

**CASEY BROWN**  
Professor; Ph.D., P.E.  
Department of Civil and Environmental Engineering  
18 Marston Hall  
University of Massachusetts, Amherst  
Amherst, MA 01002  
[cbrown@ecs.umass.edu](mailto:cbrown@ecs.umass.edu)  
(413) 577 – 2337

Professional Experience

Professor Dept. of Civil & Env. Engineering	2017 – present University of Massachusetts, Amherst
Visiting Research Associate Environmental Change Institute	2014 - 2015 University of Oxford
Visiting Research Professor Laboratoire d'étude des Transferts en Hydrologie et Environnement	2014 – 2016 University of Grenoble
Associate Professor Dept. of Civil & Env. Engineering	2013 – 2017 University of Massachusetts, Amherst
Assistant Professor Dept. of Civil & Env. Engineering	2008 – 2013 University of Massachusetts, Amherst
Adjunct Associate Research Scientist International Research Institute for Climate and Society	2008 – present Columbia University
Associate Research Scientist International Research Institute for Climate and Society	2004 – 2008 Columbia University
NSF Graduate Research Fellow School of Engineering and Applied Science	2000 – 2004 Harvard University
Civil Engineering Officer USAF Academy, McConnell AFB, JTF Bravo (Honduras)	1994 – 2000 United States Air Force

Education

Doctor of Philosophy (PhD) Environmental Engineering Science	2004 Harvard University
Master of Science Environmental Engineering	1994 University of Massachusetts, Amherst
Bachelor of Science Civil Engineering	1993 University of Notre Dame

## Awards and Honors

Borland Lecturer in Hydrology, AGU/CSU, 2016  
Fulbright Fellowship, 2014  
California Dept of Water Resources Climate Science Service Award, 2014  
Department of Civil and Environmental Engineering Research Award, 2014, 2017  
College of Engineering Outstanding Junior Faculty Member, 2013  
National Science Foundation CAREER Award, 2011  
ASCE Huber Research Prize, 2011  
Presidential Early Career Award for Science and Engineering, 2007  
Best Policy Oriented Paper Award, *ASCE J. of Water Res. Plan. & Man.*, 2006  
National Science Foundation Graduate Research Fellowship, 2001 - 2004  
Distinguished Graduate, Civil Engineering Officer Basic School, 1995  
Chi Epsilon (Civil Engineering Honor Society), University of Notre Dame, 1993  
Notre Dame Scholar, University of Notre Dame, 1989

## **RESEARCH**

### Books

Ray, P., and Brown, C. (2015). *Confronting Climate Uncertainty in Water Resources Planning and Project Design - the Decision Tree Framework*. World Bank Group Press, Washington, DC., 128 pp.

Brown, C.M. and M.N. Ward (2013) *Managing Climate Risk in Water Supply Systems*. IWA Publishing. ISBN: 9781780400587, 168 pp.

### Peer Reviewed Publications (81 total)

Marcos-Garcia, P., Brown, C. and Pulido-Velazquez, M., 2020. Development of Climate Impact Response Functions for highly regulated water resource systems. *Journal of Hydrology*, 590, p.125251.

Borgomeo, HF Khan, M Heino, E Zaveri, M Kummu, C. Brown, 2020. Impact of green water anomalies on global rainfed crop yields. *Environmental Research Letters*, 2020

Brown, C., Boltz, F., Freeman, S., Tront, J. and Rodriguez, D., 2020. Resilience by design: A deep uncertainty approach for water systems in a changing world. *Water Security*, 9, p.100051.

Ray, P., Wi, S., Schwarz, A., Correa, M., He, M. and Brown, C., 2020. Vulnerability and risk: climate change and water supply from California's Central Valley water system. *Climatic Change*, pp.1-23.

Meyer, E.S., Foster, B.T., Characklis, G.W., Brown, C. and Yates, A.J., 2020. Integrating physical and financial approaches to manage environmental financial risk on the Great Lakes. *Water Resources Research*, 56(5), p.e2019WR024853.

Puspitarini, H.D., François, B., Zaramella, M., Brown, C. and Borga, M., 2020. The impact of glacier shrinkage on energy production from hydropower-solar complementarity in alpine river basins. *Science of The Total Environment*, 719, p.137488.

