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Associate Professor
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Academic and Professional Background

Educational History

2002 Doctor of Philosophy, Environmental Engineering, University of Illinois, Urbana-Champaign.
1990 Master of Science, Fisheries Science (Minor in Water Resources), Oregon State University, Corvallis.
1982 Bachelor of Science, Civil Engineering, University of Missouri, Columbia.

Employment History

2009-present: Associate Professor, Dept. of Civil & Environmental Engineering, University of Tennessee, Knoxville.
2003-2009: Assistant Professor, Dept. of Civil & Environmental Engineering, University of Tennessee, Knoxville.
2002-2003: Post-Doctoral Researcher, Dept. of Civil & Environmental Engineering, University of Illinois at Urbana-Champaign.
1998-2002: Graduate Research Assistant, Dept. of Civil & Environmental Engineering, University of Illinois at Urbana-Champaign.
1992-1998: Project Engineer/Manager, HGE, Inc.; Coos Bay, Oregon.
1991-1992: Environmental Engineer, Parametrix Inc.; Portland, Oregon.
1987-1990: Graduate Research Assistant, Oregon State University, Corvallis.
1986-1987: Environmental Engineer, U.S. Environmental Protection Agency, Region VI Water Quality Division, NPDES Compliance; Dallas, TX.
1983-1985: Project Engineer, U.S. Peace Corps; Kenya Ministry of Water Development, South Nyanza District Office; Homa Bay, Kenya.

Professional Registrations and Affiliations

Professional Engineer:

Civil Engineering; Tennessee License # 00114290; Oregon # 16081

Organization Memberships:

American Society of Civil Engineers
American Water Resources Association
American Ecological Engineering Society
American Fisheries Society
American Geophysical Union

Research and Scholarship

Academic Awards

- April 2010: University of Tennessee - Knoxville, Department of Civil and Environmental Engineering *2010 Research Recognition Award.*

- April 2009: UT, College of Engineering *2009 Charles E. Ferris Faculty Award*. Distinguished record of research and teaching in the area of technology advancement, and service involvement in the Knox County community.
- April 2008: University of Tennessee, College of Engineering *2008 Research Fellow Award*.
- April 2007: University of Tennessee - Knoxville, Department of Civil and Environmental Engineering *2007 Research Recognition Award*.

Research Record Summary

| Parameter | Year -1 05-06 | Year-2 06-07 | Year-3 07-08 | Year-4 08-09 | Year-5 09-10 |
|---|------------------|-----------------|-----------------|-----------------|-----------------|
| Total UTK research funding awarded for individual according to budgeted percent | \$794,750 | \$209,192 | \$233,655 | \$313,377 | \$664,206 |
| Total UTK research expenditures for individual | \$273,231 | \$429,086 | \$369,855 | \$368,066 | \$469,036 |
| Total FTE of graduate students supported | 5.5 | 8.5 | 7.5 | 7.0 | 6.5 |

Notes: 1) Last five years (multi-year contracts listed only for year received; and based on my % effort).
 2) One FTE is equivalent to ½-time appointment as a graduate research assistantship (GRA) for one year; not including graduate teaching assistantships provided by the department.

Project/Grant Summary

Funding Agent: USDoI Office of Surface Mining, Appalachian Reg. **Date:** Sept. 2009 – Aug. 2010
Proposal Title: CHIA water quality monitoring and analysis in Appalachian Region CIA No. 8.
PIs: John S. Schwartz and Qiang He; **Funding Amount:** \$34,950.

Funding Agent: National Park Service, Great Smoky Mountains NP. **Date:** July 2010 – 2011.
Proposal Title: Biological Effects of Acidic Deposition on Aquatic Macroinvertebrates and fish Communities within Great Smoky Mountains National Park.
Investigators: John S. Schwartz (PI), Meijun Cai. **Funding Amount:** \$25,000 (total).

Funding Agent: Tennessee Dept. of Environment and Conservation. **Date:** March 2010 – June 2012
Proposal Title: Development and Implementation of Tennessee Stream Delineation Workshop
PIs: Tim Gangaware and John S. Schwartz. **Funding Amount:** \$116,294 (total, ISSE/CEE 50/50%).

Funding Agent: Tennessee Dept. of Environment and Conservation. **Date:** Sept. 2009 – June 2011
Proposal Title: Developing an in-stream sediment standard for Middle and East Tennessee streams.
PIs: John S. Schwartz and Carol Harden. **Funding Amount:** \$84,195.

Funding Agent: Tennessee Stream Mitigation Program. **Date:** August 2009 – June 2012.
Proposal Title: Development of Guidance for Reliable Bed-Material Transport Estimates for Gravel-bed Streams in Tennessee. **PI:** John S. Schwartz **Funding Amount:** \$124,866.

Funding Agent: TN Dept. of Agriculture 319 Funds; UT TN WRRC. **Date:** June 2009 – Dec. 2009.
Proposal Title: Beaver Creek Watershed Enhancement; Halls Stream Restoration Project Design.
Investigators: John S. Schwartz; Tim Gangaware. **Funding Amount:** \$10,750.

