

DR. RYAN PEEK

I have worked in many rivers and aquatic systems in the West, with particular interest in the integration and application of geospatial data across multiple disciplines such as ecology, genomics, and hydrology. I strive to continue to conduct open and applied conservation research to better understand current and future impacts to our freshwater ecosystems.

I am a strong advocate for open science, and giving voices, training, and space to those who support and foster community with diverse questions and views.



EDUCATION

2018
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2014

- **Ph.D., Ecology (with certificate in Conservation Management)**
UC Davis 📍 Davis, CA
 - Population genetics of a sentinel stream-breeding frog (*Rana boylii*)
- **M.S., Biology**
University of San Francisco 📍 San Francisco, CA
 - Thesis: Landscape Genetics of Foothill Yellow-Legged Frogs (*Rana boylii*) in regulated and unregulated rivers: Assessing connectivity and genetic fragmentation
- **B.S., Wildlife, Fish & Conservation Ecology**
UC Davis 📍 Davis, CA
 - Emphasis in Behavioral Ecology

[Download a PDF of this CV](#)

2010
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2008

2002
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1998

RESEARCH EXPERIENCE

2021
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2018

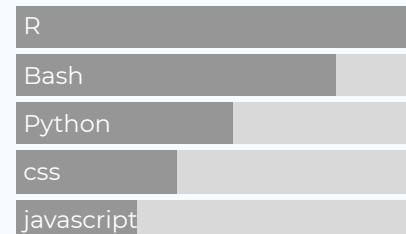
2018
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2014

- **Post-doctoral Researcher**
Center for Watershed Sciences 📍 UC Davis
 - Data scientist and aquatic ecologist. Linking ecological indicators to functional flows in California river. Conservation genomics of threatened and endangered frogs in CA, NV, and AZ to inform conservation management.
 - Analysis of floodplain foodwebs for salmon to better understand connectivity and seasonality for management.
 - Research and functional flow analysis on how to link ecological bioassessment data with environmental flow management.
- **Graduate Student Researcher**
Center for Watershed Sciences 📍 UC Davis
 - Research in amphibian/aquatic ecology, with particular focus on assessing ecological health with molecular techniques to inform conservation in river ecosystems.

CONTACT

- [✉️ rapeek@ucdavis.edu](mailto:rapeek@ucdavis.edu)
[🐦 riverpeek](https://twitter.com/riverpeek)
[/github.com/ryanpeek](https://github.com/ryanpeek)
[🔗 ryanpeek.org](https://ryanpeek.org)
[🏛 https://orcid.org/0000-0002-9577-6885](https://orcid.org/0000-0002-9577-6885)

LANGUAGE SKILLS



Made with [pagedown](#).

Code at github.com/ryanpeek/cv.

Last updated on 2021-09-22.

2014
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2011

- **Jr. Research Specialist**
Center for Watershed Sciences 📍 UC Davis
 - Research in stream ecology and montane aquatic ecosystems, with particular focus on ecosystem function and hydroclimatic impacts on regulated rivers in the Sierra Nevada.

2010
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2009

- **Research Assistant II**
UC Berkeley 📍 Berkeley, CA
 - As part of a California Energy Commission study of regulated flow effects on foothill yellow-legged frog (*Rana boylii*) breeding habitat, led field research crews for extensive field data collection.
 - Collaborated with Sarah Yarnell and Amy Lind on field methodology and integrating graduate research with the grant research.

2009

- **Research Assistant II**
UC Davis 📍 Davis, CA
 - Working with Sarah Kupferberg and Alessandro Catenazzi, assisted in research, as part of a California Energy Commission study, of regulated flow effects on water temperatures and foothill yellow-legged frog (*Rana boylii*)
 - Including predation experiments and tadpole growth experiments, Helped deploy thermographs in various Sierran rivers throughout California. Conducting research on tributary density in relation to amphibian occupancy in regulated rivers in California.