Freeman, S.S.G., Brown, C., Cañada, H., Martinez, V., Nava, A.P., Ray, P., Rodriguez, D., Romo, A., Tracy, J., Vázquez, E. and Wi, S., 2020. Resilience by design in Mexico City: A participatory human-hydrologic systems approach. *Water Security*, 9, p.100053.

Bruce, A., Brown, C., Avello, P., Beane, G., Bristow, J., Ellis, L., Fisher, S., Freeman, S.S.G., Jiménez, A., Leten, J. and Matthews, N., 2020. Human dimensions of urban water resilience: Perspectives from Cape Town, Kingston upon Hull, Mexico City and Miami. *Water Security*, 9, p.100060.

Taner, M.Ü., Ray, P. and Brown, C., 2019. Incorporating Multidimensional Probabilistic Information Into Robustness-Based Water Systems Planning. *Water Resources Research*.

François, B., Schlef, K.E., Wi, S. and Brown, C.M., 2019. Design considerations for riverine floods in a changing climate—a review. *Journal of Hydrology*.

Khan, H.F. and Brown, C.M., 2019. Effect of Hydrogeologic and Climatic Variability on Performance of a Groundwater Market. *Water Resources Research*, 55(5), pp.4304-4321.

Ray, P.A., Taner, M.Ü., Schlef, K.E., Wi, S., Khan, H.F., Freeman, S.S.G. and Brown, C.M., 2019. Growth of the Decision Tree: Advances in Bottom-Up Climate Change Risk Management. *JAWRA Journal of the American Water Resources Association*, 55(4), pp.920-937.

Spence, C.M. and Brown, C.M., (2018) Decision Analytic Approach to Resolving Divergent Climate Assumptions in Water Resources Planning. *Journal of Water Resources Planning and Management*, 144(9), p.04018054.

Ray, P. A., Bonzanigo, L., Wi, S., Yang, Y. C. E., Karki, P., Garcia, L. E., ... & Brown, C. M. (2018). Multidimensional stress test for hydropower investments facing climate, geophysical and financial uncertainty. *Global Environmental Change*, 48, 168-181.

François, B., Hingray, B., Borga, M., Zocatelli, D., Brown, C., & Creutin, J. D. (2018). Impact of Climate Change on Combined Solar and Run-of-River Power in Northern Italy. *Energies*, 11(2), 290.

Schlef, K.E., Kaboré, L., Karambiri, H., Yang, Y.E. and Brown, C.M., 2018. Relating perceptions of flood risk and coping ability to mitigation behavior in West Africa: Case study of Burkina Faso. *Environmental science & policy*, 89, pp.254-265.

Schlef, K.E., François, B., Robertson, A.W. and Brown, C., 2018. A General Methodology for Climate-Informed Approaches to Long-Term Flood Projection—Illustrated With the Ohio River Basin. *Water Resources Research*, 54(11), pp.9321-9341.

