

# Jaime R. Goode

## Fluvial Geomorphologist

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## EDUCATION

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- Ph.D. **Colorado State University**, Fort Collins, Colorado, 2009  
Earth Resources, specializing in Fluvial Geomorphology, Department of Geosciences  
Dissertation: *Substrate controlled interactions among hydraulics, sediment transport and erosional forms in a bedrock river*. Advisor: Dr. Ellen Wohl. GPA: 3.9
- M. S. **Colorado State University**, Fort Collins, Colorado, 2005  
Geosciences, specializing in Fluvial Geomorphology, Department of Geosciences  
Thesis: *Assessment of land-use impacts on forced-pool characteristics in the Colorado Front Range*. Advisor: Dr. Ellen Wohl. GPA: 3.9
- B.A. **Connecticut College**, New London, Connecticut, 2002  
**School for International Training**, Semester Abroad, New Zealand, 2000  
Environmental Studies  
Senior Thesis: *Flow patterns and turbulence generation in a pool controlled by two channel constrictions*. Advisor: Dr. Douglas Thompson, GPA: 3.8

## HONORS, AWARDS, AND GRANTS

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- 2010 Effects of climate change on watershed condition and salmon habitat in mountain basins, J. Buffington, D. Tonina, D. Isaak (co-PIs), US Forest Service, **\$232,500**.
- 2010 Sources, magnitudes and processes of sediment delivery in mountain rivers, J. Buffington and E. Yager (co-PIs), US Forest Service, **\$102,785**.
- 2009 Outstanding Student Scientist Award, Association of Women Geoscientists
- 2008 Outstanding Student Paper, American Geophysical Union, Hydrology Section
- 2007 Marie Morisawa Graduate Fellowship, Colorado State University, **\$5,000**.
- 2007 Outstanding Student Paper, American Geophysical Union, Hydrology Section
- 2006 Oscar and Isabel Anderson Scholarship, Colorado State University, **\$1,350**.
- 2005 Testing the existence of a threshold discharge in bedrock channels, E. Wohl (P.I.), National Science Foundation, **\$203,617**.
- 2005 Schumm Graduate Scholarship, Colorado State University, **\$5,000**.
- 2005 Outstanding Student Scientist Award, Association of Women Geoscientists
- 2004 Assessment of land-use impacts on forced-pool characteristics in constriction-dominated channels, Geological Society of America Graduate Research Grant, **\$1,700**.
- 2004 Larry Kent Burns Memorial Scholarship, Colorado State University, **\$1,000**.
- 2004 Robert K. Fahnestock Memorial Research Award, Geological Society of America
- 2003 Assessment of historical and contemporary land-use impacts on pool habitat in the Upper South Platte River drainage basin, E. Wohl (P.I.), USDA Forest Service, **\$73,212**.

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## RESEARCH EXPERIENCE

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**2010 to Present**

**Postdoctoral Fellow**

*Center for Ecohydraulic Research, University of Idaho, Boise, ID*

Coordinated an international collaborative project to quantify the potential effects of climate change on stream morphology and salmon habitat in different hydroclimates, using field data collection, ARC GIS, and statistical techniques. Supervised undergraduate field technicians conducting stream morphology surveys in remote locations. Mentored an undergraduate senior thesis. Designed and conducted flume experiments on sediment transport dynamics and erosional processes in bedrock rivers. Developing a proposal to study the influence of large wood delivery and transport on critical Chinook salmon habitat and carbon dynamics in regions prone to post-fire debris flows.

**2010 to Present**

**Postdoctoral Geomorphologist**

*US Forest Service, Rocky Mountain Research Station, Boise, ID*

Coordinated a review of sediment sources and yields and implications for water resources and aquatic habitat management. Developed a study to investigate the role of large wood on sediment retention in post-fire debris flow channels.