⬇️ INDUSTRY EXPERIENCE

2011
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2002

- **Fish & Wildlife Biologist**
Stillwater Sciences 📍 Davis CA
 - Field and Project Manager, conducted research in aquatic, terrestrial, and riparian ecosystems. Assisted in the development of restoration, conservation, and management strategies in various watersheds throughout California and Oregon for amphibian and fisheries related projects.
 - Extensive experience completing watershed analyses. Successfully worked independently and collaboratively on various projects including leading field crews, managing budgets, conducting meetings, analyzing data, and writing comprehensive reports.
 - Watershed Experience: Alameda Creek (San Francisco Public Utilities Commission), Upper American River (Sacramento Municipal Utility District), South Fork Feather River (South Feather Water & Power), Yuba River (North, Middle, and South) (CH2MHill), Napa River and Floodplain (US Army Corp of Engineers), Santa Clara River (California State Coastal Conservancy), McKenzie River (Eugene Water and Electric Board), Upper Merced River (Merced Alliance), Butte Creek and West Branch Feather River (PG&E), McCloud and Pit Rivers (PG&E)

OPEN SOURCE CONTRIBUTIONS

All projects available at github.com/ryanpeek/<name>

www.r4wrds.com: R course for water resources data science

[{aggiedown}](#): R package for writing dissertations at UC Davis

[R-DAVIS](#): grad course in data science and visualization

[Mapping-in-R](#): short course for spatial/GIS topics

- 2010
- **Biological Science Technician**
USDA Forest Service, Pacific Southwest Research Station  Davis, CA
 - Developed and designed website on ecology, river regulation and conservation of the foothill yellow-legged frog (*Rana boylii*), including GIS synthesis and development of a distribution map showing over 6,000 records from multiple sources (http://gis.fs.fed.us/psw/topics/wildlife/herp/rana_boylii/).
 - Conducted 1-D RHABSIM modeling and analysis. Coordinate field research, data collection, and writing.
- 2001
- **Biological Science Technician**
National Park Service  Sequoia & Kings Canyon, CA
 - Part of a 2-person backcountry crew working on a federally threatened Sierra/Mountain yellow-legged frog (*Rana sierrae*) conservation and restoration project during the initial year of the project.
 - This position involved extensive backpacking and hiking experience while living in remote and rugged terrain at 10,000-12,000 feet for multiple weeks at a time. Required the ability to work independently, efficiently, and safely.
 - Conducted amphibian surveys of mountain lakes and identified amphibian species in larval and adult stages, habitat assessment, data collection, and non-native fish removal.

SELECTED PUBLICATIONS

- 2021
- **The use of umbrella fish species to provide a more comprehensive approach for freshwater conservation management in California**
Aquatic Conservation: Marine and Freshwater Ecosystems (in review)
 - Obester, A., R. Lusardi, N. Santos, R. Peek, S. Yarnell
- 2021
- **Classifying California's stream thermal regimes for cold-water conservation**
PLoS ONE 16(8): e0256286.  DOI: 10.1371/journal.pone.0256286
 - Willis, A.D., R.A. Peek, A.L. Rypel
- 2021
- **Actinemys marmorata (Northwestern Pond Turtle) Feeding on Dicamptodon tenebrosus (Coastal Giant Salamander)**
Northwestern Naturalist, 102 (3).
 - Peek, R.A. , S.J. Kupferberg, A.C., Catenazzi, P. Georgakakos, M. E. Power
- 2021
- **Flow regulation associated with decreased genetic health of a river-breeding frog species**
Ecosphere, 12 (5).  DOI: 10.1002/ecs2.3496
 - Peek, R.A., S.M. O'Rourke, M.R. Miller.

