

ALAN KASPRAK

United States Geological Survey • Grand Canyon Monitoring and Research Center
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CURRENT POSITION

Research Geologist **November 2017 - present**
U.S. Geological Survey
Grand Canyon Monitoring and Research Center – Flagstaff, Arizona

EDUCATIONAL BACKGROUND

Doctor of Philosophy in Watershed Sciences **October 2015**
Emphasis in Geomorphology and Earth Surface Processes
Utah State University – Logan, Utah
Ph.D. Dissertation: *Linking Form and Process in Braided Rivers Using Physical and Numerical Models*

Master of Science in Earth Sciences **June 2010**
Dartmouth College – Hanover, New Hampshire
M.S. Thesis: *Stream Channel and Riparian Response to Land-Use in Northern New England*

Bachelor of Science in Geology and Geophysics **May 2008**
Boston College – Chestnut Hill, Massachusetts
B.S. Thesis: *Measuring Sedimentation Rates and Land-Use Change in a Dam-Influenced Lake Delta: Narraguagus River, Maine*

EMPLOYMENT HISTORY

Mendenhall Postdoctoral Research Fellow **November 2015 – November 2017**
USGS Grand Canyon Monitoring and Research Center
and University of Minnesota, National Center for Earth Surface Dynamics

Research Assistant **September 2010 – October 2015**
Quinney College of Natural Resources, Department of Watershed Sciences
Utah State University – Logan, Utah

Research Assistant **August 2008 - June 2010**
Department of Earth Sciences
Dartmouth College – Hanover, New Hampshire

Undergraduate Research Assistant **June 2007 – May 2008**
Department of Earth and Environmental Sciences
Boston College – Chestnut Hill, Massachusetts

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SCHOLARLY CONTRIBUTIONS

Also see [Google Scholar profile](#)

PEER-REVIEWED PUBLICATIONS

Kasprak A, Sankey JB, Buscombe D, Caster JC, East AE, Grams PE. Accepted. Quantifying and Forecasting Changes in the Areal Extent of River Valley Sediment in Response to Altered Hydrology and Land Cover. *Progress in Physical Geography*.

Sankey JB, **Kasprak A**, Caster JC, East AE, Fairley HC. 2018a. The response of source-bordering aeolian dunefields to sediment-supply changes 1: Effects of wind variability and river-valley morphodynamics. *Aeolian Research*. DOI: [10.1016/j.aeolia.2018.02.005](https://doi.org/10.1016/j.aeolia.2018.02.005).

Sankey JB, **Kasprak A**, Caster JC, East AE, Fairley HC. 2018b. The response of source-bordering aeolian dunefields to sediment-supply changes 2: Controlled floods of the Colorado River in Grand Canyon, Arizona, USA. *Aeolian Research*. DOI: [10.1016/j.aeolia.2018.02.004](https://doi.org/10.1016/j.aeolia.2018.02.004).

Kasprak A, Caster J, Bangen S, Sankey J. 2017. Geomorphic Process from Topographic Form: Automating the Interpretation of Repeat Survey Data in River Valleys. *Earth Surface Processes and Landforms*. DOI: [10.1002/esp.4143](https://doi.org/10.1002/esp.4143).

Kasprak A, Hough-Snee N, Beechie T, Bouwes N, Brierley GJ, Camp R, Fryirs KA, Imaki H, Jensen ML, O'Brien G, Rosgen DL, Wheaton JM. 2016. The blurred line between form and process: a comparison of stream channel classification frameworks. *PLoS ONE*. DOI: [10.1371/journal.pone.0150293](https://doi.org/10.1371/journal.pone.0150293).

Hough-Snee N, **Kasprak A**, Rossi RK, Bouwes N, Roper BB, Wheaton JM. 2015. Hydrogeomorphic and biotic drivers of instream wood differ across sub-basins of the Columbia River Basin, USA. *River Research and Applications*. DOI: [10.1002/rra.2968](https://doi.org/10.1002/rra.2968).

Kasprak A, Wheaton JM, Ashmore PE, Hensleigh JW, Peirce SA. 2015. The relationship between particle travel distance and channel morphology: results from physical models of braided rivers. *Journal of Geophysical Research: Earth Surface* 120: 55-74. DOI: [10.1002/2014JF003310](https://doi.org/10.1002/2014JF003310).

Hough-Snee N, **Kasprak A**, Roper BB, Meredith CS. 2014. Direct and indirect drivers of instream wood in the interior Pacific Northwest, USA: decoupling climate, vegetation, disturbance, and geomorphic setting. *Riparian Ecology and Conservation* 2: 14-34. DOI: [10.2478/remc-2014-0002](https://doi.org/10.2478/remc-2014-0002).

