

# Belize A. Lane, Ph.D.

## Assistant Professor, Curriculum Vitae

Utah State University • Department of Civil and Environmental Engineering  
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### EDUCATION

**Ph.D.** 2017 Hydrologic Sciences, *University of California Davis*, Davis CA  
**M.S.** 2014 Hydrologic Sciences, *University of California Davis*, Davis CA  
**B.S.** 2010 Ecology, *University of California San Diego*, La Jolla CA

### RESEARCH

#### SCHOLARLY CONTRIBUTIONS

##### Google Scholar Statistics

Profile: <https://scholar.google.com/citations?user=LB2ePs8AAAAJ&hl=en>

	All	Since 2017 (USU)
Citations	152	149
h-Index	7	
i10-Index	6	

##### ResearchGate Statistics

Profile: [https://www.researchgate.net/profile/Belize\\_Lane](https://www.researchgate.net/profile/Belize_Lane)

	All
Citations	162
	299
Research Interest	Higher than 82% of RG researchers
Total Reads	6,137
Publication Recommendations	41

ORCID Profile: [0000-0003-2331-7038](https://orcid.org/0000-0003-2331-7038)

#### Key for all Scholarly Contributions

##### **Co-Author Key**

\*Lane graduate student

ψLane's PhD Supervisor

°Lane Graduate Advisee or Visiting Scholar

\*\*Lane Post-Doc

Contributions prior to USU shown with light grey background

##### **Journal Key**

[IF-2.0] – Impact Factor from <https://www.scimagojr.com/journalsearch.php> for 2019.

## PEER-REVIEWED JOURNAL ARTICLES

1. 2021. Alger SM\*, **Lane B**, Neilson B. “Combined influences of irrigation diversions and associated subsurface return flows on river temperature in a semi-arid region.” *Hydrological Processes* [IF-3.256]. DOI: [10.1002/hyp.14283](https://doi.org/10.1002/hyp.14283)
2. 2021. **Lane B**, Garousi I\*, Gallagher M, Tarboton D, Habib E. “An open web-based module developed to advance data-driven hydrologic process learning.” *Hydrological Processes*, 35(7), e14273 [IF-3.256]. DOI: [10.1002/hyp.14273](https://doi.org/10.1002/hyp.14273)
3. 2021. Merritt A\*, **Lane B** and Hawkins C. “Classification and prediction of natural streamflow regimes in arid regions of the USA.” *Water MDPI* [IF-2.709] DOI: 10.3390/w13030380
4. 2020. Beck MB, O’Hara C, Lowndes J, Mazor R, Theroux S, Gillett D, **Lane B** and Gearheart G. “The importance of open science for biological assessment.” *PeerJ* [IF-2.38]. DOI: [10.7717/peerj.9539](https://doi.org/10.7717/peerj.9539)
5. 2020. Byrne C\*\*, Pasternack GB<sup>ψ</sup>, Guillon H\*\*, **Lane B**, and Sandoval-Solis S<sup>ψ</sup>. “Reach-scale bankfull channel types can exist independently of catchment hydrology,” *Earth Surface Processes and Landforms* [IF-3.72]. DOI: [10.1002/esp.4874](https://doi.org/10.1002/esp.4874)
