



Photo: Yolo Bypass floodplain and view of downtown Sacramento, 2007  
(Courtesy of California Department of Water Resources)

University of California Berkeley  
Moses Hall, Room 223

Thursday, October 17<sup>th</sup> 2019

**Organizers:** Matt Kondolf and Anna Serra-Llobet (University of California, Berkeley) and Sonja C. Jähnig (Leibniz Institute for Freshwater Ecology and Inland Fisheries - IGB Berlin)

**Sponsors:** DAAD (German Academic Exchange Service), Institute of European Studies (UC Berkeley), Institute of International Studies (UC Berkeley)

**Objective:** To compare recent and ongoing initiatives that combine flood risk management and ecosystem restoration, foster a dialogue, and explore future collaborations.



**Berkeley**  
UNIVERSITY OF CALIFORNIA



Institute of  
International  
Studies



INSTITUTE OF  
**European Studies**  
University of California, Berkeley



Deutscher Akademischer Austausch Dienst  
German Academic Exchange Service

# Agenda

Thursday, October 17<sup>th</sup>, 2019 (223 Moses Hall – UC Berkeley)

- 08.30 Coffee
- 08.45 **Welcome & Introductions**  
*Anna Serra-Llobet, Sonja Jähnig, Matt Kondolf*
- 09.00 **Policy Innovations: USA, California, EU, Germany**  
*Eileen Fretz-Shader (American Rivers), John Cain (River Partners), Anna Serra-Llobet (UC Berkeley), Sonja Jähnig (IGB Berlin)*
- 10.00 Coffee break
- 10.20 **Successful Projects: USA, California**  
*Jeff Opperman (World Wildlife Fund), Sarah Yarnell (UC Davis), Ted Grantham (UC Berkeley)*
- 11.20 **Discussion** *Led by Matt Kondolf (UC Berkeley)*
- 11.40 Group Photo & Lunch
- 1.00 p **Successful Projects: EU, Germany**  
*Mathias Scholz (Helmholtz Centre for Environmental Research, Leipzig), Jürgen Geist (Technical University of Munich), Christian Damm (Karlsruhe Institute of Technology)*
- 2.00p **Discussion** *Led by Sonja Jähnig (IGB Berlin)*
- 3.00p **Reflections: When can flood risk management and ecosystem restoration work together?**  
*Jay Lund (UC Davis)*
- 3.30p Coffee break
- 3.50p **Open Discussion: What can we learn from each other? What elements can we draw from the other country to improve our approach?** *Led by Heidi Hall (DWR) and Rafael Schmitt (Stanford University)*
- 5.00p **Closing Comments** *Sonja Jähnig & Matt Kondolf*
- 5.30p Adjourn
- 6.30p Dinner (*location TBA*)

## List of Participants

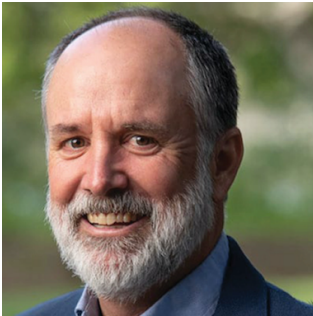
CAIN, John <i>River Partners</i>	jcaain@riverpartners.org
DAMM, Christian <i>Karlsruhe Institute for Technology</i>	christian.damm@kit.edu
EISENSTEIN William <i>UC Berkeley</i>	weisenstein@berkeley.edu
FARLEY, Greg <i>DWR</i>	Stuart.Farley@water.ca.gov
FRETZ-SHADER, Eileen <i>American Rivers</i>	eshader@americanrivers.org
GEIST, Jürgen <i>Technical University of Munich</i>	geist@wzw.tum.de
GRANTHAM, Ted <i>UC Berkley</i>	tgrantham@berkeley.edu
HALL, Heidi <i>DWR</i>	Heidi.Hall@water.ca.gov
JÄHNIG, Sonja <i>IGB Berlin</i>	sonja.jaehnig@igb-berlin.de
KONDOLF, Matt <i>UC Berkeley</i>	kondolf@berkeley.edu
LUND, Jay <i>UC Davis</i>	jrlund@ucdavis.edu
MOYLE, Peter <i>UC Davis</i>	pbroyle@ucdavis.edu
OPPERMAN, Jeff <i>World Wildlife Fund</i>	Jeff.Opperman@wwf.org
PAWLEY, Anitra <i>DWR</i>	Anitra.Pawley@water.ca.gov
SCHMITT, Rafael <i>Stanford University</i>	rschmitt@stanford.edu
SCHOLZ, Mathias <i>Helmholtz Centre for Environmental Research, Leipzig</i>	mathias.scholz@ufz.de
SERRA-LLOBET, Anna <i>UC Berkeley</i>	annaserrallobet@berkeley.edu
YARNELL, Sarah <i>UC Davis</i>	smyarnell@ucdavis.edu