- Wi, S., Ray, P., Demaria, E. M., Steinschneider, S., & Brown, C. (2017). A user-friendly software package for VIC hydrologic model development. *Environmental Modelling & Software*, 98, 35-53.
- Schlef, K. E., Steinschneider, S., & Brown, C. M. (2017). Spatiotemporal Impacts of Climate and Demand on Water Supply in the Apalachicola-Chattahoochee-Flint Basin. *Journal of Water Resources Planning and Management*, 144(2), 05017020.
- Khan, H. F., Morzuch, B. J., & Brown, C. M. (2017). Water and growth: An econometric analysis of climate and policy impacts. *Water Resources Research*.
- Meyer, E. S., Characklis, G. W., & Brown, C. (2017). Evaluating financial risk management strategies under climate change for hydropower producers on the Great Lakes. *Water Resources Research*, 53(3), 2114-2132.
- Taner, M. Ü., Ray, P., & Brown, C. (2017). Robustness-based evaluation of hydropower infrastructure design under climate change. *Climate Risk Management*, 18, 34-50.
- Spence, C. M., and C. M. Brown (2016), Nonstationary decision model for flood risk decision scaling, *Water Resour. Res.*, 52, 8650–8667, doi:10.1002/2016WR018981.
- Whateley S., and C.M Brown (2016), Assessing the relative effects of emissions, climate means, and variability on large water supply systems, *Geophys. Res. Lett.*, 43,
- Whateley, S., Steinschneider, S., & Brown, C. (2016). Selecting Stochastic Climate Realizations to Efficiently Explore a Wide Range of Climate Risk to Water Resource Systems. *Journal of Water Resources Planning and Management*, 142(6), 06016002.
- Gallagher, L., Laflaive, X., Zaeske, A., Brown, C., Lange, G. M., Ahlroth, S., ... & Bahri, A. (2016). Embracing risk, uncertainty and water allocation reform when planning for green growth. *Aquatic Procedia*, 6, 23-29.
- Yang, Y. E., Wi, S., Ray, P. A., Brown, C. M., & Khalil, A. F. (2016). The future nexus of the Brahmaputra River Basin: Climate, water, energy and food trajectories. *Global Environmental Change*, 37, 16-30.
- Yang, Y., Ringler, C., Brown, C., and Mondal, M. (2016). "Modeling the Agricultural Water–Energy–Food Nexus in the Indus River Basin, Pakistan." *J. Water Resour. Plann. Manage.* , [10.1061/\(ASCE\)WR.1943-5452.0000710](https://doi.org/10.1061/(ASCE)WR.1943-5452.0000710) , 04016062.
- Brown, C. M., Lund, J. R., Cai, X., Reed, P. M., Zagana, E. A., Ostfeld, A., ... & Brekke, L. (2015). The future of water resources systems analysis: Toward a scientific framework for sustainable water management. *Water Resources Research*, 51(8), 6110-6124.
- Meyer, E. S., Characklis, G. W., Brown, C., & Moody, P. (2016). Hedging the financial risk from water scarcity for Great Lakes shipping. *Water Resources Research*.

Ray, P. A., Yang, Y. C. E., Wi, S., Khalil, A., Chatikavanij, V., & Brown, C. (2015). Room for improvement: Hydroclimatic challenges to poverty-reducing development of the Brahmaputra River basin. *Environmental Science & Policy*, 54, 64-80.

Hossain, F., Arnold, J., Beighley, E., Brown, C., Burian, S., Chen, J., ... & Wegner, D. (2015). What Do Experienced Water Managers Think of Water Resources of Our Nation and Its Management Infrastructure?. *PloS one*, 10(11), e0142073.

Rossi, N., DeCristofaro, L., Steinschneider, S., Brown, C., & Palmer, R. (2015). Potential Impacts of Changes in Climate on Turbidity in New York City's Ashokan Reservoir. *Journal of Water Resources Planning and Management*, 142(3), 04015066.

Steinschneider, S., McCrary, R., Mearns, L., and C. Brown. (2015) The effects of climate model similarity on probabilistic climate projections and the implications for local, risk-based adaptation planning, *Geophysical Research Letters*, 42, 5014–5022, doi:10.1002/2015GL064529.

Steinschneider, S., McCrary, R., Wi, S., Mulligan, K., Mearns, L. O., & Brown, C. (2015). Expanded Decision-Scaling Framework to Select Robust Long-Term Water-System Plans under Hydroclimatic Uncertainties. *Journal of Water Resources Planning and Management*, 04015023.

Poff, L., Brown, C., et al. (2015) Eco-engineering decision scaling for sustainable water management under future hydrologic uncertainty, *Nature Climate Change* doi:10.1038/nclimate2765.

Whateley, S., Walker, J. D., & Brown, C. (2015). A web-based screening model for climate risk to water supply systems in the northeastern United States. *Environmental Modelling & Software*, 73, 64-75.

Yang, Y-C., P. Ray, C. Brown, W. Yu, A. Khalil, (2015) "Estimation of flood damage functions for river basin planning - A case study in Bangladesh" *Natural Hazards*, doi:10.1007/s11069-014-1459-y

Steinschneider S., Wi S. and Brown C. (2014), "The integrated effects of climate and hydrologic uncertainty on future flood risk assessments," *Hydrol. Process.*, doi: [10.1002/hyp.10409](https://doi.org/10.1002/hyp.10409)

Whateley, S., S. Steinschneider, and C. Brown, (2014) "A climate change range-based method for estimating robustness for water resources supply," *Water Resources Research*, DOI: 10.1002/2014WR015956

Hall, J. W., D. Grey, D. Garrick, F. Fung, C. Brown, S.J. Dadson, C.W. Sadoff, (2014) "Coping with the Curse of Variability: Adaptation Pathways to Water Security," *Science* 346 (6208), 429-430.

