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Dr. Belize Lane, Associate Professor

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EDUCATION

2017 **Ph.D. Hydrologic Sciences-** University of California- Davis.
Dissertation: Integrating flow, form and function for improved environmental water management.

2014 **M.Sc. Hydrologic Sciences-** University of California- Davis.
Thesis: Environmental flows in a human-dominated system: integrated water management strategies for the Rio Grande/Bravo basin.

2010 **B.Sc. Ecology-** University of California- San Diego, La Jolla CA.

RESEARCH

MERIT AWARDS

Faculty Researcher of the Year, College of Engineering, 2026
Faculty Researcher of the Year, USU Department of Civil Engineering, 2026
PhD student Megan DiNicola awarded Doctoral Student Researcher of the Year, USU CEE, 2026
Early Career Award for Applied Water Research, Universities Council on Water Resources, 2022
Outstanding Graduate Mentor of the Year, USU Department of Civil Engineering, 2022

SELECTED RESEARCH GRANTS (Total award | Award to USU)

2025-2027 Cooperative Institute for Research to Operations in Hydrology (CIROH) - NOAA *Revising spatial and time scales of channel reaches in the hydrofabric to improve OWP flood inundation mapping.* **Lane B** (PI), Phillips C, Scamardo J, Cohen S. ($700,000 | $514,464)

2025-2027 Cooperative Institute for Research to Operations in Hydrology (CIROH) - NOAA *Topographically derived High Flow Thresholds for Flood Inundation Mapping.* Phillips C, **Lane B**, Cohen S. ($800,000 | $600,000)

2025-2027 Colorado Department of Transportation, Office of Applied Research. *Planning and mitigation for direct post-wildfire sediment hazards to transportation infrastructure*. **Lane B** (PI), Murphy B, Belmont P, Yocom L ($198,000)

2025-2027 Colorado Department of Transportation, Office of Applied Research. *Predicting downstream impacts of post-fire sediment inputs to transportation assets over management time scales*. **Lane B** (PI), Murphy B, Belmont P, Yocom L ($184,849)

2025-2028 CalFIRE. *Predicting burn severity and runoff response for pre-fire watershed assessment in California.* Murphy B, Belmont P, Yocom L, **Lane B**. ($750,000)

2024-2026 Cooperative Institute for Research to Operations in Hydrology (CIROH) - NOAA *Exploring Critical Attributes of 3D Channels for Enhanced Probabilistic Flood Inundation Mapping.* Phillips C, **Lane B**, Diehl R. ($605,691 | $456,332)

2024-2026 Utah Division of Water Resources. *Establishing a Functional Flows Framework for the Great Salt Lake Basin.* **Lane B** (PI), Null S, Baker M, Neilson B, Ostermiller J (Utah DEQ), Thompson P. (Utah DNR). ($300,000)

2023-2026 U.S. Army Engineer Research and Development Center (ERDC). *Riverine communities and ecosystem responses to a changing world.* Schwalb A, Nowlin W, **Lane B**, Schwartz B, Perkin J. ($3 million | $161,624)

2023-2025 Cooperative Institute for Research to Operations in Hydrology (CIROH) - NOAA *Novel Geospatial Architecture of Channel and Floodplain Morphological Attributes within the OWP Hydrofabrics.* **Lane B** (PI), Phillips C, Cohen S, Manners R, Goharian E, Demir I. ($1,459,144 | $508,290)

2022-2024 Joint Fire Science Program - Graduate Research Innovation Fellowship, *Post-fire hydrogeomorphic risk management assessment.* Lane B (PI), Canham H. ($25,296)

2022-2023 Utah Agricultural Experiment Station, *Increasing the water conservation impact of Utah State University's Extension Water Check Program with 5 second metering*. Rosenberg D, Horsburgh J, **Lane B**, Kopp K. ($74,833)

2021-2023 U.S. Army Engineer Research and Development Center (ERDC), *Predicting ecological futures in Texas watersheds.* Nowlin W, Swannack T, **Lane B.** ($2.5 million | $270,000)

2021-2026 California State Water Resources Control Board, *Statewide development and implementation of instream flows for cannabis cultivation.* Carter S, **Lane B**, Stein E, Grantham T. ($3 million | $462,103)

2020-2022 National Science Foundation, *RAPID: Monitoring and modeling post-wildfire hydrologic response in space and time.* **Lane B** (PI), Murphy B, Belmont P. ($49,900)

2018-2020 California State Water Board, *Hydrogeomorphic classification of the South Fork Eel River, CA.* Sandoval-Solis S, **Lane B**, Stein S, Grantham T, Yarnell S, Zimmerman J. ($4.3 million | $648,298)

2018-2019 U.S. Geological Survey 104B, *Improving representation of environmental objectives in water systems models.* **Lane B** (PI), Rosenberg D. ($77,165)

SCHOLARLY CONTRIBUTIONS

Google Scholar: https://scholar.google.com/citations?user=LB2ePs8AAAAJ&hl=en

Research Gate: https://www.researchgate.net/profile/Belize_Lane ORCiD Profile: 0000-0003-2331-7038

Co-Author Key: *Lane Graduate Student +Lane Undergrad Student ºGrad Advisee ***Lane Postdoc Scholar*

PEER-REVIEWED (40) – 1058 citations | h-index 20 | i10-index 25. Google scholar

1. DiNicola M*, Riggins C, Schultz S, Phillips C & **Lane B** (2025). "Assessing suitable habitat for freshwater mussel reintroductions using 3D-printed subadult replicates." *Nature Scientific Reports*. https://doi.org/10.1038/s41598-025-18244-y
2. Patterson N*, Dong X, **Lane B**, Csank A, Rood S & Sandoval-Solis S (2025). "Dendrochronology reveals the response of a riparian forest to water management in an arid river basin." *Ecological Applications.*
3. *Lee A***, **Lane B** & Pasternack G (2025). "Spectral slope and coherence quantitatively summarize nested topographic variability patterns in rivers," *River Research and Applications.* https://onlinelibrary.wiley.com/doi/10.1002/rra.4437