6. 2020. **Lane B**, Ortiz-Partida JP, and Sandoval-Solis S<sup>ψ</sup>. “Extending water resources performance metrics to river ecosystems.” *Ecological Indicators* [IF-4.80]. DOI: [10.1016/j.ecolind.2020.106336](https://doi.org/10.1016/j.ecolind.2020.106336)
7. 2020. Guillon H\*\*, Byrne C\*\*, **Lane B**, Sandoval-Solis S<sup>ψ</sup>, and Pasternack GB<sup>ψ</sup>. “A machine learning framework to predict geomorphic channel types and assess model entropy over large regions,” *Water Resources Research* [IF-4.36]. DOI: [10.1029/2019WR026691](https://doi.org/10.1029/2019WR026691)
8. 2020. Patterson NP\*, **Lane B**, Sandoval-Solis S<sup>ψ</sup>, Pasternack GB<sup>ψ</sup>, Yarnell S, and Qiu L°. “A hydrologic feature detection algorithm to quantify seasonal components of flow regimes.” *Journal of Hydrology* [IF-3.73]. DOI: [10.1016/j.jhydrol.2020.124787](https://doi.org/10.1016/j.jhydrol.2020.124787)
9. 2019. Yarnell SM, Stein E, Webb J, Grantham T, Lusardi R, Zimmerman J, Peek R, **Lane B**, Howard J, and Sandoval-Solis S<sup>ψ</sup>. “A functional flows approach for selecting ecologically relevant flow metrics for environmental flow applications.” *River Research and Applications* [IF-1.95]. DOI: [10.1002/rra.3575](https://doi.org/10.1002/rra.3575)
10. 2019. **Lane B** and Rosenberg DE. “Promoting instream flows in the changing western U.S.” *J. Water Resources Planning and Management* [IF-3.54]. DOI: [10.1061/\(ASCE\)WR.1943-5452.0001145](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001145)
11. 2019. Ortiz-Partida JP, Kahil T, Ermolieva T, Ermoliev Y, **Lane B**, Sandoval-Solis S<sup>ψ</sup>, and Wada Y. “A two-stage stochastic optimization for robust operation of multipurpose reservoirs.” *Water Resources Management* [IF-2.99]. DOI: [10.1007/s11269-019-02337-1](https://doi.org/10.1007/s11269-019-02337-1)
12. 2018. **Lane B**, Sandoval-Solis S<sup>ψ</sup>, Yarnell S, Stein E, Dahlke H, and Pasternack GB<sup>ψ</sup>. “Beyond Metrics? The role of hydrologic baseline archetypes in environmental water management.” *Environmental Management* [IF-2.38]. DOI: [10.1007/s00267-018-1077-7](https://doi.org/10.1007/s00267-018-1077-7)
13. 2018. **Lane B**, Pasternack GB<sup>ψ</sup>, and Sandoval-Solis S<sup>ψ</sup>. “Integrated analysis of flow, form, and function for river management and design testing.” *Ecohydrology* [IF-2.56]. DOI: [10.1002/eco.1969](https://doi.org/10.1002/eco.1969)