- 2020
- **Understanding community assembly rules in managed floodplain food-webs**
Ecosphere, 12 (2). 📍 DOI: 10.1002/ecs2.3330
 • Corline, Nicholas J., Ryan A. Peek, Jacob Montgomery, Jacob V.E. Katz and Carson A. Jeffres.
- 2020
- **A functional flows approach to selecting ecologically relevant flow metrics for environmental flow applications**
River Research and Applications, 36 (2), 318-324. 📍 DOI: 10.1002/rra.3575
 • Yarnell, S. M., Stein, E. D., Webb, J. A., Grantham, T., Lusardi, R. A., Zimmerman, J., Peek, R. A., Lane, B. A., Howard, J., & Sandoval-Solis, S.
- 2019
- **Hybridization between two sympatric ranid frog species in the northern Sierra Nevada**
Molecular Ecology, 28 (20), 4636–4647. 📍 DOI: 10.1111/mec.15236
 • Peek, R., M. Bedwell, S. O'Rourke, G. Wengert, C. Goldberg, M. Miller.
- 2019
- **A Lentic Breeder in Lotic Waters: Sierra Nevada Yellow-legged Frog (*Rana sierrae*) Habitat Suitability in Northern Sierra Nevada Streams.**
Copeia, 107(4), 676–693. 📍 DOI: 10.1643/CH-19-213
 • Yarnell, S.M., R.A. Peek, N. Keung, B.D. Todd, S. Lawler, C. Brown
- 2018
- **The ecological importance of unregulated tributaries to benthic invertebrate communities in a regulated river**
Hydrobiologia, 829, 291–305. 📍 DOI: 10.1007/s10750-018-3840-4
 • Milner, V.S., S.M. Yarnell, R.A. Peek.
- 2018
- **A Freshwater Blueprint for California: Prioritizing freshwater habitat for conservation in California to maximize biodiversity and leverage existing protected areas.**
Freshwater Science, 37 (2), 417-431. 📍 DOI: 10.1086/697996
 • Howard, J.K., K.R. Klausmeyer, K.A. Fesenmyer, J. Furnish, T. Gardali, T. Grantham, J.V. Katz, S. Kupferberg, P. McIntyre, P.B. Moyle, P.R. Ode, R. Peek, R.M. Quinones, A.C. Rehn, N. Santos, S. Schoenig, L. Serpa, J.D. Shedd, J. Slusark, J.H. Viers, A. Wright and S.A. Morrison.
- 2018
- **Associating Metrics Of Hydrologic Variability With Benthic Macroinvertebrate Communities In Regulated And Unregulated Snowmelt-Dominated Rivers.**
Freshwater Biology 63 (8), 844-858. 📍 DOI: 10.1111/fwb.12994.
 • Steel, A.E., R.A. Peek, R.A. Lusardi, S.M. Yarnell.
- 2016
- **Management of the Spring Snowmelt Recession in Regulated Systems.**
JAWRA Journal of the American Water Resources Association 52(3), 723-736. 📍 DOI: 10.1111/1752-1688.12424
 • Yarnell, S., R. Peek, G. Epke and A. Lind.

- 2016
- **Missing the boat on freshwater fish conservation in California.**
Conservation Letters 10(1), 77–85. DOI: 10.1111/conl.12249
 - Grantham, T., K. Fesenmeyer, R. Peek, E. Holmes, A. Bell, R. Quiñones, N. Santos, J. Howard, J. Viers, P. Moyle.
- 2015
- **Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California.**
PLoS One 10(7): e0130710. DOI: 10.1371/journal.pone.0130710
 - Howard, J.K., K.R. Klausmeyer, K.A. Fesenmyer, J. Furnish, T. Gardali, T. Grantham, J.V. Katz, S. Kupferberg, P. McIntyre, P.B. Moyle, P.R. Ode, R. Peek, R.M. Quinones, A.C. Rehn, N. Santos, S. Schoenig, L. Serpa, J.D. Shedd, J. Slusark, J.H. Viers, A. Wright and S.A. Morrison.

