JOHN (JACK) C. SCHMIDT

Janet Quinney Lawson Chair in Colorado River Studies
Professor, Department of Watershed Sciences
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Present and Recent Appointments

Utah State University (1991 – present)

- Janet Quinney Lawson Chair in Colorado River Studies (2018-present); Director, Center for Colorado River Studies (2016-present)
- Professor, Department of Watershed Sciences (2006-present); Director, Intermountain Center for River Rehabilitation and Restoration (2006-2011); Director, Utah State University Water Initiative (2007-2011)
- Associate professor (1997 – 2006); Associate Director, Utah State University Water Initiative (2004 – 2007); Interim Director, Watershed Science Program (1997-2000)
- Assistant professor (1991-1997)

U. S. Geological Survey, Grand Canyon Monitoring and Research Center (Au 2011 – N 2014)

- led staff of ~40 and ~$9 million annual budget.

Fulbright Senior Specialist, Council for International Exchange of Scholars (2008-2013)

Synergistic Activities

- Innovative application of river science to environmental management and rehabilitation of large regulated rivers. Work has included
    a. member of the team that developed the pulse flow released from Morelos Dam (March 2014) into the Colorado River delta; developed science monitoring plan for the pulse flow; co-recipient of Department of the Interior Partners in Conservation award for planning and implementation of the pulse flow release into the delta.
    b. leader and/or advisor of science teams developing environmental flow recommendations for the Rio Grande in the Big Bend
    c. member of the team that conceived and implemented controlled floods as a tool in ecosystem management downstream from Glen Canyon Dam, culminating in the first controlled flood release in 1996
    d. leadership in innovative policy-relevant river science concerning the National Park system, recipient of the National Park Service Director's Award for Natural Resource Research.
- Transformative leadership of federal river science. Chief of the Grand Canyon Monitoring and Research Center, the primary science provider to the Glen Canyon Dam Adaptive Management Program. Transformed the organization in the conduct of applied river science in the Colorado River and expanded the scope of program to consider other rivers of the U.S. Served as a key advisor to the Assistant Secretary for Water and Science of the Department of the Interior.
- Innovative leadership in integrating river science with water-supply planning in the Colorado River basin. Conceived and developed the Future of the Colorado River project to consider how to innovatively manage the Colorado River system to consider water-supply reliability and security while also considering the fate of river ecosystems. This project is widely recognized among

Colorado River stakeholders as a critical foundation of on-going negotiations about management of the river.

- Innovative leadership in empowering communities to participate in Colorado River decision-making. Created the Center for Colorado River Studies as a locus of academic science, agency science and management, and community empowerment. Created and obtained funding for the Colorado River Science Speaker Series in river communities in southern Utah.
- Provider of senior-level advice and guidance to many NGOs, government agencies, tribes, and international groups in the management of large rivers. Serve on several national and regional advisory boards of NGOs focused on river conservation. Provide advice to various federal government agencies that manage the Rio Grande and Colorado River. Provided advice to science groups in Spain and Mexico regarding river management and conservation. Conducted research and developed policy-relevant briefing materials that led to passage of the Grand Canyon Protection Act of 1992.
- Application of geomorphic science to assessment of river navigability. Expert witness (expert report, deposition, testimony) under contract to state of Montana in legal case (state of Montana v. Talen Resources) concerning navigability of Madison, Missouri, and Clark Fork Rivers at time of statehood. (2016-2022).
- Policy-relevant applied science concerning mining of coal in the western United States. Conceived of research program in mid-1970s to inform policy debates concerning federal regulation of surface coal mining industry. These research reports were discussed in floor debates of U.S. Senate related to passage of the Surface Mine Control and Reclamation Act of 1976. Helped write regulatory program for mining activity in alluvial valley floors in western U.S. Conducted research for the U.S. Office of Technology Assessment of the U.S. Congress concerning federal coal leasing policy.