14. 2017. **Lane B**, Pasternack GB<sup>ψ</sup>, Dahlke H, and Sandoval-Solis S<sup>ψ</sup>. “The role of topographic variability in river channel classification.” *Progress in Physical Geography* [IF-3.37]. DOI: [10.1177/0309133317718133](https://doi.org/10.1177/0309133317718133)
15. 2017. **Lane B**, Dahlke H, Pasternack GB<sup>ψ</sup>, and Sandoval-Solis S<sup>ψ</sup>. “Revealing the diversity of natural hydrologic regimes in California for future environmental flows applications.” *J. American Water Resources Association* [IF-2.46]. DOI: [10.1111/1752-1688.12504](https://doi.org/10.1111/1752-1688.12504)
16. 2016. Ortiz-Partida JP, **Lane B**, and Sandoval-Solis S<sup>ψ</sup>. “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* [IF-3.21]. DOI: [10.1016/j.ejrh.2016.08.004](https://doi.org/10.1016/j.ejrh.2016.08.004)
17. 2015. Porse E, Sandoval-Solis S<sup>ψ</sup>, and **Lane B**. “Integrating environmental flows into multi-objective reservoir management for a transboundary, water-scarce river basin: Rio Grande/Bravo.” *Water Resources Management* [IF-2.99]. DOI: [10.1007/s11269-015-0952-8](https://doi.org/10.1007/s11269-015-0952-8).
18. 2014. **Lane B**, Sandoval-Solis S<sup>ψ</sup>, and Porse E. “Environmental flows in a human-dominated system: Evaluating integrated water management strategies in the Rio Grande/Bravo Basin.” *River Research and Applications* [IF-1.95]. DOI: [10.1002/rra.2804](https://doi.org/10.1002/rra.2804)
19. 2014. Ai X, Sandoval-Solis S<sup>ψ</sup>, Dahlke H, and **Lane B**. “Reconciling hydropower and environmental water uses in the Leishui River Basin.” *River Research and Applications* [IF-1.95]. DOI: [10.1002/rra.2728](https://doi.org/10.1002/rra.2728).

