, *Watershed Science Bulletin* (Center for Watershed Protection) (2010–2022)

2.5. Miscellaneous conference abstracts and non-refereed proceedings (101 total; 2008–present shown)

- Haddon, E.K, Stock, G.M., Booth, D.B., Gray, H.J., and Mahan, S.A., 2021, The pace of deglaciation and postglacial landscape response in Yosemite Valley, California: Geological Society of America Abstracts with Programs, Vol. 53, No. 4, doi: 10.1130/abs/2021CD-363144.
- Booth, D.B., 2018, Faith-based restoration and the conundrum of "restoring" urban watersheds: Abstract H14E-01, presented at 2018 Fall Meeting, AGU, Washington, DC, 10–14 Dec.
- Haddon, E., Stock, G., and Booth, D.B., 2017, Latest Pleistocene and Holocene landscape evolution of Yosemite Valley, California: Geological Society of America, Abstracts with Programs, Annual Meeting, v. 49.
- Troost, K.G., and Booth, D.B., 2017, MIS 4 and older Pleistocene deposits in the Puget Lowland, Washington state: Geological Society of America, Abstracts with Programs, Annual Meeting, v. 49.
- Haddon, E., Stock, G., and Booth, D.B., 2016, Latest Pleistocene and Holocene surficial deposits and landforms of Yosemite Valley, California: Eos Trans. AGU, 97, Fall Meet. Suppl. Abstract, EP13B-1030.
- Booth, D.B., Scholz, J., and Beechie, T, 2015, Broadening the view of "limiting factors" vs "process-based" restoration strategies to maximize systematic endangered species planning and recovery in the West: Proceedings of the Salmon Restoration Federation Annual Conference, Santa Rosa, CA, March 11–14, 201, p. 130.
- Booth, D.B. and Fischenich, C.J., 2014, Regional context and local-scale controls on the evolution of urban streams: 3rd Symposium on Urbanization and Stream Ecology, Portland, OR, May 15–17, 2014, p. 15.
- Booth, D.B., 2014, Urban streams of the Pacific Northwest: 3rd Symposium on Urbanization and Stream Ecology, Portland, OR, May 15–17, 2014, p. 60.
- Booth, D.B., Cui, Y., Diggory, Z., Pedersen, D., Kear, J., and Bowen, M., 2014, Instream flows for anadromous fish passage on the intermittent and partly regulated Santa Maria River, coastal Southern California (invited): Proceedings of the Salmon Restoration Federation Annual Conference, Santa Barbara, CA, March 22, 2014, p. 81.
- Bell, Ethan, Araya, Sebastian, and Booth, D.B., 2014, regional assessment of instream flow needs for steelhead in San Luis Obispo County: Proceedings of the Salmon Restoration Federation Annual Conference, Santa Barbara, CA, March 22, 2014, p. 82.

- Booth, Derek B., Kraseski, Kristin A., Bahn, Robert A., and Jackson, C. Rhett, 2012, Effects of surficial geology, lakes, and land use on urban stream temperatures, metropolitan Seattle: Geological Society of America, Abstracts with Programs, Annual Meeting, v. 44.
- Warrick, J.A., Romans, B.W., Leverich, G.T., and Booth, D.B., 2011, Source-to-sink in the western Transverse Ranges: field trip guide for the AGU Chapman Conference on Source to Sink Systems Around the World and Through Time, Oxnard, CA, January 24–27, 2011.
- Booth, D.B., 2010, The National Research Council's review of stormwater permitting—is there a regulatory path to healthy urban streams? (invited): 2010 Oregon Chapter Annual Meeting, American Fisheries Society, Eugene, OR.
- Booth, D.B., and Ralph, S.C., 2010, Management, monitoring, and restoring urban streams(invited): River Restoration Northwest, 9th Annual symposium, Skamania, WA.
- Booth, D.B., 2009, Urban steams: A challenge for society (invited): Second Conference on Ecological Landscaping, Urban Landscape Ecology Program, The Ohio State University, Cleveland, OH.
- Booth, D.B., 2009, Urbanization, stream-channel change, and hydromodification (invited): Sustainable Stormwater Symposium, ASCE and APWA, Portland, Oregon.
- Booth, D.B., and Ralph, S.C., 2009, Management, monitoring, and restoring urban streams: 3rd National Conference on Ecosystem Restoration, Los Angeles, CA.
- Amerson, B., Stallman, J., and Booth, D.B., 2009, Unconventional wisdom and the effects of dams on downstream coarse sediment supply: River Restoration Northwest, 8th Annual symposium, Skamania, WA.
- Keys, P.W., Rosenberg, E.A., Booth, D.B., Steinemann, A.C., and Lettenmaier, D.P., 2008, Precipitation extremes and the impacts of climate change on stormwater in Washington State: Eos Trans. AGU, 89, Fall Meet. Suppl. Abstract.
- Booth, D.B., Bledsoe, B., and Stein, E., 2008, Four decades of research into stream-channel changes in urban environments, and their implications for southern California: H₂O Conference, Long Beach, CA.
- Booth, D.B., Downs, P.W., Dusterhoff, S.R., and Leverich, G.T., 2008, Comparative rates of uplift and fluvial erosion in the Santa Paula and Sespe watersheds (western Transverse Ranges), CA: Geological Society of America, Abstracts with Programs, Annual Meeting, v. 40.

3. Other Scholarly Activities

3.1. Invited lectures and seminars (86 total; 2008–present shown)

- Sustaining Colorado Watersheds Conference, 2022 annual meeting, *Lessons from 40 years of research and practice in stream restoration*, Avon, CO, October 7, 2025.
- Upper Columbia Science Conference, 2024 meeting, *Lessons learned from decadal-scale evaluations of river restoration projects*, Wentachee, WA, January 25, 2024.