Awards

2014 Department of the Interior Partners in Conservation award to the Minute 319 Bi-National Partnership *"for implementation of the recent agreement between Mexico and the United States to cooperate on Colorado River water use and environmental issues"*

2012 U. S. Geological Survey STAR award, *"leadership and commitment to science excellence in the development of the GCMRC Biennial Work Plan 2012"*

2009 National Park Service Director's Award for Natural Resource Research

2009 National Park Service Intermountain Region Regional Director's Award for Natural Resource Research

2009 Fulbright Senior Specialist award, Universidad Politecnica de Madrid, Spain

2009 Utah State University College of Natural Resources Researcher of the Year

2007 Rocky Mountains Cooperative Ecosystems Studies Unit Project Award, "*for the outstanding contributions he and his students made to the National Park Service on the project, 'Hydrology and Geomorphology of the Snake River Downstream from Jackson Lake Dam in Grand Teton National Park'.*"

1997 Shoemaker Communications Award, U.S. Geological Survey, "*for excellence in communicating scientific information*" [cited with co-authors M. J. Collier and R. H. Webb for the book *Dams and Rivers: primer on the downstream effects of dams*]

Media Recognition

Profile of career:

Stokstad, E. 2021. A voice for the river: Jack Schmidt tells hard truths about how climate change will shrink the Colorado River, a lifeline for the Southwest. Will others listen? *Science* 373(6550): 17-21.

Wendell, B. 2022. Troubled waters: Jack Schmidt sounded the alarm about the demise of the Colorado River for decades – now people are listening. *Bucknell Magazine* 15(1):29-35.

Media interviews:

Numerous interviews in television, radio, streaming services, magazines, podcasts, newspapers, including

- Australian Broadcasting Corporation https://www.youtube.com/watch?v=ooGeK4hP0NQ, CNBC, 9NewsDenver, KSL-TV, FOX Weather (NYC)
- All Things Considered and Weekend Edition Saturday (National Public Radio), KUER, Colorado Public Radio, KNAU
- VICE News https://www.youtube.com/watch?v=5CADLfXOhkU
- The Guardian, Yahoo News
- Smithsonian Magazine, National Geographic, Sierra, The New Yorker https://www.newyorker.com/magazine/2021/08/16/the-lost-canyon-under-lake-powell
- Washington Post, Arizona Daily Star, Colorado Sun, Salt Lake Tribune, Süddeutsche Zeitung, Las Vegas Review-Journal, Arizona Republic

White Papers of the Future of the Colorado River Project, published online at the Center for Colorado River Studies

Salehabadi, H., Tarboton, D., Kuhn, E., Udall, B., Wheeler, K., Rosenberg, D., Goeking, S, and **Schmidt, J. C**. 2020. The future hydrology of the Colorado River basin. Utah State University Center for Colorado River Studies white paper no. 4, 70 p. Available at https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_4.pdf.

Schmidt, J. C. 2016. Fill Mead First: a technical assessment. Utah State University Center for Colorado River Studies white paper no. 1, 80 p. Available at https://qcnr.usu.edu/coloradoriver/files/FillMeadFirst_Technical_Assessment.pdf.

Wang, J., Rosenberg, D. E., Wheeler, K. G., and **Schmidt, J. C.** 2020. Managing the Colorado River for an uncertain future. Utah State University Center for Colorado River Studies white paper no. 3, 30 p. Available at https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_3.pdf.

Wang, J., and **Schmidt, J. C.** 2020. Stream flow and losses of the Colorado River in the southern Colorado Plateau. Utah State University Center for Colorado River Studies white paper no. 5, 26 p. Available at https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_3.pdf.

Wang, J., Udall, B., Kuhn, E., Wheeler, K., and **Schmidt, J. C**. 2022. Evaluating the accuracy of Reclamation's 24-Month Study Lake Powell Projections. Utah State University Center for Colorado River Studies white paper no. 7, 20 p. Available at https://qcnr.usu.edu//coloradoriver/files/news/WhitePaper_7.pdf.