4. Canham H*, **Lane B**, Murphy BP & Phillips C (2025). "Leveraging a time-series event separation method to disentangle time-varying hydrologic controls on streamflow – Application to wildfire-affected catchments." *Hydrology and Earth System Sciences.* 29, 27–43, https://doi.org/10.5194/hess-29-27-2025.
5. *Guillon H***,* Pasternack GB, **Lane B**, *Byrne C*** & Sandoval-Solis S (2024). "Mind the information gap: How sampling and clustering impact the predictability of reach-scale channel types in California (USA)." *Earth Surface Processes and Landforms*. *49*(14), 4610-4631. https://doi.org/10.1002/esp.5984
6. Ridgway P*, **Lane B**, Canham H*, Murphy BP, Belmont P, & Rengers FK (2024). "Wildfire, extreme precipitation and debris flows, oh my! Channel response to compounding disturbances in a mountain stream in the Upper Colorado Basin, USA." *Earth Surface Processes and Landforms*. *49*(12), 3855-3872 https://doi.org/10.1002/esp.5942
7. Rengers F, Bower S, Knapp A, Kean JW, vonLembke DW, Thomas MA, Kostelnik J, Barnhart KR, Bethel M, Gartner JE, Hille M, Staley DM, Anderson JK, Roberts EK, DeLong SB, **Lane B**, Ridgway P* & Murphy BP (2024). "Evaluating post-wildfire debris-flow rainfall thresholds and volume models at the 2020 Grizzly Creek Fire in Glenwood Canyon, Colorado, USA," *Natural Hazards Earth Systems Science*, 24, 2093–2114, https://doi.org/10.5194/nhess-24-2093-2024
8. Thurber D*, **Lane B**, Xu T & Neilson B (2024). "Dissolving the mystery of subsurface controls on snowmelt–discharge dynamics in karst mountain watersheds using hydrologic timeseries," *Hydrological Processes,* 38(5), e15170. https://doi.org/10.1002/hyp.15170
9. Nogueira Xº, Pasternack GB, **Lane B**, Sandoval-Solis S (2024). "Width undulation drives flow convergence routing in 5 flashy ephemeral river types across a dry summer subtropical region," *Earth Surface Processes and Landforms*. *49*(6), 1890-1913. https://doi.org/10.1002/esp.5805
10. Margetts Kº, **Lane B**, & Crookston B (2023). "Large woody debris accumulation and passage at V- and I-rock weirs in mountain streams," *Journal of Coastal and Hydraulic Structures.* 10.48438/JCHS.2023.0025
11. *Lee A***, **Lane B**, & Pasternack G (2023). "Identifying key channel variability functions controlling ecohydraulic conditions using synthetic channel archetypes," *Ecohydrology.* https://doi.org/10.1002/eco.2533
12. Patterson NP*, **Lane B**, Persad G, Ortiz-Partida J, & Sandoval-Solis S (2022). "Projected effects of temperature and precipitation variability change on streamflow patterns using a functional flows approach," *Earth's Future.* 10.1029/2021EF002631
13. Jones Aº, Horsburgh J, Bastidas C, Flint C & **Lane B** (2022). "Advancing hydroinformatics and wate data science instruction: Community perspectives and online learning resources." *Frontiers in Water. Water and Hydrocomplexity.* 10.3389/frwa.2022.901393
14. Gallagher MA, Habib EH, Williams D, **Lane B**, Byrd J & Tarboton D (2022). "Designing professional learning experiences to support hydrology and water resources faculty to create high-quality curricular materials." *Frontiers in Education: STEM Education.*10.3389/feduc.2022.890379.
15. Grantham T, Carlisle D, **Lane B**, Lusardi R, Obester A, Sandoval S, Stein E, Stanford B, Taniguchi K, Yarnell SM, & Zimmerman J (2022). "Modeling functional flows in California's rivers," *Frontiers in Environmental Science – Freshwater Science*. 10.3389/fenvs.2022.787473.
16. Morgan E* & **Lane B** (2022). "Quantifying uncertainty in regional flow – ecology relationships," *Journal of Water Resources Planning and Management.* 10.1061/(ASCE)WR.1943-5452.0001533.
    * Reproducible Results award by journal
17. Stein E, Zimmerman J, Yarnell S, Stanford B, **Lane B**, Taniguchi K, Obester A & Grantham T (2021). "The California Environmental Flows Framework: Meeting the challenges of developing a

large-scale environmental flows program," *Frontiers in Environmental Science – Freshwater Science*. 10.3389/fenvs.2021.769943

18. *Byrne C***, Pasternack GB, *Guillon H***, **Lane B**, & Sandoval-Solis S (2021). "Channel constriction predicts pool-riffle velocity reversals across landscapes," *Geophysical Research Letters*. DOI:10.1029/2021GL094378
19. Wineland S, Basagaoglu H, Fleming J, Friedman J, Garza-Diaz L, Kellog W, Koch J, **Lane B**, Mirchi A, Sandoval-Solis S, Paladino S, Nava L, Ortiz-Partida J, Plassin S, Gomez-Quiroga G, Saiz-Rodriguez R, Neeson T, Wagner K, Weber N, & Wootten A. (2021). "The environmental flows implementation challenge: Insights and recommendations across water-limited systems," *WIRES-Water.* https://doi.org/10.1002/wat2.1565.

    * Top-downloaded publication award by journal
20. Sandoval-Solis S, Paladino S, Garza-Diaz L, Nava L, Friedman J, Ortiz-Partida J, Plassin S, Gomez-Quiroga G, Koch J, Fleming J, **Lane B**, Wineland S, Mirchi A, Saiz-Rodriguez R, and Neeson T (2022). "Environmental Flows in the Rio Grande - Rio Bravo Basin," *Ecology & Society.* https://doi.org/10.5751/ES-12944-270120.
21. **Lane B**, *Guillon H***, *Byrne C***, Pasternack GB, Kasprak A, and Sandoval-Solis S (2021). "Channel reach morphology and landscape properties are linked across a large heterogeneous region," *Earth Surface Processes and Landforms.* DOI:10.1002/esp.5246.
22. Alger SM*, **Lane B**, and Neilson B (2021). "Combined influences of irrigation diversions and associated subsurface return flows on river temperature in a semi-arid region." *Hydrological Processes.* DOI:10.1002/hyp.14283.
23. **Lane B**, Garousi Iº, Gallagher M, Tarboton D, and Habib E (2021). "An open web-based module developed to advance data-driven hydrologic process learning." *Hydrological Processes,* 35(7), e14273. 10.1002/hyp.14273.

    *Top-downloaded publication award by journal
24. Merritt Aº, **Lane B,** and Hawkins C (2021). "Classification and prediction of natural streamflow regimes in arid regions of the USA." *Water MDPI*. DOI:10.3390/w13030380.
25. Beck MB, O'Hara C, Lowndes J, Mazor R, Theroux S, Gillett D, **Lane B** & Gearheart G (2020). "The importance of open science for biological assessment." *PeerJ.* DOI:10.7717/peerj.9539.
26. *Byrne C***, Pasternack GB, *Guillon H***, **Lane B**, & Sandoval-Solis S (2020). "Reach-scale bankfull channel types can exist independently of catchment hydrology," *Earth Surface Processes and Landforms.* DOI:10.1002/esp.4874.
27. **Lane B**, Ortiz-Partida JP, & Sandoval-Solis S (2020). "Extending water resources performance metrics to river ecosystems." *Ecological Indicators.* DOI:10.1016/j.ecolind.2020.106336.
28. *Guillon H***, *Byrne C***, **Lane B**, Sandoval-Solis S, & Pasternack GB (2020). "A machine learning framework to predict geomorphic channel types and assess model entropy over large regions," *Water Resources Research.* DOI:10.1029/2019WR026691.
29. Patterson NP*, **Lane B**, Sandoval-Solis S, Pasternack GB, Yarnell S, & Qiu L (2020). "A hydrologic feature detection algorithm to quantify seasonal components of flow regimes." *Journal of Hydrology.* DOI:10.1016/j.jhydrol.2020.124787.
30. Yarnell SM, Stein E, Webb J, Grantham T, Lusardi R, Zimmerman J, Peek R, **Lane B,** Howard J, & Sandoval-Solis S (2019). "A functional flows approach for selecting ecologically relevant flow metrics for environmental flow applications." *River Research and Applications.* 10.1002/rra.3575.
31. **Lane B** & Rosenberg DE (2019). "Promoting instream flows in the changing western U.S." *Journal of Water Resources Planning and Management.* 10.1061/(ASCE)WR.1943-5452.0001145.