## BOOK CHAPTERS

2015. Metzger L, **Lane B**, MacPhee D, Kilanski M, Kromann J, Salvatierra J, Setegn S. “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.), 1st Edition, Springer, 320 p. [https://doi.org/10.1007/978-3-319-12194-9\\_25](https://doi.org/10.1007/978-3-319-12194-9_25)

## DIGITAL PRODUCTS

- Lane B and Byrne C. 2021. California river classification field surveying protocols, [HydroShare](https://doi.org/10.4211/hs.023f24c1a62f48f496e10b7cbafe6b86), <https://doi.org/10.4211/hs.023f24c1a62f48f496e10b7cbafe6b86>
- Functional Flows Calculator, <https://eflows.ucdavis.edu/hydrology>
- INSTREAM digital repository, USU Digital Commons, Utah State University <https://digitalcommons.usu.edu/instream/>
- 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>
- Guillon H, Byrne C, Lane B, Sandoval S, Pasternack GB. 2020. Channel types predictions for the South Fork Eel River basin, <https://doi.org/10.25338/B8VG83>

## SELECTED PROFESSIONAL PRESENTATIONS

1. 2021. Guillon H\*\*, **Lane B**, Pasternack GB<sup>ψ</sup>. Evaluating the influence of erosion and tectonic processes on California’s topography by measuring its fractal dimension and anisotropy across scales. European Geophysical Union (EGU), *Virtual*. April 27, 2021.

2. 2020. Rowles J\*, **Lane B**, Sandoval-Solis S<sup>ψ</sup>, Young C, Chalmers D, Forni L. “Balancing competing water needs in an unregulated seasonal watershed subject to distributed diversion pressures.” American Geophysical Union (AGU) Fall Meeting, *Virtual*. Dec 15, 2020.
3. 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
4. 2020. Morgan E\* and **Lane B**. “Incorporating critical context and uncertainty in flow-ecology relationships,” American Water Resources Association (AWRA). *Virtual*. Nov 9-12, 2020.
5. 2020. **Lane B**, Patterson N\*, Sandoval-Solis S<sup>ψ</sup>. “Modeling statewide hydrologic patterns and changes under mounting climate stressors,” California Water and Environmental Modeling Forum (CWEMF). *Virtual*. Oct 8-10, 2020. 70+ attendees.
6. 2020. Grantham T, Yarnell S, **Lane B**, Stein E, Sandoval-Solis S<sup>ψ</sup>. “A functional flows modeling approach for environmental flow standards in California,” CWEMF. *Virtual*. Oct 8-10, 2020.
7. 2020. **Lane B**, Sandoval S<sup>ψ</sup>, 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
8. 2020. Sandoval-Solis S<sup>ψ</sup>, **Lane B**, Guillon H\*\*. “Instream flows in the age of AI,” CWEMF. *Virtual*. Oct 8-10, 2020.
9. 2020. Alger SM\*, **Lane B**, Neilson B. “Lateral return flows control summer stream temperature patterns in irrigation-depleted streams,” American Fisheries Society Utah Chapter Meeting. St. George, UT. February 27, 2020.
10. 2020. *Invited Talk*. **Lane B**. Interdisciplinary Research Forum, NSF Climate Adaptation Science. Utah State University. February 12, 2020
11. 2019. Byrne C\*\*, Pasternack GB<sup>ψ</sup>, **Lane B**, Guillon H\*\*, Sandoval-Solis S<sup>ψ</sup>. “Self-maintained riffle-pool couplets are less abundant than expected across California’s diverse river systems,” American Geophysical Union (AGU) Fall Meeting, San Francisco CA. December 13, 2019.
12. 2019. Guillon H\*\*, Byrne CF\*\*, **Lane B**, Sandoval-Solis S<sup>ψ</sup>, Pasternack GB<sup>ψ</sup>. “A comprehensive analysis of model outputs characterizes and compares machine-learning-enabled classification of rivers in regions of California,” AGU Fall Meeting, San Francisco CA. Dec 13, 2019
13. 2019. Patterson N\*, **Lane B**, Sandoval-Solis S<sup>ψ</sup>. “Evidence of climate change in the Sierra Nevada from seasonal flow attributes,” AGU Fall Meeting, San Francisco CA. Dec 11, 2019.
14. 2019. Grantham T, Yarnell S, **Lane B**, Stein E, Sandoval-Solis S<sup>ψ</sup>, Zimmerman J, Howard J, Carlisle D, Lusardi R. “A functional flows approach for developing environmental flow standards in California,” AGU Fall Meeting, San Francisco CA. Dec 10, 2019. H23N-2087
15. 2019. **Lane B**, Hung F\*\*, Rowles JL\*, Chalmers D, Sandoval-Solis S<sup>ψ</sup>. “Setting limits with limited data: A catchment scale modeling framework to evaluate human-ecological water use tradeoffs,” AGU Fall Meeting, San Francisco CA. Dec 10, 2019. ID#531226
16. 2019. Alger SM\*, **Lane B**, Neilson, B. “Controls on summer stream temperature patterns in irrigation-depleted streams,” AGU Fall Meeting, San Francisco CA. Dec 10, 2019. H23K-2049
17. 2019. Patterson N\*, **Lane B**, Sandoval-Solis S<sup>ψ</sup> “Understanding natural streamflow with the Seasonal Flow Detection Algorithm,” AGU Fall Meeting, San Francisco CA. Dec 10, 2019.
18. 2019. Yarnell S, Stein E, Zimmerman J, **Lane B**, Grantham T, Howard J, Lusardi R, Sandoval-Solis S<sup>ψ</sup>. “Stakeholder engagement in the California Environmental Flows Framework,” International Society for River Science (ISRS) Biannual Meeting, Vienna, Austria. Sep 9, 2019.
19. 2019. **Lane B**, Grantham T, Yarnell S, Stein E, Zimmerman J, Howard J, Lusardi R, Sandoval-Solis S<sup>ψ</sup>. “California Environmental Flows Framework Decision Support Tools,” International Society for River Science (ISRS) Biannual Meeting, Vienna, Austria. September 9, 2019.

