

Belize A. Lane, PhD

Curriculum Vitae

Utah State University • Department of Civil and Environmental Engineering
Utah Water Research Laboratory • 1600 Canyon Rd. Logan, UT 84321
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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	129	114
H-Index	6	
I10-Index	5	

ResearchGate Statistics

Profile: https://www.researchgate.net/profile/Belize_Lane

	All
Citations	128
Research Interest	254.3
	Higher than 81% of RG researchers
Total Reads	5153
Publication Recommendations	28

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

Key for all Scholarly Contributions

Co-Author Key

*Lane graduate student

‡Lane's PhD Supervisor

°Lane Graduate Advisee or Visiting Scholar **Lane Post-Doc

Journal Key

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

PEER-REVIEWED JOURNAL ARTICLES

Contributions prior to USU shown with light grey background

1. 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)
2. 2020. Byrne C**, Pasternack GB[‡], Guillon H**, **Lane B**, and Sandoval-Solis S[‡]. "Reach-scale bankfull channel types can exist independently of catchment hydrology," *Earth Surface Processes and Landforms* [IF-3.722]. DOI: [10.1002/esp.4874](https://doi.org/10.1002/esp.4874)
3. 2020. **Lane B**, Ortiz-Partida JP, and Sandoval-Solis S[‡]. "Extending water resources performance metrics to river ecosystems." *Ecological Indicators* [IF-4.800]. DOI: [10.1016/j.ecolind.2020.106336](https://doi.org/10.1016/j.ecolind.2020.106336)
4. 2020. Guillon H**, Byrne C**, **Lane B**, Sandoval-Solis S[‡], and Pasternack GB[‡]. "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)
5. 2020. Patterson NP*, **Lane B**, Sandoval-Solis S[‡], Pasternack GB[‡], Yarnell S, and Qiu L°. "A hydrologic feature detection algorithm to quantify seasonal components of flow regimes." *Journal of Hydrology* [IF-3.727]. DOI: [10.1016/j.jhydrol.2020.124787](https://doi.org/10.1016/j.jhydrol.2020.124787)
6. 2019. Yarnell SM, Stein E, Webb JA, Grantham T, Lusardi R, Zimmerman J, Peek R, **Lane B**, Howard J, and Sandoval-Solis S[‡]. "A functional flows approach for selecting ecologically relevant flow metrics for environmental flow applications." *River Research and Applications* [IF-1.954]. DOI: [10.1002/rra.3575](https://doi.org/10.1002/rra.3575)
7. 2019. **Lane B** and Rosenberg DE. "Promoting instream flows in the changing western U.S." *J. Water Resources Planning and Management* [IF-3.537]. DOI: [10.1061/\(ASCE\)WR.1943-5452.0001145](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001145)
8. 2019. Ortiz-Partida JP, Kahil T, Ermolieva T, Ermoliev Y, **Lane B**, Sandoval-Solis S[‡], and Wada Y. "A two-stage stochastic optimization for robust operation of multipurpose reservoirs." *Water Resources Management* [IF-2.987]. DOI: [10.1007/s11269-019-02337-1](https://doi.org/10.1007/s11269-019-02337-1)
9. 2018. **Lane B**, Sandoval-Solis S[‡], Yarnell S, Stein E, Dahlke H, and Pasternack GB[‡]. "Beyond Metrics? The role of hydrologic baseline archetypes in environmental water management." *Environmental Management* [IF-2.376]. DOI: [10.1007/s00267-018-1077-7](https://doi.org/10.1007/s00267-018-1077-7)
10. 2018. **Lane B**, Pasternack GB[‡], and Sandoval-Solis S[‡]. "Integrated analysis of flow, form, and function for river management and design testing." *Ecohydrology* [IF-2.564]. DOI: [10.1002/eco.1969](https://doi.org/10.1002/eco.1969)
11. 2017. **Lane B**, Pasternack GB[‡], Dahlke H, and Sandoval-Solis S[‡]. "The role of topographic variability in river channel classification." *Progress in Physical Geography* [IF-3.375]. DOI: [10.1177/0309133317718133](https://doi.org/10.1177/0309133317718133)
12. 2017. **Lane B**, Dahlke H, Pasternack GB[‡], and Sandoval-Solis S[‡]. "Revealing the diversity of natural hydrologic regimes in California for future environmental flows applications." *J. American Water Resources Association* [IF-2.462]. DOI: [10.1111/1752-1688.12504](https://doi.org/10.1111/1752-1688.12504)
13. 2016. Ortiz-Partida JP, **Lane B**, and Sandoval-Solis S[‡]. "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-3.210]. DOI: [10.1016/j.ejrh.2016.08.004](https://doi.org/10.1016/j.ejrh.2016.08.004)