Wheaton JM, Brasington J, Darby SE, **Kasprak A**, Sear D, Vericat D. 2013. Morphodynamic signatures of braiding mechanisms as expressed through change in sediment storage in a gravel-bed river. *Journal of Geophysical Research: Earth Surface* 118: 1-21. DOI: [10.1002/jgrf.20060](https://doi.org/10.1002/jgrf.20060).

Kasprak A, Magilligan FJ, Nislow KH, Renshaw CE, Snyder NP, Dade WB. 2013. Differentiating the relative importance of land cover change and geomorphic processes on fine sediment sequestration in a logged watershed. *Geomorphology* 185: 67-77. DOI: [10.1016/j.geomorph.2012.12.005](https://doi.org/10.1016/j.geomorph.2012.12.005).

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PEER-REVIEWED PUBLICATIONS- CONTINUED

Kasprak A, Magilligan FJ, Nislow KH, Snyder NP. 2012. A lidar-derived evaluation of watershed-scale large woody debris sources and recruitment mechanisms: coastal Maine, USA. *River Research and Applications* 28: 1462-1476. DOI: [10.1002/rra.1532](https://doi.org/10.1002/rra.1532).

PEER-REVIEWED PUBLICATIONS IN REVIEW

Kasprak A, Brasington J, Hafen K, Williams R, Wheaton JM. In Revision. Coming to grips with model imperfection: morphodynamic models as exploratory tools for understanding braided river dynamics. *Earth Surface Dynamics (ESurfD)*.

PEER-REVIEWED PUBLICATIONS IN PREPARATION

Kasprak A, Branksy N, Caster JC, Sankey TT, Sankey JB. In Preparation. The effect of topographic survey technique and resolution on the interpretation of geomorphic change in river valleys. *Earth Surface Processes and Landforms*.

Ferdowsi B, Gartner JD, Johnson KN, **Kasprak A**, Limaye AB, Miller KL, Nardin W, Ortiz AC, Perignon M, Tejedor A. In Preparation. Earthcasting: geomorphic prediction for society. *Earth's Future*.

SCIENTIFIC REPORTS

East AE, Sankey JB, Fairley HC, Caster JC, **Kasprak A**. 2017. Modern landscape processes affecting archaeological sites along the Colorado River, Glen Canyon National Recreation Area, Arizona. USGS Scientific Investigations Report. DOI: [10.3133/sir20175082](https://doi.org/10.3133/sir20175082).

Kasprak A, Wheaton JM. 2012. Development of a rapid geomorphic assessment procedure for streams in the John Day River Watershed, Oregon. Prepared for EcoLogical Research, Providence, UT. 126 p.

THESES AND DISSERTATIONS

Kasprak A. 2015. Linking form and process in braided rivers using physical and numerical models. Ph.D. Dissertation. Utah State University, Logan UT. <http://digitalcommons.usu.edu/etd/4513>.

Kasprak A. 2010. Stream channel and riparian response to land-use in northern New England watersheds. M.S. Thesis. Dartmouth College, Hanover NH.

Kasprak A. 2008. Measuring Sedimentation Rates and Land-Use Change in a Dam-Influenced Lake Delta: Narraguagus River, Maine. B.S. Thesis. Boston College, Chestnut Hill MA.

MEETING ABSTRACTS – PRIMARY AUTHOR ONLY

Kasprak A, Branksy N, Caster J, Sankey JB, Sankey TT. 2017. The Effect of Topographic Survey Technique and Resolution on the Interpretation of Geomorphic Change in River Valleys. *EOS, Transactions, American Geophysical Union*. New Orleans, LA – December 11-15, 2017.

Kasprak A, Bangen S, Buscombe D, Catser J, Grams PE, Sankey J. Linking fluvial and aeolian morphodynamics in the Grand Canyon, USA. 10th Symposium on River, Coastal, and Estuarine Morphodynamics. Padova, Italy – September 18-22, 2017.

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MEETING ABSTRACTS – PRIMARY AUTHOR ONLY - CONTINUED

Kasprak A, Buscombe D, Caster J, East AE, Grams PE, Sankey J. 2017. Linking fluvial and aeolian sediment transport in the Grand Canyon. 14th Biennial Conference of Science and Management on the Colorado Plateau. Flagstaff, AZ – September 11-14, 2017.