# Innovations in River Management, Germany & USA

## Integrating Ecosystem Restoration into Flood Risk Management

UC Berkeley, Thursday, October 17<sup>th</sup> 2019

### Workshop Participants



**John CAIN**

River Partners

John Cain brings three decades experience at the nexus of ecosystem restoration, flood management, and water policy in California. He has played an active role in projects and processes that build healthier, safer communities and ecosystems, including the Central Valley Flood Protection Plan, the Dutch Slough tidal marsh restoration project, fish habitat enhancement on the Yolo Bypass, re-watering of the San Joaquin River, and restoration of Mono Lake and its tributaries. At River Partners, he builds partnerships to accelerate the pace and scale of riparian and floodplain restoration. In 2017, he was honored as “Floodplain Manager of the Year” by the Floodplain Management Association.



**Christian DAMM**

Karlsruhe Institute for Technology

Christian Damm is a trained botanist and vegetation ecologist who did his Ph.D. thesis on the alpine vegetation of Glacier National Park, Montana. He has been working as a consultant since 1998 and finished his PhD in 2001. For 10 years he has been project manager with the large scale conservation project “*Lenzener Elbtal*” in Brandenburg, Germany. Since 2010 he is working as a floodplain ecologist and teaching assistant at the Karlsruhe Institute of Technology, Department of Wetland Ecology in Southwestern Germany. His main fields of study are floodplain restoration, dike relocation, ecosystem services and stakeholder involvement. He is currently working on a floodplain restoration concept on the Elbe River and carrying out a feasibility study on a large restoration project on the upper Rhine.



**Bill EISENSTEIN**

UC Berkley

Dr. William Eisenstein is the Executive Director of the Center for Resource Efficient Communities at UC-Berkeley and also serves as the Urban Systems and Institutions Thrust Leader for the NSF Engineering Research Center on Reinventing the Nation's Urban Water Infrastructure. He formerly served as a key consultant to the Governor's Delta Vision Blue Ribbon Task Force, which made recommendations that led to the passage of comprehensive water and Delta management reform bills by the California Legislature in 2009. He has also consulted to the Department of Water Resources, the Delta Protection

Commission, the Delta Conservancy and the U.S. EPA on matters related to land use and flood risk in the Delta and the Central Valley.



## Greg FARLEY

California Department of Water Resources (DWR)

Greg Farley is an advisor for the Office Chief for the Office of Floodplain Management with California's Department of Water Resources (DWR). With a degree in Civil Engineering from California Polytechnic State University, San Luis Obispo, Greg has 36 years of experience working for local and state government in the world of water. Since coming to DWR in 2011, Greg managed the Hydrology, Hydraulics and Flood Management Section in the South Central Regional Office in Fresno and then transferred to DWR's Division of Flood Management (DFM) in Sacramento to champion the Small Communities Flood Risk Reduction Grant Program. In 2016, Greg volunteered for the Drought Emergency Response Team and was selected to be Drought Manager to help bring municipal water to the East Porterville vicinity in Tulare County. Greg led the DFM Communications Team including through the high-water events of January and February 2017. Recently he was an advisor for the DWR's Delta Conveyance Office program. Prior to DWR Greg was the Floodplain Manager for Madera County and Rural Streams Manager for the Fresno Metropolitan Flood Control District.