- Sustaining Colorado Watersheds Conference, 2022 annual meeting, *Lessons across research and design: Decadal-scale evaluations of river restoration projects*, Avon, CO, October 11, 2022.
- American Geophysical Union, Annual Meeting, *Faith-based restoration and the conundrum of "restoring" urban watersheds*, Washington, DC, December 10, 2018.
- Thinking Outside of the Reach, River Science and Management Workshop, *Managing the urban impacts on rivers in Mediterranean climates*, Santa Paula, CA, July 13, 2017.
- CUASHI (Consortium of Universities for the Advancement of Hydrologic Science), 2014 Fall Cyberseminar Series on Sustainable Urban Streams, *Watershed context and the evolution of urban streams*, national webinar, November 7, 2014.
- 3rd Symposium on Urbanization and Stream Ecology, *Context and the evolution of urban streams*, Portland, OR, May 15, 2014.
- Salmon Restoration Federation, Annual Conference, *Instream flows for anadromous fish* passage on the intermittent and partly regulated Santa Maria River, coastal Southern California, Santa Barbara, CA, March 22, 2014.
- School of the Environment, Nanjing University, *Stresses, responses, and rehabilitation of urban streams*, Nanjing, China, March 18, 2014.
- Bay Area Watershed Network, Watershed Assessment Workshop, *Assessments to guide river restoration project design*, Oakland, CA, May 20, 2013.
- MEDECOS (Mediterranean Ecosystem Society), XII International Conference, *Effects of watershed urbanization on Mediterranean-type streams*, Los Angeles, CA, September 8, 2011.
- University of Washington Annual Water Symposium, keynote speaker, *Treating the symptoms or curing the disease?* Seattle, WA, April 18, 2011.
- City of Portland Environmental Lecture Series, *Stormwater management in the 21st century,* Portland, OR, March 14, 2011.
- Association of Groundwater Agencies, American Groundwater Trust, Annual conference on Water Resources Issues in Southern California: *River restoration, groundwater use, and surface flow: a case study of the Santa Maria River*, February 7, 2011, Ontario, CA.
- University of California Berkeley, California Department of Fish and Game, and Southern California Coastal Water Research Project: *Episodic river channel form*, Costa Mesa, CA, November 8, 2010.
- Oregon Chapter Annual Meeting, American Fisheries Society: *The National Research Council's review of stormwater permitting—is there a regulatory path to healthy urban streams?*, Eugene, OR, February 25, 2010; and Portland, OR, October 14, 2010.
- River Restoration Northwest, 9th Annual symposium: *Management, monitoring, and restoring urban streams*, Skamania, WA, February 3, 2010.

- Second Conference on Ecological Landscaping, Urban Landscape Ecology Program, The Ohio State University: *Urban steams: A challenge for society*, Cleveland, Ohio, December 1, 2009.
- California Stormwater Quality Association, Fifth Annual Stormwater Conference: Hydromodification, monitoring, and adaptive management, San Diego, CA, November 4, 2009.
- American Society of Civil Engineers and the American Public Works Association, Oregon Chapters, Sustainable Stormwater Symposium, opening keynote address: *Urbanization, stream-channel change, and hydromodification*, Portland, Oregon, September 16, 2009.
- Law Seminars International, Clean Water and Stormwater Conference: *Stormwater management—lessons from around the US*, Seattle, April 6, 2009.
- University of Delaware, Department of Geography, noontime colloquium: *A tale of three rivers*, February 9, 2009.
- Urban Ecosystem Research Consortium, annual symposium, opening keynote address: *Management, monitoring, and the ecological integrity of urban streams*, Portland State University, January 26, 2009.
- US Environmental Protection Agency, Region X, Climate Change and Water Infrastructure Forum: *Climate change impacts on water infrastructure—Washington State*, Seattle, September 4, 2008.
- Floodplain Management Association Annual Meeting: *Floodplain Management Strategies for the Santa Clara River, Ventura County, California,* San Diego, CA, September 3, 2008.
- Southern California Wetlands Recovery Symposium: *Patterns, rates, and consequences of sediment delivery into Santa Paula Creek, California*, San Diego, May 7, 2008.
- University of Washington, Water Center Annual Review: West coast watersheds and the streams they create, Seattle, February 14, 2008.

3.2. Other presentations given at conferences (47 total; 2008–present shown)

- River Restoration Northwest, Annual Meeting, *Lessons across research and design:*Decadal-scale evaluations of river restoration projects, Skamania, WA, February 8, 2023.
- Geological Society of America, Annual Meeting, *Integrating restoration approaches to improve recovery of endangered salmonids in the Pacific Northwest, USA*, Denver, CO, September 26, 2016.
- Salmon Restoration Federation, Annual Conference, *Broadening the view of "limiting factors" vs "process-based" restoration strategies*, Santa Rosa, CA, March 14, 2015.
- H2O Conference (Headwaters to Ocean), Annual meeting, *Developing an effective regional watershed planning tool for MS4 infiltration and hydromodification compliance*, San Diego, CA, May 30, 2012.
- 3rd National Conference on Ecosystem Restoration, *Management, monitoring, and restoring urban streams*, Los Angeles, CA, July 15, 2009.

Washington State Climate Change Symposium, Summary of effects of climate change on urban stormwater infrastructure, Seattle Convention Center, February 12, 2009.

H₂O Conference (Headwaters to Ocean), Annual meeting, *Four decades of research into stream-channel changes in urban environments, and their implications for southern California*: Long Beach, CA, October 29, 2008.

Geological Society of America, Annual Meeting, *Ripple: a digital-terrain based model for linking fish to channel networks*, Houston, TX, October 8, 2008.

Geological Society of America, Annual Meeting, *Comparative rates of uplift and fluvial erosion in the Santa Paula and Sespe watersheds (western Transverse Ranges), CA*, Houston, TX, October 5, 2008.

Floodplain Management Association Annual Meeting: *Floodplain Management Strategies for the Santa Clara River, Ventura County, California*, San Diego, California, September 3, 2008 (invited).

3.3. Professional society memberships

American Geophysical Union, 1985–present Geological Society of America, 1984–present (elected Fellow 1999) Northwest Geological Society, 1987–2007 (President 1989)

3.4. Professional licenses

Professional Geologist: September 28, 2001 (State of Washington, License #195); June 22, 2007 (State of California, License #8402)

Professional Engineer—Civil: July 24, 2000 (State of Washington, License #36876); March 6, 2023 (Colorado, License #62269)

3.5. Other Reviews Made—journals (>300 articles not as editor)

Annals of the American Association of Geographers

Anthropocene

Aquatic Sciences

ASCE Journal of Construction Engineering and Management

ASCE Journal of Water Resources Planning and Management

Climate Risk Management

Earth Surface Processes and Landforms

Ecohydrology & Hydrobiology

Ecological Applications

Ecological Indicators

Ecological Restoration

Encyclopedia of Water

Environment, Development and Sustainability

Environmental Management

Environmental Management and Assessment

Environmental Monitoring and Assessment

Environmental Processes

Environmental Science and Pollution Research

Environments

Freshwater Science

Geofluids

Geological Society of American Books

Geological Society of American Bulletin

Geology (published by the Geological Society of America)