**2005 to 2009**

**Doctoral Researcher**

*Department of Geosciences, Colorado State University, Fort Collins, CO*

Applied field-based methods to study the interactions among substrate resistance and hydraulic driving forces at different spatial scales in bedrock channels, with specific focus on: 1) bedrock substrate controls on reach-scale roughness, 2) coarse sediment transport dynamics at different spatial scales, and 3) spatial patterns and erosional effectiveness of stream potholes.

**2003 to 2009**

**Graduate Research Assistant**

*Department of Geosciences, Colorado State University, Fort Collins, CO*

Assisted in hypothesis generation, field data collection and statistical analyses for the following research projects: 1) Wood dynamics in headwater streams in the Colorado Rocky Mountains; 2) Episodic wood loading in a mountainous neotropical watershed; 3) Wood distribution in forested headwater streams of La Selva, Costa Rica. Reviewed manuscript and grant proposal drafts for Ellen Wohl. Assisted in field data collection for other graduate student researchers in Wyoming, Arizona, and Costa Rica. Examined forced-pool morphology and frequency in Colorado Front Range streams with varying land-use histories.

**2000 to 2001**

**Undergraduate Research Assistant**

*Department of Physics, Astronomy and Geophysics, Connecticut College, New London, CT*

Assisted with field data collection in New England and Colorado streams focusing on the hydraulics and forms of pool-riffle morphologies; evaluation of restoration projects and in-stream structures; and coarse sediment storage associated with large-bed elements. Conducted flume experiments on the hydraulics and morphology of forced-pools for senior honors thesis.

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## TEACHING EXPERIENCE

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- 2010**      **Adjunct Faculty**  
*Department of Geosciences, Boise State University, Boise, ID*  
• GEOS 305/GEOG 357 Earth's Climate: Past, Present, and Future
- 2003 to 2009**      **Guest Lecturer/Teaching Assistant**  
*Department of Geosciences, Colorado State University, Fort Collins, CO*  
• NR420 Integrated Ecosystem Management. Lectured on fluvial systems and processes with an emphasis on management issues and directions for future natural resource managers.  
• G121 Geology and Our Environment. Lectured on glacial history, climate change, glacial processes and landforms for large lecture class (>250 students).  
• G454 Process Geomorphology: Promoted inquiry in field-based labs, designed written exams, and worked with students on technical writing.  
• G121 Introduction to Geology: Instructed four lab sections in the classroom and field.
- 2002 to 2003**      **High School Science Teacher**  
*Kents Hill School, Kents Hill, ME*  
• AP Biology, Honors Biology, and Chemistry
- 2000 to 2001**      **Teaching Assistant**  
*Department of Physics, Astronomy and Geophysics, Connecticut College, CT*  
• ES115 Introduction to Physical Geology

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## SERVICE AND OUTREACH

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- 2013**      **Field Trip Organizer**  
*Friends of the Pleistocene, Rocky Mountain Cell*
- 2009 to Present**      **Reviewer**  
*Journals: Environmental Management, Water Resources Research, Geomorphology, Earth Surface Processes and Landforms, Journal of American Water Resources Association*
- 2007 to Present**      **Consultant**  
*Telluride Institute*  
• Whitewater Park Feasibility Assessment, San Miguel River, Colorado  
*RiverRestoration.org*  
• Geomorphic Site Assessment, Ogden River Restoration Project, Ogden, UT  
*City of Boise*  
• Whitewater Park Study Design, Boise River Park, Boise, ID
- 2012**      **Proposal Reviewer**  
*National Science Foundation*
- 2012**      **Session Co-Convener**  
*AGU Fall Meeting*
- 2011**      **Student Presentation Judge**  
*AGU Fall Meeting*
- 2007**      **Outside Reviewer**  
*Undergraduate Honors Thesis, Connecticut College*

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## PEER-REVIEWED PUBLICATIONS