## Eileen FRETZ-SHADER

American Rivers

Eileen is Director of River Restoration with American Rivers. Since 2015 she has led American Rivers' national floodplain restoration program from her home state of Pennsylvania. Previously Eileen worked for American Rivers in Washington, DC advocating to Congress and the federal government to support sound floodplain management policies. Eileen works with partners including the Water Protection Network, the Association of State Floodplain Managers, Natural Floodplain Functions Alliance, and Mississippi River Network to promote floodplain restoration. She holds a B.S. in Environmental Science from Elizabethtown College in Elizabethtown, Pennsylvania, an M.A. in Environmental and Natural Resource Policy from The George Washington University, and a Certificate in Floodplain Management."



## Jürgen GEIST

Technical University Munich

Juergen Geist is Chair Professor of Aquatic Systems Biology at Technical University of Munich (TUM) in Germany and head of the TUM Limnological Research Station, the Aquatic Ecotoxicology Laboratory and the Stream Ecology and Fisheries Laboratories. Following his M.Sc. in Agricultural Sciences / Agricultural Biology, he earned his doctoral degree in Ecology and Conservation Genetics, followed by a Post Doc in Aquatic Ecotoxicology at University of California Davis, USA. His main research focus is on understanding the impacts



of anthropogenic stressors on the functioning of aquatic ecosystems which he also translates into conservation and restoration strategies. His research approach integrates multiple levels of biological organization from genes to ecosystem processes.



## Ted GRANTHAM

UC Berkeley

Dr. Theodore (Ted) Grantham is a cooperative extension specialist and adjunct professor in the Department of Environmental Science, Policy, and Management at UC Berkeley. He is an adjunct fellow of the Public Policy Institute of California and was recently appointed as the first PPIC CalTrout Ecosystem Fellow. He is also co-director of the Cannabis Research Center at UC Berkeley. His research explores the effects of climate change and management actions on freshwater ecosystems. A primary research interest is understanding the water needs of river ecosystems and the impacts of flow alteration on river health. His extension and outreach activities are focused on the translation of research into sustainable, cost-effective solutions for managing water and the environment. Dr. Grantham received his B.S. in Biological Sciences at Stanford University and a PhD in UC Berkeley's Department of Science, Policy and Management. He was a Fulbright Scholar at the University of Barcelona, a post-doctoral researcher at the UC Davis Center for Watershed Sciences, and a USGS Mendenhall Postdoctoral Research Fellow.



## Heidi HALL

DWR

Heidi Hall is a program manager with the California State Department of Water Resources (DWR). Since 2012 she has worked to incorporate eco-system values into flood planning, helped develop the Conservation Strategy as part of DWR's medium-term Central Valley Flood Protection Plan (CVFPP), and promoted communication and engagement in all areas of her job. Heidi has over 25 years of experience as an environmental professional with the Federal and State governments, overseeing work in resource management and water, among other areas. Her work at the USEPA oversaw programs in four states and 122 tribes, and funded programs in multiple states and counties. She received her B.A. from Pomona College in International Relations; earned an M.A. from Columbia University in International Relations, focusing on economic and political development of underserved areas; and a second M.A. from Rutgers University in Public Policy. She is also a community activist, serving on multiple non-profit Boards in her community in Nevada County, wrote a column and provided political commentary for local media. Heidi also serves as a Nevada County Supervisor, elected to represent District 1 in June, 2016 and sworn in January, 2017. At DWR she brings the perspective of both an ecosystem professional and a local elected official to flood planning.



## Sonja JÄHNIG

IGB Berlin

Dr. Sonja Jähmig is research group leader at the Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB, Berlin), Department of Ecosystem Research. She holds a Diploma in Environmental Sciences and a PhD from University of Duisburg-Essen in which she evaluated effects of river restoration measures on riverine organisms. Her research today focuses on global change effects in river ecosystems, large scale patterns of freshwater biodiversity and river health, and traits and functions in river ecosystems. Sonja is and has been actively involved in a number of European and international projects, especially interested at the interface of hydrology and hydrobiology. She is also an Interim Executive Board member of the Alliance for Freshwater Life.