20. 2019. *Invited Talk*. **Lane B**. “Geomorphic classification of California.” California Water Data Science Symposium: Open Water California. CalEPA Headquarters, Sacramento, CA. July 2, 2019.
21. 2019. Hung F\*\*, Morgan B\*, **Lane B** “An integrated modeling framework for ecohydraulic analysis,” Univ.Council on Water Resources (UCOWR) Conference. Snowbird, UT. June 13, 2019.
22. 2019. Alger SM\*, **Lane B**, Neilson BT. “Characterizing depleted flow and temperature patterns on the Blacksmith Fork River,” UCOWR Annual Conference. Snowbird, UT. June 13, 2019.
23. 2019. **Lane B** and Rosenberg DE. “Promoting instream flows in western states,” UCOWR Annual Conference. Snowbird, UT. June 13, 2019
24. 2019. Christensen K\* and **Lane B** “Unimpaired hydrologic metric scaling for California streams,” UCOWR Annual Conference. Snowbird, UT. June 12, 2019.
25. 2019. **Lane B**, Grantham T, Yarnell S, Stein E, Zimmerman J, Howard J, Lusardi R, Sandoval-Solis S<sup>ψ</sup>. “California Environmental Flows Framework Decision Support Tools I,” Society for Freshwater Sciences (SFS) Annual Meeting, Salt Lake City, UT May 23, 2019
26. 2019. Patterson NP\* and **Lane B**. “Application of ecologically-based flow metrics for cannabis-impaired streams,” Ann. Salmonid Restoration Conference, SRF. Santa Rosa, CA. April 24, 2019.
27. 2019. Sandoval-Solis S<sup>ψ</sup> and **Lane B** “Natural streamflow and geomorphic classification for California,” California Water and Environmental Modeling Forum. Folsom, CA. April 22, 2019.
28. 2019. *Invited Talk*. Burnett P, Nielson J, **Lane B**, Rosenberg D. “Expanding Instream Flows to Protect Ecosystems,” Utah Water Users Conference. St George, UT. March 20, 2019.
29. 2019. *Invited Seminar*. **Lane B**. “Establishing environmental flows for California streams: Emerging technical and implementation tools,” Dept. of Civil and Environmental Engineering, Stanford University. Palo Alto, CA. March 4, 2019.
30. 2018. Patterson NP\* and **Lane B**. “Analyzing California reference streamflow with the seasonally-based Functional Flows Calculator,” AGU Fall Meeting. Washington DC, December 2018. [Poster]  
<sup>+</sup> *Received the American Geophysical Union Outstanding Student Poster Award*
31. 2018. **Lane B** and Pasternack GB<sup>ψ</sup>. “Flow, form, and function: An extensible framework for environmental flows.” International Symposium on Ecohydraulics (ISE), Tokyo, Japan. August 21
32. 2018. Stein E, Yarnell S, Sandoval S<sup>ψ</sup>, **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.
33. 2018. *Invited Talk*. **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.
34. 2018. Stein ED, Yarnell S, Sandoval-Solis S<sup>ψ</sup>, **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.
35. 2018. *Invited Seminar*. **Lane B**. “Functional flows in modified hydroscares.” Colorado State University, Dept. of Civil and Environmental Engineering Seminar. April 26, 2018.
36. 2018. **Lane B** and Pasternack GB<sup>ψ</sup>. “Regional methodology for developing ecological flow criteria.” Annual Salmonid Restoration Federation Conference, Fortuna, CA. Apr 14, 2018.
37. 2018. **Lane B** and Rosenberg DE. “Can we have it all? Envisioning Utah’s rivers as coupled human – natural systems.” Spring Runoff Conference, Utah State University, Logan, UT. Mar 27, 2018.
38. 2018. *Invited Seminar*. **Lane B**. “Functional flows: Integrating ecology and engineering for sustainable river basins.” Dept. Watershed Sciences, Utah State, Logan UT. Jan 31, 2018.
39. 2017. **Lane B** and Sandoval-Solis S<sup>ψ</sup>. “A new direction for environmental flows,” Biennial Symposium International Society for River Science, Hamilton, New Zealand. Nov 23, 2017.

