

Curriculum Vita

J. Wesley Lauer

EDUCATION

Walla Walla College	Civil Engineering	B.S.E., 1996
University of California, Berkeley	Civil Engineering	M. Eng., 1998
University of Minnesota	Civil Engineering	Ph.D., 2006

APPOINTMENTS

Director, Environmental Science Program, Seattle University,
7/2014-present
Associate Professor, Dept. of Civil and Environmental Engineering, Seattle University,
9/2006-present
Affiliated Faculty, Dept. of Oceanography, University of Washington
8/2009-present
Associate Geomorphologist, Herrera Environmental Consultants, Seattle, Washington
5/2012-present
Graduate Research Assistant, Saint Anthony Falls Laboratory, University of Minnesota,
9/2002–8/2006
Graduate Teaching Assistant, Dept. of Civil Engineering, University of Minnesota,
9/2005-12/2005
Civil Engineer/Hydrologist, Questa Engineering Corporation, Richmond, California,
6/1998-8/2002
Graduate Student Researcher, Department of Geology and Geophysics, University of
California, Berkeley, 1997–98
Technician, Environmental Systems Research Institute, Redlands, California, 6/1995–
9/1995; 6/1996–8/1996

PROFESSIONAL REGISTRATION

Professional Civil Engineer—Washington (2008), 44893; California (2001), C62512

TEACHING EXPERIENCE

Seattle University, Seattle, WA

CEEGR 331, Fluid Mechanics (Fall 2006-2014, Winter 2007-2008)
CEEGR 335, Engineering Hydraulics (Winter 2007-2014)
CEEGR 337, Fluid Mechanics Lab (Spring 2008, Fall and Winter 2008-2014)
CEEGR/ENSC 371, Water Resources I (Spring 2007-2014)
CEEGR 4720, Water Resources II (Fall 2007-2014)
ENSC 4870, Senior Synthesis (Fall 2014)

University of Minnesota, Minneapolis, MN

Teaching Assistant, CE 4501, Hydrologic Design (Fall 2005)

SCHOLARSHIP

Publications

- Lauer, J.W.**, E. Viparelli, H. Piégay, (in review). Morphodynamics and Sediment Tracers in 1-D (MAST-1D): 1-D sediment transport that includes exchange with an off-channel sediment reservoir. *Advances in Water Resources*.
- Gnanapragasam, G., **J.W. Lauer**, J.P. Smith-Pardo, M. Marsolek, N. Canney, (in review). International civil engineering capstone projects - benefits, challenges and lessons learned. *International Journal of Engineering Education*.
- Schottler, S.P., J. Ulrich, P. Belmont, R. Moore, **J.W. Lauer**, D. R. Engstrom, J.E. Almendigner, (2014). Twentieth century agricultural drainage creates more erosive rivers. *Hydrological Processes* 28: 1951-1961.
- Viparelli, E., **J.W. Lauer**, P. Belmont, and G. Parker, (2013). "A numerical model to develop long-term sediment budgets using isotopic sediment fingerprints." *Computers and Geosciences* 53: 114-122.
- Piégay, H., A. Alber, **J. W. Lauer**, A. Rollet, E. Wiederkehr, (2012). "Bio-physical characterization of fluvial corridors at reach to network scales." In: Carbonneau, P., and H. Piégay, eds. *Remote Sensing of Rivers: Management and Actions*, Wiley, Chichester.
- Lauer, J.W.**, (2012). "The importance of off-channel sediment storage in 1-D morphodynamic modeling." In: Church, M., P. Biron, and A. Roy, eds., *Gravel Bed Rivers: Processes, Tools, Environments*, Wiley, Chichester.
- Belmont, P., K.B. Gran, S.P. Schottler, P.R. Wilcock, S.S. Day, C. Jennings, **J.W. Lauer**, E. Viparelli, J.K. Willenbring, D.R. Engstrom, and G. Parker, (2011). "Large shift in source of fine sediment in the Upper Mississippi River." *Environmental Science and Technology* 45, 8804-8810.
- Gran, K., P. Belmont, S.S. Day, N. Finnegan, C. Jennings, **J.W. Lauer**, and P. Wilcock, (2011). "Landscape evolution in South-Central Minnesota and the role of geomorphic history on modern erosional processes." *GSA Today* 21, 7-9.
- Parker, G., Y. Shimizu, G.V. Wilkerson, E.C. Eke., J.D. Abad, **J.W. Lauer**, C. Paola, W.E. Dietrich, and V.R. Voller, (2011). "A new framework for modeling the migration of meandering rivers." *Earth Surface Processes and Landforms* 36, 70-86.
- Lauer, J.W.**, and J. Willenbring, (2010). "Steady-state reach-scale theory for radioactive tracer concentration in a simple channel/floodplain system." *Journal of Geophysical Research* 115: F04018
- Lauer, J.W.**, G. Parker, and W. Dietrich, (2008). "Response of the Strickland and Fly River confluence to postglacial sea level rise." *Journal of Geophysical Research* 113(1), F01S06, doi:10.1029/2006JF000626.
- Lauer, J.W.**, and G. Parker, (2008). "Modeling framework for sediment deposition, storage, and evacuation in the floodplain of a meandering river, part I: theory." *Water Resources Research* 44(4), W04425, doi:10.1029/2006WR005528.
- Lauer, J.W.**, and G. Parker, (2008). "Modeling framework for sediment deposition, storage, and evacuation in the floodplain of a meandering river, part II: application to