## Matt KONDOLF

UC Berkeley

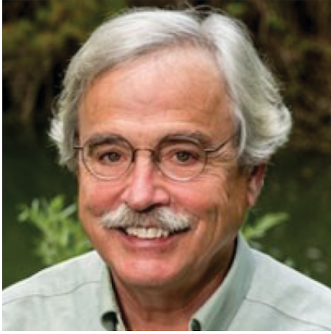
G. Mathias (Matt) Kondolf is a fluvial geomorphologist, Professor of Environmental Planning, and Co-Director of the Global Metropolitan Studies at the University of California Berkeley, where he teaches courses in hydrology, river restoration, environmental planning, and environmental science. Professor Kondolf directs UC Berkeley Riverlab, which conducts research on human-river interactions, including managing flood-prone lands, urban rivers, sediment in rivers and reservoirs, and river restoration (see <http://riverlab.berkeley.edu>) and advises governments and non-governmental organizations on sustainable management of rivers.



## Jay LUND

UC Davis

Dr. Jay Lund is Director of the Center for Watershed Sciences and a Professor of Civil and Environmental Engineering at the University of California Davis. He has long enjoyed teaching, research, and engagement on many aspects of theory and practice for water management and policy, usually trying to integrate economics and operations research with traditional engineering. He has become particularly engaged in working on the wide range of water problems in California with many collaborators, and remains enthusiastic about the potential of system analysis and optimization to provide understanding and insights for management and policy. A member of the US National Academy of Engineering and an Adjunct Fellow with the Public Policy Institute of California (PPIC), he was on the Advisory Committee for the 1998 and 2005 California Water Plan Updates, and served as Convenor of the California Water and Environment Modeling Forum and Chair of California's Delta Independent Science Board. (<https://watershed.ucdavis.edu/shed/lund/default.htm>)



## Peter MOYLE

UC Davis

Peter Moyle is a Professor Emeritus in the Department of Wildlife, Fish and Conservation Biology and associate director of the Center for Watershed Sciences, UC Davis. He is author or co-author of more than 250 publications, including *Inland Fishes of California* (2002) and "Suisun Marsh: ecological history and possible futures" co-authored with Amber Manfree and Peggy Fielder (2014 UC Press). His most recent book is "Floodplains: processes and management for ecosystem services", with Jeff Opperman as the lead author and Amber Manfree, Joan Florsheim, and Eric Larsen as coauthors (2017, UC Press). He has served on numerous advisory bodies, including the Ecosystem Restoration Program Science Board of the California Bay-Delta Authority and the National Research Council Panel on the Klamath River, as well as serving as an expert witness in trials and hearings dealing with fish. His research interests include conservation of aquatic species, habitats, and ecosystems; ecology of fishes of the San Francisco Estuary; ecology of California stream fishes; impact of introduced aquatic organisms (novel ecosystems); use of floodplains by fish; and reconciliation ecology. He has long-term research projects in Suisun Marsh and Putah Creek with shorter-term projects in the north Delta and other localities around northern California.



## Jeff OPPERMAN

World Wildlife Fund

As global lead scientist for freshwater, Jeff works across the WWF network and with external partners to direct research that can strengthen conservation strategies and to integrate science into freshwater programs and projects. Jeff came to WWF from The Nature Conservancy where he served as the director and lead scientist of the Great Rivers Partnership. His scientific and policy research has been published in journals such as *Science*, *BioScience* and *Ecological Applications* and he is the lead author of the book *Floodplains: processes and management for ecosystem services*, published in 2017.



