

Central CA Coast Steelhead Regional Temperature Study

Technical Review Panel - Qualifications and Expertise

The Central California Coast Steelhead Regional Temperature Study (RTS) Technical Review Panel (TRP) includes academic and private industry scientists who provide expertise in three areas of applied steelhead fisheries science that SFEI, Valley Water, and other interests has deemed essential for the TRP to succeed: the ecology of California fishes, temperature criteria for salmonids, and hydrology/water temperature modeling. Below is a brief summary of each TRP member's qualifications and expertise.

Michael Deas, PhD, PE

- Principal, Watercourse Engineering (Davis, CA)
- Areas of expertise include ecological engineering, environmental fluid mechanics, stream water temperature modeling, salmonid habitat assessments
- Dr. Deas has extensive professional experience in the field of water quality monitoring, modeling, and analysis. He has taught water quantity and quality modeling courses at the University of California, Davis, and is a coauthor of a review of Central Valley water temperature modeling for the Bay Delta Modeling Forum. As a consultant and researcher, he has worked on a wide range of problems including surface flow, temperature, and water quality assessments; formulating conceptual models and identifying the interactions between aquatic system elements; developing and applying analytical tools as well as complex numerical models to evaluate flow and the fate and transport of physical and chemical constituents in aquatic systems; and communicating technical information, both orally and in writing, for diverse audiences. He has worked throughout Central and Northern California on reservoirs, rivers, and estuaries.

Nann Fanguie, PhD

- Professor and Chair, Department of Wildlife, Fish & Conservation Biology, University of California Davis (2018 - present)
- Areas of expertise include conservation physiology of California native fishes, environmental physiology and marine climate change, and mechanisms of environmental stress tolerance.
- Dr. Fanguie's research is focused on understanding the physiological specializations that allow animals to survive and thrive in complex environments. Her lab is currently studying a variety of aquatic species to understand whether these organisms have

sufficient physiological capacity or plasticity to maintain successful performance in the face of anthropogenic environmental perturbations such as climate change. In this research, she and her students couple molecular, biochemical, physiological, and whole-organism measures of performance framed in an ecological context, to elucidate connections between environment, physiology, and ecosystem function.

Anthony Ferrell, PhD

- Professor, Department of Zoology & Faculty of Land and Food Systems, University of British Columbia (2004 - present)
- Areas of expertise include integrative and comparative animal physiology, salmon migratory passage, and aquatic toxicology.
- Dr Farrell holds a Tier I Canada Research Chair (Fish Physiology, Culture and Conservation) and is a Fellow of the *Royal Society of Canada*. His nearly 500 peer-reviewed research publications have provided a basic insights into fish cardiorespiratory systems and they have applied this knowledge to salmon migratory passage, fish handling, sustainable aquaculture and aquatic toxicology. He has co-edited over 30 volumes of the *Fish Physiology* series and he was Editor-in-Chief for the award-winning *Encyclopedia of Fish Physiology*. He is a former President of the *Society of Experimental Biologists* and a former Editor-in-Chief for the *Journal of Fish Biology*. He has received multiple awards for excellence in his field. They include the Medal of Excellence, which is the highest honour of the *American Fisheries Society*, the Fry Medal, which is the highest honour to a scientist from the *Canadian Society of Zoologists*, the Beverton Medal, which is the highest honour to a scientist from the *Fisheries Society of the British Isles*, and Murray A. Newman Awards both for Research and for Conservation from the Vancouver Marine Sciences Centre.

Peter Moyle, PhD

- Distinguished Professor Emeritus in the Department of Wildlife, Fish and Conservation Biology and associate director of the Center for Watershed Sciences, University of California Davis (2015 - present)
- 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.
- Dr. Moyle has been studying the ecology and conservation of freshwater and estuarine fishes in California for over 50 years. Through working with numerous graduate students, postdocs, and colleagues, he has documented the current status of native freshwater

fish species in California, with special interest in salmon and other anadromous fishes. The interactions among native and non-native species in environments with varying degrees of disturbance have provided a major basis for his ecological studies and have led to management actions to improve conservation of native fishes. In recent years, his lab developed large data sets on the status, distribution, and ecology of native and non-native fishes of California, and quantified potential impacts of climate change on each species. His lab has also created databases on California dams and their impacts on fishes, especially through altered flows.