32. Ortiz-Partida JP, Kahil T, Ermolieva T, Ermoliev Y, **Lane B,** Sandoval-Solis S, & Wada Y (2019). "A two-stage stochastic optimization for robust operation of multipurpose reservoirs." *Water Resources Management.* 10.1007/s11269-019-02337-1.
33. **Lane B**, Sandoval-Solis S, Yarnell S, Stein E, Dahlke H, & Pasternack GB (2018). "Beyond metrics? The role of hydrologic baseline archetypes in environmental water management." *Environmental Management.* 10.1007/s00267-018-1077-7.
34. **Lane B**, Pasternack GB, & Sandoval-Solis S (2018). "Integrated analysis of flow, form, and function for river management and design testing." *Ecohydrology.* 10.1002/eco.1969.
35. **Lane B**, Pasternack GB, Dahlke H, & Sandoval-Solis S (2017). "The role of topographic variability in river channel classification." *Progress in Physical Geography.*10.1177/0309133317718133.
36. **Lane B**, Dahlke H, Pasternack GB, & Sandoval-Solis S (2017). "Revealing the diversity of natural hydrologic regimes in California for future environmental flows applications." *Journal of the American Water Resources Association.* 10.1111/1752-1688.12504.
37. Ortiz-Partida JP, **Lane B**, & Sandoval-Solis S (2016). "Economic effects of a reservoir re-operation policy in the Rio Grande/Bravo for integrated human and environmental water management." *Journal of Hydrology: Regional Studies.* 10.1016/j.ejrh.2016.08.004.
38. Porse E, Sandoval-Solis S, & **Lane B** (2015). "Integrating environmental flows into multi-objective reservoir management for a transboundary, water-scarce river basin: Rio Grande/Bravo." *Water Resources Management*. 10.1007/s11269-015-0952-8. CMaW
39. **Lane B**, Sandoval-Solis S, & Porse E (2014). "Environmental flows in a human-dominated system: Evaluating integrated water management strategies in the Rio Grande/Bravo Basin." *River Research and Applications.* 10.1002/rra.2804.
40. Ai X, Sandoval-Solis S, Dahlke H, & **Lane B** (2014). "Reconciling hydropower and environmental water uses in Leishui River Basin." *River Research and Applications*. 10.1002/rra.2728.

UNDER REVIEW (8)

DiNicola M,* Riggins C, Schultz S, Crookston B, **Lane B.** "Using 3D printed replicates to assess subadult freshwater mussel mobilization thresholds in a flume," *Journal of Ecohydraulics.*

Canham H* and **Lane B. "**Paired storms approach reveals post-fire flood characteristics and drivers," *Water Resources Research.*

Castejon J°, *Lee A**, Patterson N**,* **Lane B**, Phillips CB. "Leveraging High-resolution Topography to Advance Parsimonious Reach-scale Flood Inundation Mapping," *Water Resources Research.*

*Patterson N**, Lee A**,* Castejon J°, Diehl R, **Lane B**, Phillips CB. "Bankfull and Beyond: Identifying Longitudinally Persistent Reach-scale River Corridor Features from Topography," *Water Resources Research.*

Aveek M°, Horsburgh J, Kopp K, **Lane B**, Bastidas C, Rosenberg D. E"valuating the Impact of Residential Landscape Audits Using 5-Second Water Use Data," *Journal of American Water Resources Association*

*Lee A**,* Pasternack G, **Lane B. "**RiverSTICH: Synthetic 3d river channel generation from sparse transect survey data," *Ecological Software and Modeling.*

Lane B, Stamp M, Null SE, Thompson P, Ostermiller J, Nusrat F, *Patterson N***, Witte M+, Neilson B, Baker M. "A Functional Flows Framework for the Great Salt Lake Basin: Can we Have our Lake and Drink it too?" *River Research and Applications.*

Ridgway P*, Bläsi L°, Halso M, Vetsch D, **Lane B. "**Beyond the initial impact: Channel evolution following wildfire and debris flows in a mountain stream of the Upper Colorado River Basin," *Geomorphology.*

TECHNICAL REPORTS, BOOK CHAPTERS, AND CONFERENCE PAPERS

Blasi L° Response of River Morphology and Aquatic Habitat Debris flow Even. Masters Thesis. Environmental Engineering. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW) ETH Zürich, Switzerland. September 2025

Schloch G° How to build digital rivers to benefit real ecosystems. Masters Thesis. Environmental Engineering. VAW ETH Zürich, Switzerland. June 2025

Canham H* and **Lane B** (2024). "Post-wildfire hydrogeomorphic risk management assessment," Final Report, Joint Fire Science Program Graduate Research Innovation (GRIN) Grant #22-1-01-31.

Lane B, Pasternack GB, *Guillon H**, Lee A**,* and Sandoval-Solis S (2022). "Regional eflows design using Geo-Hydro-Eco functional archetypes," Conference Paper, 39th World Congress, IAHR, Grenada, Spain.

*Lee A**,* Pasternack GB, **Lane B**, Sandoval S, *Guillon H**, Kahn S*** (2021). "Method for generating 3d terrain models using river builder for selected channel types for the state of California," Final Report. California State Water Resources Control Board (State Water Board). Sacramento, CA.

*Guillon H**,* **Lane B,** Sandoval S, Pasternack GB, *Lee A**, Kahn S*** (2021). "Methodology for predicting geomorphic classes using Lidar data for the State of California," Final Report. California State Water Board. Sacramento, CA.

*Kahn S**, Guillon H**,* Sandoval S, Pasternack GB, *Byrne C**,* **Lane B**, *Lee A*** (2021). "Modeling network scale channel cross-section using empirical scaling relationships and coarse resolution remotely sensed dataset," Final Report, California State Water Board. Sacramento, CA.

California Environmental Flows Working Group. "California Environmental Flows Framework Version 1.0." California Water Quality Monitoring Council Technical Report 37 pp. 2021.

*Byrne CF**, Guillon H***, **Lane B**, Pasternack GB, and Sandoval-Solis S (2020). Coastal California Regional Geomorphic Classification. Final Report. California State Water Board. Sacramento, CA.

*Byrne CF**, Guillon H***, **Lane B**, Pasternack GB, and Sandoval-Solis S (2019). Sacramento River Basin Geomorphic Classification. Final Report. Submitted to the California State Water Board. Sacramento, CA.

*Guillon H***, *Byrne CF***, **Lane B**, Pasternack GB, and Sandoval-Solis S (2019). South Fork of the Eel River Basin Geomorphic Classification. Final Report. California State Water Board. Sacramento, CA.

Sandoval S and **Lane B** (2018). Estimating statewide environmental flows. California State Water Board. Sacramento, CA.

Lund J, Sandoval S, Gray B, Moyle P, Frank R, **Lane B**, Yarnell S, Dahlke H, Grantham T, Lusardi R, Santos N, Bell A, and Willis A (2016). "Keeping California's streams alive: An approach for rapidly setting environmental flow standards for all rivers in California." Final Technical Report. California State Water Board. Sacramento, CA.

Lane B, Sandoval-Solis S, Dahlke HE, and Pasternack GB (2016). "Hydro-geomorphic classification of California: Sacramento Basin." Technical Report. California State Water Board. Sacramento, CA.

Metzger L, **Lane B**, MacPhee D, Kilanski M, Kromann J, Salvatierra J, Setegn S. 2015. "An international perspective on the basin scale water - energy nexus." Sustainability of Integrated Water Resources Management: Water Governance, Climate and Echo-hydrology, S. Setegn and M. Donoso (Ed.), Springer, 320 p. DOI:10.1007/978-3-319-12194-9_25.

DIGITAL PRODUCTS

Github repositories: USU-WET-Lab, USU-CIROH

*Lee A***, Pasternack G, **Lane B** (2025) Survey Transect Interpolation to reconstruct 3D Channels (River-STICH) https://github.com/USU-WET-Lab/RiverSTICH - RiverSTICH converts traditional transect-based survey data into descriptive reach-scale attributes and variability functions and parameters that can then be used by RiverBuilder to construct a modular 3D synthetic river channel.

