Ryan R. Morrison, Ph.D., P.E.
Assistant Professor
Department of Civil and Environmental Engineering
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EDUCATION

Ph.D., Civil Engineering, University of New Mexico, 2014
M.S., Civil Engineering, Washington State University, 2006
B.S., Civil Engineering, Washington State University, 2005

PROFESSIONAL EXPERIENCE

Assistant Professor, Department of Civil and Environmental Engineering, Colorado State University, 2016–Present
Research Environmental Engineer, Fort Collins Science Center, U.S. Geological Survey, 2015–2016
Postdoctoral Fellow, Center for Water and the Environment, University of New Mexico, 2014–2015
Graduate Research Assistant, Department of Civil Engineering, University of New Mexico, 2010–2014
Water Resources Engineer, HDR Engineering Inc., Portland, Oregon, 2006–2010
Graduate Research Assistant, Department of Civil and Environmental Engineering, Washington State University, 2005–2006

REGISTRATION AND CERTIFICATION

Professional Engineering License, State of Oregon, #83140PE

HONORS AND AWARDS

Yevjevich Early Career Faculty Award, Colorado State University, 2020
Water Faculty Fellow, Colorado State University, 2020
Nominated for the Tison Award, International Association of Hydrological Sciences, 2019
Outstanding Graduate Student of the Year, University of New Mexico, 2014
Future Faculty Award, University of New Mexico, 2013
Graduate Dean's Dissertation Fellowship, University of New Mexico, 2013
Hydro Research Foundation Fellowship, 2011–2013
American Society of Civil Engineers Freeman Fellowship, 2011
American Water Resources Association New Mexico Chapter Fellowship, 2010
Harold P. Curtis Scholarship, Washington State University, 2006

PUBLICATIONS

Google Scholar: https://scholar.google.com/citations?user=BTfj8ZwAAAAJ&hl=en
ResearchID/Publons: https://publons.com/researcher/1277277/ryan-r-morrison/

* Graduate student author with Morrison as primary advisor or co-advisor

+ Graduate student author with Morrison serving as committee member

** Post-doctoral researcher supported by Morrison

In Review or Revision

Annis, A., Morrison, R. R., Karpack, M.*, and Nardi, F. On the influence of River Basin Morphology and Climate on Hydrogeomorphic Floodplain Delineations. *Advances in Water Resources*. Revised and resubmitted.

Han, H.* and Morrison, R. R. Improved Runoff Forecasting Performance through Error Predictions using a Deep-Learning Approach. *Journal of Hydrology*. In Review.

Knox, R.*, Morrison, R. R., Wohl, E. Identification of artificial levees in the contiguous United States. *Water Resources Research*. In Review.

Oke, O.+, Dougherty, E.+, Rasmussen, K., Morrison, R. R., and Carter, E. Spatial distributions of socio-demographic and housing-based health risk factors and their relationships to flooding hazards in the U.S. *Environmental Research Letters*. In Preparation.

Brooks, A. C.+, Covino, T. P., Ross, M. R. V., Morrison, R. R., Yang, X., & Wohl, E. River Beads in the Network: Identifying the Spatial Configuration of Wide River Corridors in River Basins. *Earth Surface Processes and Landforms*. In Review.

Published or Accepted

25. Han, H.*, Choi, C., Kim, J., Morrison, R. R., Jung, J., & Kim, H. S. (2021). Multiple-Depth Soil Moisture Estimates Using Artificial Neural Network and Long Short-Term Memory Models. *Water*, *13*(18), 2584. https://doi.org/10.3390/w13182584.
24. Rajib, A., Zheng, Q., Golden, H. E., Wu, Q., Lane, C. R., Christensen, J. R., Morrison, R. R., Annis, A., & Nardi, F. (2021). The Changing Face of Floodplains in the Mississippi River Basin Detected by a 60-year Land Use Change Dataset. *Nature Scientific Data, 8*(27). https://doi.org/10.1038/s41597-021-01048-w
23. Oikonomou, P.**, Morrison, R. R., Wible, T., & Sidhu, R. R2Cross: A Web-Based Decision Support Tool for Instream Flows. (2021). *Journal of the American Water Resources Association*, *57*(4), 652–660. https://doi.org/10.1111/1752-1688.12939
22. Han, H.* and Morrison, R. R. (2021). Data-Driven Approaches for Runoff Prediction using Distributed Data. *Stochastic Environmental Research and Risk Assessment*. https://doi.org/10.1007/s00477-021-01993-3
21. Dougherty, E.+, Morrison, R.R., & Rasmussen, K. (2021). High-Resolution Flash Flood Precipitation and Streamflow Relationships in Two U.S. River Basins. *Meteorological Applications*, *28*(2), e1979. https://doi.org/10.1002/met.1979
20. Lurtz, M. R.*, Morrison, R. R., Gates, T. K., Senay, G. B., Bhaskar, A. S., & Ketchum, D. G. (2020). Relationships between riparian evapotranspiration and groundwater depth along a semi-arid irrigated river valley. *Hydrological Processes*, *34(8)*, 1714–1727. https://doi.org/10.1002/hyp.13712

19. Tague, C. L., Papuga, S. A., Gerlein-Safdi, C., Dymond, S., Morrison, R. R., Boyer, E. W., Riveros-Iregui, D., Agee, E., Arora, B., Dialynas, Y. G., Hansen, A., Krause, S., Kuppel, S., Loheide, S. P., Schymanski, S. J., & Zipper, S. C. (2020). Adding our leaves: A community-wide perspective on research directions in ecohydrology. *Hydrological Processes*, *34*(7), 1665–1673. https://doi.org/10.1002/hyp.13693