14. 2015. Porse E, Sandoval-Solis S[‡], 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-2.987]. DOI: [10.1007/s11269-015-0952-8](https://doi.org/10.1007/s11269-015-0952-8).
15. 2014. **Lane B**, Sandoval-Solis S[‡], 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-1.954]. DOI: [10.1002/rra.2804](https://doi.org/10.1002/rra.2804)
16. 2014. Ai X, Sandoval-Solis S[‡], Dahlke H, and **Lane B**. “Reconciling hydropower and environmental water uses in the Leishui River Basin.” *River Research and Applications* [IF-1.954]. DOI: [10.1002/rra.2728](https://doi.org/10.1002/rra.2728).

BOOK CHAPTERS

1. 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

DIGITAL PRODUCTS

- 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>

PROFESSIONAL PRESENTATIONS

Contributions prior to USU shown with light grey background

1. 2020. Morgan E* and **Lane B**. “Incorporating critical context and uncertainty in flow-ecology relationships,” American Water Resources Association (AWRA). Nov 9-12, 2020.
2. 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.
3. 2020. *Invited Talk*. **Lane B**. Interdisciplinary Research Forum, NSF Climate Adaptation Science. Utah State University. February 12, 2020
4. 2019. 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,” American Geophysical Union (AGU) Fall Meeting, San Francisco CA. December 13, 2019.
5. 2019. Guillon H**, Byrne CF**, **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, San Francisco CA. Dec 13, 2019
6. 2019. Patterson N*, **Lane B**, Sandoval-Solis S[‡]. “Evidence of climate change in the Sierra Nevada from seasonal flow attributes,” AGU Fall Meeting, San Francisco CA. Dec 11, 2019.
7. 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, San Francisco CA. Dec 10, 2019. H23N-2087

8. 2019. **Lane B**, Hung F**, Rowles JL*, Chalmers D, Sandoval-Solis S^ψ. “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
9. 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
10. 2019. Patterson N*, **Lane B**, Sandoval-Solis S^ψ “Understanding natural streamflow with the Seasonal Flow Detection Algorithm,” AGU Fall Meeting, San Francisco CA. Dec 10, 2019.
11. 2019. Yarnell S, Stein E, Zimmerman J, **Lane B**, Grantham T, Howard J, Lusardi R, Sandoval-Solis S^ψ. “Stakeholder engagement in the California Environmental Flows Framework,” International Society for River Science (ISRS) Biannual Meeting, Vienna, Austria. September 9, 2019.
12. 2019. **Lane B**, Grantham T, Yarnell S, Stein E, Zimmerman J, Howard J, Lusardi R, Sandoval-Solis S^ψ. “California Environmental Flows Framework Decision Support Tools,” International Society for River Science (ISRS) Biannual Meeting, Vienna, Austria. September 9, 2019.
13. 2019. *Invited Talk*. **Lane B**. “Geomorphic classification of California.” California Water Data Science Symposium: Open Water California. CalEPA Headquarters, Sacramento, CA. July 2, 2019.
14. 2019. Hung F**, Morgan B*, **Lane B** “An integrated modeling framework for ecohydraulic analysis,” University Council on Water Resources (UCOWR) Annual Conference. Snowbird, UT. June 13, 2019.
15. 2019. Alger SM*, **Lane B**, Neilson BT. “Characterizing depleted streamflow and temperature patterns on the Blacksmith Fork River,” UCOWR Annual Conference. Snowbird, UT. June 13, 2019.
16. 2019. **Lane B** and Rosenberg DE. “Promoting instream flows in western states,” UCOWR Annual Conference. Snowbird, UT. June 13, 2019
17. 2019. Christensen K* and **Lane B** “Unimpaired hydrologic metric scaling for California streams,” UCOWR Annual Conference. Snowbird, UT. June 12, 2019.
18. 2019. Jones A°, Alger SM*, **Lane B** “Elasticity in the Colorado River Basin using the Budyko method,” UCOWR Annual Conference. Snowbird, UT. June 13, 2019. [Poster]
19. 2019. Carlisle D, Grantham T, **Lane B** “Predicting functional flow metrics at ungaged locations,” SFS Annual Meeting, Salt Lake City, UT. May 23, 2019.
20. 2019. Grantham T, Yarnell S, Stein E, Zimmerman J, **Lane B**, Howard J, Lusardi R, Sandoval-Solis S^ψ. “A California Environmental Flows Framework,” SFS Annual Meeting, Salt Lake City, UT May 23, 2019
21. 2019. Yarnell S, Grantham T, Stein, E, **Lane B**. “An ecosystem-based approach for selecting flow metrics for environmental flows applications,” SFS Annual Meeting, Salt Lake City, UT May 23, 2019
22. 2019. Beck M, O’Hara C, Lowndes J, Mazor R, Theroux S, Gillett D, **Lane B**, Gearheart G. “Importance of open science for biological assessment,” SFS Annual Meeting, Salt Lake City, UT May 23, 2019
23. 2019. **Lane B**, Grantham T, Yarnell S, Stein E, Zimmerman J, Howard J, Lusardi R, Sandoval-Solis S^ψ. “California Environmental Flows Framework Decision Support Tools I,” Society for Freshwater Sciences (SFS) Annual Meeting, Salt Lake City, UT May 23, 2019
24. 2019. Patterson NP* and **Lane B**. “Application of ecologically-based flow metrics for cannabis-impaired streams,” Annual Salmonid Restoration Conference, Salmonid Restoration Federation. Santa Rosa, CA. April 24, 2019.
25. 2019. Sandoval-Solis S^ψ and **Lane B** “Natural streamflow and geomorphic classification for California,” California Water and Environmental Modeling Forum. Folsom, CA. April 22, 2019.