*Patterson N*** and **B Lane** (2025) Utah Functional Flows Calculator https://github.com/USU-WET-Lab/utah-func-flow - Calculates annual functional flow metrics for Great Salt Lake Basin rivers from reference daily streamflow timeseries

*Patterson N***, **B Lane**, CB Phillips (2025), INFLection-based Elevations from Channel Topography (INFLECT) https://github.com/USU-CIROH/INFLECT - INFLECT uses terrain data to identify persistent topographic features of river corridors, such as bankfull and flood terraces

Castejon J*, *A Lee***, **B Lane**, CB Phillips (2025). Height Above Nearest Drainage - Flood Inundation Mapping (HAND-FIM) Assessment South Fork Eel River, HydroShare, http://www.hydroshare.org/resource/8dc18002b790437ca7fa22322d94c9e

California Environmental Flows Framework Technical Team; Foundry Spatial; The Nature Conservancy, California (2025) Functional Flows Calculator Web Application, v2.0.0. https://flowcalculator.codefornature.org/

Lane B and Byrne C (2021). California river classification field surveying protocols, HydroShare, https://doi.org/10.4211/hs.023f24c1a62f48f496e10b7cbafe6b86

California Environmental Flows Working Group (2021). California Natural Flows Database: Functional flows calculator and metrics v1.2.1, May 2021. https://rivers.codefornature.org/

California Functional Flows Calculator (2020), https://eflows.ucdavis.edu/hydrology

Lane B and Rosenberg D (2019). Keeping Water in Utah's Streams, 2-minute animated educational video. Utah Water Research Laboratory.

California Environmental Flows Framework (CEFF) project website, https://ceff.ucdavis.edu

Guillon H, Byrne C, **Lane B**, Sandoval S, Pasternack GB (2020). Channel types predictions for the Sacramento River basin https://doi.org/10.25338/B8031W

South Fork Eel River basin https://doi.org/10.25338/B8VG83

SELECTED PROFESSIONAL PRESENTATIONS

-P indicates poster presentation

INVITED - **Lane B**, Stamp M, Null SE, Thompson P, Ostermiller J, Nusrat F, *Patterson N***, Witte M+, Neilson B, Baker M. "A Functional Flows Framework for the Great Salt Lake Basin," *Utah Water Users Conference*. St George, UT. March 2026.

Lane B "Channel dynamics in response to compounding disturbances in western USA mountain streams," *International Conference on Geomorphology.* Christchurch, New Zealand. February 2026.

INVITED - **Lane B**. **"**Terrain-based tools to represent river corridors across scales," *AGU Fall Meeting,* 2025

*Lee A**, Patterson N***, Castejon J°, Diehl R, **Lane B**, Phillips CB. "Probabilistic quantification of within-reach hydraulic geometry," *AGU Fall Meeting.* New Orleans. Dec 2025.

Phillips, Masteller, **Lane B**. "Leveraging River Channel Geometry to Enable Probabilistic Flood Inundation Forecasts Across Scales," *AGU Fall Meeting.* New Orleans. Dec 2025.

*Patterson N***, Castejon J°, *Lee A**,* **Lane B**, Diehl R, Phillips CB. "Bankfull and Beyond: Identifying persistent reach-scale river corridor features from high-resolution topography," *AGU Fall Meeting.* Dec 2025 *-P*

Castejon J°, *Lee A**, Patterson N***, Diehl R, **Lane** B, Phillips CB. "Predicting the Accuracy of Flood Inundation Forecasts through from Terrain Variability," *AGU Fall Meeting.* New Orleans. Dec 2025 *-P*

Canham H* and **Lane B**. "Leveraging large-sample hydrology and machine learning to predict post-fire flood regimes and drivers across the western US," *AGU Fall Meeting.* New Orleans. Dec 2025 *-P*

Canham H* and **Lane B**. "Paired storms approach reveals amplified postfire floods and drivers," *AGU Fall Meeting.* New Orleans. Dec 2025 *-P*

DiNicola M* and **Lane B. "**Predicting fish passage in a fragmented riverscape to inform freshwater mussel reintroduction," *AGU Fall Meeting.* New Orleans. Dec 2025 *-P*

DiVita D°, Belmont P, Murphy B, **Lane B**. "The scale of connections between river width, river width variability, and a river's landscape in California," *AGU Fall Meeting.* New Orleans. Dec 2025 *-P*

Diehl R, Baude D, Ul Haq I, Underwood K, Prescott A, Wemple B, **Lane B**, Phillips CB. "Enhancing Large-Scale Flood Inundation Mapping through Process-Based Classification," *AGU Fall Meeting.* New Orleans. Dec 2025.

Lane B, Ostermiller J, Thompson P, Null S, Neilson B, Baker M, Nusrat F, *Patterson N***, *Witte M*+, Stamp M. "A Functional Flows Framework for the Great Salt Lake Basin," *AGU Fall Meeting.* New Orleans. Dec 2025 *-P*

DiNicola M* and **Lane B. "**Predicting fish movement in a fragmented riverscape to inform freshwater mussel reintroduction," *7th International Symposium on River Science.* Davis, CA. October 2025

Taniguchi-Quan K, **Lane B**, *Lee A***, Irving K, Morgan J, Stein ED, Grantham T, Rossi G. "Ecological risk assessment to inform regional instream flow management," *7th International Symposium on River Science.* Davis, CA. October 2025

Carah J, Rossi G, Klausmeyer K, Zimmerman J, Van Docto M, Mierau D, **Lane B** & Grantham T. "Evaluating approaches for managing streamflow for ecological and human needs in decentralized water management systems," *7th International Symposium on River Science.* Davis, CA. October 2025

*Patterson N***, Phillips C, Diehl R, *Lee A***, Castejon J°, **Lane B**, "Identifying River Channel Features from topography with INFLECT," *7th International Symposium on River Science.* Davis, CA. October 2025 *-P*

Lane B, Ostermiller J, Thompson P, Null S, Neilson B, Baker M, Nusrat F, *Patterson N***, *Witte M*+, Stamp M. "A Functional Flows Framework for the Great Salt Lake Basin: Can we have our lake and drink it too?" *7th International Symposium on River Science*. Davis CA. October 7, 2025. *-P*

Castejon J°, *Lee A***, *Patterson N**,* Diehl R, **Lane B** and Phillips C. "Probabilistic HAND Flood Inundation Mapping," *CIROH Developers Conference*. Burlington, VT. May 28, 2025 *-P*

*Patterson N***, *Lee A***, Castejon J*, Diehl R, Phillips C and **Lane B**. "Identifying River Channel Features Using High Resolution Topography," *CIROH Developers Conference*. Burlington, VT. May 28, 2025 -*P*

Castejon J*, *Lee A***, *Patterson N***,* Diehl R, **Lane B** and Phillips C. "Quantifying topographic variability as a key indicator of HAND-FIM performance," *CIROH Developers Conference*. Burlington, VT. May 28, 2025

*Lee A***, Castejon J*, *Patterson N***,* Diehl R, Phillips C and **Lane B**. "Probabilistic quantification of within-reach hydraulic geometry variability to support probabilistic HAND FIM," *CIROH Developers Conference*. Burlington, VT. May 28, 2025

DiNicola M* and **Lane B.** "Utilizing 3D Printed Subadult Mussels in Complementary Field and Flume Studies to Support Reintroductions," Freshwater Mollusk Conservation Society meeting. May 2025.