18. Karpack, M. N.*, Morrison, R. R., & McManamay, R. A. (2020). Quantitative assessment of floodplain functionality using an index of integrity. *Ecological Indicators*, *111*, 106051. https://doi.org/10.1016/j.ecolind.2019.106051

17. Byrne, C. F., Stone, M. C., & Morrison, R. R. (2019). Scalable Flux Metrics at the Channel-Floodplain Interface as Indicators of Lateral Surface Connectivity During Flood Events. *Water Resources Research*, *55*(11), 9788–9807. https://doi.org/10.1029/2019WR026080

16. Annis, A., Nardi, F., Morrison, R. R., & Castelli, F. (2019). Investigating hydrogeomorphic floodplain mapping performance with varying DTM resolution and stream order. *Hydrological Sciences Journal, 64*(5), 525–538. http://doi.org/10.1080/02626667.2019.1591623

15. Scheel, K.*, Morrison, R. R., Annis, A., & Nardi, F. (2019). Understanding the Large-Scale Influence of Levees on Floodplain Connectivity Using a Hydrogeomorphic Approach. *Journal of the American Water Resources Association, 55*(2), 413–429. http://doi.org/10.1111/1752-1688.12717

14. Jaramillo, L.+ V., Stone, M. C., & Morrison, R. R. (2018). An indicator-based approach to assessing resilience of socio-hydrologic systems in Nepal to hydropower development. *Journal of Hydrology, 563*, 1111–1118. http://doi.org/10.1016/j.jhydrol.2018.05.070

13. Morrison, R. R., Bray, E.**, Nardi, F., Annis, A., & Dong, Q. (2018). Spatial Relationships of Levees and Wetland Systems within Floodplains of the Wabash Basin, USA. *Journal of the American Water Resources Association, 54*(4), 934–948. http://doi.org/10.1111/1752-1688.12652

12. Gregory, A., Morrison, R. R., & Stone, M. (2018). Assessing the Hydrogeomorphic Effects of Environmental Flows using Hydrodynamic Modeling. *Environmental Management, 62*(2), 352–364. http://doi.org/10.1007/s00267-018-1041-6

11. Nardi, F., Morrison, R. R., Annis, A., & Grantham, T. E. (2018). Hydrologic scaling for hydrogeomorphic floodplain mapping: Insights into human-induced floodplain disconnectivity. *River Research and Applications, 34*(7), 675–685. http://doi.org/10.1002/rra.3296

10. Stone, M. C., Byrne, C. F., & Morrison, R. R. (2017). Evaluating the impacts of hydrologic and geomorphic alterations on floodplain connectivity. *Ecohydrology, 10*(5), e1833. http://doi.org/10.1002/eco.1833

9. Gunderson, L., Cosens, B. A., Chaffin, B. C., Arnold, C. A. T., Fremier, A. K., Garmestani, A. S., K. Craig, R., Gosnell, H., Birge, H. E., Allen, C. R., Benson, M. H., Morrison, R. R., Stone, M. C., Hamm, J. A., Nemec, K., Schlager, E., and Llewellyn, D. (2017). Regime shifts and panarchies in regional scale social-ecological water systems. *Ecology and Society 22*(1). https://doi.org/10.5751/ES-08879-220131

8. Benson, M. H., Lippitt, C. D., Morrison, R. R., Cosens, B., Boll, J., Chaffin, B. C., Fremier, A. K., Heinse, R., Kauneckis, D., Link, T. E., Scruggs, C., Stone, M., and Vanessa, V. (2016). Five ways to support interdisciplinary work before tenure. *Journal of Environmental Studies and Science 6*(2): 260-267. https://doi.org/10.1007/s13412-015-0326-9

7. Morrison, R. R., & Stone, M. C. (2014). Investigating Environmental Flows for Riparian Vegetation Recruitment Using System Dynamics Modelling. *River Research and Applications, 31*(4), 485–496. http://doi.org/10.1002/rra.2758
6. Morrison, R. R., & Stone, M. C. (2014). Evaluating the Impacts of Environmental Flow Alternatives on Reservoir and Recreational Operations Using System Dynamics Modeling. *Journal of the American Water Resources Association, 51*(1), 33–46. http://doi.org/10.1111/jawr.12231
5. Benson, M. H., Llewellyn, D., Morrison, R. R., and Stone, M. C. (2014). Water governance challenges in New Mexico's Middle Rio Grande Valley: a resilience assessment. *Idaho Law Review* 51(1):195-228. https://dx.doi.org/10.2139/ssrn.2464387
4. Morrison, R. R., & Stone, M. C. (2014). Spatially implemented Bayesian network model to assess environmental impacts of water management. *Water Resources Research, 50*(10), 8107–8124. http://doi.org/10.1002/2014wr015600
3. Morrison, R. R., Stone, M. C., & Sada, D. W. (2013). Environmental response of a desert springbrook to incremental discharge reductions, Death Valley National Park, California, USA. *Journal of Arid Environments, 99*, 5–13. http://doi.org/10.1016/j.jaridenv.2013.09.002
2. Harm Benson, M., Morrison, R. R., & Stone, M. C. (2013). A Classification Framework for Running Adaptive Management Rapids. *Ecology and Society, 18*(3). http://doi.org/10.5751/es-05707-180330
1. Morrison, R. R., Hotchkiss, R. H., Stone, M., Thurman, D., & Horner-Devine, A. R. (2009). Turbulence characteristics of flow in a spiral corrugated culvert fitted with baffles and implications for fish passage. *Ecological Engineering, 35*(3), 381–392. http://doi.org/10.1016/j.ecoleng.2008.10.012