S Wi, YCE Yang, S Steinschneider, A Khalil, CM Brown, (2015) "Calibration approaches for distributed hydrologic models using high performance computing: implication for streamflow projections under climate change," *Hydrology and Earth System Sciences*, 2015.

Yang, Y.-C., C. Brown, W. Yu, J. Wescoat Jr, and C. Ringler, (2014) "Water Governance and adaptation to climate change in the Indus River Basin" *Journal of Hydrology*, doi:10.1016/j.jhydrol.2014.08.055

Ghile, Y., P. Moody and C. Brown, (2014) "Paleo-reconstructed Net Basin Supply Scenarios and their effect on levels in the Upper Great Lakes" *Climatic Change* doi:10.1007/s10584-014-1251-8.

Whateley, S., Palmer, R., and Brown, C. (2014). "Seasonal Hydroclimatic Forecasts as Innovations and the Challenges of Adoption by Water Managers." *J. Water Resour. Plann. Manage.* , 10.1061/(ASCE)WR.1943-5452.0000466

Guswa, Andrew J., K. A. Brauman, C. Brown, P. Hamel, B. L. Keeler, and S.S. Sayre, (2014) "Ecosystem services: Challenges and opportunities for hydrologic modeling to support decision making," *Water Resources Research*, 50(5), 4535-4544, doi:10.1002/2014WR015497.

Ghile, Y.B., M.U. Taner., C.M. Brown, and J.G. Grijzen, (2014) "Bottom-up climate risk assessment of infrastructure investment in the Niger River Basin," *Climatic Change* 122 (1-2), 97-11).

Steinschneider, S., Y.-C. Yang, C.M. Brown, (2014) "Combining regression and spatial proximity for catchment model regionalization: a comparative study," *Hydrologic Sciences Journal* DOI:10.1080/02626667.2014.899701

Mulligan, K. B., C. Brown, Y.-C. E. Yang, and D. P. Ahlfeld (2014), "Assessing groundwater policy with coupled economic-groundwater hydrologic modeling," *Water Resour. Res.*, 50, doi:10.1002/2013WR013666.

Brown, C., Meeks, R., Ghile, Y. and K. Hunu (2013) "Does Water Security Matter? An empirical analysis of the effects of climate variables on national level economic growth." *Philosophical Transactions A*, doi: 10.1098/rsta.2012. vol. 371 no. 2002 20120416.

Yang, Y. C. E., Brown, C. M., Yu, W. H. and Savitsky, A.(2013). An Introduction to IBMR - A Hydro-Economic Model for the Climate Change Impact Assessment in the Indus River in Pakistan. *Water International*, 38(5): 632-650.

Steinschneider and Brown (2013) "A semiparametric multivariate, multi-site weather generator with low-frequency variability for use in climate risk assessments" *Water Resources Research*.

Moody, P. and C. Brown (2013), "Robustness Indicators for Evaluation Under Climate Change: Application to the Upper Great Lakes" *Water Resources Research*.

Homa, E., C. Brown, K. McGarigal, B. Compton, and S. Jackson, (2013) "Estimating hydrologic alteration from basin characteristics in Massachusetts," *Journal of Hydrology*.

Steinschneider, S., Y.-C. Yang, C.M. Brown, (2013) "Panel regression techniques for identifying impacts of anthropogenic landscape change on hydrologic response," *Water Resources Research*.

Weaver, C., R. Lempert, C. Brown, J. Hall, D. Revell, D. Sarewitz, (2013) “Improving the contribution of climate model information to decision making: the value and demands of robust decision frameworks” *WIREs Clim Change* 2013, 4:39–60. doi: 10.1002/wcc.202

Steinschneider, S., A. Polebitski, C. Brown and B. Letcher, (2012) “A statistical framework to test the significance of hydrologic alteration under future climate scenarios” *Water Resour. Res.*, 48, W11525, doi:10.1029/2011WR011318

Ward, M.N., C. Brown, K. Baraong, Y. Khalil, (2012) “Reservoir performance and dynamic management under plausible assumptions of future climate over seasons to decades” *Climatic Change*, doi: 10.1007/s10584-012-0616-0.

