

DR. RYAN PEEK

I have worked in many rivers and aquatic systems in California, and continue to strive to find ways to apply research to conservation management. I am particularly interested in using a confluence of disciplines such as genomics, hydrology, ecology, and geomorphology to better understand current and future impacts to our freshwater ecosystems.

I am a strong advocate for open science, and education; and giving voices, training, and space for folks who support and foster a supportive community with diverse questions and views.



EDUCATION

2018
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2014

Ph.D., Ecology (with certificate in Conservation Management) Davis, CA

UC Davis

- Population genetics of a sentinel stream-breeding frog (*Rana boylii*)

2010
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2008

M.S., Biology San Francisco, CA

University of San Francisco

- Thesis: Landscape Genetics of Foothill Yellow-Legged Frogs (*Rana boylii*) in regulated and unregulated rivers: Assessing connectivity and genetic fragmentation

2002
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1998

B.S., Wildlife, Fish & Conservation Ecology Davis, CA

UC Davis

- Emphasis in Behavioral Ecology

RESEARCH EXPERIENCE

2021
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2018

Post-doctoral Researcher UC Davis

Center for Watershed Sciences

- 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.

[Download a PDF of this CV](#)

CONTACT

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[riverpeek](#)

github.com/ryanpeek

ryanpeek.org

<https://orcid.org/0000-0002-9577-6885>

LANGUAGE SKILLS

R

Bash

Python

css

javascript

Made with [pagedown](#).

Code at github.com/ryanpeek/cv.

Last updated on 2021-07-28.

2018
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2014

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.

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 (in review)

- 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

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

TEACHING EXPERIENCE

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

Intro to Genomics (Data Carpentry)
DIBSI

📍 Davis, CA

- 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

Intro to R
DIBSI

📍 Davis, CA

- 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	<p>Ecogeomorphology</p> <p>UC Davis</p> <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/) 	 Davis, CA
2010	<p>Geospatial Analysis</p> <p>University of San Francisco</p> <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 	 San Francisco, CA

SELECTED PRESS (ABOUT)

2014	<p>A Watershed Moment</p> <p>UC Davis Magazine, Spring.</p>
2013	<p>Cool and Collected</p> <p>College of Agricultural and Environmental Sciences Outlook, Spring</p>

SELECTED PRESS (BY)

2020	<p>Tips for Souping of RMarkdown Documents</p> <ul style="list-style-type: none"> • Top ten tips for making RMarkdown better
2019 2015	<p>The Aggie Brickyard. A Student Run Magazine</p> <p>Co-Founder & Design Editor</p>  UC Davis

OTHER PUBLICATIONS

2013	<p>Management of the Spring Snowmelt Recession: An Integrated Analysis of Empirical, Hydrodynamic, and Hydropower Modeling Applications</p> <p>Final Report. California Energy Commission. Publication number: CEC-500-2013. 137 pp.</p> <ul style="list-style-type: none"> • Yarnell, S.M, R.A. Peek, D.E. Rheinheimer, A.J. Lind, and J.H. Viers
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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

Coordinator

Davis R-Users Group

- <https://d-rug.github.io/>

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2015

2021
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2016

Software & Data Carpentry Instructor

Carpentries

- <https://carpentries.org/instructors/>

2021
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2016

Data Lab Affiliate

UC Davis Data Lab

- <https://datalab.ucdavis.edu/affiliated-students-and-postdocs/>

2021
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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
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2019

Center for Watershed Science Executive Committee

UC Davis

- Liaison between researchers and academic faculty conducting research, representative for represents postdocs and non-academic senate researchers.

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