Funding Agent: Tennessee Stream Mitigation Program. **Date:** May 2009 – Nov. 2010.
Proposal Title: Development of Regional Curves for Channel Morphology Relationships in the Ridge and Valley Province. **PI:** John S. Schwartz. **Funding Amount:** \$96,250.

Funding Agent: National Park Service; Great Smoky Mountains NP. **Date:** Aug. 2009 – July 2014.
Proposal Title: Cooperative Agreement between National Park Service and University of Tennessee
PI: John S. Schwartz **FY'09 Funding Amount:** \$109,963 **FY'10 Funding Amount:** \$115,000.

Funding Agent: US Office of Surface Mining; Applied Science Program. **Date:** Sept. 2008 – 2010.
Proposal Title: Reforestation of Steep Reclaimed Slopes: Stability and Sediment Control Considerations. **Investigators:** Eric C. Drumm (PI) and John S. Schwartz
Funding Amount: \$242,612 (includes 18% match).

Funding Agent: Tennessee Stream Mitigation Program. **Date:** Sept. 2007 – Nov. 2012.
Proposal Title: Third Creek Stream Restoration Project Monitoring, Knox County, TN.
PI: John S. Schwartz **FY-'08- FY'11 Funding Amount:** \$32,250

Funding Agent: S&ME, Inc., Knoxville, Tennessee. **Date:** March 2008 – December 2009.
Proposal Title: Development of Two-Dimensional Stream Sediment Model for Stream Restoration Design Applications. **PI:** John S. Schwartz
Funding Amount: \$29,077 (total, no match)

Funding Agent: McGill Associates; Sevierville, Tennessee. **Date:** August 2008 – June 2009.
Proposal Title: Aquatic Habitat modeling for Gatlinburg WWTP Upgrade Alternatives
PI: John S. Schwartz **Funding Amount:** \$14,000 (total, no match)

Funding Agent: National Park Service; Great Smoky Mountains NP. **Date:** April 2006 – April 2009
Proposal Title: Cooperative Agreement between National Park Service and University of Tennessee
PI: John S. Schwartz **FY'07 Funding Amount:** \$110,250 **FY'08 Funding Amount:** \$110,000

Funding Agent: USGS Section 104B WRI TNWRC Program. **Date:** March 2008 – March 2009.
Proposal Title: A Survey of Bank Erosion in Beaver Creek, Knox County, Tennessee: Correlations of Channel Stability with Force and Resistance Variables.
Investigators: Qiang He and John S. Schwartz **Funding Amount:** \$25,139

Funding Agent: USDoI, Office of Surface Mining; Applied Science Program.
Date: Sept. 2007 – Sept. 2008. **Proposal Title:** Method Development for Watershed Sediment Budgets to Support the CHIA/PHC Process: A Focus on Sediment Modeling for Estimating Sediment Loads.
Investigators: John S. Schwartz (PI), and Eric C. Drumm **Funding Amount:** \$129,343.

Funding Agent: USDA Agricultural Research Station, National Sedimentation Laboratory; Oxford, MS; Cooperative Agreement between ARS and University of Tennessee. **Date:** Sept. 2006 – Sept. 2011.
Cooperative Agreement Title: Establishment of Functional Links Between Sediment Conditions and Aquatic Communities for TMDL Development. **PI:** John S. Schwartz
Project – FY08 ER43 Analysis on Biological Impairment due to Sediment. Funding Amount: \$22,000
Project – FY10 General Research Funding for Cooperative Agreement: Funding Amount: \$156,385
Project – FY11 General Research Funding for Cooperative Agreement: Funding Amount: \$77,160
Project – FY11 General Research Funding for Cooperative Agreement: Funding Amount: \$92,850

Funding Agent: USDoI, Office of Surface Mining; Applied Science Program. **Date:** Sept. 2006 – 2007.
Proposal Title: Development of a Rapid Geomorphic Assessment Technique to Support the CHIA/PHC Process: A Focus on Model Improvement for Estimating Sediment Loads.
Investigators: John S. Schwartz (PI), and Eric C. Drumm; **Funding Amount:** \$120,080)

Funding Agent: National Park Service; Great Smoky Mountains NP. **Date:** Oct 2005 – Oct 2010
Proposal Title: Cooperative Agreement between National Park Service and University of Tennessee
Investigators: R. Bruce Robinson and John S. Schwartz **FY'06 Funding Amount:** \$105,000 (total)
Funding Agent: US Environmental Protection Agency. **Date:** Oct. 2005 – Oct. 2010.
Proposal Title: University of Tennessee, Natural Resource Policy Center
Investigators: Donald G. Hodges (PI), Chris Clark, David Ostemeier, Seong-Hoon Cho, John S. Schwartz, and R. Bruce Robinson. Total Funding Amount: \$1,500,000

GRSM NP Research Project: Effects of Atmospheric Deposition on Fish and Water Quality in the Great Smoky Mountains National Park. **Investigators:** John S. Schwartz (PI), R. Bruce Robinson.
GRSM NP Project Funding: \$723,600.

Funding Agent: Tennessee Valley Authority; Watts Bar Watershed Team. **Date:** Nov. 2005 – May 2006.
Proposal Title: Sediment Modeling for the Beaver Creek Watershed Restoration Plan
PI: John S. Schwartz **Funding Amount:** \$7,000.