Geomorphology

Hydrobiologia

Hydrological Processes

Hydrological Sciences Journal

Infrastructures

Journal of Building Engineering

Journal of Ecological Engineering Design

Journal of Environmental Engineering

Journal of Environmental Management

Journal of Glaciology

Journal of Hydrologic Engineering

Journal of Hydrology

Journal of the American Water Resources Association

Journal of the North American Benthological Society

Journal of Sustainable Water in the Built Environment

Knowledge and Management of Aquatic Ecosystems

Land Degradation and Development

Land Use Policy

Landscape and Urban Planning

Landscape Ecology

Marine and Freshwater Research

North American Journal of Fisheries Management

PLOS ONE

Proceedings of the National Academy of Science

Quaternary Science Reviews

Restoration Ecology

River Research and Applications

Science of the Total Environment

Scientific Reports

Sustainability

Urban Ecosystems

Urban Sustainability Urban Water Journal

Water

Water Practice

Water Research

Water Resources Research

3.6. Reviews Made—other

Gulf Coast Ecosystem Restoration Council, 2023

French National Research Agency (ANR), 2021

Delta Science Awards, 2021

Mictas Canada, Accelerate program, 2019

California Sea Grant Program, 2018

US Fish and Wildlife Service, ESA 4(d) proposed rule, 2015.

Washington State Governor's Salmon Office, review of the Salmon Recovery Funding Board's monitoring program, 2013.

Independent Multidisciplinary Science Team for the State of Oregon, review of report on the effects of urban and rural-residential land use on wild salmonids, 2009

- U.S. General Accounting Office, Evaluation of National Water-Quality Policy, Delphi review panelist, 2001.
- U.S. Geological Survey, National Educational Mapping Program, Panel member 1997–2000.
- U.S. Geological Survey, National Earthquake Hazard Reduction Program, Panel member 1992, 1993, 1996.
- U.S. Geological Survey, multiple (>20) map and manuscript reviews.

Olympic National Research Center, proposal reviews, 2004.

Review of "Beach Processes and Sedimentation" by Paul Komar: Journal of the American Water Resources Association, v. 34(3), pp. 697–698, 1998.

Review of "Glacial Geologic Processes" by David Drewry: Quaternary Research, v. 28, p. 175, 1987.

Other mail reviews:

Delta Science Program

American Association for the Advancement of Science, Research Competitiveness Program.

CALFED Bay-Delta grant program.

Gulf Coast Ecosystem Restoration Council (RESTORE Council)

National Research Council, Watershed Management for Potable Water Supply: Assessing the New York City Strategy, National Academy Press, 2000.

National Science and Engineering Research Council (Canada).

National Science Foundation, Programs in Geosciences, Polar Research, Ecosystem Studies, Geomorphology and Land Use Dynamics, and Engineering.

National Science Foundation–US Environmental Protection Agency "Waters and Watersheds" program.

Natural Environment Research Council (UK).

Netherlands Organization for Scientific Research.

Swiss National Science Foundation.

4. Graduate Students

4.1. Chaired doctoral degrees (4 total)

Student	Dissertation Title	Current Employer	Year Completed
Kathy Troost	Chronology, Lithology and Paleoenvironmental Interpretations of the Penultimate Ice-Sheet Advance into the Puget Lowland, Washington State	Univ. of WA	2016

Mindy Roberts	Sources, Transport and Fate of Terrestrial Organic Matter Inputs to Small Puget Lowland Streams: Effects of Urbanization, Floods and Salmon	WA Dept. of Ecology	2007
Michael O'Neal	Late Little Ice Age Glacier Fluctuations in the Cascade Range of Washington and Northern Oregon	Univ. of Delaware	2005
Christopher Konrad (co-chair)	The frequency and extent of hydrologic disturbances in streams in the Puget Lowland, Washington	U.S. Geological Survey	2000

4.2. Chaired masters degrees (21 total)

Student	Thesis	Thesis/Project Title	Year Completed
Jacob Millard	no		2005
Susan Rosebrough	no		2005
Brent Zacharia	no		2004
Amy Engstrom	yes	Characterizing water quality of urban stormwater runoff	2004
Catalina Segura-Sossa	yes	Characterizing lowland streams: riparian and watershed influences on urban and non-urban channels	2003
Christina Avolio	yes	The local impacts of road crossings on Puget Lowland creeks	2003
Heidi Wachter	yes	Application of the benthic index of biological integrity (B-IBI) to headwater streams within the Puget Lowland	2003
Chase Barton	yes	Applications of a sediment budget to assist urban stream rehabilitation	2003
John Koreny	no		2003
Maeve McBride	yes	Spatial effects of urbanization on physical conditions in Puget Sound lowland streams	2001
Carolyn Butchart	yes	Using air conductivity and soil texture as indicators of infiltration rates for stormwater infiltration ponds	2001
Jay Cammermeyer	yes	The effects of vegetation in highway drainage ditches on flow characteristics and pollutant removal	2001
Shanti Colwell	yes	Characterization of performance predictors and evaluation of mowing practices in biofiltration swales	2000
Kathy Troost	yes	The Olympia nonglacial interval in the southern Puget Lowland	1999
Marit Larson	yes	Effectiveness of LWD in stream rehabilitation projects in urban basins	1999

Erin Nelson	yes	A sediment budget for the Issaquah Creek watershed	1999
Patricia Henshaw	yes	Restabilization of stream channels in urban watersheds	1999
Dalius Gilvydas	no	A meta-analysis of cattle-grazing impacts on salmonid stream habitat quality	1999
Cheryl Dunning	no	Urban stormwater management at Vet Clinic Wetland, McChord AF Base	1998
Jennifer Leavitt	no	The function of urban riparian buffers	1998
Karen Comings	yes	Stormwater pollutant removal by two wet ponds, Lk Sammamish watershed	1998

4.3. UCSB Bren School Group Project supervision

2016–2017	Yuba River Restoration
2015-2016	Arundo Control in the Santa Clara River Valley
2013-2014	Reducing Plastic Debris in the Los Angeles and San Gabriel Rivers
	Watersheds
2012-2013	Water Action Plan

4.4. Other student supervision

Membership on MS degree committees (not listed; 57 total) Membership on Ph.D. committees:

School of Ecosystems and Forest Sciences,	2019
,	
	2018
Bren School of Env. Sci. & Mgmt., UCSB	2017
Bren School of Env. Sci. & Mgmt., UCSB	2017
Earth and Space Sciences, UW	2009
Earth and Space Sciences, UW	2006
Civil & Environmental Engineering, UW	2006
Urban Design and Planning, UW	2005
Earth and Space Sciences, UW	2005
Civil & Environmental Engineering, UW	2003
Civil & Environmental Engineering, UW	2003
Civil & Environmental Engineering, UW	2003
Geological Sciences, UW	2000
Forest Resources, UW	1998
Geological Sciences, UW	1998
Civil Engineering, UW	1997
Civil Engineering, UW	1995
Geological Sciences, UW	1994
	University of Melbourne (external examiner) Geography Department, San Diego State Univ. Bren School of Env. Sci. & Mgmt., UCSB Bren School of Env. Sci. & Mgmt., UCSB Earth and Space Sciences, UW Earth and Space Sciences, UW Civil & Environmental Engineering, UW Urban Design and Planning, UW Earth and Space Sciences, UW Civil & Environmental Engineering, UW Geological Sciences, UW Forest Resources, UW Geological Sciences, UW Civil Engineering, UW Civil Engineering, UW

5. Research Activities

5.1. Sponsored academic research (major awards only shown; total \$8,466,000 in 69 awards)

Agency	Title	Total Award	Role	Status	Start/End Dates
University of Califo	rnia Santa Barbara				
National Park Service	Revising Streambank Stability Metrics for the Tuolumne River Watershed	\$86,000	PI	Completed	9/22–12/24
National Park Service	Tuolumne River Geomorphic Assessment	\$145,500	PI	Completed	9/19–6/22
National Park Service	Yosemite Valley Merced River Restoration	\$850,035	PI	Completed	7/15–6/20
US Army Corps of Engineers	Conceptual Model for Urban Stream Systems	\$104,893	PI	Completed	10/12–9/14
University of Washi	ngton	-		_	
US Geological Survey, National Earthquake Hazards Program	The Quaternary Geologic Framework for the Greater Seattle Area	\$225,000	Lead PI	Completed	5/06–12/08
City of Seattle	Geology of the City of Seattle	\$55,000	PI	Completed	1/06–12/06
King County Department of Natural Resources	Groundwater Characterization, Issaquah and Bear Creek Valley Areas	\$108,564	Co-PI	Completed	6/05–3/07
National Science Foundation	Landscape Self- Organization by Ice Sheets	\$597,410	Co-PI	Completed	1/04–12/06
US Geological Survey, National Earthquake Hazards Program	The Quaternary Geologic Framework for the City of Seattle	\$75,000	Co-PI	Completed	1/05–12/05
City of Bainbridge Island	Geology of Bainbridge Island	\$76,000	PI	Completed	4/04–12/04
King County Department of Natural Resources	Groundwater characterization of Vashon-Maury Island	\$75,000	PI	Completed	4/04–12/04
King County	Geologic Database and Interpretations for Regional Wastewater Planning—Phase III	\$100,000	PI	Completed	1/04-12/04
US Geological Survey, National Earthquake Hazards Program	The Quaternary Geologic Framework for the City of Seattle	\$100,000	PI	Completed	1/04–12/04
Seattle Monorail Project	Geologic Support, Seattle Monorail Project	\$63,000	Pl	Completed	7/03–6/04

US Geological Survey, National Earthquake Hazards Program	The Quaternary Geologic Framework for the City of Seattle	\$125,000	PI	Completed	1/03–12/03
City of Seattle	High Point Flow and Water Quality Monitoring (Phase 1)	\$125,968	Co-PI	Completed	9/02–8/04
King County	Scientific Review Panel, Normative Flow	\$142,000	PI	Completed	1/02–12/04
King County	Geologic Database and Interpretations for Regional Wastewater Planning—Phase II	\$676,000	PI	Completed	8/01–12/03
USEPA, Puget Sound Water Quality Action Team	Alternative Futures Analysis for Watershed Protection	\$60,000	PI	Completed	5/01–6/04
US Geological Survey, National Earthquake Hazards Program	The Quaternary Geologic Framework for the City of Seattle	\$340,000	PI	Completed	1/01–12/02
US Environmental Protection Agency	Application of Remotely-Sensed Data to Regional Analysis and Assessment of Stream Temperature	\$998,395	Co-PI	Completed	4/00–3/03
National Science Foundation	The Impact of Urban Patterns on Ecosystem Dynamics	\$424,970	Co-PI	Completed	9/99–3/03
City of Seattle Public Utilities	Instream gravel management of Seattle's urban creeks	\$103,880	Lead Pl	Completed	6/00–6/02
King County	Geologic Database and Interpretations for Regional Wastewater Planning—Phase I	\$75,000	PI	Completed	5/01–12/01
City of Seattle	Geology of the City of Seattle	\$330,000	PI	Completed	8/99–12/03
City of Seattle	Evaluation of Ultra- Urban Stormwater Management Strategies	\$70,000	Co-PI	Completed	8/99–7/00
US Geological Survey, National Earthquake Hazards Program	The Quaternary Geologic Framework for the City of Seattle	\$140,000	PI	Completed	11/98–10/99
USEPA, Office of Water	Conducting watershed mgmt. training—the "Watershed Academy"	\$120,000	Lead Pl	Completed	4/98–9/00
King Co. Water and Land Resources Division	Stream Monitoring, Urban Planned Developments	\$390,000	PI	Completed	1/98–12/01

USEPA	Rehabilitation of Urban Streams	\$663,000	Co-PI	Completed	4/97–12/00
King Co. Water and Land Resources Division	Stormwater Management Facilities Evaluation	\$54,000	PI	Completed	9/96–8/98
King Co. Surface Water Manage- ment Division	King County Water- shed Support and Technical Assist.	\$225,000	PI	Completed	5/96–12/01

6. Teaching

6.1. Regular courses

Course Number/ID	Title	Year(s) taught	Credit hours	Enroll- ment
ESS 490/590C (U of WA)	Fluvial Geomorphology	2021	3	18
ESM 235 (UCSB)	Watershed Analysis	2014 (fall)	4	20
ESM 235 (UCSB)	Watershed Analysis	2014 (winter)	4	12
ESM 203 (UCSB)	Earth System Sciences	2013	4	72
ESS 426 (U of WA)	Fluvial Geomorphology	1985, 1989, 1991, 1997, 2001, 2002, 2006	7	16–22
GEOL 313 (U of WA)	Environmental Geology	1984–1995	4	40–96

6.2. Other teaching

Washington Department of Fish and Wildlife, 1-day short course on *Geomorphology of Rivers, Streams, and Watersheds*, sole instructor, May 23, 2013.