↗ SELECTED DATA SCIENCE WRITING

- 2021
- **Dammed Hot: California's regulated streams fail coldwater ecosystems**
California Water Blog
 - Story about classification of thermal regimes in CA and coldwater management concerns.
- 2020
- **Drawing Boundaries with DNA to Improve Conservation**
California Water Blog
 - Story about using genetics to draw boundaries for conservation management
- 2016
- **Cue the Frogs! Water signatures, environmental cues and climate change**
California Water Blog
 - Story about environmental cues for amphibians in rivers
- 2015
- **Time Lapse Photos Expose Nature in the Raw**
California Water Blog
 - Story about using game cameras to monitor the environment

I like writing stuff about data science, rivers, R, making maps, and frogs ryanpeek.org

❑ TEACHING EXPERIENCE

- 2021
- **R4WRDS**
SWRCB
 - Created and co-instructed R for Water Resources Data Sciences Course, Intro and Intermediate levels. Focused on how to import different datasets, create plots using R packages to conduct exploratory data analysis and clean and tidy water data. Taught as a 1 day course virtually in 2021.
 - (www.r4wrds.com)

I am passionate about education, and strive to continue learning how to be a better teacher. I am a proud Carpentries Instructor, and the community they represent.

2021
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2020

● **CABW-SFS R Workshop**

UC Davis

📍 UC Davis

- Created and co-instructed a short workshop teaching introductory R using bioassessment data, focused on how to import different datasets, create plots using R packages to explore basic data trends, and create maps in R to explore/report spatial patterns.
- Two short 2-hour sessions. https://ucd-cws.github.io/CABW2020_R_training/

2021
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2016

● **Data Carpentry Workshops**

Various

- Teach researchers in science, engineering, medicine, and related disciplines the computing skills they need to get more done using open source and reproducible tools. Specifically, have taught genomics/ecology/geospatial workshops at Stanford, UC Davis, UC Berkeley, and University of Rhode Island Coastal Institute. (<http://software-carpentry.org/>) (<http://www.datacarpentry.org/>)

2020
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2019

● **Strategies & Techniques for Analyzing Microbial Population Structures**

Marine Biological Laboratory

📍 Woods Hole, MA

- Research facilitator/teacher for the STAMPS course on analysis of metagenomic data. Provided interdisciplinary bioinformatic and statistical training to practitioners of molecular microbial ecology and genomics.
- Topics covered included acquisition and organization of next generation sequence data; principles of quality control of sequence data and data management; methods of taxonomic assignment and clustering of targeted gene data. Also an introduction to the Linux command-line and R statistical environments. (<https://www.mbl.edu/education/courses/stamps/>)

2019
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2017

● **R for Data Analysis and Visualization in Science**

UC Davis

📍 Davis, CA

- Lead instructor and creator of graduate course teaching R and version control for 25+ students. Course designed to train students in toolsets applicable to the entire process of reproducible data-driven research and encourage the use of open-source tools.
- Built website and made course materials openly available on github. (<https://gge-ucd.github.io/R-DAVIS/>).
- now a required graduate course in Ecology

2018

● **Foothill Yellow-Legged Frog Ecology, Management, and Regulation**

Humboldt State

📍 Arcata, CA

- One of three main instructors for workshop designed to cover the natural history and management of the foothill yellow-legged frog.
- Three days of lecture followed by a field day covered ecological requirements of the species, mitigation, restoration, and permitting requirements if listing takes place