Book Chapters

3. Stone, M. C., & Morrison, R. R. (2021). Human Impacts on the Hydrology, Geomorphology, and Restoration Potential of Southwestern Rivers. In D. L. Propst, J. E. William, K. R. Bestgen, & C. W. Hoagstrom (Eds.), *Standing Between Life and Extinction: Ethics and Ecology of Conserving Aquatic Species in North American Deserts* (pp. 239–253). University of Chicago Press.
2. Morrison, R., & Bray, E. (2019). Environmental Flows. In *Environmental Science*. Oxford University Press. http://doi.org/10.1093/obo/9780199363445-0116
1. Melinda Harm, B., Morrison, R. R., & Stone, M. C. (2018). Governing the Rio Grande: Challenges and Opportunities for New Mexico's Water Supply. In B. Cosens & L. Gunderson (Eds.), *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* (pp. 99–114). Springer International Publishing.

Other Peer-Reviewed Papers

3. Morrison, R.R. and Stone, M.C. 2013. Implementing environmental flows in complex water resource systems: the Rio Chama, New Mexico, USA. 3rd Biennial Symposium of the International Society for River Science. Beijing, China. August 5–9.
2. Harris, S., Harvey, M., Stone, M., Morrison, R., Caplan, T., Gustina, G., and Harm Benson, M. 2012. Flow optimization for geomorphic and ecological improvements in the wild and scenic reach of the Rio Chama, New Mexico. World Environmental & Water Resources Congress, American Society of Civil Engineers. Albuquerque, New Mexico. May 20–24.

1. Stone, M.C., Hotchkiss, R.H. and Morrison, R. 2005. Periphyton scour from hydraulic disturbances. World Water and Environmental Resources Congress, Anchorage, Alaska, May 15-19.

Conference Presentations

59. Brouillard, N.*, White, D.*, Nelson, P., and Morrison, R. 2021. How does emergent floodplain vegetation density affect flows in meandering compound channels? A 3D numerical modeling study. Pacific Northwest Water Research Symposium. Oregon State University, Corvallis, OR. April 12–13.
58. Lurtz, M.R.*, Morrison, R.R., and Gates, T.K. 2021. Connecting Irrigation Return Flow and Hydrologic Data to Riparian Greenness Using Bayesian Linear Regression. American Geophysical Union Hydrology Days. Fort Collins, CO. March 30–31.
57. Brouillard, N.*, White, D.*, Nelson, P., and Morrison, R. 2021. 3D Modeling the Effects of Emergent Floodplain Vegetation in Meandering Compound Channels. American Geophysical Union Hydrology Days. Fort Collins, CO. March 30–31.
56. White, D.*, Brouillard, N.*, Nelson, P., and Morrison, R. 2021. How Does Floodplain Vegetation Affect Flood-State Hydraulics? Flume Observations in a Compound, Meandering Channel with a Mobile Gravel Bed. American Geophysical Union Hydrology Days. Fort Collins, CO. March 30–31.
55. Brouillard, N.*, White, D.*, Nelson, P., and Morrison, R.R. 2020. Effects of floodplain vegetation on hydraulics and sediment transport in compound meandering channels and implications for river restoration. American Geophysical Union Fall Meeting. San Francisco, CA. December 1–17.
54. Brooks, A.+, Covino, T., Morrison, R.R., Annis, A., Nardi, F., and Ross, M. 2020. Sensitivity of floodplain vegetation to interannual climate variability in Southern Rocky Mountain river networks. American Geophysical Union Fall Meeting. San Francisco, CA. December 1–17.
53. Passero, E.* and Morrison, R. 2020. Decision support system for evaluating habitat in alternative flow scenarios. American Geophysical Union Hydrology Days. Fort Collins, CO. April 13–14.
52. White, D.*, Morrison, R., and Roberts, J. 2020. Range-wide habitat assessment of Greenback Cutthroat Trout under altered flow regimes. American Geophysical Union Hydrology Days. Fort Collins, CO. April 13–14.
51. Dougherty, E.M.+, Morrison, R.R., and Rasmussen, K.L. 2020. Flood rainfall-streamflow relationships in two contrasting US river basins. American Meteorological Society Annual Meeting. Boston, MA. January 12–16.
50. Lurtz, M.R.*, Morrison, R.R., and Senay, G.B. 2019. Model-parameter fitting using simulations from independent remotely-sensed evapotranspiration algorithms applied in different hydrologic conditions. American Geophysical Union Fall Meeting. San Francisco, CA. December 9–13.
49. Annis, A., Karpack, M.N.*, Morrison, R.R., and Nardi, F. 2019. Applying hydrogeomorphic floodplain mapping models: limitations and recommendations varying basin morphology, climate and anthropic impacts. American Geophysical Union Fall Meeting. San Francisco, CA. December 9–13.
48. Morrison, R., Karpack, M.*, and McManamay, R. 2019. Assessing floodplain integrity in Colorado using functional indices. American Geophysical Union Fall Meeting. San Francisco, CA. December 9–13.

47. Morrison, R., Karpack, M.* 2019. Quantitative assessment of floodplain functionality using an index of integrity. 6th Biennial Symposium of the International Society of River Science. Vienna, Austria. September 8–13.