26. 2019. Alger SM*, **Lane B**, Neilson BT. “Characterizing stream patterns on the Blacksmith Fork River to prevent summer channel dewatering,” Spring Runoff Conference. Logan, UT. March 26, 2019. [Poster]
27. 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.
28. 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.
29. 2018. Guillon H**, Byrne C**, **Lane B**, Sandoval-Solis S, Pasternack GB, Dahlke H. “Predicting channel forms from remote sensing data: A multi-tiered machine learning framework,” AGU Fall Meeting. Washington DC, December 2018. [Poster #EP51E-1871]
30. 2018. Byrne C**, Pasternack GB, **Lane B**, Sandoval-Solis S, Guillon H**. “Hydrologic regime influences on the style of riffle-pool, plane-bed and step-pool sequences,” AGU Fall Meeting. Washington DC, December 2018. [Poster #EP33D-2444]
31. 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]
 + Received the American Geophysical Union Outstanding Student Poster Award
32. 2018. **Lane B** and Pasternack GB^ψ. “Flow, form, and function: An extensible framework for environmental flows.” 12th International Symposium on Ecohydraulics (ISE), Tokyo, Japan. August 21, 2018.
33. 2018. Stein ED, Yarnell S, Sandoval-Solis S^ψ, **Lane B**, Zimmerman J, Howard J, Grantham T, Lusardi R. “Establishing environmental flow targets in complex environments.” 12th International Symposium on Ecohydraulics (ISE), Tokyo, Japan. August 21, 2018.
34. 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.
35. 2018. Stein ED, Yarnell S, Sandoval-Solis S^ψ, **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.
36. 2018. Zimmerman J, Stein E, Yarnell S, Sandoval-Solis S^ψ, **Lane B**, Howard J, Grantham T. “Flow alteration and functional flow metrics for California streams.” Society for Freshwater Sciences Annual Conference. Detroit, MI. May 22, 2018.
37. 2018. *Invited Seminar*. **Lane B**. “Functional flows in modified hydroscapes.” Colorado State University, Dept. of Civil and Environmental Engineering Seminar. April 26, 2018.
38. 2018. Byrne C** and **Lane B**. “Tiered field sampling protocols to enhance the role of geomorphic classification in instream flow management,” Salmonid Restoration Federation Conference, Fortuna, CA. April 13, 2018.
39. 2018. **Lane B** and Pasternack GB^ψ. “Regional methodology for developing ecological flow criteria.” Annual Salmonid Restoration Federation Conference, Fortuna, CA. Apr 14, 2018.
40. 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.
41. 2018. *Invited Seminar*. **Lane B**. “Functional flows: Integrating ecology and engineering for sustainable river basins.” Spring Seminar, Dept. Watershed Sciences, Utah State University, Logan UT. Jan 31, 2018.
42. 2018. **Lane B**. “Integrated analysis of flow, form, and function for river management and design testing,” American Geophysical Union Fall Meeting, New Orleans, LA. Dec 2017. [Poster #253671]