Washington Department of Fish and Wildlife, 2-day short course on *River and Stream Geomorphology*, sole instructor, June 29–30, 2011.

University of Washington, lead instructor, Certificate Program in Stream Restoration, Fall 2010 (http://www.pce.uw.edu/prog.aspx?id=4100).

Association of Engineering Geologists, 2-day short course, Engineering and Quaternary Geology of the Puget Lowland (Co-Instructor of 2), September 17–18, 2009.

American Fisheries Society, Western Division meeting, workshop on Stream Restoration: Integrating Practical Approaches, invited speaker, *Rehabilitation of urban streams—philosophy and approaches*, Portland, OR, May 8, 2008.

Stormcom Workshop and Exposition, regional conference, co-instructor for *Monitoring* and *Flow Control* tracks, SeaTac, WA, December 1, 2006.

The Center for Watershed Protection, *Watershed Protection Institute*, co-lead organizer and instructor, Bainbridge Island, WA, September 13–17, 2004.

- The Ohio State University, STREAMS Channel Protection and Restoration Conference, *Understanding and preventing urbanization impacts of stream health*, October 6, 2003.
- The Center for Watershed Protection, *Watershed Protection Institute*, invited guest instructor, Baltimore, MD, September 22-25, 2003.
- U.S. Environmental Protection Agency, short course on *Fluvial Geomorphology*, co-lead instructor, June 11–14, 2001, Seattle, WA.
- U.S. Environmental Protection Agency, The Watershed Academy: *Working at a Watershed Level*: Co-Lead Instructor, September 20–24, 1999, University of Washington campus.
- Co-Convener, Seattle Urban Geologic Hazards Workshop: sponsored by U.S. Geological Survey and Center for Urban Water Resources Management, University of Washington campus, February 23–25, 1999.
- U.S. Environmental Protection Agency, The Watershed Academy: *Working at a Watershed Level*: Co-Lead Instructor, September 21–25, 1998, University of Washington campus.
- <u>University of Washington—Center for Urban Horticulture, Continuing Education</u>:

 Managing for Slope Stability: Geology and Hydrology Review (1.5-hour lectures) Jan. '96, Mar. '98
- <u>University of Washington-Engineering Professional Programs (12-hour courses)</u>:

Engineering and Quaternary Geology of the Puget Lowland (Co-Instructor of 2), April '99, Sept. '00, May '03.

Alternative On-site Stormwater Management (Co-Instructor of 3), Sept. '97, Mar. '99. Geology and Geomorphology of Stream Channels (Lead Instructor), Mar. '96, Jan. '97, Nov. '98, Feb. '00, Sept. '01, Mar. '03, May '04.

Fundamentals of Urban Surface Water Management (Co-Instructor of 2), Sept. '95, Nov. '96, Jan. '98, Oct. '99, March '01, Sept. '02.

7. Community Service (2006–present)

7.1. Local and regional service

Member, Urban Stream Restoration Technical Advisory Committee (Southern California Coastal Watershed Research Program), 2025–present.

Member, Salmon Science Advisory Group (Puget Sound Partnership, WA), 2021–2024.

Member, Los Angeles River Instream Flow Technical Advisory Committee, 2018–2024.

Member, Cheadle Center for Biodiversity and Ecological Restoration Advisory Board, UC Santa Barbara, 2014–2024.

Member, North Campus Open Space Science Advisory Board, UC Santa Barbara, 2013–2024.

Member, Santa Barbara Botanic Garden Research and Education Advisory Committee, 2013–2024.

Invited panel member, Wildfire Prevention and Policy Lecture Series, UC Santa Barbara, May 11, 2023.

Member, expert review panel on restoration strategy for the Chehalis River watershed, Washington Department of Natural Resources, 2015.

Member, expert review panel, proposed City of Seattle response to combined sewer overflows under Consent Decree with US Environmental Protection Agency, 2013.

Member, expert review panel on ecological mitigation for the North Reach of the Willamette River, Portland, Oregon, 2010.

Member, expert review panel for the Independent Multidisciplinary Science Team for the State of Oregon, report on The Effects of Urban and Rural-Residential Land Use on Wild Salmonids, 2009.

Member, expert panel on "Impacts from urban growth—hydromodification design of new development," Santa Barbara County, Project Clean Water, 2009.

Member, expert panel to develop guidance protection of marine shorelines, Washington SeaGrant, University of Washington, Seattle, 2008.

7.2. National service

External review panel member, 2023 Gulf Coast Ecosystem Restoration Council awards

External review panel member, 2021 Delta Science Awards

Editorial Board, Watershed Science Bulletin, 2010-present

External panel member, Lake Tahoe peer review of Threshold Evaluation Report, 2016.

Editorial Board, Quaternary Science Reviews, 2015–2017

Member, Flood Control 2.0 National Science Advisory Team (San Francisco Bay area) (2015–2016)

Invited panelist, environmental benefits assessment for national regulations on surface water impacts from urban stormwater discharges, USEPA, Washington, DC, June 2010.

External review panel member, University of Maryland Baltimore County, graduate program in "Water in the Urban Environment" (2009).

National Research Council, National Academies, committee member, "Urban Stormwater Management in the United States" (2007–2009).

Geological Society of America, Annual Meeting General Chair (Seattle, WA, 2003)

8. Representative consulting projects (~160 total)

Rindge Dam Removal, Malibu Creek Ecosystem Restoration Project, CA (Client: California State Parks; 2023–2024): Dr. Booth is the lead geomorphologist on the project to evaluate and design the removal of Rindge Dam, a 102-foot-high concrete dam that creates a complete fish barrier on Malibu Creek in southern California. Critical issues include the management of 800,000 cubic yards of impounded sediment, the likely geomorphic consequences of its full or partial release into the downstream channel following dam removal, and the long-term post-removal natural sediment delivery from the watershed into the downstream channel.

Brown Mountain Dam Removal, Arroyo Seco, Los Angeles, CA (Client: Arroyo Seco Foundation; 2023–2024): Dr. Booth is the lead scientist on a preliminary feasibility study for the removal of Brown Mountain Dam, an 86-foot-high concrete dam that creates a complete fish barrier on the Arroyo Seco, a major tributary to the Los Angeles River in southern

California. Major issues are the preliminary evaluation of dam-removal alternatives, exploration of alternative management options for more than 1M cubic yards of impounded sediment, and characterization of the long-term sediment delivery through the channel into Devil's Gate Reservoir, at the mouth of the Arroyo Seco.