Wheeler, K., Kuhn, E., Bruckerhoff, L., Udall, B., Wang, J., Gilbert, L., Goeking, S., Kasprak, A., Mihalevich, B., Neilson, B, Salehabadi, H., and **Schmidt, J. C.** 2021. Alternative management paradigms for the future of the Colorado and Green Rivers. Utah State University Center for Colorado River Studies white paper no. 6, 90 p. Available at https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_6.pdf.

Wheeler, K. G., Rosenberg, D. E., and **Schmidt, J. C.** 2019. Water resource modeling of the Colorado River: present and future strategies. Utah State University Center for Colorado River Studies white paper no. 2, 47 p. Available at https://qcnr.usu.edu/coloradoriver/files/CCRS_White_Paper_2.pdf.

Peer-Reviewed Journal Articles and Peer-Reviewed Contributions to Edited Books

Bruckerhoff, L.A., Wheeler, K., Dibble, K. L., Mihalevich, B.A., Neilson, B.T., Wang, J., Yackulic, C.B., and **Schmidt, J.C.** 2022. Water storage decisions and consumptive use may constrain ecosystem management under severe sustained drought. *Journal of the American Water Resources Association* 58(5): 654-672.

Johnson, C. L., Root, J. C., Hynek, S. A., and **Schmidt, J. C.** 2022. Sedimentary record of annual-decadal timescale reservoir dynamics: Anthropocene stratigraphy of Lake Powell, Utah, U.S.A. *The Sedimentary Record* 20(1):15-29.

Pennock, C. A., Budy, P., Macfarlane, W. W., Breen, M. J., Jimenez, J., and **Schmidt, J. C.** 2022. Native fish need a natural flow regime. *Fisheries,* https://doi.org/10.1002/fsh.10703.

Robison, J. A. and **Schmidt, J. C.** 2022. Centennial perspectives on the Colorado River Compact, Proceedings of the 68th Annual Natural Resources and Energy Law Institute, The Foundation for Natural Resources and Energy Law, 39 p.

Salehabadi, H., Tarboton, D.G., Udall, B., Wheeler, K.G., and **Schmidt, J.C.** 2022. An assessment of potential severe droughts in the Colorado River basin. *Journal of the American Water Resources Association,* https:///doi.org/10.1111/1752-1688.13061.

Schmidt, J. C. 2022. Effects of dams on rivers, in *Encyclopedia of Inland Waters*, 2nd edition, edited by K. Tockner. Elsevier, 2:503-515.

Schmidt, J. C., Bruckerhoff, L. A., Wang, J., and Yackulic, C. B. 2022. The Colorado River: the science-policy interface, in *Cornerstone at the Confluence*, edited by J. A. Robison. The University of Arizona Press, p. 238-263.

Schmidt, J. C., Bruckerhoff, L., Salehabadi, H., and Wang, J. 2022. The Colorado River, in *Large Rivers: Geomorphology and Management*, 2nd edition, edited by A. Gupta. John Wiley & Sons, p. 253-319.

Wheeler, K. G., Udall, B., Wang, J., Kuhn, E., Salehabadi, and **Schmidt, J. C.** 2022. What will it take to stabilize the Colorado River? *Science* 377(6804): 373-375.

Dibble, K. L., Yackulic, C. B., Kennedy, T. A., Bestgen, K. R., and **Schmidt, J. C.** 2021. Water storage decisions will determine the distribution and persistence of imperiled river fishes. *Ecological Applications 31(2):* e02279.

Dean, D. J., Topping, D. J., Grams, P. E., Walker, A. E., and **Schmidt, J. C.** 2020. Does channel narrowing by floodplain growth necessarily indicate sediment surplus? Lessons from sediment-transport analyses in the Green and Colorado Rivers, Canyonlands, Utah. *Journal of Geophysical Research – Earth Surface* 125(11): e2019JF005414.

