Colin F. Byrne

One Shields Avenue
Department of Land, Air and Water Resources
University of California Davis cfbyrne@ucdavis.edu

EDUCATION

2017 Ph.D. Civil Engineering – Water Resources
University of New Mexico

2009 M.S. Biological Systems Engineering
University of Wisconsin – Madison

2006 B.S. Zoology
University of Wisconsin – Madison

PROFESSIONAL APPOINTMENTS

2017 to present Postdoctoral Scholar
University of California Davis
Department of Land, Air & Water Resources

PUBLICATIONS

Refereed Journal Articles

2019 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.* (Accepted)

2017 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.

2017 Byrne, C.F., Stormont, J.C., Stone, M.C. 2017. Soil water balance dynamics on reclaimed mine land in the southwestern United States. *Journal of Arid Environments* 136, 28-37.

Manuscripts in Review

2019 Byrne, C.F., Pasternack, G.B., Guillon, H., Lane, B.A., Sandoval Solis, S. Reach-scale bankfull channel types can exist independently of catchment hydrology. *Earth Surface Processes and Landforms*. (Revision submitted)

2019 Guillon, H., Byrne, C.F., Lane, B.A., Solis, S.S., Pasternack, G.B. Combining Machine Learning with Coarse-Scale Geospatial Data and Field Surveys at 290 Reaches Predicts the Channel Types of 109k Unsurveyed Reaches in a Large Region. *Water Resources Research*.

Manuscripts in Preparation

Byrne, C.F. and Stone, M.C. Uncertainties in roughness and topographic parameterization of unsteady hydrodynamic models. *Journal of Hydraulic Engineering*.

Byrne, C.F., Stone, M.C., Alvarado, J. Implications of anthropogenic river alterations on the ecosystem service of flood wave attenuation.

Byrne, C.F. and Stone, M.C. Current and potential influences of flood wave attenuation along the Middle Rio Grande.

Conference Proceedings

2019 Byrne, C.F., Pasternack, G.B., Lane, B.A.A., Guillon, H., Solis, S.S. Self-maintained riffle-pool couplets are less abundant than expected across California's diverse river systems. American Geophysical Union Fall Meeting. San Francisco, CA. December 9 – 13, 2019.

2019 Guillon, H., Byrne, C.F., Lane, B.A.A., Solis, S.S., Pasternack, G.B. A comprehensive analysis of model outputs characterizes and compares machine-learning-enabled classification of rivers in seven distinct regions of California (USA). American Geophysical Union Fall Meeting. San Francisco, CA. December 9 – 13, 2019.

2019 Pasternack, G.B., Zheng, M., Byrne, C.F., Schwindt, S. Procedural generation is the future of eco-geomorphic river design. American Geophysical Union Fall Meeting. San Francisco, CA. December 9 – 13, 2019.

2019 Lane, B.A.A., Hung, F., Rowles, J., Guillon, H., Byrne, C.F., Solis, S.S., Pasternack, G.B. Tipping the scale: Coupling statistical scaling and geomorphic classification models to extend high-resolution ecohydraulic analysis to the network scale. American Geophysical Union Fall Meeting. San Francisco, CA. December 9 – 13, 2019.

2019 Hung, F., Lane, B.A.A., Byrne, C.F., Solis, S.S., Pasternack, G.B., Young, C.A., Chalmers, D. Setting limits with limited information: A catchment-scale modeling framework to evaluate distributed human-ecological water management tradeoffs. American Geophysical Union Fall Meeting. San Francisco, CA. December 9 – 13, 2019.

2019 Diaz-Gomez, R., Pasternack, G.B., Guillon, H., Byrne, C.F., Solis, S.S. Can airborne lidar point clouds quantify grain size contributions to ground sediment facies? American Geophysical Union Fall Meeting. San Francisco, CA. December 9 – 13, 2019.

2018 Guillon, H., Byrne, C.F., Lane, B.A.A., Sandoval Solis, S., Pasternack, G.P. Predicting channel forms from remote sensing data: a multi-tiered machine learning framework. American Geophysical Union Fall Meeting. Washington, D.C. December 10 – 14, 2018.