Kasprak A, Buscombe D, Caster J, Grams PE, Sankey JB. 2016. The Individual and Additive Effects of Vegetation Encroachment and Hydrologic Alteration on Sediment Connectivity in Grand Canyon. *EOS, Transactions, American Geophysical Union*. San Francisco, CA – December 12-16, 2016.

Kasprak A, Brasington J, Hafen K, Wheaton JM. 2015. An efficient and imperfect model for gravel-bed braided river morphodynamics: numerical simulations as exploratory tools. *EOS, Transactions, American Geophysical Union*. San Francisco, CA - December 14-18, 2015.

Kasprak A, Hafen K, Wheaton JM. 2015. A simplified morphodynamic model for gravel-bed rivers. 10th Federal Interagency Sedimentation Conference. Reno, NV - April 19-23, 2015. *Awarded Best Student Technical Paper*.

Kasprak A, Wheaton JM, Ashmore P, Peirce S. 2013. The sensitivity of sediment path-lengths to channel morphology: results from physical models of braided rivers. Braided Rivers Workshop. Die, France - June 23-27, 2014.

Kasprak A, Wheaton JM, Bouwes N, Weber NP, Trahan NC, Jordan CE. 2012. Toward a rapid synthesis of field and desktop data for classifying streams in the Pacific Northwest: guiding the sampling and management of salmonid habitat. *EOS, Transactions, American Geophysical Union*. San Francisco, CA - December 3-7, 2012.

Kasprak A, Wheaton JM. 2011. Modeling gravel bed river morphodynamics using a step-length-based approach. Community Surface Dynamics Modeling System 2011 Meeting: Impact of Time and Process Scales. Boulder, CO - October 28-30, 2011.

Kasprak A, Wheaton JM. 2011. A new step-length-based morphodynamic model of gravel-bed river evolution. *Abstracts with Programs*. Geological Society of America. Minneapolis, MN - October 8-12, 2011.

Kasprak A, Magilligan FJ, Nislow KH, Snyder NP. 2010. A lidar-derived evaluation of watershed-scale large woody debris sources and recruitment mechanisms: coastal Maine, USA. *EOS, Transactions, American Geophysical Union*. San Francisco, CA - December 13- 17, 2010.

Kasprak A, Magilligan FJ, Nislow KH, Snyder NP. 2009. Evaluating the impacts of land-use change on stream morphology in coastal Maine. *EOS, Transactions, American Geophysical Union*. San Francisco, CA - December 14-18, 2009.

Kasprak A, Magilligan FJ, Nislow KH, Snyder NP. 2009. A rapid, lidar-based delineation of watershed-scale large woody debris sources. *Abstracts with Programs*. Geological Society of America. Portland, OR - December 18-21, 2009.

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MEETING ABSTRACTS – PRIMARY AUTHOR ONLY - CONTINUED

Kasprak A, Arcone SA, Dade WB, Finnegan DC, Magilligan FJ, Renshaw CE. 2008. Using ground penetrating radar to estimate sediment accumulation in a reservoir: Ball Mountain Dam, West River, Vermont. *EOS, Transactions, American Geophysical Union*. San Francisco, CA - December 15-19, 2008.

EXTRAMURAL RESEARCH FUNDING

University of Wyoming/U.S. National Park Service Research Grant (2017) – The Eco-geomorphic Importance of Wood in Braided Rivers'	Grant Recipient (\$5,000)
National Center for Earth Surface Dynamics Synthesis Postdoctoral Fellowship (2016 & 2017)	Fellowship Recipient (\$100,000)
NASA/Northern Arizona University Space Grant Undergraduate Research Funding (2016) Co-authored with T.T. Sankey	Grant Recipient (\$2,200)
United States Geological Survey Mendenhall Postdoctoral Research Fellowship (2015)	Fellowship Recipient (\$115,000)
Utah State University Doctoral Dissertation Completion Award (2015)	Grant Recipient (\$20,000)
National Science Foundation Research Grant (2012) – ‘Sensitivity of Braided River Morphodynamics to Sediment Supply’ Co-authored with PI J.M. Wheaton	Grant Recipient (\$271,000)
Geological Society of America (2009) Graduate Student Research Grant	Grant Recipient (\$2,500)
Dartmouth College (2009) Graduate Student Research Grant	Grant Recipient (\$1,000)

TEACHING BACKGROUND

INSTRUCTOR

<i>National Center for Earth Surface Dynamics</i> Summer Institute for Earth Surface Dynamics	2016 & 2017
<i>Intermountain Center for River Restoration and Rehabilitation</i> Geomorphic Change Detection: Restoration Monitoring	2011 & 2014
<i>Utah State University Watershed Sciences Graduate Induction Course</i> An Introduction to Stream and Landscape Classification	2013 & 2014