43. 2017. **Lane B** and Sandoval-Solis S^ψ. “A new direction for environmental flows,” *Integrating Multiple Aquatic Values*, 5th Biennial Symposium of the International Society for River Science, Hamilton, New Zealand. Nov 23, 2017.
44. 2017. *Invited Seminar*. **Lane B**. “Environmental flows in human dominated systems,” Water, Environmental, and Irrigation Seminar, Dep. Civil and Environmental Engineering, Utah State University, Logan UT. Nov 8, 2017.
45. 2017. **Lane B**, Stein E, Yarnell S. “Quantifying reference hydrologic conditions for California streams,” *Using ecohydrology to establish flow recommendation for California streams*. American Fisheries Society Annual Conference. Arcata, CA. April 2017.
46. 2017. **Lane B**, Pasternack GB^ψ and Sandoval-Solis S^ψ. “Flow, form, and function: Distinguishing ecohydraulic controls with relevance beyond the stream reach using synthetic channel morphologies,” European Geophysical Union General Assembly. Vienna, Austria. April 2017.
47. 2016. **Lane B** and Sandoval-Solis S^ψ. “A reach-scale hydrogeomorphic classification of California for environmental flows,” California Water & Environmental Modeling Meeting, Folsom, CA. April 2016.
48. 2015. Ortiz P, **Lane B** and Sandoval-Solis S^ψ. “Economic effects of reservoir re-operation policy in the Rio Grande/Bravo for sustainable human and environmental water management,” Fall Meeting, American Geophysical Union, San Francisco, CA. December 2015.
49. 2015. **Lane B**, Pasternack GB^ψ, Dahlke H, Sandoval-Solis S^ψ. “Revealing the diversity of hydrogeomorphic settings in a Dry Summer Subtropical region with DEM-based modeling,” American Geophysical Union Fall Meeting, San Francisco, CA. Dec 2015. [Poster #82711]
50. 2015. **Lane B** and Sandoval-Solis S^ψ. “Environmental flows in the Big Bend Reach of the Rio Grande/Bravo Basin,” Floods, droughts, and ecosystems: Managing our resources despite growing demands and diminishing funds, ASCE - World Envir. & Water Resources Congress. Austin, TX. May 2015.
51. 2014. **Lane B** and Sandoval-Solis S^ψ. “Hydrologic classification for regional environmental flows applications in California,” American Geophysical Union Fall Meeting, San Francisco, CA. Dec 2014.
52. 2014. **Lane B** and Sandoval-Solis S^ψ. “Natural spatiotemporal streamflow patterns: comparisons between California and Chile,” Chile - California Hydrologic Research Workshop. UC Division of Agriculture and Natural Resources. Davis, CA. August 2014.
53. 2013. **Lane B** and Sandoval-Solis S^ψ. “Evaluating alternative environmental flow scenarios in the Rio Grande,” Sustaining Water Resources and Ecological Functions in Changing Environments Conference, University Council on Water Resources (UCOWR), Lake Tahoe, CA. June 2013.

TECHNICAL REPORTS

1. 2019. Byrne CF, Guillon H, Lane B, Pasternack GB, and Sandoval-Solis S. “Sacramento River Basin Geomorphic Classification.” Final Report, California State Water Resources Control Board, Jan 2019, Sacramento, CA.
2. 2019. Byrne CF, Guillon H, Lane B, Pasternack GB, and Sandoval-Solis S. “South Fork Eel River Basin Geomorphic Classification.” Final Report, California State Water Resources Control Board, Jan 2019, Sacramento, CA.
3. 2018. Sandoval-Solis S. and Lane B. “Estimating environmental flows for the State of California.” California State Water Resources Control Board, Feb. 2018, Sacramento, CA.
4. 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.

2016. Lane B, Sandoval-Solis, S., Dahlke, H.E., and Pasternack, G.B. “Hydro-geomorphic classification of California: Proof-of-concept for low-volume snowmelt and rain stream reaches in the Sacramento Basin.” Technical Report for California State Water Resources Control Board.