Grams, P. E., Dean, D. J., Walker, A. E., Kasprak, A, and **Schmidt, J. C.** 2020. The roles of flood magnitude and duration in controlled channel width and complexity on the Green River in Canyonlands, Utah, USA. *Geomorphology* 371: 107438.

Leonard, C. M., Legleiter, C. J., Lea, D. M., and **Schmidt, J. C.** 2020. Measuring channel planform change from image time series: a generalizable, spatially distributed, probabilistic method for quantifying uncertainty. *Earth Surface Processes and Landforms* 45:2727-2744. DOI: 10.1002/esp.4926.

Mihalevich, B. A., Neilson, B. T., Buahin, C. A., Yackulic, C. B., and **Schmidt, J. C.** 2020. Water temperature controls for regulated canyon-bound rivers. *Water Resources Rese*arch 56(12). https://doi.org/10.1029/2020WR027566.

Rubin, D. M., Buscombe, D., Wright, S. A., Topping, D. J., Grams, P. E., **Schmidt, J. C**., Hazel, J. E., Kaplinski, M. A., and Tusso, R. 2020. Causes of variability in suspended-sand concentration evaluated using measurements in the Colorado River in Grand Canyon. *Journal of Geophysical Research – Earth Surface* 125(9). doi.org/10.1029/2019JF005226.

Schmidt, J. C. 2020. Afterword, in *Vision & Place*, edited by J. Robison, D. McCool, and T. A. Minckley. University of California Press, p. 290-295.

Walker, A. E., Moore, J. N., Grams, P. E., Dean, D. J., and **Schmidt, J. C.** 2020. Channel narrowing by inset floodplain formation of the lower Green River in the Canyonlands region, Utah. *Geological Society of America Bulletin*. doi.org/10.1130/B35233.1.

Bair, L. S., Yackulic, C. B., **Schmidt, J. C.,** Perry, D. M., Kirchhoff, C. J., Chief, K., and Colombi, B. J. 2019. Incorporating social-ecological considerations into basin-wide responses to climate change in the Colorado River basin. *Current Opinion in Environmental Sustainability* 37:14-19, doi.org/10.1016/j.cosust.2019.04.002.

Blythe, T. L., and **Schmidt, J. C.** 2018. Estimating the natural flow regime of rivers with long-standing development: the northern branch of the Rio Grande. *Water Resources Research* 54: 1212-1236, doi.org/10.1002/ 2017WR021919.

Meredith, C. S., Budy, P, and **Schmidt, J. C.** 2018. Scour depths at sites selected for spawning by brown trout (*Salmo trutta*) along a longitudinal gradient of a North American mountain river. *River Research and Applications* 2018:1-11, doi;10.1002/rra.3321.

Mueller, E. R., Grams, P. E., Hazel, J. E., Jr., and **Schmidt, J. C.** 2018. Variability in eddy sandbar dynamics during two decades of controlled flooding of the Colorado River in the Grand Canyon. *Sedimentary Geology* 363: 181-199, doi.org/10.1016/j.sedgeo.2017.11.007.

Topping, D. J., Mueller, E. R., **Schmidt, J. C.,** Griffiths, R. E., Dean, D. J., and Grams, P. E. 2018. Long-term evolution of sand transport through a river network: relative influences of a dam versus natural changes in grain size from sand waves. *Journal of Geophysical Research: Earth Surface* 123(8): 1879-1909, doi.org/10.1029/2017JF004534.

Call, B. C., Belmont, P., **Schmidt, J. C.**, and Wilcock, P. R. 2017. Changes in floodplain inundation under nonstationary hydrology for an adjustable, alluvial river channel. *Water Resources Research* 53: 3811-3834, doi:10.1002/2016WR020277.