Funding Agent: UT Center for Environ. Biotechnology (WMREI funds). **Date:** June 2005 – June 2008.
Proposal Title: Characterization of Coal Tar Contaminated Sediments in Chattanooga Creek, TN
Investigators: Larry McKay (PI), Vijay Vulava, and John S. Schwartz
FY'08 Funding Amount: (CEE expenditures \$6,500)
FY'07 Funding Amount: \$86,949 (CEE expenditures \$14,500).
FY'06 Funding Amount: \$92,012 (CEE expenditures \$11,650).

Journal Articles Published

- Cai, M., A.M. Johnson, J.S. Schwartz, S.E. Moore, and M.A. Kulp. 2011. Response of soil water chemistry to simulated changes in acid deposition in the Great Smoky Mountains. *ASCE Journal of Environmental Engineering* 137(7).
- Cai, M., A.M. Johnson, J.S. Schwartz, S.E. Moore, and M.A. Kulp. 2011. Soil acid-base chemistry of a high-elevation watershed in the Great Smoky Mountains National Park watershed affected by long-term acid deposition. *Water, Air, and Soil Pollution*. (in press).
- Schwartz, J.S., A. Simon, and L. Klimetz. 2011. Use of fish functional traits to associate in-stream suspended sediment transport metrics with biological impairment. *Environmental Monitoring and Assessment*. DOI 10.1007/s10661-010-1741-8.
- Cai, M. J.S. Schwartz, R.B. Robinson, S.E. Moore, and M.A. Kulp. 2011. Long-term annual and season patterns of acidic deposition and stream water quality in a Great Smoky Mountains high-elevation watershed. *Water, Air and Soil Pollution*. DOI 10.1007/s11270-010-0727-z.
- Koirala, S.R., R.W. Gentry, E. Perfect, P. Mulholland, and J.S. Schwartz. 2011. Hurst Analysis of Hydrologic and Water Quality Time Series. *ASCE Journal of Hydrologic Engineering*. DOI 10.1061/(ASCE)HE.1943-5584.0000357.
- Cai, M. J.S. Schwartz, R.B. Robinson, S.E. Moore, and M.A. Kulp. 2010. Long-term effects of acidic deposition on water quality in a high-elevation Great Smoky Mountains National Park watershed: use of an ion input-output budget. *Water, Air, and Soil Pollution* 209: 143-156. DOI 10.1007/s11270-009-0187-5.
- Koirala, S.R., R.W. Gentry, P. Mulholland, E. Perfect, and J.S. Schwartz. 2010. Time and frequency domain analysis of high-frequency hydrologic and chloride data in an east Tennessee watershed. *J. Hydrology* 387: 256-264. DOI 10.1016/j.jhydrol.2010. 04.014.
- Neff, K.J., J.S. Schwartz, T.B. Henry, R.B. Robinson, S.E. Moore, and M.A. Kulp. 2009. Physiological stress in native brook trout during episodic stream acidification in the Great Smoky Mountains National Park. *Archives of Environmental Contamination and Toxicology* 57: 366-376. DOI 10.1107/s00244-008-9269-4.
- Deyton, E.B., J.S. Schwartz, R.B. Robinson, K.J. Neff, S.E. Moore, and M.A. Kulp. 2009. Characterizing episodic stream acidity during stormflows in the Great Smoky Mountains National Park. *Water, Air, and Soil Pollution* 196: 3-18. DOI 10.1007/s11270-008-9753-5.
- Schwartz, J.S., M. Dahle, and R.B. Robinson. 2008. Concentration-frequency-duration curves for stream turbidity: possibilities for use assessing biological impairment. *Journal of the American Water Resources Association* 44(4): 879-886.
- Robinson, R.B., T.W. Barnett, G.R. Harwell, S.E. Moore, M.A. Kulp, and J.S. Schwartz. 2008. pH and acid anion time trends in different elevation ranges in the Great Smoky Mountains National Park. *ASCE Journal of Environmental Engineering* 134(9): 800-808.
- Koirala, S.R., R.W. Gentry, E. Perfect, J.S. Schwartz, and G.S. Saylor. 2008. Temporal variation, persistence, and scaling of bacteria in streams. *J. Environ. Quality* 37: 1559-1566.

- Schwartz, J.S., and E.E. Herricks. 2008. Fish use of ecohydraulic-based mesohabitat units in a low-gradient Illinois stream: implications for stream restoration. *Aquatic Conservation: Marine and Freshwater Ecosystems* 18(6): 852-866. DOI 10.1002/aqc.905.
- Schwartz, J.S., and E.E. Herricks. 2007. Evaluation of pool-riffle naturalization structures on habitat complexity and the fish community in an urban Illinois stream. *River Research and Applications* 23: 451-466.
- Slate, L.O., F.D. Shields, J.S. Schwartz, D.D. Carpenter, and G. Freeman. 2007. Engineering design standards and liability for stream channel restoration. *ASCE Journal of Hydraulic Engineering* 133: 1099-1102.
- Schwartz, J.S., and E.E. Herricks. 2007. Evaluation of pool-riffle naturalization structures on habitat complexity and the fish community in an urban Illinois stream. *River Research and Applications* 23: 451-466.