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- Goode, J.R.** and E. Wohl (submitted), The 'hole' is greater than the sum of its parts: Pothole erosion in bedrock rivers, *Geology*.
- Goode, J.R.**, J.M. Buffington, D. Isaak, D. Tonina, R. Thurow, C. Luce, S. Wenger, D. Nagel, D. Tetzlaff, C. Soulsby (in review), Potential effects of climate change on streambed scour and risks to salmon survival in mountain basins, *Hydrological Processes—Invited, Special Issue*.
- Wohl, E., S. Bolton, D. Cadol, F. Comiti, **J.R. Goode**, and L. Mao (2012), A two end-member model of wood dynamics in headwater neotropical rivers, *Journal of Hydrology* 462-463, 67-76.
- Goode, J.R.**, C. H. Luce, and J.M. Buffington (2012), Enhanced sediment delivery to large basins in a changing climate: Implications for water resource management and aquatic habitat in semi-arid basins influenced by wildfire, *Geomorphology* 139-140, 1-15.
- Goode, J.R.** and E. Wohl (2010), Patterns of coarse sediment transport dynamics at three spatial scales of bedrock channel bed complexity, *Water Resources Research* 46, W11524, doi:10.1029/2009WR008135.
- Goode, J.R.** and E. Wohl (2010), Substrate controls on the longitudinal profile of bedrock channels: Implications for reach-scale roughness, *Journal of Geophysical Research—Earth Surface* 115, F03018, doi:10.1029/2008JF001188.
- Wohl, E., F. Ogden, **J.R. Goode** (2009), Episodic wood loading in a mountainous neotropical watershed, *Geomorphology* 111 (3-4), 149-159.
- Cadol, D., E.E. Wohl, **J.R. Goode**, K.L. Jaeger (2009), Wood distribution in forested headwater streams of La Selva, Costa Rica, *Earth Surface Processes and Landforms* 43, 1198-1215.
- Wohl, E.E. and **J.R. Goode** (2008), Wood dynamics in headwater streams in the Colorado Rocky Mountains, *Water Resources Research* 44, W09429, doi:10.1029/2007WR006522.
- Goode, J.R.** and E.E. Wohl (2007), Relationships between land-use and forced-pool characteristics in the Colorado Front Range, *Geomorphology* 83, 249-265.

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## OTHER PUBLICATIONS

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- Nagel, D.E., Buffington, J.M., Parkes, S.L., Wenger, S, **Goode, J.** (in review), A landscape scale valley confinement algorithm: Delineating unconfined valley bottoms for geomorphic, aquatic, and riparian applications. USDA Forest Service General Technical Report, RMRS-GTR-000.
- Goode, J.R.**, C. H. Luce, and J.M. Buffington (2009), Sediment sources and yields in the Idaho batholith, USFS Briefing Paper, Air, Water and Aquatic Environments Science Program, Rocky Mountain Research Station, Boise, ID.
- Goode, J.R.** (2009), Substrate controlled interactions between hydraulics, sediment transport and erosional forms in a bedrock river, Ph.D. Dissertation, Department of Geosciences, Colorado State University, Fort Collins.
- Wohl, E., D. Cadol, **J. Goode** (2008) Wood in neotropical headwater streams, *Colorado Water newsletter*.
- Goode, J.R.** (2005), Assessment of land-use impacts on forced-pool characteristics in the Colorado Front Range, M.S. Thesis, Department of Geosciences, Colorado State University, Fort Collins.
- Goode, J.R.** (2002), Dynamics of flow patterns in a recirculating eddy controlled by two channel constrictions with an emphasis on turbulence generation. Undergraduate honors thesis, Connecticut College.

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## MANUSCRIPTS IN PREPARATION

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**Goode, J.R.**, D. Tonina, J.M. Buffington, A process-based definition of valley confinement to assess ecosystem risks to climate change in mountain basins.

**Goode, J.R.**, J.M. Buffington, D. Isaak, D. Tonina, R. Thurow, C. Luce, S. Wenger, D. Nagel, D. Tetzlaff, C. Soulsby, Variation in climate change risk for salmonids adapted to difference hydroclimatic regimes.