GRADUATE STUDENT INSTRUCTOR

<i>Utah State University – Watershed Sciences Department</i> Watershed Sciences Graduate Induction Course	2012
<i>Intermountain Center for River Restoration and Rehabilitation</i>	

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GRADUATE STUDENT INSTRUCTOR - CONTINUED

Geomorphology and Sediment Transport in Channel Design	2011
<i>Dartmouth College Department of Earth Sciences</i>	
Introduction to Earth Science	2008 & 2010
Off-Campus Program (Western U.S. Geology)	2009
Oceanography	2009
Earth's Past, Present, and Future Climate	2009

STUDENTS SUPERVISED OR MENTORED

Northern Arizona University

Nathaniel Bransky, B.S. in Environmental Science – 2016 to Present

Utah State University

Konrad Hafen, B.S. in Watershed Sciences – 2014

Dartmouth College

Rohan Chaudhary, A.B. in Environmental Earth Sciences, Biology – 2012

Brynne Weeks, A.B. in Engineering – 2012

INVITED LECTURES AND SEMINARS

Colorado Mountain College, Leadville

Using Geographic Information Systems to Guide Natural Resources Management 2018

University of Virginia

University of Colorado, Boulder

Technological Innovation and the Forefront of River Science 2018

The Nature Conservancy

River Science at the Interface of the Physical, Biological, and Anthropogenic 2017

National Center for Earth Surface Dynamics

Connecting Life and Landscape Using Ecohydraulic Models 2016

USGS Grand Canyon Monitoring and Research Center

Linking Sediment Transport and Channel Morphology in Braided Rivers 2015

Utah State University, Fluvial Hydraulics and Ecohydraulics Seminar

An Introduction to Two-Dimensional Ecohydraulic Modeling 2014

Leeds University

A Simplified Approach to Modeling Braided River Morphodynamics 2013

Utah State University, EcoLunch Seminar

Life, Landscape, and the Dynamic Nature of Physical Habitat 2012

SERVICE AND OUTREACH ACTIVITIES

CONFERENCE SYMPOSIA CONVENED

Interactions between geomorphic processes, vegetation, and large wood in river channels and floodplains. 2018 [scheduled]. *With* Katherine Lininger, University of Colorado at Boulder, Dan Scott, University of Washington, and Natalie Kramer Anderson, Utah State University. *EOS, Transactions, American Geophysical Union*. Washington, DC – December 10-14, 2018.

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CONFERENCE SYMPOSIA CONVENED – CONTINUED

Morphodynamics of fluvial, aeolian, hillslope, and coastal environments characterized using high-resolution topography and bathymetry. 2015. *With* Paul E. Grams and Joel B. Sankey, U.S. Geological Survey, and Devin M. Lea, University of Oregon. *EOS, Transactions, American Geophysical Union*. San Francisco, CA - December 14-18, 2015.

Using predictive models to inform river management and restoration. 2013. *With* Gregory Pasternack, UC Davis. *EOS, Transactions, American Geophysical Union*. San Francisco, CA - December 9-13, 2013.

MEDIA COVERAGE

- Utah Public Radio (2016): [Classification Systems for Rivers More Complementary than Expected](#)
- Utah State Today and phys.org (2016): [USU Scholars Forge Unprecedented Common Ground in River Classification](#)
- Utah State Today (2013): [USU Scientists' Work Highlighted in American Geophysical Union Journal](#)

OUTREACH

- [Grand Canyon Youth](#) (2016 & 2017): Instructor on [Partners-in-Science](#) Grand Canyon river trip; led students ages 15-19 in structure-from-motion topographic surveys along Colorado River.
- [Scientists in the Classroom](#) (2016 & 2017): served as pen-pal mentor to middle school students introducing them to careers in Earth Science.

AD-HOC REVIEWER

- *River Research and Applications*
- *Hydrological Processes*
- *Journal of Geophysical Research: Earth Surface*
- *Progress in Physical Geography*
- *Ecohydrology*
- *Water*
- *Sustainability*
- *International Journal of Geo-Information*
- *Earth Surface Processes and Landforms*

PANELIST/COMMITTEE MEMBER

- Faculty Search Committee (2013): Utah State University Department of Watershed Sciences
 - EarthCube Modeling Workshop for the Geosciences (2013): National Science Foundation, Boulder, Colorado.
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