- the Clark Fork River, Montana.” *Water Resources Research* 44(8), W08404, doi:10.1029/2006WR005529.
- Aalto, R., **J.W. Lauer**, and W. Deitrich, (2008). “Spatial and temporal dynamics of sediment accumulation and exchange along Strickland River floodplains (PNG), over decadal-to-centennial time scales” *Journal of Geophysical Research* 113(1), F01S04, doi:10.1029/2006JF000627.
- Swanson, K.M., E. Watson, W. E. Dietrich, S. Apte, **J.W. Lauer**, R. Aalto, M. Bera, A. Marshall, and M. Taylor, (2008). “Decadal sedimentation rates on the floodplain of the Strickland River, Papua New Guinea.” *Journal of Geophysical Research* 113(1), F01S03, doi: 10.1029/2006JF000623.
- Parker, G., T. Muto, Y. Akamatsu, W.E. Dietrich, and **J.W. Lauer**, (2008), “Unraveling the conundrum of river response to rising sea level from laboratory to field. Part I. Laboratory experiments.” *Sedimentology* 55(6), 1643-1655.
- Parker, G., T. Muto, Y. Akamatsu, W.E. Dietrich, and **J.W. Lauer**, (2008), “Unraveling the conundrum of river response to rising sea level from laboratory to field. Part II. The Fly-Strickland River System, Papua New Guinea.” *Sedimentology* 55(6), 1657-1686.
- Lauer, J.W.** and G. Parker, (2008). “Net local removal of floodplain sediment by river meander migration.” *Geomorphology* 96(1-2), 123-149.

Published Conference Proceedings

- Lauer, J.W.**, C. Li, E. Viparelli, and H Piégay, 2014. “MAST-1D: A Size-Specific Sediment Transport and Tracer Model with Off-Channel Storage” ASCE World Water and Environmental Resources Congress, Portland, Oregon June 1-5.
- Lauer, J.W.** and G. Parker, 2005. “Response of a Simple Channel Network to Post-Glacial Sea Level Rise.” Proceedings of the River, Coastal, and Estuarine Morphodynamics Conference, Urbana, IL. October 4-7.
- Lauer, J.W.** and G. Parker, 2005. “Net Transfer of Sediment from Floodplain to Channel on Three Southern US Rivers.” ASCE World Water and Environmental Resources Congress, Anchorage, Alaska. May 15-19.
- Lauer, J.W.** and G. Parker, 2004. “Modeling Channel-Floodplain Co - evolution in Sand-Bed Streams.” ASCE World Water and Environmental Resources Congress, Salt Lake City, June 28- July 1.