46. Morrison, R., Doughtery, E.+, Rasmussen, K., Carter, E., and Oke, O.+ 2019. A framework for estimating moisture susceptibility attributable to natural flooding hazards in the U.S. American Geophysical Union Hydrology Days. Fort Collins, CO. March 27–29.

45. Lurtz, M.R.*, Morrison, R.R., Gates, T.K., Bhaskar, A.S., Senay, G.B., and Ketchum, D. 2019. Riparian vegetation characteristics and evapotranspiration in relation to groundwater exchange and water table fluctuations along an irrigated river valley. American Geophysical Union Hydrology Days. Fort Collins, CO. March 27–29.

44. Oikonomou, P.D.*, Morrison, R.R., Sidhu, R., and Wible, T. 2019. Development of a web-based tool for instream flow recommendations in Colorado. American Geophysical Union Hydrology Days. Fort Collins, CO. March 27–29.

43. Karpack, M.* and Morrison, R. 2019. Quantitative assessment of floodplain functionality using an index of integrity. American Geophysical Union Hydrology Days. Fort Collins, CO. March 27–29.

42. Bray, E.N.**, Morrison, R.R., and Stone, M.C. 2018. Process-based environmental flow science for a non-stationary world. American Geophysical Union Fall Meeting. Washington, D.C. December 10–14.

41. Morrison, R.R., Dougherty, E.*, Rasmussen, K.L., Carter, E., and Oluwatobi, O.* 2018. A Framework for Estimating Moisture Susceptibility Attributable to Natural Flooding Hazards in the U.S. American Geophysical Union Fall Meeting. Washington D.C. December 10–14.

40. Lurtz, M.*, Morrison, R., Bhaskar, A., Gates, T., Senay, G., and Ketchum, D. 2018. Riparian Vegetation Indices and Evapotranspiration in Relation to Groundwater Exchange and Water Table Fluctuations along an Irrigated River Valley. American Geophysical Union Fall Meeting. Washington D.C. December 10–14.

39. Karpack, M.S.*, Morrison, R.R., and McManamay, R.A. 2018. Quantitative assessment of floodplain functionality using an index of integrity. American Geophysical Union Fall Meeting. Washington D.C. December 10–14.

38. Morrison, R. 2018. Environmental resilience in floodplain management. 3rd Annual Resilience Colloquium. University of New Mexico, Albuquerque, New Mexico. August 8–9. Invited.

37. Annis, A., Morrison, R.R., Nardi, F., Castelli, A. 2018. A hydrogeomorphic algorithm and its performance with varying DEM resolution and stream order for large-scale floodplain mapping. 9th International Congress on Environmental Modelling and Software. Fort Collins, Colorado. June 24–28.

36. Nardi, F., Morrison, R.R., Annis, A., and Grantham, T.E. 2018. Hydrologic scaling and hydrogeomorphic floodplain delineation in urbanized basins: insights into human-induced disconnectivity of fluvial corridors. European Geophysical Union General Assembly. Vienna, Austria. April 8–13.

35. Scheel, K.* Morrison, R.R., Annis, A., and Nardi, F. 2018. Toward understanding changes in large-scale floodplain connectivity caused by levees. American Geophysical Union Hydrology Days. Fort Collins, Colorado. March 19–21.

34. Lurtz, M.R.*, Morrison, R.R., Bhaskar, A.S., and Gates, T.K. 2018. Riparian area evapotranspiration with implications on water resource management. American Geophysical Union Hydrology Days. Fort Collins, Colorado. March 19–21.

33. Scheel, K.*, Morrison, R.R., Nardi, F., and Annis, A. 2017. Assessing human modifications to floodplains using large-scale hydrogeomorphic floodplain modeling. American Geophysical Union Fall Meeting. New Orleans, Louisiana. December 11–15.

32. Bray, E.N.**, Morrison, R.R., Nardi, F., Annis, A., and Dong, Q. 2017. Spatial relationships of levees and wetland systems within floodplains of the Wabash Basin, USA. American Geophysical Union Fall Meeting. New Orleans, Louisiana. December 11–15.

31. Jaramillo, L.V., Stone, M.C., and Morrison, R.R. 2017. Evaluating vegetation potential for wildfire impacted watershed using a Bayesian network modeling approach. American Geophysical Union Fall Meeting. New Orleans, Louisiana. December 11–15.

30. Scheel, K.*, Morrison, R.R., Nardi, F., and Annis, A. 2017. Assessing floodplain loss using hydrogeomorphic mapping. AWRA Annual Water Resources Conference. Portland, Oregon. November 5–9.

29. Morrison, R. 2017. Exploring water management impacts on floodplain processes across different scales. 4th Annual Symposium for Multi-disciplinary Approaches to Urban Water Systems and their Environmental Sustainability. East China Normal University, Shanghai, China. November 2. Invited.

28. Morrison, R. 2017. Exploring water management impacts on floodplain processes across different scales. Symposium for Multi-disciplinary Approaches to Urban Water Systems and their Environmental Sustainability. University of Jinan, Jinan, China. October 31. Invited.

27. Morrison, R., Nardi, F., Annis, A., Grantham, T., and Dong, Q. 2017. Assessing loss of floodplain connectivity using hydrogeomorphic floodplain delineation techniques. American Water Resources Spring Specialty Conference. Snowbird, Utah. April 30–May 3.