Mueller, E. R., **Schmidt, J. C.,** Topping, D. J., Shafroth, P. B., Rodriguez-Burgueno, J. E., Ramirez-Hernandez, J., and Grams, P. E. 2017. Geomorphic change and sediment transport during a small artificial flood in a transformed post-dam delta: the Colorado River delta, United States and Mexico. *Ecological Engineering*, 106: 757-775, doi.org/10.1016/j.ecoleng.2016.08.009.

Dean, D. J., Topping, D. J., **Schmidt, J. C**., Griffiths, R. E., and Sabol, T. A. 2016. Sediment supply versus local hydraulic controls on sediment transport and storage in a river with large sediment loads. *Journal of Geophysical Research: Earth Surface* 121: 145-158, doi:10.1002/2015JF003436.

Erwin, S. O., **Schmidt, J. C**., and Allred, T. M. 2016. Post-project geomorphic assessment of a large process-based river restoration project. *Geomorphology* 270: 145-158, http://dx.doi.org/10.1016/j.geomorph.2016.07.018.

Poff, N. L., and **Schmidt, J. C.** 2016. How dams can go with the flow. *Science* 353(6304): 1099-1100.

Gonzalez del Tanago, M., Bejarano, M. D., Garcia de Jalon, D., and **Schmidt, J. C.** 2015. Biogeomorphic responses to flow regulation and fine sediment supply in Mediterranean streams (the Guadalete River, southern Spain). *Journal of Hydrology* 528:751-762, doi.org/10.1016/j.jhydrol.2015.06.065.

Grams, P. E., **Schmidt, J. C.,** Wright, S. A., Topping, D. J., Melis, T. S., and Rubin, D. M. 2015. Building sandbars in the Grand Canyon. *Eos* 96, doi:10.1029/2015EO030349.

Sankey, J. B., Ralston, B. E., Grams, P. E., **Schmidt, J. C.**, and Cagney, L. E. 2015. Riparian vegetation, Colorado River, and climate: five decades of spatiotemporal dynamics in the Grand Canyon with river regulation. *Journal of Geophysical Research: Biogeosciences* 120: 1532-1547, doi:10.1002/2015JG002991.

Manners, R. B., **Schmidt, J. C.,** and Scott, M. L. 2014. Mechanisms of vegetation-induced channel narrowing of an unregulated canyon river: results from a natural field-scale experiment. *Geomorphology* 211:100-115. doi:10.1016/j.geomorph.2013.12.033.

Mueller, E. R., Grams, P. E., **Schmidt, J. C.,** Hazel, Jr., J. E., Alexander, J. S., and Kaplinski, M. 2014. The influence of controlled floods on fine sediment storage in debris fan-affected canyons of the Colorado River basin. *Geomorphology* 226: 65-75, doi.org/10.1016/j.geomorph.2014.07.029.

Olden, J. D., Konrad, C. P., Melis, T. S., Kennard, M. J., Freeman, M. C., Mims, M. C., Bray, E. N., Gido, K. B., Hemphill, N. P. Lytle, D. A., McMullen, L. A., Pyron, M., Robinson, C. T., **Schmidt, J. C.,** and Williams, J. G. 2014. Are large-scale flow experiments informing the science and management of freshwater ecosystems? *Frontiers in Ecology and the Environment* **12**: 176–185. doi.org/10.1890/130076.

Dean, D. J., and **Schmidt, J. C.** 2013. The geomorphic effectiveness of a large flood on the Rio Grande in the Big Bend region: insights on geomorphic controls and post-flood geomorphic response. *Geomorphology* 201: 183-198, doi:10.1016/j.geomorph.2013.06.020.

Flessa, K. W., Glenn, E. P., Hinojosa-Huerta, O., de la Parra, C. A., Ramirez-Hernandez, J., **Schmidt, J. C.**, and Zamora-Arroyo, F. A. 2013. Flooding the Colorado River delta: a landscape-scale experiment. *Eos* 94(50): 485-486. https://doi.org/10.1002/2013EO500001.