Presentations and Seminars (Students supervised in italics)

- Lauer, J.W., *Polka, J.*, (2014). Floodplain sedimentation in vegetated areas of the Elwha River floodplain, 2012-2014. Abstract EP33A-3599 presented at 2014 Fall meeting, AGU, San Francisco, Calif., 15-19 Dec.
- Lauer, J.W.**, E. Viparelli, and H Piégay (2014). A 1-D size specific numerical model for gravel transport that includes sediment exchange with a floodplain. Presented at European Geophysical Union, Vienna, Austria, 27 Apr-2 May.
- Lauer, J.W.** (2013). Numerical model for channel/floodplain exchange on a gravel bed river: relative importance of upstream and downstream boundaries and of lateral

- exchange (Invited), Abstract EP41D-01 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Lauer, J.W.** (2013). 1-D modeling framework for routing sediment and tracer/contaminant material through long reaches of river systems. Presented at the National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA), Lyon- Villeurbanne, France, 20 Mar.
- Lauer, J.W.** (2013). A Numerical Model for Sediment Tracer Movement through an Actively Evolving River-Floodplain System. Presented at Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE), Aix-Marseille Université, Aix, France, 24 May.
- Lauer, J.W.** (2013). Representing off-channel sediment storage and tracer movement in 1-D: A model for an actively evolving river-floodplain system. Presented at the National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA), Grenoble, France, 22 May.
- Lauer, J.W.** (2013). Representing off-channel sediment storage and tracer movement in 1-D: A model for an actively evolving river-floodplain system. Presented at École Normale Supérieure, Lyon, France, 28 Jun.
- Chan-Hilton, A., R.M. Neupauer, S.J Burian, **J.W. Lauer**, P.P. Mathisen, D.C. Mays, M.S. Olson, C.A. Pomeroy, B.L. Ruddell, A. Sciortino, (2012). H₂O!/: Classroom demonstrations and activities for improving student learning of water concepts. Abstract ED11C-0743 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 2-7 Dec.
- Lauer, J.W.**, C. Echterling, M. Majerova, P. Wilcock, (2012) Geomorphic analysis supporting restoration of the Walker River, Nevada. Abstract EP12A-0823 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 2-7 Dec.
- Beggs, M., M. Kosaka, A. Sigel, R. Vandermause, **J.W. Lauer**. (2012). Sedimentation impacts modeling for the lower Elwha River. Abstract EP13E-0893 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 2-7 Dec.
- Majerova, M., P. Wilcock, **J.W. Lauer**. (2012) Reach-averaged sediment transport model for the Walker River, Nevada. Abstract EP31A-0791 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 2-7 Dec.
- Lauer, J.W.**, C. Echterling, M. Majerova, P. Wilcock, (2012) Geomorphic and sediment transport analysis supporting restoration of the Walker River, Nevada. Presented at 12th Annual Stream Restoration Symposium, River Restoration Northwest, Skamania, WA, 5-7 Feb.
- Beggs, M., M. Kosaka, A. Sigel, R. Vandermause, **J.W. Lauer**. (2012). Lower Elwha River sedimentation impacts modeling project. Presented at Elwha Science Symposium, Port Angeles, WA, 22 Aug.
- Lauer, J.W.**, E. Viparelli, P. Belmont, and G. Parker, 2011, "A numerical model for sediment tracer movement through an actively evolving river-floodplain system." ASCE World Water and Environmental Resources Congress, Palm Springs, May 22-26.
- Lauer, J.W.**, 2011, "Floodplain channels along the Strickland and Lower Fly Rivers, Papua New Guinea: Observations and research questions." Marine Geology and Geophysics Seminar, University of Washington, Seattle, February 28.
- Echterling, C., J. Conway, J. Graves., and **J.W. Lauer**, 2010, "Air-photograph based estimates of channel widening within the Minnesota River basin" Abstract