Steinschneider, S. and C. Brown (2012), Forecast-informed low-flow frequency analysis in a Bayesian framework for the northeastern United States, *Water Resour. Res.*, 48, W10545, doi:10.1029/2012WR011860.

Moody, P. and C. Brown (2012), Modeling stakeholder-defined climate risk on the Upper Great Lakes, *Water Resources Research*, 48, W10524, doi:10.1029/2012WR012497.

Brown, C. and R. L. Wilby (2012), An alternate approach to assessing climate risks, *Eos Trans. AGU*, 93(41), 401, doi:10.1029/2012EO410001.

Brown, C., Y. Ghile, M. Laverty, K. Li, (2012) “Decision Scaling: Linking bottom-up vulnerability analysis with climate projections in the water sector” *Water Resources Research* 48, W09537, doi:10.1029/2011WR011212.

Steinschneider, S. and C. Brown (2012) “Dynamic reservoir management with real options risk hedging as a robust adaptation to nonstationary climate” *Water Resources Research*, 48, W05524, doi:10.1029/2011WR011540.

Steinschneider, S. and Brown, C. (2011) “Influences of North Atlantic climate variability on low-flows in the Connecticut River Basin” *Journal of Hydrology*, 409, 212-224.

Brown, C., Werick, W., Fay, D., and Leger, W. (2011) “A Decision Analytic Approach to Managing Climate Risks - Application to the Upper Great Lakes” *Journal of the American Water Resources Association*, 47, 3, doi/10.1111/j.1752-1688.2011.00552.x.

Brown, C., Meeks, R., Hunu, K., and Yu, W. (2010). “Hydroclimatic risk to economic growth in Sub-Saharan Africa” *Climatic Change*, DOI: 10.1007/s10584-010-9956-9.

Ghile, Y., Schulze, R. and Brown, C. (2010). Evaluating the performance of ground-based and remotely sensed near real-time rainfall fields from a hydrologic perspective. *Hydrologic Sciences Journal*, 55(4), 497 – 511.

Souza Filho, F.A., and Brown, C. (2009). “Performance of water policy reforms under scarcity conditions: a case study in northeast Brazil.” *Water Policy* 11, 553-358.

Kwon, H-H., Brown, C., Xu, K., and Lall, U. (2009). "Seasonal and annual maximum streamflow forecasting using climate information: application to the Three Gorges dam in the Yangtze River basin." *Hydrologic Sciences Journal* 54(3) 582 - 595.

Westra, S., Brown, C., Lall, U., Koch, I., and Sharma, A. (2009). "Interpreting variability in global SST data using independent component analysis and principal component analysis." *International Journal of Climatology*, DOI: 10.1002/joc.1888.

Lall, U., Heikkila, T., Brown, C. and Siegfried, T. (2008). "Water in the 21<sup>st</sup> Century: Defining the elements of global crises and potential solutions." *Journal of International Affairs*, 61, 2, 1-17.

Kwon, H-H., Brown, C., and Lall, U. (2008). "Climate informed flood frequency analysis and prediction in Montana using hierarchical bayesian modeling." *Geophysical Research Letters*, 35, L05404, DOI:10.1029/2007GL032220.

Westra, S., Sharma, A., Brown, C., and Lall, U. (2008). "Multivariate streamflow forecasting using independent component analysis." *Water Resources Research*, 44, W02437, DOI:10.1029/2007WR006104.

Brown, C., and Carriquiry, M. (2007). "Managing hydroclimatic risk with option contracts and reservoir index insurance." *Water Resources Research*, 43, W11423, DOI:10.1029/2007WR006093.

Westra, S., Brown, C., Sharma, A., and Lall, U. (2007). "Modeling multivariable hydrological series: Principal component analysis or independent component analysis?" *Water Resources Research*, 43, W06429, DOI:10.1029/2006WR005617.

Brown, C., and Lall, U. (2006) "Water and economic development: The role of variability and a framework for resilience," *Natural Resources Forum*, 30: 4, 306 – 317, DOI:10.1111/j.1477-8947.2006.00118.