2018 Byrne, C.F., Pasternack, G.B., Lane, B.A.A., Sandoval Solis, S., Guillon, H. Hydrologic regime influences on the style of riffle-pool, plane bed, and step-pool sequences. American Geophysical Union Fall Meeting. Washington, D.C. December 10 – 14, 2018.

2018 Byrne, C.F., Pasternack, G.B., Lane, B.A.A., Solis, S.S., Guillon, H. Revising field sampling protocols to enhance the role of geomorphic classification in instream flows studies. 36th Annual Salmonid Restoration Conference. Fortuna, CA. April 11 – 14, 2018.

2016 Byrne, C.F., and Stone, M.C. Modeling small-scale and large-scale flood wave processes as indicators of channel-floodplain connectivity. American Geophysical Union Fall Meeting. San Francisco, CA. December 12 – 16, 2016.

2016 Byrne, C.F. Historical and contemporary hydrodynamic alteration in the Middle Rio Grande. New Mexico Society of Professional Engineers Issues Conference. Albuquerque, NM. Nov 4, 2016.

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

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

2015 Byrne, C.F., Stone, M.C., Adair, J. Quantification of habitat restoration impacts on flood wave attenuation in the Middle Rio Grande. 4th Biennial Symposium of the International Society for River Science (ISRS). La Crosse, WI. August 23 – 28, 2015.

2014 Byrne, C.F., Stone, M.C., Stormont, J.C., Epp, E., Rahman, S., Powell, R., Rider, W., Perkins, S., Evaluation of geomorphic reclamation performance and models in the southwestern United States. Advances in Geomorphic Reclamation at Coal Mines: A Technical Interactive Forum & Field Tour. Albuquerque, NM. May 20 – 22, 2014.

2013 Byrne, C.F., Stone, M.C., Stormont, J.C., Epp, E. Evaluating runoff, soil loss, and model performance on a reclaimed mine site in the southwestern United States. New Mexico Water Resources Research Institute's 58th Annual New Mexico Water Conference. Albuquerque, NM. November 21 – 22, 2013.

2013 Byrne, C.F., Stone, M.C., Stormont, J.C., Epp, E., Rahman, S., Powell, R., Rider, W., Perkins, S. Evaluation of geomorphic reclamation performance and models in the southwestern United States. 30th Annual National Conference of the American Society of Mining and Reclamation. Laramie, WY. June 1 – 7, 2013

2007 Byrne, C.F., Karthikeyan, K., Cabot, P., Gaebler, P., McClure, S., Lepore, B., Whiting, P., Matisoff, G. Evaluation of Temporal and Spatial Sediment Dynamics in Agricultural Fields Using Lanthanide Tracers. *ASA-CSSA-SSSA International Annual Meetings*. New Orleans, LA. November 4 – 8, 2007.

TEACHING EXPERIENCE

River Restoration (Co-Instructor – Spring 2016), Department of Civil Engineering, University of New Mexico

Environmental and Water Resources Engineering (Guest Lecturer – Spring 2015/2016), Department of Civil Engineering, University of New Mexico

Open Channel Hydraulics Engineering (Guest Lecturer – Spring 2015), Department of Civil Engineering, University of New Mexico

Fluid Mechanics (Teaching Assistant – Fall 2014), Department of Civil Engineering, University of New Mexico

RESEARCH EXPERIENCE

2012 to 2017 Graduate Research Assistant, Department of Civil Engineering, University of New Mexico – Hillslope and fluvial hydrology, geomorphology, and hydrodynamics

2007 to 2008 Graduate Research Assistant, Department of Biological Systems Engineering, University of Wisconsin-Madison – Agricultural runoff and erosion

2006 Undergraduate Research Assistant, Department of Zoology, University of Wisconsin-Madison – Pea aphid communities

SERVICE

Journal Manuscript Reviews

Journal of American Water Resources Association

Ecosphere

Volunteer

American Geophysical Union Fall Meeting Student Volunteer

RELATED NON-ACADEMIC WORK

2013 – 2017 Water Resources Scientist, *Geosystems Analysis Inc.*, Albuquerque, N.M.