Published Book Chapter (hard-bound book)

- Gregory, S.V., J.S. Schwartz, J.D. Hall, R.C. Wildman, and P.A. Bisson. 2007. Long-term trends in habitat and salmonid populations in the Alsea Basin. Pages 233-254 In J.D. Stednick (editor). *The Alsea Watershed: Hydrological and Biological Responses to Temperate Coniferous Forest Practices*. Springer-Verlay, New York.

Conference Proceedings: Non-bound CD-ROM Articles

- Jeldes, I, S. Hoomehr, W.C. Wright, J.S. Schwartz*, D. Lane, and E.C. Drumm. 2010. *Stability and erosion on steep slopes constructed by the Forest Reclamation Approach*. Joint Conference of the 27th Annual American Society of Mining and Reclamation and 4th Annual Appalachian Regional Reforestation Initiative. Pittsburgh, PA. June 5-11, 2010. (* presenter)
- Neff, K.J., J.S. Schwartz, A. Dodson, and M.S. Hamrick. 2010. *A modeling approach to restoring pool-riffle structure in an incised, straightened channel of an urban stream*. ASCE/EWRI World Water & Envir. Resources Congress; Providence, RI; May 16-20, 2010.
- Hoomehr, S., J.S. Schwartz, W. Wright, and E.C. Drumm. 2010. *Surface erosion and sediment yields on steep-sloped coal mining reclamation sites in the Appalachian region*. ASCE/EWRI World Water & Envir. Resources Congress; Providence, RI; May 16-20, 2010.
- Niezgoda, S.L., J. Castro, D.D. Carpenter, J.S. Schwartz, P.A. Johnson, A. Simon, C. Pomeroy, T. Wynn, J. Schmidt, P. Wilcock, J. Curran, and L.O. Slate. 2010. *Stream restoration education and professional development: working toward a consensus*. ASCE/EWRI World Water & Environmental Resources Congress; Providence, Rhode Island; May 16-20, 2010.
- Schwartz, J.S., S.L. Niezgoda, L.O. Slate, W. Annable, D.D. Carpenter, M. McPhillips, C. Pomeroy, and T. Wynn. 2009. *A monitoring and assessment framework to evaluate stream restoration needs in urbanizing watersheds*. ASCE/EWRI World Water & Environmental Resources Congress; Kansas City, MO. May 17-21, 2009.
- Schwartz, J.S., A. Simon, and L. Klimetz. 2009. *Developing linkages between biological impairment and stream siltation: A case study in the northern Great Plains Ecoregion*. ASCE/EWRI World Water & Environmental Resources Congress; Kansas City, Missouri. May 17-21, 2009.
- W.R. Cantrell, J.S. Schwartz, and W.K. Barry. 2009. *Development of 2D stream sediment model for stream restoration design applications in urbanizing watersheds*. ASCE/EWRI World Water & Environmental Resources Congress; Kansas City, MO. May 17-21, 2009.
- Neff, K.J., J.P. Parker, J.S. Schwartz, M. Cai, S.E. Moore, and M.A. Kulp. 2009. *The influence of natural hydrological disturbances on brook trout (Salvelinus fontinalis) population dynamics in the Great Smoky Mountains National Park*. ASCE/ EWRI World Water & Environmental Resources Congress; Kansas City, MO. May 17-21, 2009.

- Cai, M., J.S. Schwartz, R.B. Robinson, S.E. Moore, and M.A. Kulp. 2009. *Understanding water quality responses to long-term acidic deposition in a high-elevation southern Appalachian watershed: A focus on soil watershed processes*. ASCE/EWRI World Water & Environmental Resources Congress; Kansas City, MO. May 17-21, 2009.
- Schwartz, J.S., A. Simon, and L. Klimetz. 2008. *Use of fish autecological data with sediment and channel stability metrics to identify ecologically relevant thresholds for impairment due to stream siltation*. Special USDA Conference “50 Years of Soil and Water Research in a Changing Agricultural Environment”, Agricultural Research Service, National Sedimentation Laboratory, Oxford, Mississippi, September 3-5, 2008.
- Cai, M., and J.S. Schwartz. 2008. *WinHSPF model simulations of nitrogen and pH for a low-alkalinity stream impacted from atmospheric acid deposition*. ASCE/EWRI World Water & Environmental Resources Congress; Honolulu, Hawaii, May 2008.
- Neff, K.J., E.B. Deyton, J.S. Schwartz, T.B. Henry, and R.B. Robinson. 2008. *Episodic stream acidification in the Great Smoky Mountains National Park: An investigation into mechanisms of acidification and impacts to native brook trout*. ASCE/EWRI World Water & Environmental Resources Congress; Honolulu, Hawaii, May 2008.
- Schwartz, J.S., D.L. Carter, E.J. Langendoen, and A. Simon. 2008. *Comparison of empirical and analytical physical assessment approaches for stream restoration: A case study on Abrams Creek, Great Smoky Mountains National Park, Tennessee*. ASCE/EWRI World Water & Environmental Resources Congress; Honolulu, Hawaii, May 2008.
- Shields, F.D., G. Freeman, J.S. Schwartz, and L.O. Slate. 2008. *Engineering design standards for stream channel restoration*. ASCE/EWRI World Water & Environmental Resources Congress; Honolulu, Hawaii, May 2008.
- Baker, D.W., W.K. Annable, C. Pomeroy, J. MacBroom, J.S. Schwartz, and J. Garcie. 2008. *Evaluating the effects of urbanization on stream flow and channel stability - state of practice*. ASCE/EWRI World Water & Environmental Resources Congress; Honolulu, HI, May 2008.
- Dworak, F.J. and J.S. Schwartz. 2007. *Use of a 3D hydrodynamic model in an incised urban channel with woody bank vegetation to evaluate pool-riffle maintenance: Implications for stream restoration design*. ASCE/EWRI World Water & Environmental Resources Congress; Tampa, Florida, May 2007.
- Schwartz, J.S., S.L. Niezgodna, L.O. Slate, D.D. Carpenter, R. Prager, M. McPhillips, and S. Lucus. 2007. *Monitoring and assessment protocols document for urban stream restoration*. ASCE/EWRI World Water & Environmental Resources Congress; Tampa, FL, May 2007.
- Koirala, S.R., R.W. Gentry, E. Perfect, and J.S. Schwartz. 2007. *Spectral analysis of total coliforms in a East Tennessee stream*. ASCE/EWRI World Water & Environmental Resources Congress; Tampa, Florida, May 2007.
- Williams, K.H., and J.S. Schwartz*. 2006. *Linking channel stability and bed sediment characteristics to benthic macroinvertebrate bioassessment indices*. ASCE/EWRI World Water & Environmental Resources Congress; Omaha, Nebraska, May 2006 (* presenter).
- Schwartz, J.S., S.L. Niezgodna, L.O. Slate, R. Prager, D.D. Carpenter, M. McPhillips, and S. Lucus. 2006. *Urban stream restoration: Guidance for monitoring and assessment protocols*. ASCE/EWRI World Water & Environmental Resources Congress; Omaha, NE, May 2006.