Xu, K., Brown, C., Kwon, H-H., Lall, U., Zhang, J., Hayashi, S., and Chen, Z. (2006) "Climate teleconnections to Yangtze River seasonal streamflow at the Three Gorges Dam, China," *International Journal of Climatology*, DOI: 10.1002/joc.1439.

Brown, C., and Rogers, P. (2006). "Effect of forecast-based pricing on irrigated agriculture: a simulation," *ASCE Journal of Water Resources Planning and Management*, 122, 6, pp. 403-413.

Brown, C., Lall, U. and Rogers, P. (2006). "Demand management of groundwater with monsoon forecasting," *Agricultural Systems*, 90, 293 - 311.

Brown, C., and Holcomb, A. (2004). "In pursuit of the millennium development goals in water and sanitation," *Water Policy*, 6, 263 - 266.

## Editorials



Salas, J., Rajagopalan, B., Saito, L., and Brown, C. (2012) “Nonstationarity and Water Resources Management.” *ASCE Journal of Water Resources Planning and Management*, 138, No. 6, 2012(Sept/Oct 2012).

Brown, C. (2010). “The End of Reliability.” *ASCE Journal of Water Resources Planning and Management*, 136, No. 3, 2010 (May/June 2010).

### Grants and Fellowships (Active)

National Science Foundation, “AI Convergence Accelerator: America’s Water Risk” (UMass PI) \$999,980 (2020-2021)

National Science Foundation, “AdaptLab: Water System Analytics for Adaptation to Climate Change” (PI) \$549,902 (2020-2023)

NASA, “Characterizing future changes in glacier melt, snow melt, and regional runoff to inform adaptation decisions in high mountain dependent economies” (co-PI) \$1,410,946 (2020-2023)

Millennium Challenge Corporation, “Partnership to Address Climate and Other Deep Uncertainties in Environmental Economic Analysis” (PI) \$699,915 (2020-2022)

National Science Foundation, IRES Track 1: Envisioning the Water, Electricity, and Sanitation Utilities of the Future through a US-Kenya Collaboration (E. Kumpel, PI) \$299,993 (2019-2022)

Bill and Melinda Gates Foundation, “Safe Drinking Water for Poor Households via Data-Driven Vehicular Water Delivery” (PI) \$100,000 (2018-2020)

### Grants and Fellowships (Completed)

World Bank, “Assessing the Resilience of Batoka Gorge HEP on the Zambezi River” (PI) \$104,544 (2018-2020)

World Bank, “Water Balance Assessment for Adaptive Allocation and Valuing Water in Tanzania” (PI) \$123,294 (2018-2019)

The Rockefeller Foundation, “Freshwater Resilience by Design” (PI) \$1,423,977, (2016-2020)  
Water Research Foundation, “Long-term Vulnerability Assessment and Adaptation Plan for the San Francisco Public Utilities Commission Water Enterprise,” (PI) \$534,745, (2017-2018)

World Bank, “Scoping Urban Water Resilience in the Valle de Mexico” (PI) \$49,545 (2018-2019)

USGS, “Matching Needs and Potential Use of Climate Information for Natural Resources Management,” (PI) \$150,000, (2016-2017)

California DWR, “California Climate Change: Evaluating Climate Risks and Adaptation Options,” (PI) \$185,000, (2016-2018)

The World Bank, “Confronting Climate Uncertainty: Decision Tree Demonstration Projects,” (PI) \$610,000, (2014-2017)

The Rockefeller Foundation, “Freshwater Competition and the Fate of the River,” (PI) \$187,000, (2015-2016)

Department of Defense (SERDP), “Climate-Informed Estimation of Hydrologic Extremes for Robust Adaptation to Non-Stationary Climate,” (PI) \$1,525,000, (2015-2018)

Global Water Partnership, “Global Task Force on Water Security,” (PI, subcontract from University of Oxford) \$128,000, (2013-2015)

The World Bank, “Hydro-economic modeling of the Brahmaputra Basin,” (co-PI) \$148,000, (2013-2014)

The World Bank, “Assessment of water sharing and climate change on the Amu Darya,” (PI) \$88,989, 2013-2104.

US Army Corps of Engineers, “Developing tools for conducting bottom-up climate risk assessment,” (PI) \$100,000, 2013-2014.

International Food Policy Research Institute, “Energy-Food-Water nexus in the Indus Basin of Pakistan,” (co-PI) \$70,000, 2012-2013.