Grams, P. E., Topping, D. J., **Schmidt, J. C.**, Hazel, J. E., Jr., and Kaplinski, M. 2013. Linking morphodynamic response with sediment mass balance on the Colorado River in Marble Canyon: issues of scale, geomorphic setting, and sampling design. *Journal of Geophysical Research: Earth Surface* 118(2): 361-381. doi:10.1002/jgrf.20050.

Manners, R., **Schmidt, J. C.**, Wheaton, J. M. 2013. Multi-scalar model for the determination of spatially explicit riparian vegetation roughness. *Journal of Geophysical Research: Earth Surface* 118(1):65-83. doi:10.1029/2011JF002188.

Nelson, N. C., Erwin, S. O., and **Schmidt, J. C.** 2013. Spatial and temporal patterns in channel change on the Snake River downstream from Jackson Lake dam, Wyoming. *Geomorphology* 200:132-142. doi.org/10.1016/j.geomorph.2013.03.019.

Erwin, S. O., **Schmidt, J. C.**, Wheaton, J. M., and Wilcock, P. R., 2012. Closing a sediment budget for a reconfigured reach of the Provo River, Utah, USA. *Water Resources Research* 48, W10512. doi:10.1029/2011WR011035.

Salant, N. L., **Schmidt, J. C.**, Budy, P. E., and Wilcock, P. R. 2012. Unintended consequences of restoration: loss of riffles and gravel substrates following weir installation. *Journal of Environmental Management* 109:154-163. doi.org/10.1016/j.jenvman.2012.05.013.

Baillie, M. B., Salant, N. L., and **Schmidt, J. C.** 2011. Using a historical aerial photograph analysis to inform trout habitat restoration efforts. *Earth Surface Processes and Landforms* 36: 1693-1702.

Dean, D. J. and **Schmidt, J. C.** 2011. The role of feedback mechanisms in historic channel changes of the lower Rio Grande in the Big Bend region. *Geomorphology* 126 (3-4):333-349. doi:10.1016/j.geomorph.2010.03.009.

Dean, D. J., Scott, M. E., Shafroth, P., and **Schmidt, J. C.** 2011. Stratigraphic, sedimentologic, and dendrogeomorphic analyses of rapid floodplain formation along the Rio Grande in Big Bend National Park, TX. *Geological Society of America Bulletin* 123(9/10):1908-1925. doi:10.1130/B30379.1.

Erwin, S. O., **Schmidt, J. C.**, and Nelson, N. C. 2011. Downstream effects of impounding a natural lake: the Snake River downstream from Jackson Lake Dam, Wyoming. *Earth Surface Processes and Landforms* 36(11):1421-1434. doi:10.1002/esp.2159.

Konrad, C. P., Olden, J. D., Lytle, D. A., Melis, T. S., **Schmidt, J. C.**, Bray, E. N., Freeman, M. C., Gido, K. B., Hemphill, N. P., Kennard, M. J., McMullen, L. E., Mims, M. C., Pyron, M., Robinson, C. T., and Williams, J. G. 2011. Large-scale flow experiments for managing river systems. *Bioscience* 61(12):948-959. doi:10.1525/bio.2011.61.12.5.

Miller, S. W., Budy, P., and **Schmidt, J. C.** 2010. Quantifying macroinvertebrate responses to in-stream habitat restoration: applications of meta-analysis to river restoration. *Restoration Ecology* 18(1):8-19. doi:10.1111/j.1526-100X.2009.00605.x

Schmidt, J. C. and Wilcock, P. R. 2008. Metrics for assessing the downstream effects of dams. *Water Resources Research* 44, W04404. doi:10.1029/2006WR005092.

Wright, S. A., **Schmidt, J. C.**, Melis, T. S., Topping, D. J., and Rubin, D. M. 2008. Is there enough sand? Evaluating the fate of Grand Canyon sandbars. *GSA Today* 18(8):4-10. doi:10.1130/GSATG12A.1.