Invited Speaker Presentations/Panels: Conferences, Workshops and Seminars

Fall 2010 – Presentation: *Use of fish functional traits to associate in-stream suspended sediment transport metrics with biological impairment*. Seminar Series of the Earth, Aquatic, and Atmospheric Sciences Group, Environmental Sciences Division, Oak Ridge National Laboratory, Tennessee; December 3, 2010.

- Fall 2010 - Presentation: *Use of fish functional traits to associate in-stream suspended sediment transport metrics with biological impairment*. Tennessee Tech University, Department of Civil Engineering, September 21, 2010.
- Spring 2010 - Presentation: *Use of fish functional traits to associate in-stream suspended sediment transport metrics with biological impairment*. Virginia Water Resources Research Center; Virginia Tech, Blacksburg, VA., February 25, 2010.
- Fall 2009 – Presentation: *Linking Sediment Transport Rates with Fish Functional Traits*. American Geophysical Union Fall 2009 Meeting; Session H33 Functional Links between Fluvial Geomorphic and Ecological Processes: Quantifying Thresholds and Reference Conditions; San Francisco, California, December 14-18, 2009.
- Fall 2009 – Panel: *Academic-Practitioner Workshop on Developing Stream Restoration Training Materials*. Mid-Atlantic Stream Restoration Conference 2009: The Benefits of Stream Restoration. Canaan Valley Institute; Morgantown WV; November 3-5, 2009.
- Fall 2007 – Presentation: *Biologically-based Sediment TMDLs: the Role of Reach-scale Stream Restoration Projects*. Mid-Atlantic Stream Restoration Conference 2007: Science, Engineering & Policy; Canaan Valley Institute; Cumberland, MD, November 7-9, 2007.
- Spring 2007 – Presentation/Panel: *Stream habitat restoration and ecological design considerations*; special session on *Science Behind River Restoration*. American Society of Civil Engineers EWRI World Water and Environmental Resources Congress; Tampa, Florida, May 14-18, 2007.
- Summer 2006 – Group presentation: E.E. Herricks, J.S. Schwartz, and Y. Wang. *Restoration for fish recovery: ecohydraulics design and prediction*. Joint Workshop of the National Center for Earth-Surface Dynamics Stream Restoration Partners Group and Stillwater Sciences, University of California – Berkeley, Richmond Field Station; Richmond, CA; July 6-8, 2006.
- Spring 2006 – Presentation/Panel: *Stream habitat restoration design considerations*. US DoI Office of Surface Mining, Appalachian Region Technology Transfer Team; Workshop on Stream Loss and Restoration; Pittsburgh, PA; May 2-4, 2006.
- Spring 2006 – Presentation: *Characterizing turbulence structure along woody-vegetated banks in incised channels*. Seminar Series of the Earth, Aquatic, and Atmospheric Sciences Group, Environmental Sciences Division, Oak Ridge National Laboratory, TN; March 31, 2006.