26. Morrison, R. Dong, Q., Nardi, F., Annis, A., and Grantham, T. 2016. Levee presence and wetland areas within the 100-year floodplain of the Wabash Basin. American Geophysical Union Fall Meeting. San Francisco, California. December 12–16.

25. Sada, D.W., Rina, S., Hausner, M., Morrison, R., Stone, M. 2016. Environmental and biological responses to incremental decreases in spring discharge: examples from the Great Basin and Mojave deserts, USA. Desert Fishes Council Annual Meeting. Albuquerque, New Mexico. November 15–19.

24. Nadi, F., Morrison, R., Grantham, T., and Annis, A. 2016. SMART-WORM: A GIS platform implementing hydrogeomorphic tools for Water Optimal Risk Management at the large scale. Smart Rivers International Conference. Ferrara, Italy. September 23 (Invited).

23. Stone, M., Byrne, C., and Morrison, R., 2016. Assessment of hydrologic alteration using floodplain connectivity metrics. Ecological Society of America Annual Meeting 2016. Fort Lauderdale, Florida. August 7–12.

22. Grantham, T., Nardi, F., Morrison, R., and Annis, A. 2016. A hydrogeomorphic approach for large-scale floodplain mapping. American Water Resources Association Summer Specialty Conference: GIS and Water Resources IX. Sacramento, California. July 11–13.

21. Stone, M., Byrne, C., and Morrison, R. 2015. A numerical investigation of the impacts of river and floodplain restoration on the process of floodwave attenuation. American Geophysical Union Fall Meeting. San Francisco, California. December 14–18. Invited.

20. Hausner, M., Bailey Gaines, D., Morrison, R., Sada, D., Gary Scoppettone, G., Stone, M., Suáez, F., Tyler, S., and Wilson, K. 2015. Physical thresholds as ecological proxies in aquatic ecosystems. American Geophysical Union Fall Meeting. San Francisco, California. December 14–18.
19. Hausner, M., Gaines, D., Morrison, R., Sada, D., Scoppettone, G., Stone, M., Suarez, F., Tyler, S., and Wilson, K. 2015. Physical Thresholds as Ecological Proxies in Aquatic Ecosystems. American Geophysical Union Fall Meeting. San Francisco, California. December 14–18.
18. Jaramillo, L., Stone, M., and Morrison, R. 2015. Science-based policy for Himalayan rivers of Nepal. AWRA Annual Water Resources Conference. Denver, Colorado. November 16–19.
17. Stone, M. and Morrison, R. 2015. Consideration of longitudinal and lateral connectivity when evaluating environmental flows. 4th Biennial Symposium of the International Society for River Science. La Crosse, Wisconsin. August 23–28.
16. Hausner, M., Sada, D., Morrison, R., and Stone, M. 2015. Integrating physical and ecological methods to assess changing spring-fed aquatic ecosystems. Science for Parks, Parks for Science: The Next Century, Berkley, California. March 25–27.
15. Stone, M., Morrison, R., and Samson, J. 2014. Modeling of riparian ecohydrology in the Gila River. American Society of Civil Engineers New Mexico Section Fall Conference, Albuquerque, New Mexico. September 12.
14. Benson, M., Stone, M., Llewellyn, D., Morrison, R., Cosens, B., Gunderson, L., and Allen, C. 2014. Adaptive governance and social-ecological system resilience in New Mexico's Rio Grande Valley. Association of Environmental Studies as Sciences Annual Meeting, New York, New York. June 11–14.
13. Morrison, R.R. and Stone, M.C. 2014. Evaluating flow scenario impacts on riparian vegetation recruitment using Bayesian network modeling. Joint Aquatic Sciences Meeting. Portland, Oregon. May 18–23.
12. Morrison, R.R., Stone, M.C. and Sada, D.W. 2013. Impacts of Discharge Reductions on Physical and Thermal Habitat Characteristics in a Desert Spring, Death Valley National Park, California, USA. American Geophysical Union Fall Meeting. San Francisco, California. December 9–13. (Invited)
11. Morrison, R.R. and Stone, M.C. 2013. Using system dynamics modeling to evaluate environmental flows in the Rio Chama, NM. 58th Annual New Mexico Water Conference. Albuquerque, New Mexico. November 21–22.
10. Morrison, R.R. 2013. Evaluating tradeoffs of water resource management alternatives using system dynamics modeling. Hydrovision International. Denver, Colorado. July 23–26.
9. Morrison, R.R. 2012. Optimizing hydropower benefits in reservoir operations on the Rio Chama, New Mexico. Hydrovision International. Louisville, Kentucky. July 17–20.
8. Morrison, R.R. and Stone, M.C. 2012. Determining the hydrologic effects of water management efforts on the Rio Chama, New Mexico, using indicators of hydrologic alteration analyses. Association of the Sciences of Limnology and Oceanography. Lake Biwa, Shiga, Japan. July 8–13.
7. Morrison, R.R., Stone, M.C., and Sada, D.W. 2011. Detecting impacts of climate change on arid land spring-fed aquifer systems. An example from a Death Valley National Park thermal spring. The US Society for Irrigation and Drainage Professionals. Albuquerque, New Mexico. April 26–29.