## Anitra PAWLEY

DWR

Anitra Pawley has worked on aquatic ecosystem planning, research, and management for over thirty years. While receiving her PhD in ecology from University of California, Davis and through subsequent postdoctoral work, Anitra conducted lake and riverine ecosystem research in both tropical and temperate settings. While at The Bay Institute, Stillwater Sciences and California Sea Grant, she worked to collect and analyze data to evaluate and summarize watershed health. Projects such as CALFED Bay Delta Indicators, the San Francisco Bay Scorecard, Coastal Watershed Assessment for Golden Gate National Recreation Area and Point Reyes National Seashore, and the California Ecological Restoration Projects Database were products of these efforts. Through her current position as Program Manager for the North Delta Project at the California Department of Water Resources, Dr. Pawley has gained an in-



depth understanding of California restoration and flood management policies and the complex issues and impediments to timely and efficient project implementation. She is currently managing two North Delta multi-benefit projects that are in the permitting and construction phases: the McCormack Williamson Tract and Grizzly Slough Floodplain. These projects seek to transform “Sacramento-San Joaquin Delta” reclaimed agricultural islands into active floodplains and tidal marshes; while reducing flood risk in the northeast Delta.



## Rafael SCHMITT

Stanford University

Rafael Schmitt is currently a Post Doc at the Natural Capital Project and the Woods Institute for the Environment at Stanford University, and is affiliated with UC Berkeley's Riverlab. His research focusses on numerical modelling of catchment and river processes and related ecosystem services, with a special focus on sediment connectivity and natural hazards such as floods and landslides. During his Ph.D. at Politecnico di Milano he developed the CASCADE model for sediment connectivity and uses that model for exploring the link between geomorphic connectivity and energy systems planning to minimize impacts of hydropower development on rivers and deltas.



## Mathias SCHOLZ

Helmholtz Centre for Environmental Research, Leipzig

Mathias studied landscape and environmental planning at the University of Hanover in Germany and at the University of Tours in France. He has conducted research since 1999, and since 2006 he has been head of the Working Group on Floodplain Ecology at the Department of Conservation Biology at the Helmholtz Centre for Environmental Research (UFZ) in Leipzig, Germany. His expertise includes topics such as the assessments of ecosystem functions and services in floodplains or the impact of climate change on floodplain functions. He has also worked on conservation priorities in the EuMon- and the BioFresh-Project. Currently he is involved in several national and international projects related to ecosystem services and restoration in floodplains such as the Lebendige Luppe floodplain restoration project in Leipzig, monitoring a dike relocation along the Elbe river, and the River Ecosystem Service Index Project (RESI).



## Anna SERRA-LLOBET

UC Berkeley

Anna Serra-Llobet is an environmental scientist whose research concerns to flood risk management policies. Anna Serra-Llobet received her PhD in Environmental Sciences from the Autonomous University of Barcelona in 2011. After finishing her PhD she interned at the Directorate General for the Environment at the European Commission (EU) in Brussels, working on the analysis of EU funded research related to hydro-meteorological risks (floods and droughts) and vulnerability assessment in Europe. Currently she is a researcher

at the Institute of International Studies of the University of California at Berkeley, conducting comparative research on sustainable flood management strategies comparing the US and the EU. In 2017-2018 she was a fellow researcher at the Institute of Advanced Studies of the University of Aix-Marseille conducting research on regulatory flood maps in France. She co-chairs the ASFPM's (American Association of State Floodplain Managers) International Committee.



## Sarah YARNELL

UC Davis

Dr. Sarah Yarnell is a Research Hydrologist at the Center for Watershed Sciences at the University of California, Davis. Her primary research interests lie at the intersection between stream ecology, fluvial geomorphology, and riverine hydrology. Her current research focuses on quantification and management of environmental flows in California, understanding impacts of altered and natural flow regimes on channel morphology and aquatic species, and integrating hydrogeomorphic processes into restoration of mountain meadows. She has also co-taught several courses on river ecosystems through UC extension, and for undergraduates and graduates through the UCD Earth & Planetary Sciences department. Through her research, she is a recognized expert on the ecology of the Foothill yellow-legged frog, and she has worked closely with resource agencies and watershed stakeholders to provide technical expertise regarding science-based recommendations for water resource management.