NOAA, (PI) “Building a Knowledge Network of Water Managers for the Urban Northeast,” \$200,000, 2012 – 2014.

Department of Defense, “Decision-Scaling: A Decision Framework for DoD Climate Risk Assessment and Adaptation Planning.” (PI) \$1,780,000, 2012-2015.

The National Science Foundation, “CAREER: Robust Management of Climate Uncertainty for Ecohydrological Sustainability.” (PI) \$419,000, 2011 – 2016.

Water Environment Research Foundation, “Transforming Our Cities: High Performance Green Infrastructure” (co-PI, subcontract with GeoSyntec). \$67,000, 2011 – 2012.

The World Bank, (PI) “Climate Risk Assessment of the Indus River Basin.” \$113,000, 2011 – 2012.

US Army Corps of Engineers, (PI) “Climate Risk Assessment and Management.” \$98,000, 2011– 2012.

The World Bank, (PI) “Phase 2: Climate Risk Assessment of the Niger River Basin Investment Program.” \$185,000, 2011-2012.

NOAA, (PI) “Collaborative Development of Climate Information for the Connecticut River Basin using Shared Vision Forecasting.” \$300,000, 2010 – 2012.

NOAA, (co-PI) “RISA: Climate Consortium for the Urban Northeast (CCRUN).” \$750,000/year, (Columbia University lead), 2010 – 2015.

US Army Corps of Engineers, (PI) “Evaluation of Adaptive Management for Lake Superior Amid Climate Variability and Change.” \$289,789, 2010 – 2012.

The World Bank, (PI) “Climate Risk Assessment of the Niger River Basin Investment Program.” \$113,000, 2009-2010.

The Nature Conservancy, (co-PI) “Evaluating Reservoir Operations and the Impacts of Climate Change in the Connecticut River Basin.” \$352,000, 2009 – 2011.

PECASE, “Improving Economic Development through Prediction and Management of Hydroclimate Variability.” \$50,000, 2008-2012.

The World Bank, “Hydroclimatology of Sub-Saharan Africa.” \$97,000, 2008.

Earth Institute Cross Cutting Initiative, “Water, Poverty and Growth in Africa.” \$27,000, 2007-2008.

NOAA, (co-PI), “Urban Water Supply and Flood Control in the Delaware River Basin.” \$297,000 (Columbia University lead), 2007-2009.

World Bank-Netherlands Water Partnership, (PI) “Design of a Water Vulnerability Index.” \$99,000, 2007.

Inter-American Institute for Global Change Research, (PI) “Coming Down the Mountain: Climate Change and Water Resources in the Andes.” \$50,000, 2007-2009.

Harvard Program on Water and Health Research Grant, (PI) “Groundwater Management in Tamil, Nadu, India.” \$5,000, 2004.

Cambridge Science Foundation Travel Grant, (PI) “Monsoon Forecasting for South India.” \$1500, 2003.

National Science Foundation Graduate Research Fellowship, (PI) 2001-2004.

National Defense Science and Engineering Fellowship, (PI) 2001.

NASA Earth Systems Science Fellowship, 2001.

Postdoctoral Scientist Advising

Mariam Allam (Postdoc, current)

Sungwook Wi (Postdoc, current)

David Rheinheimer (Postdoc, current)

Baptiste Francois (Postdoc, current)  
Patrick Ray (Postdoc, 2014-2016)  
Yi-chen Yang (Postdoc, 2010 - 2014)  
Elizabeth Homa (Postdoc, 2012-2013)  
Yonas Ghile (Postdoc, 2008-2010)

#### Student Advising

Paul Moody (Ph.D., 2013)  
Scott Steinschneider (M.S., 2011; Ph.D., 2014)  
Sarah Whateley (M.S., 2012; Ph.D., 2015)  
Caitlin Spence (M.S., 2014, PhD 2017)  
Umit Taner (Ph.D., 2017)  
Hassaan Khan (MS 2017, Ph.D., 2018)  
Katherine Lownsbery (M.S., 2014; PhD 2018)  
Chinedum Eluwa (PhD in progress)  
Sarah Freeman (PhD in progress)  
Dong Park (PhD in progress)  
Khanh Nguyen (PhD in progress)  
Alexa Bruce (PhD in progress)  
Savannah Wunderlich (MS in progress)