Barrett JP, Dodson T, DiNicola M*, **Lane B**, Magruder MR, Davis A, Smith DL, Perkin JS. "Measuring and predicting fish movement following large-scale river ecosystem restoration," *Society for Freshwater Science*. Puerto Rico. May 2025

Barrett JP, Dodson T, DiNicola M*, **Lane B**, Magruder MR, Davis A, Smith DL, Perkin JS. "Measuring and predicting fish movement in a restored but serially fragmented riverscape," *Texas Chapter of American Fisheries Society*. April 2025.

Canham H* and **Lane B**. "Influence of variable precipitation on post-fire flood response," *American Meteorological Society Annual Meeting*. New Orleans, LA. January 15, 2025.

INVITED - **Lane B**, Canham H*, Phillips C, Murphy B. "Feel the Burn: Quantifying the effects of wildfire on streamflow patterns," *AGU Fall Meeting*, DC. December 12, 2024.

INVITED - **Lane B**, Phillips C, Diehl R, Johnson JM, Cohen S. "Representing River Corridors within the NextGen Hydrofabric," *AGU Fall Meeting*, DC. December 10, 2024.

*Patterson N***, Phillips C, **Lane B**. "Leveraging high-resolution topography to determine the bankfull channel," *AGU Fall Meeting*, DC. December 11, 2024.

Castejon J*, *Lee A***, **Lane B**, and Phillips C. "Accurate river channel representation within a HAND-y method for flood inundation mapping," *AGU Fall Meeting*, DC. December 10, 2024.

Lane B and DiNicola M*. "Using Complementary Field and Flume Studies to Support a First-In-Texas Freshwater Mussel Reintroduction," *AGU Fall Meeting*, DC. December 9, 2024.

Lane B, Phillips C, Cohen S, Liu H, Diehl R, Goharian E, and Demir I. Novel Geospatial Architecture of Channel and Floodplain Morphological Attributes within the OWP Hydrofabrics. *CIROH Annual Science Meeting*, October 14-17, 2024, Tuscaloosa, AL.

Lane B. River Science and Management in the Anthropocene. Colloquium for Laboratory of Hydraulics, Hydrology and Glaciology. *ETH Zurich*. Zurich, Switzerland. July 23, 2024

Castejon J*, *Lee A***, **Lane B**, and Phillips C. "Using high resolution topography and hydrodynamic modeling to evaluate HAND flood inundation mapping capabilities, *AGU Frontiers in Hydrology Meeting*, St. Paul, MN. June 24, 2024. -*P*

DiNicola M* and **Lane B.** "Using Field, Flume, and Modeling Studies to Inform Texas's First Freshwater Mussel Reintroduction," USACE Environmental Research and Development Conference. *Next Generation Ecological Modeling Seminar Series*. July 24, 2024.

Canham H* and **Lane B**. "Evaluating hydrologic variables for post-fire risk informed decision criteria," *Middle Colorado Watershed Council Post-fire Water Quality Technical Advisory Team*. June 21, 2024.

Phillips CB, Castejon J*, Masteller C, *Lee A***, and **Lane B**. "Leveraging high-resolution topography to quantify the variable nature of river width," *CIROH DevCon*. Salt Lake City, UT. May 28, 2024. -*P*

*Lee A***, Castejon J*, **Lane B**, and Phillips. "The invisible HAND: Assessing HAND across channel settings, terrain resolutions and flow stages," *CIROH DevCon*. Salt Lake City, UT. May 2024. -*P*

Castejon J*, *Lee A***, **Lane B**, and Phillips, "Can a single curve really capture the complexity of a river reach? Yes." *CIROH Developers Conference*. Salt Lake City, UT. May 28, 2024. -*P*

Ridgway P* and **Lane B.** "Channel dynamics in response to compounding hydrogeomorphic disturbances in a burned watershed," *Establishing Directions in Postfire Debris Flow Science Conference*, South Lake Tahoe, CA. May 20, 2024. -*P*

Murphy B, Belmont P, David S, Yocom L, **Lane B**, Czuba J, et al "Watersheds and wildfires research collaborative," *Establishing Directions in Postfire Debris Flow Science Conference*, South Lake Tahoe, CA. May 20, 2024. -*P*

DiNicola M* and **Lane B. "**Two Years of Mussels in the Mission Reach: Using Displacement Data to Inform Management." *Next Generation Ecological Modeling Symposium*. San Marcos, TX. May 9 2024.

DiNicola M* and **Lane B.** "High flows dictate subadult freshwater mussel suitable habitat patterns in an engineered river," *International Society for Ecohydraulics (ISE) biannual conference*. Quebec City, Canada. May 6 2024.

Lane B, Null S, Baker M, Neilson B, Ostermiller J, Thompson P, Stamp M. *A functional flows framework for Great Salt Lake Basin. Friends of Great Salt Lake Issues Forum*, Salt Lake City, UT. May 2024 -*P*

Canham H* and **Lane B.** "Identifying indicator real-time hydrologic variables and thresholds for post-fire impact risk-informed decision making," *After the Flames conference*. Estes Park, CO. April 2024 -*P*

Ridgway P* and **Lane B.** "River corridor response to post-wildfire Debris Flows in a mountain stream in the Upper Colorado Basin, USA" *After the Flames conference*. Estes Park, CO. April 15 2024.

Phillips C, **Lane B**, Masteller C. "Exploring the variable nature of rivers responding to climate, wildfire and flooding." *Spring Runoff Conference*. Utah State University. Logan, UT. March 27 2024.

Rengers F et al. "Sediment transport analysis of debris flows using lidar in the Grizzly Creek Fire, Glenwood Canyon, CO, USA," *AGU Fall Meeting*. San Francisco, CA. Dec 14 2023.

David S et al. "Fire-WATER: predicting post-wildfire sedimentation cascades and the vulnerability of water supply reservoirs," *AGU Fall Meeting* 2023.

Conley M* and **Lane B**. "A generalized framework for improving subadult mussel habitat modeling," *AGU Fall Meeting* 2023.

Canham H* and **Lane B**. "Exploring controls on event runoff response in wildfire disturbed watersheds," *AGU Fall Meeting* 2023. -*P*

*Nusrat F***, **Lane B,** Ostermiller J, Null S, Neilson B, Thompson P, Baker M. "Utah's Functional Flows Framework," Salt Lake County Watershed Symposium, Nov 15, 2023.

Conley M* and **Lane B**. "A four-pronged approach to improving subadult mussel habitat modeling," *Next Generation Ecological Modeling Symposium*. U.S. Army Corps – Environmental Research and Development Center. Vicksburg, MS. Aug 2, 2023.

**Awarded best graduate student presentation*

Canham H* and **Lane B**. "Revealing hydrologic variability in post-wildfire rainfall-runoff response," *ICRW8* Corvallis, OR. June 2023.

Rengers F, Bower S, Knapp A,… **Lane B**, Ridgway P*, Murphy B. "Post-fire debris flow observations following the Grizzly Creek Fire, Glenwood Canyon, Colorado, USA: Lessons Learned," *Geological Society of America – Rocky Mountain Section Meeting*. Fort Collins, CO. May 25, 2023.

Davis A, Vaughn C, Donovan S, **Lane B**, Conley M*. "Assessing the feasibility of mussel reintroduction to the Mission Reach of the San Antonio River, Texas. *Freshwater Mussel Conservation Society*, April 2023.

Lane B, Canham H*, Ridgway P*, Murphy B. "Observed Hydro-Geomorphic Impacts from Compounding Watershed Disturbances: Wildfire, Monsoons, and Debris Flows," *AGU Fall Meeting*. Chicago, IL. Dec 2022.