Research Reports Submitted to Sponsors

- Schwartz, J.S., M. Cai, K. Neff, L. Mauney, and M.A. Grell. 2009. *Great Smoky Mountains National Park, Summary Water Quality Report*. Prepared for the US Dept. of Interior, National Park Service. April 2009.
- Schwartz, J.S., E.C. Drumm, M.P. Massey, D. Johnson, and W. Cantrell. 2008. *Method Development for Watershed Sediment Budgets to Support the CHIA/PHC Process: A Focus on Sediment Modeling for Estimating Sediment Loads*. Prepared for the US Dept. of Interior, Office of Surface Mining. September 2008.
- Simon, A. L. Klimetz, and J.S. Schwartz. 2008. *Characterization of “Reference” Suspended-Sediment Transport and Bed Material Conditions for Selected Ecoregions in EPA Region VIII: The Mountains and Plains*. USDA, Agricultural Research Service, Oxford, Mississippi. National Sedimentation Laboratory; Watersheds Physical Processes Research Unit; ARS NSL Technical Report #61; April 2008.
- Schwartz, J.S., M. Cai, K. Neff, T. Zimmerman, and L. Mauney. 2008. *Great Smoky Mountains National Park, Summary Water Quality Report*. Prepared for the US Dept. of Interior, National Park Service. April 2008.

- Schwartz, J.S., E.C. Drumm, M.P. Massey, J. Baines and D. Johnson. 2007. *Development of a Rapid Geomorphic Assessment Technique to Support the CHIA/PHC Process: A Focus on Model Improvement for Estimating Sediment Loads*. Prepared for the US Dept. of Interior, Office of Surface Mining. University of Tennessee – Knoxville, September 2007.
- Schwartz, J.S. 2006. *Sediment management for the Beaver Creek Watershed Plan, Knox County, Tennessee: Use of the AnnAGNPS model*. Prepared for the Water Quality Forum, Knox County, Tennessee through a 604(b) grant from the Tennessee Department of Environment and Conservation. July 2006.
- Schwartz, J.S. 2006. *Evaluation of a rapid geomorphic assessment protocol to link biological impairment to channel instability supporting sediment TMDL development*. Prepared for the Tennessee Department of Environment and Conservation. February 2006.

Supervision of Graduate Student Work: Completed Degrees

Doctoral-level Dissertation Graduate Research

- Meijun Cai (*graduated May 2010*); DISSERTATION: Long-term acid deposition effects on soil and water chemistry in the Noland Divide Watershed, Great Smoky Mountains National Park, USA.
- Keil Neff (*graduated December 2010*); DISSERTATION: Environmental Impacts to Stream Acidification and Brook Trout Populations in the Great Smoky Mountains National Park.

Master-level Thesis Graduate Research

- Susan Deland (*graduated December 2010*); THESIS: The characteristics of underground utility repairs made in asphaltic roadways – comparing the use of Grade D aggregate as a viable backfill option. (*CEE co-major advisor with Dr. Baoshan Huang*).
- Mary Ann Grell (*graduated December 2010*); THESIS: Soil chemistry characterization of acid sensitive watersheds in the Great Smoky Mountains National Park.
- John Leland Mauney (*graduated December 2009*); THESIS: Characterizing episodic stream acidification using a concentration-duration-frequency methodology in watersheds of the Great Smoky Mountains National Park.
- William Cantrell (*graduated August 2009*); THESIS: Method of evaluation for bed shear stress and sediment transport capacity in urbanizing watersheds: Implications for stream restoration.
- Joseph Parker (*graduated December 2008*); THESIS: Influence of hydrological patterns on brook trout (*Salvelinus fontinalis*) and rainbow trout (*Oncorhynchus mykiss*) population dynamics in the Great Smoky Mountains National Park.
- Daniel H. Johnson (*December 2008*); THESIS: Application of a two-dimensional sediment transport model in a Cumberland Plateau mountainous stream reach with complex morphology and course substrate.
- Angela (Brawley) Smith (*exam passed May 2008*); THESIS: Analysis of a long-term water quality history to identify impacts of acid deposition on a high-elevation watershed in the Great Smoky Mountains National Park.
- Michael Patrick Massey (*May 2008*); THESIS: Use of the AnnAGNPS pollutant loading model for prediction of sediment yields in a mountainous Cumberland Plateau region: Correlations with the stream bed sediment characteristics.
- Tara Mallison (*May 2008*); THESIS: Comparing in-situ submerged jet test device and laboratory flume methods to estimate erosional properties of cohesive soils for stream bank stability models.
- Daniel L. Carter (*December 2007*); THESIS: Stream restoration assessment on Abrams Creek in the Great Smoky Mountains National Park: Management implications and comparison of empirical and analytical physical assessment approaches.

Edwin B. Deyton (*August 2007*); THESIS: Characterizing episodic stream acidity during stormflows in the Great Smoky Mountains National Park.

Keil J. Neff (*August 2007*); THESIS: In situ bioassays of native brook trout (*Salvelinus fontinalis*) in streams affected by episodic acidification in the Great Smoky Mountains National Park.

Shannon Bennett (*August 2006*); THESIS: Use of a dynamic sediment delivery model for watershed planning in Beaver Creek, Knox County, Tennessee.

Robert L. Sain (*August 2006*); THESIS: Characterizing how fish communities and physical habitat structure are affected by urbanization in an East Tennessee watershed. (Biosystems Engineering and Soil Science Dept.; co-major advisor Daniel Yoder).

Frank J. Dworak (*graduated December 2005*); THESIS: Characterizing turbulence structure along woody vegetated banks in incised channels: Implications for stream restoration design.