Arp, C. D., **Schmidt, J. C.**, Baker, M. A., and Myers, A. K. 2007. Stream geomorphology in a mountain lake district: hydraulic geometry, sediment sources and sinks, and downstream lake effects. *Earth Surface Processes and Landforms* 32(4):525-543 doi:10.1002/esp.1421.

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Doyle, M. W., Stanley, E. H., Strayer, D. L., Jacobson, R. B., and **Schmidt, J. C.** 2005. Effective discharge analysis of ecological processes in streams. *Water Resources Research* 41(11), W11411. doi:10.1029/2005WR004222.

Gaeuman, D. A., **Schmidt, J. C.**, and Wilcock, P. R. 2005. Complex channel responses to changes in stream flow and sediment supply on the lower Duchesne River, Utah. *Geomorphology* 64(3-4):185-206.

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Schmidt, J. C. 2005, The grand question: *Science* 309: 1818-1819 [review of *The Grand Canyon: solving Earth's grandest puzzle* by J. L. Powell].
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White, M. A., **Schmidt, J. C.**, and Topping, D. J. 2005. Application of wavelet analysis for monitoring the hydrologic effects of dam operation: Glen Canyon Dam and the Colorado River at Lees Ferry, Arizona. *River Research and Applications* 21(5):551-565.
Larsen, I. J., **Schmidt, J. C.**, and Martin, J. A. 2004. Debris fan reworking during low magnitude floods in the Green River canyons of the eastern Uinta Mountains, Colorado and Utah. *Geology* 32(4):309-312.
Schmidt, J. C. and Brim Box, J. 2004. Application of a dynamic model to assess controls on age-0 Colorado pikeminnow distribution in the middle Green River, Colorado and Utah. *Annals of the Association of American Geographers* 94 (3):458-476.
Gaeuman, D.A., **Schmidt, J. C.**, and Wilcock, P. R. 2003. Evaluation of in-channel gravel storage with morphology-based gravel budgets developed from planimetric data. *Journal of Geophysical Research* 108(F1):2-1 to 2-16.
Grant, G. E., **Schmidt, J. C.,** and Lewis, S., 2003, A geological framework for interpreting downstream effects of dams on rivers, <u>in</u> *A Peculiar River: Geology, Geomorphology, and Hydrology of the Deschutes River*, edited by J. E. O'Conner and G. E. Grant. American Geophysical Union Water Science and Application 7, p. 203-219.
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Various blog posts concerning the Colorado River, including

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Present Public Service

Colorado River Research Group, member (2014 - present) ("An independent, scientific voice for the future of the Colorado River") http://www.coloradoriverresearchgroup.org/
National Parks Conservation Association, Southwest Region, Regional Board, member (2015 – present)
American Rivers, Science and Technical Advisory Committee, member (2015 – present)

Secondary Appointments and Other Past Employment

Center for Environmental Studies, Arizona State University, adjunct assistant professor; sediment research advisor to the Senior Scientist, U.S. Bureau of Reclamation Glen Canyon Environmental Studies (1992 - 1995)
Middlebury College: assistant professor, Department of Geography, Department of Geology, and Environmental Studies program (1988 - 1991)
Cascades Volcanoes Observatory, Water Resources Division, U. S. Geological Survey, Vancouver, WA; hydrologist: faculty research appointment (1988 - 1990)
Arizona District, U. S. Geological Survey, Tucson: hydrologist (1985 - 1988)
Earth Resource Associates (environmental consulting firm), Helena, MT: owner (1978 - 1985)
Reclamation Division, Montana Department of State Lands: hydrologist (1975 - 1976)

Academic Preparation

Ph. D., Department of Geography and Environmental Engineering, The Johns Hopkins University; May 1987
M. A., Department of Geography, University of California, Berkeley; June 1974
B.A., Department of Political Science, Bucknell University; May 1972; *cum laude*