- AP41B-0707 presented at 2010 Fall Meeting, AGU, San Francisco, CA December 13-17.
- Aalto, R.E., M. Grenfell., and **J.W. Lauer**, 2010, “Imaging beneath the skin of large tropical rivers: Clay controls on system morphodynamics revealed by novel CHIRP sub-surface sonar and deep coring along the Fly and Strickland Rivers, Papua New Guinea” (*Invited*), Abstract EP24B-04 presented at 2010 Fall Meeting, AGU, San Francisco, CA December 13-17.
- Lauer, J.W.**, 2010, “The importance of off-channel sediment storage in 1-D morphodynamic modeling.” Gravel Bed Rivers VII, Tadoussac, Quebec, Canada September 6-10.
- Lauer, J.W.**, 2010, “Holocene evolution and sediment aging, Fly and Strickland Rivers, Papua New Guinea” University of Papua New Guinea, Port Moresby, August 5.
- Lauer, J.W.**, 2009, “River elongation as a proxy for lateral channel activity” *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract H54A-04.
- Belmont, P., E. Viparelli, **Lauer, J.W.**, and G. Parker, 2009, “A morphodynamic routing model of the Maple River, Minnesota” (*Invited*), *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract EP32A-02.
- Lauer, J.W.**, 2009, “The role of streambanks in floodplain sediment budgets” (*Invited*) Geological Society of America Annual Meeting, Portland, OR, October 18-21.
- Belmont, P., E. Viparelli, **J.W. Lauer**, and S. Day, 2009, “Channel-floodplain sediment exchange in a meandering and actively incising river” Geological Society of America Annual Meeting, Portland, OR, October 18-21.
- Jennings, C.E., P. Belmont, D. Blumentrit, S. Day, D. Engstrong, K. Gran, A. Johnson, **J.W. Lauer**, G. Parker, S. Schottler, E. Viparelli, E., and P. Wilcock, 2009, “Mapping to inform modeling of turbidity in agricultural watersheds of the Minnesota basin” Geological Society of America Annual Meeting, Portland, OR, October 18-21.
- Graves, J., M. Tiedemann, M.*, and **J.W. Lauer**, 2009, “A remote sensing method for determining bankfull discharge” Geological Society of America Annual Meeting, Portland, OR, October 18-21.
- Lauer, J.W.**, 2009, “What is the risk of rapid sea level rise over the next several hundred years, and what are the implications?” Big Questions Faculty Lecture Series, Seattle University, May 28
- Lauer, J.W.**, 2009, “Holocene morphodynamic evolution and sediment aging in the Fly River System, Papua New Guinea” Marine Geology and Geophysics Seminar, University of Washington, Seattle, May 11.
- Lauer, J.W.**, and *I. Tromble*, 2009, “Holocene morphodynamic evolution and sediment aging in the Fly River System, Papua New Guinea” Canadian Quaternary Association 2009 Meeting, Burnaby, British Columbia, May 3-8.
- Lauer, J.W.**, 2009, “Modeled long-term response of the Clark Fork River floodplain to mine-related sediment loading” (*Invited*), Geosciences seminar series, University of Montana, Missoula, April 13.
- Lauer, J.W.**, 2009, “Base level controls on sediment production and dispersal: Can sea level change explain the Fly/Strickland floodplain?” Integration and Synthesis of MARGINS Sediment Source-to-Sink Research, Gisborne, New Zealand, Apr 5-9.