*Lee A***, **Lane B**, Pasternack GB. "Characterizing sub-reach variabilities and covariance structures using spectral analysis." *AGU Fall Meeting*. *-P*

Patterson N*, Sandoval-Solis S, **Lane B**, Xong X, Csank A. "Dendrochronology reveals the response of a riparian forest to water management policies in an arid basin." *AGU Fall Meeting*..

Lane B, +Pasternack GB, *Guillon H***, *Lee A***,* and Sandoval-Solis S. "Regional Eflows Design using Geo-Hydro-Eco Functional Archetypes," 39th World Congress, International Association for Hydro-environment Engineering and Research (IAHR), Grenada, Spain. June 22, 2022. +Presenter

Garousi Iº and **Lane B**. "Enhancing hydrology learning by using open web platforms and data services in the education of hydrologists." AGU Frontiers in Hydrology, Puerto Rico. June 21, 2022.

Patterson N*, **Lane B**, Persad G, Sandoval-Solis S. "Quantifying shifts in functional flows due to climate change in the Sierra Nevada." Environmental and Water Resources Congress (ASCE), Atlanta GA. June 7, 2022.

Thurber D* and **Lane B**. "Streamflow response to snowmelt in a karst mountain system," AGU Hydrology Days, Colorado State University. April 27, 2022. Fort Collins, CO.

Canham H* and **Lane B**. "Post-wildfire rainfall-runoff event response variability across space and time in monitored nested watersheds in the Colorado River headwaters" AGU Hydrology Days, Colorado State University. April 25, 2022. Fort Collins, CO.

Grantham T, Stein E, **Lane B**, Yarnell S. "Progress and Challenges in Implementing the California Environmental Flows Framework." American Fisheries Society annual meeting. April 2022. Santa Cruz, CA.

Lane B and Rowles J* "Assessing the impact of potential instream flow targets on human supply and aquatic habitat in the South Fork Eel River." CWEMF Annual Meeting. April 6, 2022. Folsom, CA.

*Lee A***,* **Lane B**, Pasternack GB. "Key geomorphic parameters characterizing eco-hydraulic responses of river channels using River Builder." AGU Fall Meeting. New Orleans, LA. Dec 15, 2021 [poster]

Canham H*, **Lane B**, Murphy B. "Highly variable post-wildfire streamflow response across contiguous watersheds." AGU Fall Meeting. New Orleans, LA. December 17, 2021.

*Guillon H***,* **Lane B**, Pasternack GB. "Evaluating the infl¬uence of erosion and tectonic processes on California's topography by measuring its fractal dimension and anisotropy across scales." European Geophysical Union (EGU) annual meeting, Virtual. April 27, 2021.

Rowles J*, **Lane B**, Sandoval-Solis S, Young C, Chalmers D, Forni L. "Balancing competing water needs in an unregulated seasonal watershed subject to distributed diversion pressures." AGU Fall Meeting, Virtual. Dec 15, 2020.

Habib E, Gallagher M, Byrd J, Tarboton D, Williams D, Ames D, and **Lane B**. "Results from Virtual Hackathon for Co-development and Sharing of Authentic Learning Modules in Hydrology and Water Resources." AGU Fall Meeting, Virtual. Dec 8, 2020. #ED024

Morgan E* and **Lane B**. "Incorporating critical context and uncertainty in flow-ecology relationships," American Water Resources Association (AWRA) annual conference. Virtual. Nov 9-12, 2020.

Lane B, Patterson N*, Sandoval-Solis S. "Modeling statewide hydrologic patterns and changes under mounting climate stressors," California Water and Environmental Modeling Forum (CWEMF). Virtual. Oct 8-10, 2020. 70+ attendees.

Grantham T, Yarnell S, **Lane B**, Stein E, Sandoval-Solis S. "A functional flows modeling approach for environmental flow standards in California," CWEMF. Virtual. Oct 8-10, 2020.

Lane B, Sandoval S, Young C, Chalmers D. "Environmental and human water resources modeling in the South Fork Eel River, CA," CWEMF. Virtual. Oct 8-10, 2020. 70+ attendees

Sandoval S, **Lane B**, *Guillon H***. "Instream flows in the age of AI," CWEMF. Oct 8-10, 2020.

Alger SM*, **Lane B**, Neilson B. "Lateral return flows control temperature patterns in irrigation depleted streams," American Fisheries Society Utah Chapter. St. George, UT. Feb 27, 2020.

*Byrne C***, Pasternack GB, **Lane B**, Guillon H**, Sandoval-Solis S. "Self-maintained riffle-pool couplets are less abundant than expected across California's diverse river systems," AGU Fall Meeting, San Francisco CA. December 2019.

*Guillon H**, Byrne C***, **Lane B**, Sandoval-Solis S, Pasternack GB. "A comprehensive analysis of model outputs characterizes and compares machine-learning-enabled classification of rivers in regions of California," AGU Fall Meeting 2019

Patterson N*, **Lane B**, Sandoval-Solis S. "Evidence of climate change in the Sierra Nevada from seasonal flow attributes," AGU Fall Meeting 2019.

Grantham T, Yarnell S, **Lane B**, Stein E, Sandoval-Solis S, Zimmerman J, Howard J, Carlisle D, Lusardi R. "A functional flows approach for developing environmental flow standards in California," AGU Fall Meeting 2019.

Lane B, *Hung F**,* Rowles JL*, Chalmers D, Sandoval-Solis S. "Setting limits with limited data: A catchment scale modeling framework to evaluate human-ecological water use tradeoffs," AGU Fall Meeting 2019

Alger SM*, **Lane B**, Neilson, B. "Controls on summer stream temperature patterns in irrigation-depleted streams," AGU Fall Meeting 2019.

Patterson N*, **Lane B**, Sandoval-Solis S "Understanding natural streamflow with the Seasonal Flow Detection Algorithm," AGU Fall Meeting 2019.

Yarnell S, Stein E, Zimmerman J, **Lane B**, Grantham T, Howard J, Lusardi R, Sandoval-Solis S. "Stakeholder engagement in the California Environmental Flows Framework," International Society for River Science (ISRS) Biannual Meeting, Vienna, Austria. Sep 2019.

Lane B, Grantham T, Yarnell S, Stein E, Zimmerman J, Howard J, Lusardi R, Sandoval-Solis S. "California Environmental Flows Framework Decision Support Tools," International Society for River Science (ISRS) Biannual Meeting 2019.

INVITED: **Lane B**. "Geomorphic classification of California." California Water Data Science Symposium: Open Water. CalEPA Headquarters, Sacramento, CA. July 2019.

*Hung F***, Morgan B*, **Lane B** "An integrated modeling framework for ecohydraulic analysis," Univ. Council on Water Resources (UCOWR) Annual Conference. Snowbird, UT. June 2019.

Alger SM*, **Lane B**, Neilson BT. "Characterizing depleted flow and temperature patterns on the Blacksmith Fork River," UCOWR Annual Conference 2019.

Lane B and Rosenberg DE. "Promoting instream flows in western states," UCOWR Annual Conference 2019

Christensen K* and **Lane B** "Unimpaired hydrologic metric scaling for California streams," UCOWR Annual Conference 2019

Lane B, Grantham T, Yarnell S, Stein E, Zimmerman J, Howard J, Lusardi R, Sandoval-Solis S. "California Environmental Flows Framework Decision Support Tools I," Society for Freshwater Sciences (SFS) Annual Meeting, Salt Lake City, UT. May 2019

Patterson NP* and **Lane B.** "Application of ecologically-based flow metrics for cannabis-impaired streams," Annual. Salmonid Restoration Conference, SRF. Santa Rosa, CA. April 2019.