2018	<ul style="list-style-type: none"> Intro to Genomics (Data Carpentry) DIBSI 	 Davis, CA
	<ul style="list-style-type: none"> • Co-instructor. Data Intensive Biology Summer Institute at UC Davis is a series of two-day or week-long workshops for biologists to learn bioinformatics and data science. The Intro to R course was built as an interactive, week-long introduction to the programming language R. Following Carpentry workshop content, taught basics of R by live-coding with participants (https://dib-lab.github.io/2018-06-27-DIBSI-Genomics/) 	
2017	<ul style="list-style-type: none"> Intro to R DIBSI 	 Davis, CA
	<ul style="list-style-type: none"> • Co-Instructor. Data Intensive Biology Summer Institute at UC Davis is a series of two-day or week-long workshops for biologists to learn bioinformatics and data science. The Intro to R course was built as an interactive, week-long introduction to the programming language R. Following Carpentry workshop content, taught basics of R by live-coding with participants (https://mikoontz.github.io/data-carpentry-week/) 	
2015	<ul style="list-style-type: none"> Ecogeomorphology UC Davis 	 Davis, CA
	<ul style="list-style-type: none"> • Co-instructor. Taught advanced undergraduate students to multidisciplinary collaborative watershed and stream analysis through combined laboratory and field study of a selected stream system. Educated students from diverse backgrounds to work in interdisciplinary research teams to collect and analyze field data from the Tuolumne River system. • Serve as rafting guide, as well as lectured, and taught in classroom, lab, and field, including a 3 day rafting trip on the Tuolumne River. (https://watershed.ucdavis.edu/education/classes/) 	
2010	<ul style="list-style-type: none"> Geospatial Analysis University of San Francisco 	 San Francisco, CA
	<ul style="list-style-type: none"> • Teaching Assistant • Lab instructor for undergraduate geospatial analysis course using ArcGIS; planned and conducted lab activities and led discussions for one semester 	
<h2> SELECTED PRESS (ABOUT)</h2>		
2021	<ul style="list-style-type: none"> Dams Ineffective for Cold-water Conservation UC Davis 	 UC Davis
	<ul style="list-style-type: none"> • Press release on recent research about thermal regimes in CA streams. 	
2014	<ul style="list-style-type: none"> A Watershed Moment UC Davis Magazine, Spring. 	 UC Davis
2013	<ul style="list-style-type: none"> Cool and Collected College of Agricultural and Environmental Sciences Outlook, Spring 	 UC Davis

SELECTED PRESS (BY)

2020

- [Tips for Souping of RMarkdown Documents](#)

• Top ten tips for making RMarkdown better

2019
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2015

- [The Aggie Brickyard. A Student Run Magazine](#)

Co-Founder & Design Editor

 UC Davis

OTHER PUBLICATIONS

2013

- [Management of the Spring Snowmelt Recession: An Integrated Analysis of Empirical, Hydrodynamic, and Hydropower Modeling Applications](#)

Final Report. California Energy Commission. Publication number: CEC-500-2013. 137 pp.

• Yarnell, S.M, R.A. Peek, D.E. Rheinheimer, A.J. Lind, and J.H. Viers

2013

- [Montane Meadows in the Sierra Nevada: Changing Hydroclimatic Conditions and Concepts for Vulnerability Assessment](#)

Center for Watershed Sciences Technical Report (CWS-2013-01), University of California, Davis. 63 pp.

• Viers, J.H., SE Purdy, R.A. Peek, A. Fryoff-Hung, N.R. Santos, J.V.E. Katz, J.D. Emmons, D.V. Dolan, and S.M. Yarnell.

2011

- [Validation of Regional Habitat Suitability Criteria and Instream Flow Modeling Applications for the Foothill Yellow-Legged Frog \(*Rana boylii*\)](#)

Final Report. California Energy Commission, PIER. Publication number: CEC-500-2011.

• Yarnell, S., A. Lind, C. Bondi, R. Peek, and J. Mount. 2011.

2010

- [Landscape Genetics of Foothill Yellow-legged Frogs \(*Rana boylii*\) in regulated and unregulated rivers: Assessing connectivity and genetic fragmentation.](#)

Master's Thesis, Biology Department. University of San Francisco, CA. 69 pp.

• Peek, R. A.

ACKNOWLEDGED ARTICLES

2017

- [Variation in thermal niche of a declining river-breeding frog: From counter-gradient responses to population distribution patterns.](#)

Freshwater Biology 62(7):1255–1265. DOI: 10.1111/fwb.12942

• Catenazzi, A., S. J. Kupferberg.