## TECHNICAL REPORTS

1. 2021. California Environmental Flows Working Group. "California Environmental Flows Framework Version 1.0." California Water Quality Monitoring Council Technical Report 37 pp.
2. 2019. Byrne C, Guillon H, Lane B, Pasternack GB, and Sandoval S. "Sacramento River Basin Geomorphic Classification." Final Report, CA State Water Resources Control Board, Sacramento, CA.
3. 2019. Byrne C, Guillon H, Lane B, Pasternack GB, and Sandoval S. "South Fork Eel River Basin Geomorphic Classification." Final Report, CA State Water Resources Control Board, Sacramento, CA.
4. 2018. Sandoval S. and Lane B. "Estimating statewide environmental flows." CA State Water Resources Control Board, Sacramento, CA.
5. 2016. 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. "Keeping California's streams alive: An approach for rapidly setting environmental flow standards for all rivers in California." Technical Report for California State Water Resources Control Board.
6. 2016. Lane B, Sandoval-Solis, S., Dahlke, H.E., and Pasternack, G.B. "Hydro-geomorphic classification of California: Sacramento Basin." Technical Report for CA State Water Resources Control Board.

## RESEARCH GRANTS AND AWARDS

2021 – 2023	PI, "Predicting ecological futures in Texas watersheds," U.S. Army Engineer Research and Development Center (ERDC) [ <b>\$234,725</b> ; \$2,484,254]
2021 – 2026 (Submitted)	Senior Personnel, "Dynamics of Environmental and Social Critical Transitions with Desiccation (DESiCcaTeD), NSF DISES [ <b>\$1,600,000</b> ]
2020 – 2022	Senior Personnel, NSF IUSE Collaborative Grant, HydroLearn [ <b>\$40,000</b> ] Proposal #1726965
2020 – 2021	PI, NSF Hydrologic Sciences "RAPID: Monitoring and modeling watershed-scale post-wildfire streamflow response patterns" [ <b>\$49,811</b> ] Proposal #2051762
2018 – 2022	Co-PI, "Development of Environmental Flows for the State of CA," Div. of Water Rights Public Trust Unit, CA State Water Resources Control Board [ <b>\$4,264,344</b> ; \$648,298]
2019 – 2020	HydroLearn Fellowship, National Science Foundation [ <b>\$5,000</b> ]
2019 – 2020	PI, "Open-source modules to teach physical hydrology fundamentals," Open Educational Resources Grant, College of Engineering, Utah State University [ <b>\$3,000</b> ]
2019 – 2020	PI, "Characterizing streamflow and temperature patterns to determine impacts of summer dewatering on the Blacksmith Fork River," USGS 104b Grant [ <b>\$41,179</b> ]
2018 – 2019	PI, "Improving representation of environmental objectives in systems models to inform water management," USGS 104b Federal Water Resources Research Grant [ <b>\$77,165</b> ]
2014 – 2016	Co-PI, Hydrogeomorphic Classification of the South Fork Eel River, Division of Water Rights, Instream Flow Unit, CA State Water Board [ <b>\$400,000</b> ]

## TEACHING

Utah State University, 2017 to Present

- *Instructor* for CEE 6400 – Physical Hydrology (Grad, 2017-2021) (3 crd)
- *Instructor* for CEE 6930 – Hydrologic Field Methods (Grad, Fall 2019) (3 crd)

- *Instructor* for CEE 3430 – Engineering Hydrology (Undergrad, Spring 2021) (3 crd)

University of California at Davis, 2015 to 2017

- *Co-Instructor* for ESM 121 – Water Science and Management (Fall 2016, 2017)
- *Co-Instructor* for HYD 298 – Principles of HEC Software (Winter 2018)

## SUPERVISIONS

### Current Graduate Students

1. **Yesica Leon**, 2018 to Present, *MS in Civil Eng*, Topic: Quantifying streamflow alteration patterns across California; Study Area: State of California; Funding: CA State Water Board.
2. **Daniel Thurber**, 2020 to Present, *MS in Civil Eng*, Topic: Climate and karst contribution influences on seasonal hydrologic response in snow-dominated western basins; Study Area: Logan River, UT; Funding: CA State Water Board, UWRL
3. **Haley Canham**, 2020 to Present, *PhD in Civil Eng*, Topic: Post-wildfire hydrology and water management in a changing West; Study Area: Grizzly Creek, CO; Funding: UWRL, NSF.

### Past Graduate Students

4. **Jesse Rowles**, 2018 to 2020, *MS in Civil Eng*, Topic: Evaluation of human-ecological water management tradeoffs in a seasonal watershed with spatially distributed demands; Study Area: South Fork Eel River, CA; Funding: CA State Water Board. *Currently: Engineer at CBEC, Sacramento CA.*
5. **Elizabeth (Betsy) Morgan**, 2018 to 2021, *MS in Civil Eng*, Topic: Accounting for attributes and uncertainty in flow-ecology relationships; Study Area: South Fork Eel River, CA; Funding: CA State Water Board. *Currently: Interstate Streams Scientist at Utah Department of Water Resources, Salt Lake City UT.*
6. **Sara (Madison) Alger**, 2018 to 2020, *MS in Civil Eng*, Topic: Stream flow and temperature patterns in an irrigation depleted stream; Study Area: Blacksmith Fork River, UT; Funding: USGS 104B. *Currently: Engineer at Jacobs Engineering, Salt Lake City UT.*
7. **Karl Christensen**, 2017 to 2020, *MS in Civil Eng*, Topic: Unimpaired hydrologic metric scaling; Study Area: State of California; Funding: CA State Water Board. *Currently: Engineer at AECOM, Denver CO.*