Salmon Science Advisory Group (Client: Puget Sound Salmon Recovery Council; 2021–2024): Dr. Booth is an invited member (and sole physical scientist) on the 8-member Salmon Science Advisory Group, created by the Puget Sound Science Panel to provide scientific support to the Puget Sound Salmon Recovery Council, which in turn oversees implementation of the Puget Sound Salmon Recovery Plan. The charge to this Advisory Group is to provide input on key science questions underpinning implementation and adaptive management of the Puget Sound Salmon Recovery Plan. The Advisory Group's work centers around interpreting and developing scientific recommendations that can facilitate more strategic, cost-effective implementation of the Puget Sound Salmon Recovery Plan.

North Fork Stillaguamish River Floodplain Restoration, Snohomish County, WA (Client: Stillaguamish Tribe; 2022–2023): Dr. Booth is the Lead Geomorphologist providing guidance to the engineering design on two 500+ acre sites along the North Fork Stillaguamish River involving levee setbacks, bank-armor removal, and constructed side channels. Dr. Booth evaluated typical rates of channel migration, dominant channel planform based on both empirical evidence and analytical frameworks, and projected channel evolution following project implementation for a variety of alternative designs.

Geomorphic Evaluation of Large-Scale River Restoration Projects (Client: King County Surface Water Management; 2022): Dr. Booth was the lead geomorphologist on this project, intended to determine the effects of large-scale levee setback projects on channel form and sediment distribution and storage. The work evaluated six separate projects on three of western Washington's largest rives (Green, Cedar, and Snoqualmie) having up to ten years of pre- and post-project monitoring data. The work required manipulating large data sets, geomorphic analysis, review of engineering designs and as-built plans, and a final documentation of findings and uncertainties.

Third Party Review of the "Los Angeles River Environmental Flows Project" (Client: Mountains Recreation Conservation Authority (MRCA]; 2021): Dr. Booth served as Project Manager and lead author, providing management and technical leadership of an independent evaluation of the recent Southern CA Coastal Water Research Project (SCCWRP) reports on behalf of the State Water Board-funded Los Angeles River "Flows Project." The review evaluated the relevance of the reports' analyses for supporting recreation, public access, and conservation of native species and habitat throughout the Los Angeles River, as expressed by the local conservancies' vision for the River and its tributaries and watershed. The intent of this review was to strengthen and augment the clear utility of the Flows Project's analyses and findings to future restoration programs and projects, to better define the limits of the reports' applicability, and to highlight the continued importance of recreational beneficial uses and public access that are dependent on LA River flows in perpetuity.

Lower Skykomish River Geomorphic Assessment, Snohomish County, Washington (Client: Snohomish County Public Works; 2020–2021): Dr. Booth was the geomorphology lead for this 2-year project to fully analyze geomorphic conditions and hazards along the lower 23 miles of the Skykomish River in support future planning efforts and infrastructure projects through Washington State's "Floodplains by Design" program. He has completed a Level-5 Channel Migration Zone study, conducted extensive field data collection and observations, and prepared the geomorphic foundation for specific recommendations to improve ecological health, maintain human safety, and support the Skykomish Valley's farming community. Work included analyses of sediment supply, transport, and deposition; assessment of water and

sediment budgets from watershed perspective; channel migration analysis, floodplain history and evolution; and alternatives evaluation of at-risk capital infrastructure and potential habitatenhancement efforts.

Lones Levee Setback and Floodplain Restoration Design - King County, Washington (Client: King County; 2018-2021): This project restored over 80 acres of dynamic river and floodplain habitat in the Middle Green River by removing Lones levee, constructed in 1960. The levee limited channel migration, disconnected valuable off-channel habitat from the river, and prevented the formation of complex habitat features, thereby reducing habitat quality and availability in this important reach for Chinook salmon rearing. Design elements include levee removal, design of a habitat-friendly flood control facility, pilot channels, tree harvest and salvage, rock revetment, and in-channel and floodplain large woody debris structures. Dr. Booth completed a wide range of geomorphic analyses to evaluate the geomorphic response of the Green River to levee removal. These analyses included detailing the channel migration history and rates, hydraulic assessment, and interpretation of data and development of multiple reports to document findings. He also applied the geomorphic investigations to predict the likely future channel responses and associated risks for a variety of alternatives, including no action.

Lower Quilcene River Restoration – Clallam County, Washington (Client: Clallam County; 2018-2019): Dr. Booth was the lead geomorphologist for a engineering project to reconnect the Quilcene River below the USFWS hatchery with its now-abandoned floodplain and reestablish a regionally appropriate channel planform and magnitude of wood loading. The analysis relied heavily on the conditions observed along the lower Duckabush River, which provides a good analog for the Quilcene River given its proximity, watershed size, and channel dimensions. Challenges addressed in this work include the pervasive loss of wood throughout the lower channel, the reduction in upstream sediment supply engendered by the fish hatchery diversion dam, and the ensuing incision of the channel that severely impaired channel–floodplain interaction.

Lower Dungeness River Levee Setback – Clallam County, Washington (Client: Clallam County; 2017-2022): Dr. Booth was the lead geomorphologist on a levee setback design project to reconnect 4,800 feet of the Lower Dungeness River channel with 112 acres of floodplain on WDFW, WSDOT and Clallam County properties. Several conceptual-level alternatives were developed with the understanding that the natural channel pattern of the Dungeness River in the project reach is an anabranching form that utilizes multiple channel threads as a system adjustment to maximize flow efficiency and sediment transport, thus maintaining a balance between sediment supply and transport capacity in conditions where a single thread channel may prove unstable. Dr. Booth led the integration of geomorphic principles and findings with the process of alternatives selection, and subsequently evaluated the potential for avulsion of the selected alternative.

San Luis Obispo County Stormwater Resource Plan, San Luis Obispo County, CA (Client: County of San Luis Obispo; 2018–2019): Dr. Booth was the Project Manager and Technical Lead for preparation of the San Luis Obispo County Stormwater Resource Plan (SWRP), designed to meet the State Water Board's requirements for plans within the logistical and financial constraints of a mid-sized county. The goals were to achieve multiple benefits for protecting health and safety, for avoiding the potential impacts of urban runoff on receiving waters, and for and for promoting conservation of water resources for human and ecological benefits through innovative efforts involving stormwater capture and groundwater recharge. We achieved these goals by identifying existing water-quality and flooding problems arising from urban runoff, identifying key aquatic resources meriting high levels of protection or restoration, determining feasible areas for stormwater infiltration and groundwater recharge, and determining and prioritizing management actions (both capital projects and other non-

capital actions) to address identified problems of existing and likely future degradation. The plan was adopted by the County and reached concurrence by the State Water Resources Control Board on February 25, 2020.