Master-level Non-thesis Graduate Research (with CE590 Project)

Courtney Wolf (Environmental- *graduated May 2009*); PROJECT: Analysis and comparison of base flows for rural, urban, and semi-urban basins in the East and Midwest U.S.

Amanda Dunnivant (Environmental, *May 2008*); PROJECT: Comparison of Hydraflow® and HEC-HMS model outputs for unit hydrograph generation: a case study on the Windrock Mountain watershed, Sevier County, Tennessee.

Lindsey Orsburn (Environmental, *Dec. 2008*; Terry Miller advisor); PROJECT: Determination of impervious surface in urban watersheds using USGS Seamless Data.

Andrew Dodson (Environmental, *May 2007*); PROJECT: Spatial optimization of stormwater basin placement in a watershed to reduce downstream floods.

Melanie Dahle (Environmental, *May 2007*); PROJECT: Concentration-duration-frequency curves for turbidity in a stream in the Great Smoky Mountains National Park.

Supervision of Graduate Student Work: Degrees in Progress

Doctoral-level Graduate Research

- Siavash Hoomehr (*anticipated graduation date May 2012*)
- Patrick McMahon (*anticipated graduation date May 2012*)
- Thomas Barnett (*part-time, anticipated graduation date December 2010*)
- Rick Mann (*part-time, co-major advisor with Dr. Larry McKay, EPS; anticipated graduation date December 2010*)

Master-level Graduate Research: Thesis Program

- Chris Rolison (*anticipated graduation date December 2011*)
- Jeremy Mefford (*anticipated graduation date December 2011*)
- Tom Zimmerman (*anticipated graduation date May 2011*)
- Brady McPherson (BESS Dept.; co-major advisor Forbes Walker) (*anticipated graduation date May 2011*)
- Tim Pobst (*anticipated graduation date May 2012*)

Master-level Graduate Study: Non-Thesis Program

- Chris Dixon (*anticipated graduation date May 2010*)
- Elizabeth Carls (*anticipated graduation date May 2011*)
- Jessica Davis (*anticipated graduation date May 2011*)

Teaching Responsibilities and Effectiveness

Teaching Responsibilities

Undergraduate

- Hydraulics (CE390): Undergraduate fluid mechanics with civil engineering applications, lecture and lab; *Taught* F03, S04, F04, S05, F05, S06, F06, S08, F08.
- Water Resources Engineering I (CE391): F09, S10, F10, S11
- Water Resources Engineering Laboratory (CE496): F09, F10
- Fundamentals of Engineering (CE401): Two sessions per semester on fluid mechanics and hydraulics/hydrology; *Taught* F03, S04, F04, S05, F05, S06, F06, S07, F07, S08, F08, S09, F09, S10, F10, S11.
- Senior Design Project; *Taught* S11.

Graduate

- River Mechanics (EV520): fundamentals of open channel hydraulics & sediment transport; *Taught* F04, F05, F06, F07, F08, F09, F10.
- Ecological Engineering for Stream Rehabilitation (EV595): special offering on stream restoration assessment and design principles; *Taught* S04, S06, Su08, S10.
- Stream Restoration Design (EV595): graduate-level special offering; *Taught* S11
- GIS Modeling Applications (EV595): graduate-level special offering; *Taught* S07; Su09
- Advanced Hydrodynamic Modeling (EV691): graduate-level special offering; *Taught* S07; S09.

Teaching Awards

April 2006: University of Tennessee – Knoxville; Department of Civil and Environmental Engineering *2006 Teaching Recognition Award*.

Overview of Service Record

Organization Leadership Roles

- Secretary, American Society of Civil Engineers (ASCE), Stream Restoration Education Material / Curriculum Committee; Hydraulics and Waterways Council, May 2009 – present.
- Chair Task Leader, ASCE Urban Streams Standing Committee/River Restoration Committee: for production of an ASCE/EWRI *Guidance Manual on Assessment and Monitoring of Urban Stream Restoration Projects*; May 2005 – present.
- Chair, Urban Streams Committee of the ASCE, Urban Water Resources Research Council (UWRRC); June 2006 – May 2008.
- Co-Chair Urban Streams Committee of the UWRRC, ASCE; June 2004 – May 2006.

Professional Service: Research Reviews

Journal Manuscript Review:

- *Journal of the American Water Resources Association*, American Water Resources Association (AWRA); February 2006; July 2007; February 2008.
- *River Research and Applications*; Wiley InterScience; January 2007; August 2007; January 2008; August 2009.
- *Water Research*; International Water Association (IWA); September 2005.

- *Environmental Science & Technology*; ACS Publications; April 2011.
- *Journal of Hydraulic Engineering*; American Society of Civil Engineering (ASCE), November 2009.
- *Journal of Water Resources Planning and Management*; American Society of Civil Engineering (ASCE), August 2008; August 2009.
- *Journal of Hydraulic Research*; International Association of Hydraulic Research (IAHR); October 2003; September 2006.
- *Ecological Engineering*; Elsevier Press; August 2005; October 2008.
- *Ecology of Freshwater Fish*; Blackwell Publishing; January 2006; March 2006.