### Current Graduate Student Committees

1. **Noelle Patterson** - PhD Candidate in Hydrologic Sciences (Supervisor: Sam Sandoval, UCD)
2. **Amber Jones** - PhD Candidate in Civil Eng (Supervisor: Jeff Horsborough)
3. **Rui Gao** - PhD in Civil Eng (Supervisor: Alfonso Torres)
4. **Kathryn Margetts** - MS in Civil Eng (Supervisor: Brian Crookston)
5. **Homa Salehabadi** - PhD in Civil Eng (Supervisor: Dave Tarboton)
6. **Laura Garza-Diaz** - PhD in Hydrologic Sciences (Supervisor: Sam Sandoval, UCD)

### Past Graduate Student Committees

1. **Adam Fischer** - MS in Watershed Sciences (Supervisor: Patrick Belmont)
2. **Angie Merrit** - MS in Watershed Sciences (Supervisor: Charles Hawkins)
3. **Madeline Friend** - MS in Watershed Sciences (Plan B) (Supervisor: Peter Wilcock)
4. **Ferdousy Runa** - MS in Civil Eng (Supervisor: Patrick Singleton)

### Post-Doctoral Scholars

1. **Anzy Lee** - 2020 to Present, Ecohydraulic Modeling



2. **Sana Khan** - 2020 to Present, Topographic Analysis
3. **Herve Guillon** - 2018 to Present, Machine Learning (co-PI)
4. **Colin Byrne** - 2018 to 2020, Fluvial Geomorphology (co-PI)  
*Currently: US Bureau of Reclamation, Sedimentation and Hydraulics Program, Denver CO.*
5. **Fengwei Hung** - 2018-2019, Systems Modeling.

### Other Advising

1. Academic Advisor, USU CEE Senior Design, Logan River Restoration Project, Crockett Diversion flood mitigation (2018 to 2019)
2. Mentor, Brazil Scientific Mobility Program. Civil Eng. Program, Institute for International Education (2016 to 2017)
3. Advisor, Research Experience for Mexican Undergraduate Students Program (REU). University of California at Davis and Mexican Government (2016)
4. Mentor, UC LEADS. Dept. Civil Engineering, University of California at Davis (2015 to 2016)

## SERVICE

### Public Outreach

#### **Webinars**

- Lane B and Habib E. “[HydroLearn and Jupyter Notebook](#),” CUAHSI Forum on Transitioning to Online Education.” May 8, 2020.
- Lane B, Patterson N\* and Sandoval-Solis, S. (2018) [California Natural Streamflow Classification and Functional Flow Metrics](#).. State Water Resources Control Board. Over 50 participants from numerous state agencies, non-profits, consulting firms, and universities through California.
- Patterson N\* and Lane B (2018) [Functional Flow Calculator](#). Webinar. State Water Resources Control Board. Accessible via <https://ceff.ucdavis.edu>.
- Patterson N\* and Lane B (2018) [Functional Flows Calculator under the Hood](#). Webinar. State Water Resources Control Board

#### **Newsletters, Blogs and Briefings**

- [Functional flows can improve environmental water management in California](#), California Water Blog. November 29, 2020. \*Over 400 views in first day and 3,000 views in first 3 weeks posted.
- [Environmental flows in California](#), California Water Blog. March 18, 2020.
- [Overview of analysis for instream flow regime criteria on a watershed scale](#), Version 2. March 2020. California Department of Fish and Wildlife, Instream Flow Program (CDFW), West Sacramento, CA.
- CEFF Technical Workgroup. “The California Environmental Flows Framework,” The Current, CalTrout, Jan 2020. <https://caltrout.org/article/the-california-environmental-flows-framework>
- Lane B and Stein ED. “Framework and web tools for developing ecological flow criteria in California,” National Water Monitoring Newsletter. National Water Quality Monitoring Council, Spring 2019. [https://acwi.gov/monitoring/newsletter/national-monitoring-news\\_spring2019.pdf/](https://acwi.gov/monitoring/newsletter/national-monitoring-news_spring2019.pdf/)
- CEFF Technical Workgroup. “Functional flows for developing environmental flow recommendations,” California Water Blog. December 9, 2018. <https://californiawaterblog.com/2018/12/09/functional-flows-for-developing-ecological-flow-recommendations/>
- 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.