- 2016 ● **California Amphibian and Reptile Species of Special Concern.**
University of California Press
• Thomson, R.C., A.N. Wright, H.B. Shaffer.
- 2013 ● **Frogs of the United States and Canada, 2-vol. set.**
Baltimore: The Johns Hopkins University Press.
• Dodd, C.K.J.
- 2013 ● **Transferability of habitat suitability criteria for a stream breeding frog (*Rana boylii*) in the Sierra Nevada, California.**
Herpetological Conservation and Biology 8(1):88–103.
• Bondi, C.A., S.M. Yarnell, and A.J. Lind. 2013.
- 2012 ● **Effects of Flow Regimes Altered by Dams on Survival, Population Declines, and Range-Wide Losses of California River-Breeding Frogs.**
Conservation Biology 26(3): 513–524.
• Kupferberg, S.J., W.J. Palen, A.J. Lind, S. Bobzien, A. Catenazzi, J. Drennan, and M.E. Power.
- 2007 ● **Removal of nonnative fish results in population expansion of a declining amphibian (mountain yellow-legged frog, *Rana muscosa*).**
Biological Conservation 135(1): 11–20.
• Knapp, R.A., D.M. Boiano, V.T. Vredenburg.

🎙 SELECTED PRESENTATIONS

- 2021 ● **Conservation: Connecting Puddles to Pools**
Guest Lecture, American River College NATR 302 Wildlife Biology, Feb 1.
• Peek, Ryan.
- 2020 ● **Beyond an Annual Meeting: A Discussion about Engaging in Amphibian Conservation Outside of January.**
Amphibian Population Task Force (APTF), San Diego, 9–11 Jan.
• Peek, Ryan.
- 2019 ● **Bridging Troubled Waters: Merging disciplines for conservation in freshwater ecosystems.**
Invited Ecology Seminar Speaker, UNLV. Las Vegas, NV. 8 Dec.
• Peek, Ryan.
- 2019 ● **Using Benthic Macroinvertebrate Data to Assess and Inform Flow Management Recommendations in California**
California Aquatic Bioassessment Workgroup/California Society for Freshwater Science Meeting, Davis, 24 Oct.
• Peek, Ryan, A. Obester, S. Yarnell, R. Lusardi, N. Santos.

- 2019
- Hybridization between two parapatric ranid frog species in the northern Sierra Nevada, California
Amphibian Population Task Force (APTF), Arcata, 9–11 Jan.
 - Peek, R., M. Bedwell, S. O'Rourke, G. Wengert, C. Goldberg, M. Miller.
- 2017
- Plasticity in timing of hydrologic spawning cues for the foothill yellow-legged frog (*Rana boylii*) under Mediterranean climate extremes in Sierra Nevada rivers
Society for Freshwater Science (SFS) Annual Meeting, Raleigh, NC, 5–8 Jun.
 - Peek, R., S. Yarnell

⌚ SERVICE & LEADERSHIP

- 2021 | 2015
- Coordinator
Davis R-Users Group
 - <https://d-rug.github.io/>
- 2021 | 2016
- Software & Data Carpentry Instructor
Carpentries
 - <https://carpentries.org/instructors/>
- 2021 | 2016
- Data Lab Affiliate
UC Davis Data Lab
 - <https://datalab.ucdavis.edu/affiliated-students-and-postdocs/>
- 2021 | 2020
- National Center for Ecological Analysis and Synthesis (NCEAS) workgroup
Bay Delta Science Program
 - Collaborative multi-agency and academic workgroup formed to focus on data synthesis of long-term trends in the San Francisco Estuary food webs critical to supporting multiple endemic fish species of conservation concern.
- 2020 | 2019
- Center for Watershed Science Executive Committee
UC Davis
 - Liaison between researchers and academic faculty conducting research, representative for postdocs and non-academic senate researchers.

I am a strong advocate and supporter of building an inclusive and open community, and strive to learn from, support, and adapt to whatever community I am a part of.

📘 AFFILIATIONS & TRAININGS

- Society for Study of Amphibians and Reptiles (SSAR)
- Ecology Society of America (ESA) | Society for Freshwater Science (SFS)

- Whitewater Rafting Guide, Outdoor Adventures, UC Davis