San Luis Obispo Creek Watershed Stormwater Resource Plan, San Luis Obispo County, CA (Client: City of San Luis Obispo Natural Resources; 2015–2019): Dr. Booth was the Project Manager and Technical Lead for preparation of the San Luis Obispo Creek Watershed Stormwater Resource Plan (SRP), designed to meet the State Water Board's requirements for plans within the logistical and financial constraints of a small city. The plan was adopted without modification by the City Council in July 2017 and subsequently cuncurred by the State Water Board.

Piru Creek Stormwater Capture, Ventura County, CA (Client: Ventura County Watershed Protection District; 2016–2018): Dr. Booth evaluated the potential fish-passage impacts of proposed stormwater-infiltration projects on two tributaries to the Santa Clara River, a critical steelhead-bearing river in southern California, on behalf of Ventura County Watershed Protection District. The historical frequency and duration of fish-passable flow events were characterized from existing gage records; the effects of future runoff capture and infiltration on these passage parameters were determined through a combination of continuous hydrologic modeling and historical gage and rainfall records. The results demonstrated negligible consequences while achieving significant benefits for water quality and groundwater recharge, outcomes that were embraced by both the sponsoring agency and originally skeptical stakeholders.

Santa Ynez River Debris Removal Assessment, San Luis Obispo County, CA (Client: City of Paso Robles; 2015–2017): Dr. Booth conducted a geomorphic evaluation of the potential benefits and impacts of debris removal along the Santa Ynez River through the city of Paso Robles, in the Central Coast of California. Field observations, historical records, and hydraulic modeling were integrated to demonstrate the likelihood that even extensive removal of riparian vegetation would achieve little improvement in flood conveyance while causing significant environmental impacts and incurring substantial (and unnecessary) municipal cost.

Boulder River Channel Migration, Snohomish County, WA (Client: Seattle Public Utilities; 2016–2017): Dr. Booth conducted a comprehensive evaluation of past and projected future patterns of channel migration along the Boulder River, a major tributary to the Stillaguamish River in northwest Washington state that threatened the stability of a major electrical transmission line tower. Analysis specified a zone for tower relocation that protected critical infrastructure, avoided irrevocable environmental impacts to riverine processes, and minimized costs to Seattle Public Utilities.

Integrated Monitoring Plan, Southwestern Washington State (Client: Washington Department of Ecology; 2014-2016): Dr. Booth was the technical lead on developing water-quality and flow-monitoring strategies and procedures to address the monitoring needs of the entire Lower Columbia Region of Washington state. This effort was a component of a collaborative effort to integrate upcoming NPDES municipal stormwater permit monitoring requirements with evaluation and guidance for regional salmon recovery, and involved partners from Washington and Oregon state agencies, the National Oceanic and Atmospheric Administration, the Cowlitz Tribe, the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), and the nine cities and counties of southwest Washington affected by the upcoming monitoring requirements. Dr. Booth used preexisting data to identify and test feasible and statistically robust stormwater monitoring parameters, particularly hydrologic metrics suitable for local government implementation. Together with colleague Chris Konrad of the US Geological Survey, this work is being published in the peer-reviewed journal Hydrological Processes.

Lower Pilchuck River Assessment, Snohomish County, WA (Client: Snohomish County Surface Water Management; 2016–2018): Dr. Booth integrated the work of agency and consultant staff members to prepare the Lower Pilchuck River Assessment (Snohomish County, Washington), an assessment of riverine and watershed conditions of this lowland, and in part tidally influenced, tributary to the Snohomish River. It is located in an area of expanding urban development that also provides key Chinook salmon habitat for this endangered species. Data and analyses included field traverses of the river to make critical observations and collect basic geomorphic and fisheries data; integration of historical records of salmon spawning activity; interpretation of historical airphotos and LiDAR-based topographic analyses; and participation in several half-day in-person workshops with County staff to discuss and review approaches, interpretations, and interim products.

Matilija Dam Removal alternatives, Ventura County, CA (Client: Ventura County Watershed Protection District; 2011–2015):Dr. Booth was the geomorphology and hydrology lead and subcontract manager on a 15-month project to fully analyze and recommend alternatives for the removal of Matilija Dam on a major tributary of the Ventura River, southern California, a coastal steelhead-bearing stream that has been completely blocked for anadromous fish passage for more than 50 years. His tasks are to analyze the hydrologic regime to identify opportunities and pitfalls for natural transport of the ~8M yd3 of sediment presently stored behind the dam, to predict the likely future sediment yield of the watershed in a dam-free future, and to evaluate potential downstream effects of dam removal on channel geomorphology and a public water-supply intake. This work was published in the peer-reviewed International Journal of River Basin Management in 2016.

Santa Maria River Fish Passage Analysis, San Luis Obispo County, CA (Client: California Ocean Protection Council; 2010–2012): Dr. Booth was the Senior Scientist and Project Director for a two-year instream flow study of highly intermittent Santa Maria River in south-central California, whose flow is partly influenced by a regulated major tributary but which also provides an unimpeded migration corridor for the ESA-listed Southern California Coast Steelhead trout. The goal of the study was to identify the frequency, duration, and magnitude of surface flows in the mainstem Santa Maria River and to determine flows needed for steelhead to migrate between the Pacific Ocean and habitat in the upper watershed. The study resulted in flow recommendations that more closely support the historical timing, frequency and duration of migration opportunities for anadromous steelhead, and that minimized long-term impacts to existing water users in the basin. This work was published in the peer-reviewed journal Ecohydrology in 2014.

Methow River Reach Assessment, Okanogan County, WA (Client: Methow River Cooperative; 2013–2015): Dr. Booth was the Lead Geomorphologist on a project to document and assess reach-scale features and key fluvial and watershed processes throughout the 13-mile Twisp-to-Carlton reach of the Methow River (Columbia Basin, Washington state) in order to identify and prioritize suitable habitat recovery actions that address known ecological concerns. Tasks included the identification of floodplain surfaces that are regularly or infrequently activated, and those that are inactive by virtue of either elevation or blocking human infrastructure. Recognition of the critical habitat-forming processes, using airphotos, LiDAR topographic analysis, and field reconnaissance, provided the basis for identifying prospective project sites and determining effective project types, primarily floodplain reconnection and structures promoting instream diversity to address limiting factors for salmonids and be self-sustaining within the process dynamics of the river corridor.