Micheletty, P.D., **J.R. Goode**, J. Pierce, J.M. Buffington, Reach-scale morphologic adjustment in in confined and unconfined alluvial mountain rivers, Western Washington.

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## CONFERENCE ABSTRACTS AND PRESENTATIONS

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(\* denotes undergraduate author)

**Goode, J.R.**, J. M. Buffington, D. Tonina, D. Isaak, R. Thurow, C. Luce, S. Wenger, D. Nagel, D. Tetzlaff, C. Soulsby (2012), Field data drives modeling predictions of climate change effects on incubating salmonids, 43rd Annual Binghamton Geomorphology Symposium: The field tradition in geomorphology, Jackson, WY.

**Goode, J.R.**, J. M. Buffington, D. Tonina, D. Isaak, S. Wenger, R. Thurow, C. Luce, D. Nagel, D. Tetzlaff, C. Soulsby (2012), Effects of climate change on streambed scour and risks to salmonid survival in snow-dominated mountain basins. Northern Watershed Ecosystem Response to Climate Change (NORTH-WATCH), Workshop V: Catchments of the future North: towards science for management in the 21st century, Potsdam, Germany.

\*Micheletty, P.D., **J.R. Goode**, J. Pierce, J.M. Buffington (2012), Comparison of reach-scale morphologic adjustment in confined and unconfined alluvial mountain rivers, Western Washington. 2012 Undergraduate Research and Scholarship Conference, Boise State University, Idaho.

**Goode, J.R.**, J. M. Buffington, D. Isaak, D. Tonina, R. Thurow, C. Luce, S. Wenger, D. Nagel, (2012), Scour Power: Potential climate change risks for incubating salmonids in the Middle Fork of the Salmon River, Idaho, Western Division American Fisheries Society, Jackson, WY.

\*Micheletty, P.D., **J.R. Goode**, J. Pierce, J.M. Buffington (2011), Comparison of reach-scale morphologic adjustment in confined and unconfined alluvial mountain rivers, Olympic Peninsula, Washington. Abstract EP21C-0717 presented at 2011 Fall Meeting, AGU, San Francisco, California.

**Goode, J.**, J. M. Buffington, D. Isaak, D. Tonina, R. Thurow, C. Luce, S. Wenger, D. Nagel, , D. Tetzlaff, C. Soulsby (2011), Predicted climate change effects on streambed scour and risks to Chinook salmon survival in the Middle Fork Salmon River, Idaho, Abstract EP31A-0800 presented at 2011 Fall Meeting, AGU, San Francisco, California.

**Goode, J.**, J. M. Buffington, D. Isaak, D. Tonina, R. Thurow, S. Wenger, D. Nagel, J. McKean, C. Luce (2011), Predicting climate change effects on streambed scour and risks to Chinook salmon survival in the Middle Fork Salmon River, Idaho, American Fisheries Society, Idaho Chapter.

Buffington, J.M. and **J.R. Goode** (2011), How will climate change affect channel morphology and salmonid habitat in mountain basins? Understanding and adapting to climate change in aquatic ecosystems at landscape and river basin scales: A decision support workshop for integrating research and management, Boise, Idaho.

**Goode, J.**, J. M. Buffington, D. Isaak, D. Tonina, D. Tetzlaff, C. Soulsby, K. Tockner, R. Thurow, J. A. McKean, C. Luce, S. Wenger, D. Nagel, (2010), Climate-driven changes in scour regime and

