
SCHAFFRATH, Keelin

764 Horizon Dr. Room 125
Grand Junction, CO 81506

970-245-5257 x 23
keelin@usgs.gov

WORK EXPERIENCE

July 2007 to present U.S. GEOLOGICAL SURVEY Grand Junction, Colorado
Hydrologist (*Student Hydrologist July 2007 to Feb 2009 in Lakewood, Colorado*)

- Assist in the field as needed including:
 - * Channel surveys to quantify changes in channel morphology after the large snowmelt runoff in 2008.
 - * Water sampling to quantify nutrients and algae and lake core sediment sampling in alpine lakes to determine long-term impacts to the lakes.
 - * Environmental Protection Agency National Rivers and Streams Assessment which included water chemistry sampling, biology sampling, and riparian habitat sampling.
 - * Synoptic tracer study to determine the source of high selenium in a creek in Aurora, CO.
 - * Ground-water sampling as part of a long-term land-use study.
 - * Bed sediment sampling in creeks located in various land uses.
- Review and interpret data for use in publications.
- Assist with the preparations of various publications and presentations including graphical and map figures, tables, and text.
- Manage data files and ensure that data are posted correctly to internal databases and in the National Water Information System (NWIS) database for public access.
- Apply model to determine water surface elevations, velocities, and shear stress profiles at different streamflows.

Aug 2005 to Aug 2009 COLORADO STATE UNIVERSITY Fort Collins, Colorado
Masters of Science Candidate: Watershed Science program.

- Thesis: Expected to result in at least one peer-reviewed publication and contribute to a second.
 - * Characteristics from eroded sediment and hillslope sediment after two Colorado wildfires; 2002-2006.
 - * Long-term effectiveness of Burned Area Emergency Rehabilitation treatments, Colorado Front Range.
- Monitored precipitation, ground cover, sediment production, and change in rill cross-sections.
- Measured gravimetric water content, organic matter, and particle size (sieve and hydrometer methods).
- Supervised technicians who assisted in field and lab work.

Aug 2002 to May 2005 TEXAS ARMY NATIONAL GUARD Austin, Texas
Integrated Training Area Management Coordinator

- Prevent negative impacts on the watersheds of the four National Guard training sites located in Texas.
- Coordinate restoration projects on stream crossings and erosion areas with a focus on returning the area to a natural, self-maintaining state.
- Monitor the rate of erosion using bank pins and photo points to determine impact on watershed.
- Facilitate constant communication between soldiers, commanders and the environmental branch to ensure sustainable fulfillment of military training requirements.

June 1999 to Dec 2001 PEACE CORPS El Zapote, El Salvador
Agroforestry Volunteer

- Piloted and oversaw a small-scale sea turtle conservation project.
- Built and cared for tree nursery of 10,000 trees which were then distributed and planted in the community.
- Worked with the community development association to design, fund and construct a community center.

EDUCATION

- June 2005 to present **COLORADO STATE UNIVERSITY** Fort Collins, Colorado
M.S. in Watershed Science program; graduation: August 2009
• Relevant coursework: Watershed measurements; Land use hydrology; Cumulative watershed effects; Fluvial geomorphology; Snow hydrology field methods; Soil physics; Hydrogeology; and Design and data analysis for researchers.
- February 2008 **U.S. GEOLOGICAL SURVEY** Lakewood, Colorado
April-May 2008 • Basic data quality assessment philosophy and techniques
March 2009 • Field water-quality methods for ground-water and surface-water
May 2010 • Using FastMech and StoRM within MD_SWMS
May 2010 • Statistical methods for environmental data analysis
May 2010 • Report planning, writing, policy, and peer review
- Sep 1995 to May 1999 **AUGUSTANA COLLEGE** Rock Island, Illinois
Bachelor of Arts in Biology, 3.19/4.0 GPA; *Minor*: Environmental Studies and English
- May 2004 **LADYBIRD JOHNSON WILDFLOWER CENTER** Austin, Texas
Jan 2003 • Riparian Restoration Essentials
• Texas Prescription Burn School
- June 2004 **WILDLAND HYDROLOGY INC.** Bend, Oregon
Feb 2003 • River Morphology and Its Applications
• Applied Fluvial Geomorphology Fayetteville, Arkansas
- Oct 2004 **TEXAS INTERAGENCY COORDINATION CENTER** Bastrop, Texas
Oct 2002 • Wildland Powersaws (S-212)
• Basic Fire Fighting, Intermediate Fire Behavior (S-130/190, I-100, S-290)

VOLUNTEER

- Jan 2006 to June 2007 **ENGINEERS WITHOUT BORDERS** Colorado and El Salvador
Potable Water Project
• Coordinated communication with the community collaborators, and drilling contractors.
• Conducted health surveys and assisted with water quality assessments.
- June 2003 to June 2005 **MASTER NATURALIST** Austin, Texas
• Participated in projects including trail maintenance, invasive species management, vegetation monitoring, and infrastructure maintenance.
- Jan 2002 to June 2005 **INTERPRETER/ TRANSLATOR** Illinois and Texas
• Interpreted for Spanish speakers in doctor's appointments and immigration paperwork.
• Translated documents from English to Spanish and transcribed interviews from English to Spanish.

SKILLS

Computer

- Adept with Microsoft Office Suite and Endnote.
- Proficient with Trimble GPS units and GPS Pathfinder, ESRI ArcInfo software, and MD-SWMS (FaSTMECH) model.
- Familiar with Origin, SAS, and S-Plus.

Field and Laboratory

- Point-transect cover counts;
- Pebble counts;
- Tipping bucket rain gauges;
- Discharge measurements;
- Erosion monitoring including sediment production, change in rill cross-sections, and bank pins;
- Measurement of soil properties including gravimetric water content, organic matter content, and particle size (sieve and hydrometer methods).
- Weather station measurements;
- Bed sediment sampling;
- Surface-water quality sampling;
- Ground-water quality sampling;

PUBLICATIONS

- Larsen, I.J., L.H. MacDonald, E. Brown, D. Rough, M.J. Welsh, J.H. Pietreszek, Z. Libohova, and K.R. Schaffrath, 2009. Causes of post-fire runoff and erosion: the roles of soil water repellancy, surface cover, and soil sealing. *Soil Science Society of America Journal* v. 73, p. 1393-1407.
- Paschke, S.P., K.R. Schaffrath, and S.L. Mashburn. 2008. Near-decadal changes in nitrate and pesticide concentrations in the South Platte River alluvial aquifer, 1993-2004. *Journal of Environmental Quality*, 37: S-281-S295.
- Larsen, I.J., L.H. MacDonald, E. Brown, D. Rough, M.J. Welsh, J.H. Pietraszek, Z. Libohova, and K. Schaffrath, 2007. What Causes Runoff and Sediment Yields to Increase After Wildfires? *Eos Trans. AGU*, 88 (52), Fall Meeting Supplement, Abstract H43F-1693.
- MacDonald, L.H., D.T. Rough, and K.R. Schaffrath, 2007. Post-fire Erosion: Long-term Recovery and Effectiveness of Rehabilitation Techniques. *Eos Trans. AGU*, 88 (52), Fall Meeting Supplement, Abstract H43F-1697.
- Brown, E., L.H. MacDonald, Z. Libohova, D. Rough, and K. Schaffrath, 2005. Sediment Production Rates from Forest Thinning, Wildfires, and Roads: What is Important? *Eos Trans. AGU*, 86 (52), Fall Meeting Supplement, Abstract H51E-0418.