- Lauer, J.W.**, and J. Willenbring, 2008, "Theory for the Movement of a Decaying Tracer Through an Alluvial Floodplain" *Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H51J-01.
- Tromble, I.*, and **J.W. Lauer**, 2008, "Synthetic Age Distributions for Floodplain Deposits" *Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H53B-1039.
- Belmont, P., E. Viparelli, G. Parker, **W. Lauer, W.**, C. Jennings, K. Gran, P. Wilcock, and A. Melesse, "Parameterization of a complex landscape for a sediment routing model of the Le Sueur River, southern Minnesota" *Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H33K-02.
- Lauer, J.W.**, 2008, "Modeling net downstream imbalances in fine sediment along meandering rivers," (*Invited*), Fine Sediment and the Chesapeake Bay Watershed, Linthicum Heights, MD, September 16-17.
- Lauer, J.W.**, 2008, "Net local removal of floodplain sediment by river meander migration" École normale supérieure, Lettres et sciences humaines, Lyon, France, September 2.
- Lauer, J.W.**, M. Wong, O. Mohseni, and M. Deutschman, 2007. "Sediment Production Model for the South Branch of the Buffalo River, Minnesota" 50th Ann. IAGLR Conference on Great Lakes Research, University Park, PA, May 28-June 1.
- Lauer, J.W.**, G. Parker, and W.E. Dietrich, 2006. "Modeled Response of the Low-Gradient Portions of the Fly and Strickland Rivers to Post-Glacial Sea-Level Rise". *EOS Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H13I-05.
- Parker, G., T. Muto, Y. Akamatsu, W. Dietrich, and **J.W. Lauer**, 2005. "River Response to Post-Glacial Sea Level Rise: The Fly-Strickland River System, Papua New Guinea" *EOS Trans. AGU*, 86(18), Jt. Assem. Suppl., Abstract H24A-01.
- Lauer, J.W.**, 2005. "Hydrologic and Geomorphic Controls on the Downstream Transport of a Wave of Fine Sediment, Clark Fork River, Montana." *EOS Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H52A-04.
- Lauer, J.W.**, and G. Parker, 2005. "A Simple Model for the Interaction of Contaminated Sediment with River Floodplains." Floodplains and Rivers: Connections and Re-Connections. Missoula, Montana. September 22-23.
- Lauer, J.W.**, and G. Parker, 2005. "Minimizing the Error Associated With Measurements of Migration-Related Sediment Exchange on Meandering Rivers." *EOS Trans. AGU*, 86(18), Jt. Assem. Suppl., Abstract H24A-03.
- Lauer, J.W.**, and G. Parker, 2004. "Estimating Net Bank Erosion Rates from the Floodplains of Meandering Rivers." *EOS Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract H42B-06.
- Apte, S.C., W.E. Dietrich, G.M. Day, C. Reibe, R. Aalto, J. Sanders, and **W. Lauer**, 2003. "Mapping the Extent and Rate of Overbank Deposition Using Mine-Derived Sediment Tracers Along the Strickland River, Papua New Guinea." *EOS Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract OS12A-0193.
- Lauer, J.W.**, and G. Parker, 2003. "Morphodynamic Modeling of the Co-evolution of Channel and Floodplain on Large, Sand-bed Rivers." *EOS Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract OS11A-02.
- Temple, S. and **J.W. Lauer**, 2001. "Floodplain Management Plan for San Luis Obispo, California." California Floodplain Management Association Fall Conference. South Lake Tahoe, Nevada. September 23-26.

SERVICE ACTIVITIES

Reviewer: *Advances in Water Resources, Aquatic Sciences, Ecological Applications, Sedimentology, Geomorphology, Earth Surface Processes and Landforms, Journal of Geophysical Research, Journal of Hydrology, Journal of Environmental Management, Science of the Total Environment, Water Resources Research, U.S. Geological Survey, National Science Foundation*

Faculty mentor, Engineers Without Borders. Supervised trip to Hagley Gap, Jamaica, March 20-27, 2009 for construction of a drainage system near a medical clinic; Supervised trip to Mai Nam Kun, Thailand, August 8-17, 2007 for water treatment system installation at an elementary school dormitory. August 8-17, 2007.

Seattle University Project Center. Traveled to northwest Haiti January 8-21, 2010 to collect data for senior design project associated with flood control. After January 12 earthquake in Port au Prince, provided coordination between SU EWB chapter and local aid organization. Have advised one senior design project each year since Fall 2006.

Civil and Environmental Engineering Student Academic Advisor, 2007-present.

ASCE Excellence in Water Resources Engineering Education task committee. Served as contributor and reviewer for a compendium on water resources teaching activities

Lecturer, NSF National Center for Earth Surface Dynamics sponsored short course on Low Slope Sand Bed Rivers, May 27-28, 2006

Representative to graduate student council, NSF National Center for Earth Surface Dynamics, 2004-2005

GRANTS, AWARDS AND FELLOWSHIPS

Seattle University Center for Environmental Justice and Sustainability, 2014-2015
Faculty Fellowship

Seattle University Professional Development Grant, 2010

U.S. Department of Fish and Wildlife (as subcontract through Utah State University):
Walker River, Nevada, Geomorphic Analysis

National Science Foundation Grant OCE 0742476, Collaborative Research:
Geomorphodynamic Modulation of Biogeochemical Fluxes and Basin Stratigraphy of the Fly River, 2008-2011

Minnesota Pollution Control Agency, An Integrated Sediment Budget for the Le Sueur River basin, Minnesota, 2007-2010

Anderson Award, University of Minnesota, 2005

Graduate School Fellowship, University of Minnesota, 2002–2003, 2004–2005

Regent's Fellowship, University of California, Berkeley, 1996–1997

Engineer of the Year, Walla Walla College, 1996