6. Morrison, R.R., Hotchkiss, R.H., Stone, M.C., Thurman, D., and Horner-Devine, A.R. 2008. Turbulence characteristics of flow in a spiral corrugated culvert fitted with sloped- and slotted-weir baffles. World Environmental & Water Resources Congress, American Society of Civil Engineers. Honolulu, Hawaii. May 12–16.
5. Thurman, D.R., Horner-Devine, A.R., Morrison, R.R., and Hotchkiss, R.H. 2007. Juvenile salmon passage in sloped-baffled culverts. International Conference on Ecology and Transportation. Little Rock, Arkansas. May 20–25.
4. Morrison, R.R., Thurman, D.R., Compton, A.F., Hotchkiss, R.H., and Horner-Devine, A.R. 2006. Turbulence characteristics of flow in a culvert with sloped-weir baffles. World Environmental & Water Resources Congress, American Society of Civil Engineers. Omaha, Nebraska. May 21–26.
3. Stone, M.C., Hotchkiss, R.H., and Morrison, R.R. 2006. Turbulence observations in cobble-bed rivers. World Environmental & Water Resources Congress, American Society of Civil Engineers. Omaha, Nebraska. May 21–26.
2. Thurman, D.R., Horner-Devine, A.R., Morrison, R.R., Hotchkiss, R.H., and Compton, A.F. 2006. Hydrodynamics of juvenile salmon passage in sloped-baffle culverts. World Environmental & Water Resources Congress, American Society of Civil Engineers. Omaha, Nebraska. May 21–26.
1. Stone, M.C., Hotchkiss, R.H., and Morrison, R.R. 2006. Turbulence observations in cobble-bed rivers. World Environmental & Water Resources Congress, American Society of Civil Engineers. Omaha, Nebraska. May 21–26.

Other Publications

4. Morrison, R., Carter, E., Rasmussen, K., & Anderson, B. 2020. Evaluation of Flooding Variability and Risks to Housing Stock on the U.S. Colorado Water, Colorado Water Center.
3. Oikonomou, P.D.**, Morrison, R.R., Sidhu, R., and Wible, T. 2019. Instream Flow Recommendations Web-Based Tool for Colorado. Colorado Water, The Colorado Water Center. https://watercenter.colostate.edu/wp-content/uploads/sites/33/2019/10/ColoradoWater_V36-3-r11.pdf#page=27.
2. Stone, M., Afrin, Z., Gregory, A., and Morrison, R. 2017. An Investigation into the Potential Impacts of Watershed Restoration and Wildfire on Water Yields and Water Supply Resilience in the Rio Grande Water Fund Project Area. Prepared for Middle Rio Grande Conservancy District (MRGCD).
1. Gori, D., Cooper, M.S., Soles, E.S., Stone, M., Morrison, R., Turner, T.F., Propst, D.L., Garfin, G., Switanek, M., Hsin-I, C., Bassett, S., Haney, J., Lyons, D., Horner, M., Dahm, C.N., Frey, J.K., Kindscher, K., Walker, H.A., and Bogan, M.T. 2014. Gila River Flow Needs Assessment. The Nature Conservancy. URL: http://nmconservation.org/Gila/GilaFlowNeedsAssessment.pdf.

INVITED LECTURES

University of Wyoming, Haub School of Environment and Natural Resources (October 2019).

Colorado State University, Department of Atmospheric Science (April 2019).

University of Colorado, Boulder, Department of Civil, Environmental, and Architectural Engineering (April 2018).

University of Tennessee, Knoxville, Department of Geography (October 2016).

Colorado State University, Department of Ecosystem Science and Sustainability (September 2016).

RESEARCH FUNDING

Funded Awards as PI

2021–2026 *SRS RN: Transforming Rural-Urban Systems: Trajectories for Sustainability in the Intermountain West*, CoPIs: Mark Stone (Lead PI; University of New Mexico), Lani Tsinnajinnie (UNM), Julie Padowski (Washington State University), Karletta Chief (University of Arizona), National Science Foundation, **$2,722,855 (total cooperative award amount of $14,999,681)**

2021–2023 *The influence of changing climatic conditions on streamflow and temperature in headwater systems in the North-Central Colorado Rocky Mountains*, U.S. Geological Survey, **$48,000**

2020–2021 *Verde River Wild and Scenic River Riverine Environmental Flow Decision Support System*, CoPI: Mazdak Arabi (CSU), U.S. Forest Service, **$61,190**

2020–2021 *Toward Understanding the Global Impacts of Human Activities on Floodplain Integrity*, CoPI: None, Colorado Water Center, **$10,000**

2020–2021 *Development of the Riverine Environmental Flow Decision Support System (REFDSS)*, CoPI: None, U.S. Geological Survey, **$66,000**

2020–2020 *R2Cross Maintenance*, CoPI: None, Colorado Water Conservation Board, **$10,000**

2019–2020 *Measuring Hydraulic and Thermal Conditions of High Elevation Headwater Streams in Regions of North-Central Colorado*, CoPI: None, U.S. Geological Survey, **$39,000**

2019–2020 *Assessing Status of Water Quality and Environmental Health of our Nation's Rivers*, CoPI: None, U.S. Geological Survey, **$49,999**

2019–2022 *Incorporating Floodplain Functions into River Restoration Engineering: The Role of Floodplain Vegetation on Channel-Floodplain Hydrodynamics*, CoPI: Peter Nelson (CSU), National Science Foundation (Award No. CBET-1916780), **$309,553**

2019–2020 *Collaborative Research: Workshop on Improving Knowledge of Connections Between Urban and Hinterland Systems*, CoPI: Mark Stone (University of New Mexico), National Science Foundation (Award No. CBET-1929840), **$9,663** (award total was $49,323)