### ***Selected Workshops and Presentations***

- Lane B and Sandoval S. California Environmental Flows Framework, CA Dept. Water Resources Environmental Committee Meeting. February 27, 2020. Sacramento CA. ~100 attendees
- Lane B and Rosenberg DE. Instream flows and water conservation in Utah. Quarterly Water Coordination Meeting, Division of Natural Resources. January 7, 2020. Salt Lake City, UT.
- Lane B and Sandoval-Solis, S. Functional Flow Metrics predictions. California Environmental Flows Workgroup, California Water Quality Monitoring Council. Sacramento, CA. Quarterly presentations from 2017 – 2021.
- Lane B and Sandoval-Solis, S. California Environmental Flows Technical Workgroup Meeting. Project grant: Estimating environmental flows for the State of California. Sacramento, CA. Many meetings from 2017 – 2019.
- Sandoval, S. and Lane B “Environmental flows for the State of California,” U.S. Department of Agriculture Seminar Series, Sacramento CA. January 11, 2019.
- Lane B and Rosenberg, D.E. “Promoting instream flows in Cache Valley,” Cache Valley Water District Board Meeting. Dec 3, 2018.
- CEFF Technical Workgroup “California Environmental Flows Framework,” California Department of Fish and Wildlife Technical Workshop. November 2, 2018.
- CEFF Technical Workgroup “California Environmental Flows Framework,” California Advisory Committee on Salmon and Steelhead. October 24, 2018

### **Media Highlights**

- “[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](#),” UWRL 2020 Annual Report. Utah State University, August 2020.
- “[Developing Solutions for Utah’s Rising Water Management Crisis](#),” Utah State Engineer Magazine, College of Engineering, Utah State University, October 2019.
- “[Balancing summer water needs in the Blacksmith Fork River](#),” UWRL 2018 Annual Report. Utah State University, May 2019.
- “[Cache Water Board discusses options for expanding instream flow](#),” Herald Journal News, December 7, 2018.
- Article on PhD research field campaign, California Agriculture and Environmental Sciences quarterly publication. UC Davis, Fall/Winter 2015.

### Working Group Affiliations & Service

- 2016 to Present, *Founding Member*, California Environmental Flows Technical Workgroup
- 2017 to Present, *Invited*, California Environmental Flows Strategic Workgroup, California Water Quality Monitoring Council (CA Senate Bill 1070). Members include CalEPA, California Natural Resources Agency, State Water Resources Control Board, CA Dept. Water Resources, USFS, SCCWRP, tribes, NGOs.
- 2019 to Present, University Council on Water Resources (UCOWR) Delegate
- 2019 to Present, *Invited*, Logan River Task Force. Logan, UT.

### Editorial & Reviewer Service

- **Technical Reviewer**, 2018 to Present
  - United States Geologic Survey Papers and Reports
  - California Department of Fish & Wildlife Reports and Factsheets
- **Proposal Reviewer**, 2018 to Present
  - National Science Foundation – Geomorphology and Land Use Dynamics
- **Journal Reviewer**, 2015 to Present
  - Numerous journals in hydrology, earth science, and water management including: Nature, BioScience; J. Hydrology; J. Water Resources Planning and Management; J. Hydrologic Engineering; Environmental Management, J. American Water Resources Association; Ecological Indicators; J. Maps
- **Conference Session Convener**
  - Society for Freshwater Sciences Annual Conference. *The environmental flow and water management nexus*. Salt Lake City UT, June 2019.
  - USU Spring Runoff Conference. 2018.

### Committee Service

#### ***University Service***

- 2020, USU Field Safety Committee, College of Engineering Representative
- 2019, USU Gender Equity Committee
- 2017 - present, Adjunct Faculty, Department of Watershed Sciences, Utah State University
- 2018 - present, Faculty Advisor, NSF Climate Adaptation Science

#### ***Department and College Service***

- Search Committee (2019-2020). Committee member for cluster faculty hire search in Department of Civil and Environmental Engineering

### Professional Memberships

- American Geophysical Union, *Since 2014*
- American Society for Civil Engineers, *Since 2014*
- American Water Resources Association, *Since 2015*
- International Society for River Science, *Since 2017*
- Society for Freshwater Science, *Since 2017*
- University Council on Water Resources, *Since 2015*