Professional Book Review:

May 2007: ASCE Press, *Sediment Management with Submerged Vanes*, 2008, A. Jacob Odgaard, University of Iowa; review of two chapters on hydraulics and sediment dynamics.
 September 2005: Elsevier Press, *Open Channel Hydraulics*, 2006, A. Osman Akan; Old Dominion University; Review of Chapters 2 & 3 in new textbook.

Invited Review: Science Plans / Research Proposals

October 2008 - Dr. Bruce Hamilton, National Science Foundation Director for the 'Environmental Sustainability' Program in the Engineering Directorate requested my participation as a panelist for proposal review; Panelists met October 29-30, 2008 in Arlington, Virginia at NSF Offices.
 March 2008 - Dr. Carl Zipper from Virginia Tech University invited my review and comments to the *Biodiversity Conservation Science Plan for the Clinch-Powell River System, Virginia-Tennessee USA*. Review and comments submitted April 2008. The Science Plan Work Group included the US Fish and Wildlife Service, Virginia Tech and the Nature Conservancy.
 July 2008 - Dr. Jennifer Read from the University of Michigan, Ann Arbor invited my review and comments on a Michigan Sea Grant research proposal *Using an Integrative Assessment Approach to Restore a Natural Flow Regime in the Clinton River Watershed*.

Session Chair, Moderator for Conference Symposium/Technical Sessions

May 2009 - Session Moderator for *Urban Streams* at the ASCE/EWRI World Water and Environmental Resources Congress; Kansas City, Missouri.
 April 2009 - Session Moderator for *Sediment Transport and Modeling* at the Tennessee 19th Water Resources (AWRA) Symposium, Burns, Tennessee.
 May 2008 - Session Moderator for *Ecological Response: Modeling and Management* ASCE/EWRI World Water and Environmental Resources Congress; Honolulu, Hawaii.
 May 2008 - Session Moderator for *Ecological Response: Modeling and Management* ASCE/EWRI World Water and Environmental Resources Congress; Honolulu, Hawaii.
 April 2007 - Session Moderator for the *Stream Acidification* session at the Tennessee 17th Water Resources (AWRA) Symposium, Burns, Tennessee.
 May 2006 - Session Moderator for 1) Urban Watershed Management Symposium session on *Protection and Restoration of Urban Streams*; 2) Conference track on River and Wetland Restoration; session on *Ecological Linkages with Sediment Impairment*. ASCE/EWRI World Water and Environmental Resources Congress; Omaha, Nebraska.

University of Tennessee - Knoxville Campus Service

Campus Service

Serve on the Faculty Board for the Natural Resource Policy Center (2006-present).

Department Service

1. Chair the Assessment Committee for Department of Civil & Environmental Engineering (August 2008 – present).
2. Serve on the Strategic Planning Committee for Department of Civil & Environmental Engineering (April 2009 – present).
3. Served on the Department Search Committee for new faculty member in water resources (Fall 2007 – Spring 2008).
4. Serve on Public Works Committee for Department of Civil & Environmental Engineering (Fall 2003 – August 2008).
5. Submitted proposals to the College of Engineering for laboratory equipment improvements from the Engineering Technology Fees. Successful awards for the Department of Civil Engineering Hydraulics Laboratory include: Fall 2006, cohesive strength meter, hot wire probe and accessories (\$35,000); RiverSurveyor™, small boat mounted acoustic Doppler velocimeter, and microprocessor (\$23,000).

Engineers Without Borders (Volunteers Without Borders)

1. Serve as academic advisor for new national chapter of *Engineers Without Borders*; November 2004 – present. UTK student group was formally organized November 2004.
2. Support the student chapter on a water development project for the village of Los Cerros de Aminilla, Dominican Republic. Traveled to Dominican Republic with four students as a project assessment team on March 19-25, 2006. Students were engaged in local fund raising, and prepared grant proposals. They were awarded a \$10,000 grant jointly from the Ann Campana Judge Foundation and the National Ground Water Research & Educational Foundation in July 2006. Students designed the water development project. Traveled to with six students on December 15-21, 2006 to implement the water development project, which included installation of a submersible pump in a 120-foot deep well, construction of a 4,000-gallon concrete water tank, and completing a 3,000-foot water distribution main.
3. Supported the student president of EWB UT Chapter to give a technical presentation to the Tennessee Society of Professional Engineers (TSPE) on October 31, 2006 describing the engineering design used for the Dominican Republic, Los Cerros project.
4. EWB UT Chapter received an Achievement Award for 2006 Engineers Day Class II Exhibits, *Agua Limpia* 1st Place.
5. Support the student chapter on a water development project for the village of LaFortuna, Guatemala; planning assessment/implementation trip for May 2007; Department of Biosystems Engineering and Soil Science offered a technical elective course for undergraduate students involved on the project. Drs. Forbes Walker and Neal Eash organized arrangements with the funding agency, Health Talents International, and provided general EWB student support.
6. As design advisor, supported the student chapter on a water development project (spring catchment and pipeline to storage tank) for the village of LaFortuna, Guatemala; implementation trip for May 2009. Drs. Forbes Walker and Neal Eash organized arrangements with the funding agency, Health Talents International, and provided general EWB student support. Traveled with 22 students to LaFortuna, Guatemala.