Sandoval-Solis S and **Lane B** "Natural streamflow and geomorphic classification for California," California Water and Environmental Modeling Forum. Folsom, CA. April 22, 2019.

INVITED - **Lane B**, Burnett P, Nielson J, Rosenberg D. "Expanding Instream Flows to Protect Ecosystems," Utah Water Users Conference. St George, UT. March 20, 2019.

Patterson NP* and **Lane B**. "Analyzing California reference streamflow with the seasonally-based Functional Flows Calculator," AGU Fall Meeting. Washington DC, December 2018. -P

**Received the American Geophysical Union's Outstanding Student Poster Award*

Pasternack GB and **Lane B**. "Flow, form, and function: An extensible framework for environmental flows." International Symposium on Ecohydraulics (ISE), Tokyo, Japan. August 21, 2018.

Stein E, Yarnell S, Sandoval S, **Lane B**, Zimmerman J, Howard J, Grantham T, "Establishing environmental flow targets in complex environments." International Symposium on Ecohydraulics (ISE), Tokyo, Japan. August 21, 2018.

INVITED - **Lane B** and Stein E. "Key challenges and opportunities in incorporating environmental flows into bioassessment." The evolving science supporting biological assessments & criteria. Society for Freshwater Sciences Annual Conference. Detroit, MI. May 23, 2018.

Stein ED, Yarnell S, Sandoval-Solis S, **Lane B**, Zimmerman J, Howard J, Grantham T. "A coordinated approach for developing statewide environmental flow regulations in California." Society for Freshwater Sciences Annual Conference. Detroit, MI. May 21, 2018.

Lane B and Pasternack GB. "Regional methodology for developing ecological flow criteria." Annual Salmonid Restoration Federation Conference, Fortuna, CA. Apr 14, 2018.

Lane B and Rosenberg DE. "Can we have it all? Envisioning Utah's rivers as coupled human – natural systems." Spring Runoff Conference, Logan, UT. Mar 27, 2018.

TEACHING

2017-2025	Physical Hydrology (CEE 6400), Utah State University, 3 credits
2021-2025	Engineering Hydrology (CEE 3430), Utah State University, 3 credits
2019, 2025	Hydrologic Field Methods (CEE 6930), Utah State University, 3 credits
2016-2017	Water Science and Management (ESM 121), UC Davis, 3 crds (co-instructor)
2021	Summer HydroLearn Hackathon. 25-30 international hydrology faculty in 8-day NSF-funded workshop. June 22 - July 2, 2020 and July 12 - 21, 2021 (instructor)

Rawlinson, B., Lane, B., Neilson, B. (2021). Using HEC-HMS for Hydrologic Design. HydroLearn. https://edx.hydrolearn.org/courses/course-v1:UtahStateUniversity+CEE3430+2022_Spring/about

Lane, B. (2020). Physical Hydrology. HydroLearn. https://apps.edx.hydrolearn.org/learning/course/course-v1:Utah_State_University+CEE6400+2019_Fall/home

MENTORSHIP

Graduate Students (current students in bold)

Megan Casey, MS. Postfire hydrologic response and recovery.
Jared Steive, PhD. Response and recovery of habitat and flood inundation extents to episodic events in fluvial environments.
Megan DiNicola, PhD candidate. Hydrodynamic monitoring and modeling to support freshwater mussel reintroduction
Haley Canham, PhD candidate. Post-wildfire hydrology in a changing western U.S.
Paxton Ridgway, MS (2024). Hydrogeomorphic response to compounding disturbances in a steep burned mountain channel.
Steven White, MS, Incorporating topographic variability patterns into river channel design

Daniel Thurber, MS (2022). Characterizing Karst Mountain Watersheds Through Streamflow Response to Snowmelt. *Currently*: Engineer at WSP, Redmond WA.

Noelle Patterson, PhD (2022). UC Davis. *Currently*: Eco-Engineer at CBEC, Sacramento CA.

Haley Canham, MS (2022) Variable hydrologic response from burned western watersheds. *Currently*: PhD candidate at Utah State.

Jesse Rowles, MS (2020). Human – ecological water management tradeoffs in a seasonal watershed with spatially distributed demands. *Currently*: Eco-Engineer at CBEC, Sacramento CA.

Betsy Morgan, MS (2020). Accounting for uncertainty in flow-ecology relationships. *Currently*: Staff Engineer at Colorado River Authority of Utah; prev. Interstate Streams Scientist at Utah Dept. of Water Resources, Salt Lake City.

Sara (Madison) Alger, MS (2020). Stream flow and temperature patterns in an irrigation depleted stream. *Currently*: Engineer at Jacobs Engineering, Salt Lake City UT.

Karl Christensen, MS, Unimpaired hydrologic metric scaling. *Currently*: Engineer at AECOM, CO.

Graduate Student Awards

2026 Outstanding PhD Student of the Year, USU Dept. of CEE, *Megan DiNicola*

2026 Graduate Student Teacher of the Year, USU Dept. of CEE, *Haley Canham*

2022 Natural Resources Workforce Development Fellowship, Southwest Climate Adaptation Science Center, *Haley Canham*

2022 Graduate Research Innovation Grant, Joint Fire Science Program, *Haley Canham*

2022 Outstanding Graduate Student of the Year, USU Dept. of CEE, *Haley Canham*

2019 Climate Adaptation Science Fellowship, National Science Foundation, *Betsy Morgan*

2019 American Water Works Association, Graduate Science and Engineering Scholarship, Intermountain Section, *Karl Christensen*

2018 American Geophysical Union, Outstanding Student Poster Award, *Noelle Patterson*

Committee Service

2024-present	Aaron Sigman, PhD, CEE
2024-present	Michaela Schalue, PhD, CEE
2025-present	Dominic DiVita, MS, WATS
2023-2025	Eshan Kahrizi, MS, CEE
2023-Present	Ishwar Joshi, PhD, CEE
2023-2024	Jihad Ottman, MS, CEE
2023-2024	Reza Morovati, PhD, CEE
2022-Present	Michael Laswell, PhD, CEE
2022-Present	Mahmud Aveek, PhD, CEE
2018-2024	Amber Jones, PhD, CEE
2019-2024	Homa Salehabadi, PhD, CEE
2021-Present	Motasem Abuolqumboz, PhD, CEE
2022-2024	Casey Langstroth, MS, Watershed Sciences
2021-2023	Aaron Sigman, MS, CEE
2020-2022	Kathryn Margetts, MS, CEE
2019-2022	Rui Gao, PhD, CEE
2018-2020	Adam Fischer, MS, Watershed Sciences
2018-2020	Madeline Friend, MS (Plan B), Watershed Sciences

Postdoctoral Scholars

2024-Present Dr. Noelle Patterson

2020-Present	Dr. Anzy Lee
2020-2021	Dr. Sana Kahn, *Currently:* Researcher at CSIRO, Australia
2018-2021	Dr. Herve Guillon, *Currently*: Principal Data Scientist, Vitidore, CA.
2018-2020	Dr. Colin Byrne, *Currently*: USBR Sedimentation & Hydraulics Program, Denver CO.
2018-2019	Dr. Fengwei Hung, Systems Modeling

SERVICE

Public Outreach (includes seminars, public engagement, etc.)