RESEARCH GRANTS AND AWARDS

- 2020 – 2021 Senior Personnel, NSF HydroLearn [**\$20,000**]
- 2020 – 2021 PI, NSF Hydrologic Sciences RAPID: Monitoring and modeling watershed-scale post-wildfire streamflow response patterns [**\$50,000**]
- 2020 – 2023
(Submitted) PI, Quantifying instream temperature patterns and controls in irrigated arid landscapes, NSF Hydrologic Sciences. WF-2404 [**\$386,471**]
- 2018 – 2021 Co-PI, Development of Environmental Flows for the State of CA, Div. of Water Rights Public Trust Unit, CA State Water Resources Control Board [**\$4,264,344**; \$648,298]
- 2019 – 2020 HydroLearn Fellowship, National Science Foundation [**\$5,000**]
- 2019 – 2020 PI, “Story Map modules to teach physical hydrology fundamentals,” Open Educational Resources Grant, College of Engineering, Utah State University [**\$3,000**]
- 2019 – 2020 PI, “Characterizing streamflow and temperature patterns to determine impacts of summer dewatering on the Blacksmith Fork River,” USGS 104b Federal Water Resources Research Grant [**\$41,179**]
- 2018 – 2019 PI, “Improving representation of environmental objectives in systems models to inform water management,” USGS 104b Federal Water Resources Research Grant [**\$77,165**]
- 2014 – 2016 Co-PI, Hydrogeomorphic Classification of the South Fork Eel River, Division of Water Rights, Instream Flow Unit, California State Water Resources Control Board [**\$400,000**]
- 2015 Hydrologic Sciences Graduate Group Fellowship, UC Davis [**\$150,000**]

TEACHING

Utah State University, 2017 to Present

- *Instructor* for CEE 6400 – Physical Hydrology (Fall 2017, 2019, 2020, Spring 2019) (3 crd)
- *Instructor* for CEE 6930 – Hydrologic Field Methods (Fall 2019) (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. **Elizabeth (Betsy) Morgan**, 2018 to Present, *MS in Civil Eng*, Topic: Data gaps and uncertainty in flow-ecology relationships; Study Area: South Fork Eel River, CA; Funding: CA SWB
2. **Yesica Leon**, 2018 to Present, *MS in Civil Eng*, Topic: Quantifying streamflow alteration patterns across California; Study Area: State of California; Funding: CA SWB
3. **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 SWB
4. **Daniel Thurber**, 2020 to Present, *MS in Civil Eng*, Topic: TBD; Study Area: TBD; Funding: CA SWB, UWRL
5. **Haley Canham**, 2020 to Present, *PhD in Civil Eng*, Topic: TBD; Study Area: TBD; Funding: UWRL, NSF Postwildfire Sediment.

Past Graduate Students

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 SWB. *Currently: Engineer at AECOM, Denver CO.*

Current Graduate Student Committees

1. **Noelle Patterson** - PhD Candidate in Hydrologic Sciences (Supervisor: Sam Sandoval)
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)
7. **Moazzam Rind** - PhD in Civil Eng (Supervisor: David Rosenberg)

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, *Co-Supervised with Sandoval & Pasternack*
3. **Herve Guillon** - 2018 to Present, Machine Learning, *Co-Supervised with Sandoval & Pasternack*
4. **Colin Byrne** - 2018 to 2020, Fluvial Geomorphology, *Co-Supervised with Sandoval & Pasternack*, Now at 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

- CEFF Technical Workgroup. “Environmental flows in California,” California Water Blog. March 18, 2020. <https://californiawaterblog.com/2020/03/18/environmental-flows-in-california/>
- [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/
- 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.

Workshops and Presentations

- **Lane B** and Sandoval S. California Environmental Flows Framework, CA Department of Water Resources Environmental Coordination Committee Meeting. February 27, 2020. Sacramento CA. ~100 attendees

- Numerous presentations to state legislators to present on Utah instream flows research. 2018 to Present, Salt Lake City, UT.
- **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 – 2019.
- **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

- “[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, *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, geomorphology and water resources including: BioScience; Journal of Hydrology; Journal of Water Resources Planning and Management (JWRPM); Journal of Hydrologic Engineering; Environmental Management; Journal of the American Water Resources Association (JAWRA); Ecological Indicators; Journal of 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). Member for search for cluster faculty hire in Department of Civil and Environmental Engineering

Awards & Recognitions

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*