- potential risks to salmonid survival in the Middle Fork Salmon River, Idaho, AGU Fall Meeting.
- Buffington, J. M., **J. Goode** (2010), How will climate change affect channel morphology and salmonid habitat in mountain basins? AGU Fall Meeting.
- Goode, J.R.** and E. Wohl (2010), Coarse sediment transport dynamics in a semi-alluvial channel, Gravel Bed Rivers VII.
- Goode, J.R.**, C. Young, J. Carey, (2010), Successful projects go with the flow, Whitewater Courses and Parks bi-annual conference, Salida, Colorado.
- Goode, J.R.**, J.M. Buffington, C. H. Luce (2009), Sediment sources and magnitudes within the Idaho batholith in a changing climate, AGU Fall Meeting.
- Goode, J.R.**, E.E. Wohl and R. M. Reich (2009), Substrate influences on the occurrence of stream potholes, GSA Annual Meeting.
- Goode, J.R.**, C. Luce, and J.M. Buffington (2009), Synthesis of sediment sources and yields in the Lower Snake River watershed, Snake River Local Sediment Management Group, Summer 2009 Workshop, USACE, Walla Walla District, Lewiston, ID.
- Goode, J.R.** and E. Wohl (2008), Spatial patterns and effectiveness of potholes at two spatial scales: A field example, EOS Trans AGU. 89(53), Fall Meet Suppl., Abstract H53B-1020.
- Goode, J.R.** and E. Wohl (2007), Coarse sediment transport dynamics at three spatial scales of bedrock channel bed complexity, EOS Trans AGU. 88(52), Fall Meet Suppl., Abstract H51E-0794.
- Goode, J.R.** and E. Wohl (2006), Longitudinal variation in bedrock channel bed topography: Implications for reach-scale roughness, EOS Trans. AGU. 87(52), Fall Meet Suppl., Abstract H51G-0566.
- Wohl, E. and **J. R. Goode** (2006), Wood dynamics in streams of the Colorado Rocky Mountains, EOS Trans. AGU. 87(52), Fall Meet Suppl., Abstract H41H-08.
- Goode, J.R.** and E.E. Wohl (2005), Land-use impacts on forced-pool characteristics in constriction-dominated channels, AGU Hydrology Days, Colorado State University, Fort Collins.
- Goode, J.R.** and E.E. Wohl (2004), Assessment of land-use impacts on forced-pool characteristics in constriction-dominated channels, Geological Society of America, Denver Annual Meeting Paper N.1-11.

## INVITED SEMINARS

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- Northern Rivers Institute**, University of Aberdeen, Scotland (2012), Predicting climate change risks for incubating salmonids in mountain streams.
- International Association for Hydro-Environment Engineering and Research (IAHR)** University of Idaho Student Chapter (2011), Predicting climate change effects on channel morphology and salmon habitat in mountain basins.
- University of Montana**, Department of Geosciences (2011), Predicting climate change effects on channel morphology and salmon habitat in mountain basins.
- Boise State University**, Department of Geosciences (2010), Substrate controlled interactions between hydraulics, sediment transport, and erosional processes in a bedrock river.
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## PROFESSIONAL DEVELOPMENT

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**August 2011 Participant**

*EPSCoR*

- Collaborative expedition down the Middle Fork of the Salmon River to debate current research and brainstorm future directions.

**October 2011 Contributor**

*"On the Cutting Edge"*

- National Science Foundation Workshop on Teaching Geomorphology in the 21st Century, Geomorphology Vignettes

**October 2009 Participant**

*Geological Society of America and the Council on Undergraduate Research*

- "Establishing and sustaining an undergraduate research program: A professional development workshop for new and future faculty"

## AFFILIATIONS

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2011 to Present	American Fisheries Society
2004 to Present	American Geophysical Union
2004 to Present	Geological Society of America
1998 to Present	American Whitewater

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## REFERENCES

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**Dr. Ellen Wohl**

*PhD and Master's Advisor*

Professor

Department of Geosciences

Warner College of Natural Resources

Colorado State University

Fort Collins, CO 80523-1482

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**Dr. John M. Buffington**

*Postdoc Supervisor and Mentor*

Research Geomorphologist

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**Dr. Jennifer Pierce**

*Teaching Supervisor and Collaborator*

Associate Professor

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**Dr. Sara L. Rathburn**

*PhD and Master's Committee Member and Teaching Supervisor*

Associate Professor

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**Dr. Daniele Tonina**

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Assistant Professor

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