Kevin Mulligan (M.S., 2013)  
Julia Ryan (M.S. 2013)  
Jesus Morales (M.S., 2012)  
Kenneth Hunu (M.S., 2010)  
Pooja Kechamada (M.S., 2010)

#### Undergraduate Advising

Honors Thesis: Lauren Coles (BSCE, 2011), Thomas Renaud (BSCE, 2010), Chris Mackey, (BSCE, 2013), Aaron Rubin (BSCE, 2014), Richard Bradford (BSCE, 2017), Timothy Adams, (BSECE, 2017), Joshua Soper (BSCE, 2018), Jacob Kravits (BSCE, 2019)

#### TEACHING

Assoc. Professor, Dept. of Civil & Env. Engineering, *UMass, Amherst*  
2013 – 2017  
Asst. Professor, Dept. of Civil & Env. Engineering, *UMass, Amherst*  
2008 – 2013  
Adjunct Assistant Professor, MA in Climate and Society, *Columbia University*  
2006 – present  
Teaching Fellow, Division of Engineering and Applied Sciences, *Harvard University*  
2002 – 2003  
Assistant Professor, Dept. of Civil and Environmental Engineering, *USAF Academy*  
1999 – 2000  
Instructor, Dept. of Civil and Environmental Engineering, *USAF Academy*  
1997 – 1999

## Teaching Honors

Department of Civil Engineering Outstanding Academy Educator, *USAF Academy*, 1999  
Department of Civil Engineering Outstanding First Year Instructor, *USAF Academy*, 1997

## Courses Taught

Water Resources Engineering and Sustainability  
Design of Water Resources Systems  
Hydrology  
Climate Risk Management and Adaptation Policy Seminar (Columbia University)  
Introduction to Environmental Engineering (USAFA)  
Applied Statistics (*Teaching Fellow*) (Harvard University)

## SERVICE

### National Academies

Member, Committee for the Independent Scientific Review of the Everglades Restoration Program (CISRERP; 2018-present)

### American Society of Civil Engineers:

Associate Editor

*ASCE Journal of Water Resources Planning and Management* (2007-2013)

Committee Chair

Water Systems Planning Under Climate Change Task Committee (Founding Chair)

Guest Editor: Special Issue on “Climate Change and Water Resources” *ASCE*

*Journal of Water Resources Planning and Management*, Volume 138, No. 5, 2012.

Eds: B. Rajagopalan, C. Brown and Laurel Saito. The issue included ten articles and a paper that won the Best Practice Oriented Paper Award.

### American Geophysical Union:

Associate Editor

*Water Resources Research* (2013 – present)

AGU Fall Meeting Planning Committee

Member (2015-2017), Hydrology Chair (2017)

Committee Chair

Water and Society Technical Committee (Founding Chair)

### US Global Change Research Program

Chapter Author, 4<sup>th</sup> National Climate Change Assessment

### World Wildlife Fund

Member, Independent Advisory Council, Basin Report Card

Other:

Reviewer

Journals: *Science*; *Nature Climate Change*; *Philosophical Transactions of the Royal Society*; *Water Resources Research*; *ASCE Journal of Water Resources Planning and Management*; *Journal of Environmental Engineering*; *Journal of Hydrology*; *Agricultural Systems*.

Proposals:

NSF, Environmental Sustainability

NOAA, Sectoral Application and Research Program

NOAA, Office of Global Programs, Climate Prediction Program for the Americas.

NOAA, Climate Program Office, Climate Change Data and Detection.

Professional Societies

American Society of Civil Engineers

Member, Environmental and Water Resources Institute

Member, Water Resource Systems committee

American Geophysical Union

Member, Hydrology Section

Society for Decision Making under Deep Uncertainty

Member

Session Chair

*Fourth World Water Forum*

Mexico City, Mar 16-22, 2006, "Achieving Water Security: Innovative Tools for System Resilience"

Conference Organizer

*Water Scarcity*

United Nations Association of Greater Boston, May, 2003

Founding Member

*Working Interdisciplinary Students for the Environment (WISE)*

Harvard University, (2001 – 2004)

Professional License

*Licensed Professional Engineer, Colorado*

References