Dr. Booth was both Project Manager and Lead Scientist on a field-based assessment of spawning gravel quality in the Middle Green River, western Washington, which evaluated the degree of fine-sediment intrusion along a 32-mile reach that has been long-recognized for its critical spawning habitat for several species of salmonids. This goal was achieved by a 5-week

field campaign of sampling the subsurface sediment at more than 50 locations of past salmon spawning throughout this reach to determine the grain-size distribution of the channel-bed sediment. A variety of additional sites were evaluated in other parts of the Green River system and in the adjacent Cedar River to provide a broader context for the results, and to assess the potential biases associated with the range of sample-collection and analytical techniques employed by this and prior studies of the river. Field data were integrated with the known distribution of spawning habitat and the scientific literature on fine-sediment impacts to evaluate the severity of potential or actual consequences on salmonid production.

Additional Career Highlights:

The Washington Department of Fish and Wildlife updated its 1997 document Riparian Management Recommendations for Washington's Priority Habitats, and they contracted with Dr. Booth to document the scientific basis and rationale for riparian management recommendations by applying a watershed perspective. His contribution, reviewed at the Washington Academy of Sciences and now published as Chapter 8 in Riparian Ecosystems, Volume 1: Science synthesis and management implications, explores the relationship and the importance of watershed-scale activities to the goal of achieving beneficial effects for fish and wildlife through riparian management. This reflects a growing scientific recognition that a broadened perspective of watershed-scale influences on aquatic ecosystems will ultimately improve the beneficial effects of protective measures being taken at all scales.

- Dr. Booth was co-lead of the first independent review of the collective contribution and progress of Washington State's Cooperative Monitoring, Evaluation, and Research Committee (CMER) research and monitoring studies. Although substantial investments had been made in defining and implementing a science-based program to inform the adaptive management system, as required by the Forest Practice rules, the net effectiveness of these collective efforts had never been evaluated. Nearly 70 active and completed study plans and completed study reports were reviewed, on topics such as stream typing, riparian prescriptions, unstable slopes, fish passage, amphibians and amphibian habitats, and wetland protection to determine how and to what degree individual studies meet stated objectives. This review and synthesis was performed in order to provide a more complete understanding of study objectives and the progress of individual study themes, as well as to identify significant gaps in both the conceptual framework and its implementation to date. Recommendations emphasized support for data collection explicitly linked to key processes and conditions, and the importance of refining the critical questions outlined in CMER's Work Plan based on information about key ecological processes and indicators.
- Dr. Booth was one of three primary authors of the regional plan for monitoring and adaptive management of stormwater runoff for the Puget Sound region, commissioned by the Washington State Department of Ecology and incorporated into the regional restoration strategy of the Puget Sound Partnership for implementation in 2013.
- Dr. Booth has been invited to serve on a wide range of regional and national expert panels. In the Pacific Northwest, he was a member of the expert review panel for the Independent Multidisciplinary Science Team for the State of Oregon's report on The Effects of Urban and Rural-Residential Land Use on Wild Salmonids (2009), the City of Portland's North Reach Science Panel to support their conservation plan for endangered aquatic species and redevelopment along the north Willamette River (2011). He also served on an expert panel on behalf of King County to evaluate the flooding risk to western Washington's industrial corridor posed by the curtailed operations of the USACE's Howard Hanson Dam on the Green River (2010), for the Washington State Department of Ecology for review of their GIS-based watershed assessment and management tool (2010), for the Washington Department of Fish and Wildlife's evaluation of marine riparian buffers for Puget Sound, and for Seattle Public

- Utilities to assist in their efforts to satisfy a USEPA consent decree by using neighborhood-scale stormwater infrastructure to compensate for ongoing combined sewer overflows (2014).
- Dr. Booth was one of fourteen national stormwater experts selected to constitute the technical committee and ultimately coauthor the National Research Council's review of the National Pollutant Discharge Elimination System (NPDES) program, "Urban Stormwater Management in the United States" (National Academies Press, 2009). This report evaluated the current regulatory framework for stormwater, finding serious deficiencies and calling for an entirely new permitting structure that would give municipal regulators the authority and accountability for stormwater discharges. The study recommends a number of additional actions, including conserving natural areas, limiting the areas covered by hard surfaces (e.g., roads and parking lots), and retrofitting urban areas with features that can hold and treat stormwater.
- Dr. Booth was invited to serve on the national science advisory panel for implementation of a joint federal and local program, Flood Control 2.0. More than two years in the making, this multi-partner effort, funded by a \$2.5M grant from USEPA, focused on restoring stream and wetland habitats and improving shoreline resilience. Led by the San Francisco Estuary Partnership, a 20-year-old coalition of public agencies and non-profits, Flood Control 2.0 also aims to redesign and fortify the flood channels that carry storm water from creeks and streams into the bay for better water flow and ecological use.
- Dr. Booth was one of 12 national experts invited in 2016 to review the quadrennial Lake Tahoe Threshold Evaluation Report, developed by the Tahoe Regional Planning Agency to evaluate the current physical and ecological condition of Lake Tahoe, and to establish priorities for ongoing and future management.
- Dr. Booth has been both a Technical Advisor and direct contractor to the Southern California Coastal Water Research Project on their research into hydromodification across Southern California. This work builds on his 20+ years of study on long-term changes in channel morphology across urban and urbanizing parts of western Washington, providing a predictive framework for identifying erosion-susceptible streams that has been subsequently applied to inform land-development and channel-enhancement activities.
- Dr. Booth has established, maintained, and analyzed data on long-term changes in channel morphology for more than two decades across urban and urbanizing parts of western Washington, providing a predictive framework for identifying erosion-susceptible streams that has been subsequently applied to inform land-development and channel-enhancement activities.
- Dr. Booth has been the lead instructor for a wide range of both academic and professional education courses (18 total) for fluvial geomorphology, urban stormwater, and Pacific Northwest regional geology. He led the development of a graduate-level curriculum in river restoration for University of Washington, and he maintains participation on a National Science Foundation-funded multidisciplinary expert panel developing national improvements in river restoration training through the National Center for Earth-surface Dynamics. He was also the lead instructor for the University of Washington's certificate program in Stream Restoration that began in 2010.