2019–2020 *Relationship Between Irrigation Return Flows, Riparian Vegetation Water Use, and Soluble Pollutant Removal in the Lower Arkansas River Basin*, CoPI: Timothy Gates (CSU), Colorado Water Conservation Board, **$50,000**

2019–2020 *Ecological Impacts of Hydroscape Modification (Year III – Verde River Decision Support Tool)*, CoPI: None, U.S. Geological Survey, **$60,000**

2018–2019 *Instream Flow R2Cross Program Update*, CoPI: None, Colorado Water Conservation Board, **$78,564**

2018–2019 *Development of a Novel Framework for Estimating Moisture Susceptibility Attributable to Natural Flooding Hazards in the U.S.*, CoPI: Ellison Carter (CSU), Kristen Rasmussen (CSU), Colorado Water Institute, **$22,277**

2018–2019 *Assessment of Floodplain Storage Dynamics in Colorado*, CoPI: None, U.S. Geological Survey, **$25,000**

2017–2018 *Ecological Impacts of Hydroscape Modification (Year II – Large-Scale Floodplain Mapping)*, CoPI: None, U.S. Geological Survey, **$36,000**

2017–2020 *Impact of Riparian Vegetation on the Irrigation-Influenced Water Balance in the Lower Arkansas River Valley*, CoPI: Timothy Gates (CSU), Aditi Bhaskar (CSU), U.S. Department of Agriculture, Colorado Agricultural Experiment Station, **$90,000**

2016–2017 *Ecological Impacts of Hydroscape Modification (Year I – Levee Impacts on Wetlands)*, CoPI: None, U.S. Geological Survey, **$75,000**

Funded Awards as CoPI

2021–2022 *Effects of the Cameron Peak Fire on stream-riparian food webs along an elevational gradient*, PI: Daniel Preston (CSU), CoPI: Yoichiro Kanno (CSU), Colorado Water Center, **$34,783**

2020–2021 *RAPID: Wildfire impacts on snowpack, flow paths, and sediment dynamics across an elevation gradient*, CoPI: Stephanie Kampf (CSU), Sara L Rathburn (CSU), Sean F Gallen (CSU), National Science Foundation (Award EAR-2101068), **$49,990**

2020–2021 *Building a long-term watershed research site at CSU Mountain Campus*, CoPI: Sara Rathburn (CSU), Kira Puntenney-Desmond (CSU), Stephanie Kampf (CSU), Steven Fassnacht (CSU), Michael Ronayne (CSU), Kristen Rasmussen (CSU), Seth Webb (CSU), Jared Heath (City of Fort Collins), Colorado Water Center, **$25,000**

2015–2016 *An Investigation into Potential Impacts of Watershed Restoration and Wildfire on Water Yields and Water Supply Resilience in the Rio Grande Water Fund Project Area*, CoPI: Mark Stone (UNM), Middle Rio Grande Conservancy District, **$25,000**

2015–2016 *Saratoga Lateral Weir – Physical Model*, CoPI: Mark Stone (UNM), Southern Sandoval County Arroyo Flood Control Authority, **$37,500**

Internally Funded

2020–2021 Comprehensive assessment of hydrologic and geomorphic dynamics of the Cameron Peak wildfire in the Cache la Poudre watershed, CoPI: Stephanie Kampf (PI), Steven Fassnacht, Sean Gallen, Dan McGrath, Peter Nelson, Kristen Rasmussen, Sara Rathburn, Christopher Robertson, Ellen Wohl, **$38,736**

2020–2021 Renovation of ERC Floor Model Flume Experimental Cart (Year II), CoPI: None, Borland Equipment Fund, **$10,000**

2019–2020 Renovation of ERC Floor Model Flume Experimental Cart, CoPI: None, Borland Equipment Fund, **$15,000**

2019 Resilient Natural and Human Systems: A Framework for Linking Social and Environmental Systems to Create More Resilient Communities, CoPI: Rebecca Atadero, Hussam Mahmoud, Camille Stevens-Rumann, Ashley Anderson, Elicia Ratajczyk, Vice President for Research, Pre-Catalyst for Innovative Partnerships, **$5,000**

2018–2019 Proposal for Hydrologic Monitoring Equipment, CoPI: Timothy Gates, Borland Equipment Fund, **$6,806**

2017–2018 Proposal for Hydrologic Monitoring Equipment, CoPI: Timothy Gates, Aditi Bhaskar, Borland Equipment Fund, **$12,603**

2016–2017 Proposal for a Multi-Functional 3D Laser Scanner, CoPI: Peter Nelson, Borland Equipment Fund, **$10,000**

SERVICE ACTIVITIES

Professional Memberships

American Society of Civil Engineers—Environmental Water Resources Institute

American Water Resources Association

International Society for River Science

American Geophysical Union

National Center for Faculty Development & Diversity

Editorial Positions

Guest Editor, Frontiers in Earth Science, Special Issue, "Understanding Human-Fluvial Ecosystem Interactions: Advances in Hydrological, Geomorphic, Ecological and Transdisciplinary Studies of Floodplains" (2020–2021)

Guest Editor, Water Resources Research, Special Issue, "Floodplains as Complex Adaptive Systems" (2020–2021)

Associate Editor, Water Resources Research (2020–Present)

Associate Editor in Surface Hydrology, Journal of the American Water Resources Association (2015—2020)

Professional Service and Committees

Lead Convener of "Floodplains As Complex and Adaptive Fluvial–Socio–Ecological Systems" sessions (H137 and H154), American Geophysical Union Fall Meeting. San Francisco, CA (December 1–17, 2020).