Lane B and Crookston B. "Cascading Hazards: Wildfire, Post-fire Flooding, Sedimentation, and Dam Safety." US Society on Dams (USSD) H&H Committee Meeting. January 15, 2026. *Presentation to ~50 practitioners and engineers working on dams and spillways.*

DiNicola M and Lane B, San Antonio River Mission Reach Eco-Engineering Study. *Field trip for ~30 staff of US Army Corps Environmental Research and Development Center to showcase ongoing field study in Army Corps funded river restoration site*. May 8, 2024.

Lane B, Stamp M, Ostermiller J, Baker M, Null S, Neilson B, Thompson P. A functional flows framework for the Great Salt Lake Basin. ~15 outreach presentations in 2024-2025 including to:

- Great Salt Lake Advisory Council. June 26, 2024. Farmington, UT.
- Great Salt Lake Integrated Plan Meeting. May 15, 2024. Salt Lake City, UT.

A functional flows framework for the Great Salt Lake Basin. February 12, 2024. Webinar by Lane B *presented to ~100 attendees including Utah and Great Salt Lake Basin researchers and stakeholders*.

Functional Environmental Flows, WaterTalk Podcast, February 18, 2022.

Keeping Water in Utah Streams, Animated video available through UWRL website.

Functional flows can improve environmental water management in California, California Water Blog. November 2020. **Over 400 views in first day and 3,000 views in first 3 weeks.*

CEFF Workgroup. Environmental flows in California, California Water Blog. March 2020.

Overview of analysis for instream flow regime criteria on a watershed scale, Version 2. March 2020. California Dept. of Fish and Wildlife, Instream Flow Program, Sacramento, CA.

CEFF Workgroup. The California Environmental Flows Framework, The Current, CalTrout, January 2020.

Lane B and Habib E. "HydroLearn and Jupyter Notebook," CUAHSI Forum on Transitioning to Online Education." May 8, 2020.

Invited. Lane B & Sandoval S. California Environmental Flows Framework, Dept. Water Resources Environmental Committee Meeting. February 2020. Sacramento CA. ~100 attendees

Invited. Lane B and Rosenberg DE. Instream flows and water conservation. Quarterly Water Coordination Meeting, Utah DNR. January 2020. Salt Lake City, UT.

Invited. Lane B. "Establishing environmental flows for California streams: Emerging technical and implementation tools," Dept. of Civil Engineering, Stanford University, CA. March 2019.

Lane B and Stein ED. "Framework and web tools for developing ecological flow criteria in California," National Newsletter. National Water Quality Monitoring Council, Spring 2019.

Sandoval, S. and Lane B "Environmental flows for the State of California," U.S. Department of Agriculture Seminar Series, Sacramento CA. January 2019.

Lane B, Patterson N*, and Sandoval-Solis, S. California Natural Streamflow Classification and Functional Flow Metrics. California Water Resources Control Board. **50 participants from numerous state agencies, non-profits, consulting firms, universities. >300 views.*

Patterson N* and Lane B. Functional Flow Calculator. Webinar for California Water Quality Monitoring Council. *>600 views*

Patterson N* and Lane B. Functional Flows Calculator: Under the Hood. Webinar for State Water Resources Control Board.

CEFF Technical Workgroup. "Functional flows for developing environmental flow recommendations," California Water Blog. December 9, 2018.

Lane B and Rosenberg DE "Expanding instream flows to protect ecosystems in over-allocated river basins." Legislative Briefing, July 2018.

Lane B, Sandoval S and Yarnell S. "A simplified method to classify streams and improve California's water management," California Water Blog. July 16, 2017.

Media Highlights

New USU study highlights channel response in Upper Colorado Basin, Utah State Today, August 2024.

UWRL grad student research informs first-in-Texas freshwater mussel conservation, Utah State Today, July 2024.

New USU Study Illuminates Subsurface Dynamics in Karst Mountain Watersheds, Utah State Today, May 2024.

Native mussels return to the San Antonio River in first-in-Texas conservation effort, San Antonio River Authority Newsletter, May 2024.

River Authority mussel reintroduction project enters final stages, San Antonio River Authority Newsletter, December 2023.

USU professor helps agencies mitigate wildfire effects and protect water sources, Utah State Engineering Magazine, January 2023.

USU College of Engineering professor receives early career award for applied water research, Utah State Today, January 2022.

Winter Break Edition of Cache Rendezvous.

Deadbeat dams' and their impact on cold-water ecosystems, High Country News, September 2021.

USU researcher leads team monitoring grizzly creek burn scar hydrologic response, Utah State Today, July 2021

Spring runoff could trigger slides on Grizzly Creek burn scar, KDNK public radio, March 2021.

Water data and software services to support discovery, reproducibility, and collaboration in the water-resources domain and beyond, Northeast Big Data Innovation Hub. Emily Clark, Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI), September 2020.

Aspiring hydrologists getting their feet wet, Utah Water Research Laboratory 2020 Annual Report. Utah State University.

Developing solutions for Utah's rising water management crisis, Utah State Engineer Magazine, College of Engineering, Utah State University, October 2019.

Cache Water Board discusses options for expanding instream flow, Herald Journal News, Logan UT, December 7, 2018.

Working Group Affiliations & Service

2023-2024 *Invited*, Co-chair of Hydroinformatics Working Group for the Cooperative Institute for Research to Operations in Hydrology (CIROH)

2022-Present *Invited Member,* Middle Colorado Watershed Council Technical Advisory Team

2016-Present *Founding Member,* California Environmental Flows Technical Workgroup

2017-Present *Invited Member,* California Environmental Flows Strategic Workgroup, California Water Quality Monitoring Council (Senate Bill 1070). (2017 to Present). **Other members include CalEPA, Cal State Water Board, Cal Dept. Water Resources, USFS, SCCWRP, etc*

2019-Present Universities Council on Water Resources (UCOWR) Delegate

2019-Present Logan River Task Force. Logan, UT

Editorial & Reviewer Service

Technical Reports

USGS papers and reports; USBR models and reports**;** California Department of Fish & Wildlife reports and factsheets

Proposals

California SeaGrant; National Science Foundation – Geomorphology & Land Use Dynamics; Hydrological Sciences

Journal Articles

Numerous journals in hydrology, earth science, and water management including: Nature, BioScience, J. Hydrology, J. Water Resources Planning & Management, J. Hydrologic Engineering, Environmental Management, J. American Water Resources Association, Ecological Indicators

Conference Session Convener

AGU Fronteirs in Hydrology. *Sharing experiences in developing, implementation, and evaluation of digital hydrology learning resources*. Puerto Rico, June 2022.

Society for Freshwater Sciences Annual Conference. *The environmental flow and water management nexus.* Salt Lake City UT, June 2019.

USU Spring Runoff Conference. March 2018.

Committee Service

University Service

2022-2023 Search Committee, USU Field Safety Officer

2020-2021 USU Field Safety Committee, College of Engineering Representative

2019 USU Gender Equity Committee

2017-Present Adjunct Faculty, Department of Watershed Sciences, USU

2018-2020 Faculty Advisor, NSF Climate Adaptation Science

Department and College Service

2025- CEE Water Program Head

2023-2025 Utah Water Research Laboratory Safety Committee

2018-2022 Academic Advisor, USU Engineering Senior Design

2021-2022 Search Committee, Groundwater faculty search hire in CEE

2019-2020 Search Committee, Cluster faculty hire search in CEE

Professional Memberships

American Geophysical Union, American Society for Civil Engineers, American Water Resources Association, Universities Council on Water Resources, Society for Freshwater Science, International Society for River Science, Consortium of Universities for the Advancement of Hydrologic Science.