Co-convener of "Integrated Methods and Tools for Coastal and Fluvial Flood Risk Management" session (F2), International Environmental Modelling and Software Society Conference. Brussels, Belgium (July 6–10, 2020)

Lead Convener of "Linking Social and Ecological Needs to Build Floodplain Resilience" sessions (H51C and H53L), American Geophysical Union Fall Meeting. San Francisco, CA (December 9–13, 2019)

National Science Foundation ad-hoc reviewer for Division of Chemical, Bioengineering, Environmental and Transport Systems–Environmental Sustainability Program (October 2019)

National Science Foundation ad-hoc reviewer for Division of Earth Sciences–Geoinformatics Program (October 2019)

American Geophysical Union, Ecohydrology Technical Committee (2019–Present)

Co-convener of "Comparative Sociohydrology: Regime Shifts, System Dynamics, and Resilience" (H44B) session, American Geophysical Union Fall Meeting. Washington D.C. (December 10–14, 2018)

National Science Foundation panel member for National Research Traineeship program on Innovations at the Nexus of Food, Energy, and Water Systems (April 4-6, 2017)

Department and University Services

Code Committee, Civil and Environmental Engineering Department (2021–Present)

Diversity, Equity, and Inclusion Committee, Civil and Environmental Engineering Department (2021–Present)

Awards Committee, Civil and Environmental Engineering Department (2020–Present)

Engineering Student Technology Committee, Civil and Environmental Engineering Department (2019–2021)

College of Engineering Technology Committee (2019–2021)

Graduate Admissions Committee, Civil and Environmental Engineering Department (2018–Present)

School of Global Environmental Sustainability Curriculum Committee (2017–2019)

Environmental Engineering representative at Engineering Exploration Days (Spring 2017)

Colorado State University Graduate Student Showcase judge (2016, 2018)

Journal Reviewer

Hydrological Processes, Systems, Physical Geography, Earth Surface Processes and Landforms, Journal of the American Water Resources Association, Water Resources Research, Journal of Hydrology, River Research and Applications, Stochastic Environmental Research and Risk Assessment

Proposal Reviewer

National Science Foundation, Swiss National Science Foundation, U.S. Department of Agriculture

DIVERSITY AND INCLUSION ACTIVITES

2020 NSF IGEN Equity in Graduate Admissions Workshop

2020 NSF Strategies for Equity-based Holistic Review Workshop

TEACHING AND ADVISING

Courses Taught

- Fluid Mechanics (CE 331): Fall 2013 (University of New Mexico)
- Hydrogeology (CE 541): Fall 2014 (University of New Mexico)
- Ecological Engineering (CIVE 330): Spring semesters 2017–Present
- Environmental River Mechanics (CIVE 413): Fall semesters 2017–Present
- River Restoration Design (CIVE 613): Spring semesters 2020–Present

Postdoctoral Researchers Mentored

- Erin Bray (2017)
- Panagiotis D. Oikonomou (2018-2019)

Graduate Students Alumni

- Kara Scheel (M.S., Fall 2016—Spring 2018)
- Marissa Karpack (M.S., Spring 2018—Summer 2019)
- Elaina Passero (M.S., Fall 2018–Summer 2020)
- Naveen Kumar (Co-advisor, M.S., Fall 2019–Spring 2021)
- Nick Brouillard (M.S., Fall 2019–Summer 2021)
- Benjamin Tyner (M.Eng., Fall 2019–Summer 2021)

Current Graduate Students

- Matthew Lurtz (Ph.D., Fall 2017—Present)
- Semin Barlak (Co-advisor, Ph.D., Fall 2017—Present)
- Heechan Han (Ph.D., Spring 2019–Present)
- Daniel White (Ph.D., Fall 2019–Present)

- Chenchen Ma (M.S., Fall 2019–Present)
- Kira Simonson (M.S., Fall 2020–Present)

Graduate Student Committees

- Ryan Brown (CSU, M.S., Defended Spring 2017)
- Weimin Li (CSU, Ph.D.)
- Woochul Kang (CSU, Ph.D.)
- Robert Queen (CSU, M.S., Defended Spring 2018)
- Ethan Ader (CSU, M.S., Defended Spring 2019)
- Sarah Hinshaw (CSU, M.S., Defended Spring 2019)
- Julianne Scamardo (CSU, M.S., Defended Spring 2019)
- Lauren Jaramillo (UNM, Ph.D., Defended Fall 2019)
- Erin Dougherty (CSU, Ph.D.)

Mentoring Activities

Students I have mentored have earned the following awards:

- Walter Scott, Jr. Combined Fellowship/Research Assistantship, 2019-2020 (Daniel White, Ph.D.)
- GIS Colorado Scholarship, 2019 (Matthew Lurtz, Ph.D.)
- Colorado Environmental Management Society Scholarship, 2018 (Marissa Karpack, M.S.)
- John Fetcher Upper Yampa Water Conservancy District Scholarship, 2018 (Marissa Karpack, M.S.)
- Dr. Jeng-Song Wang Memorial Scholarship, 2018 (Marissa Karpack, M.S.)
- Walter Scott, Jr. College of Engineering Excellence in Research Award for the Graduate Student Showcase, 2018 (Marissa Karpack, M.S.)
- Whitney Borland Scholarship, 2018 (Matthew Lurtz, Ph.D.)
- Daryl B. Simons Graduate Fellowship, 2018 (Matthew Lurtz, Ph.D.)