

### **Dr. Rocko Brown**

Dr. Rocko Brown is an expert design geomorphologist who uniquely balances applied and scientific aspects of geomorphology and engineering. He focuses on process-based assessment and restoration of fisheries resources through channel manipulation integrating geomorphic, hydraulic and ecological frameworks. He has extensive experience in hydraulic and sediment transport modeling and design for fish passage improvements, channel design, large wood and instream habitat structures, and bank stabilization.

Rocko has led the design of seasonal floodplain, spawning habitat, and fish passage projects in a diverse array of physical and regulatory settings. He has made contributions to spawning habitat rehabilitation efforts, including assessment, modeling, design and construction of projects on several of California's most-important rivers. Dr. Brown has published heavily on evaluating the interactions of topography and flow hydrology for geomorphic processes needed for salmonids to complete their life cycle and how to design functional riverscapes that honor these linkages. He holds a Bachelor of Science in Environmental Engineering from Temple University and Master's and Doctorate Degrees in Hydrologic Sciences from the University of California, Davis and has taught restoration classes since 2009.

### **Dr. Joseph E. Merz**

Dr. Merz is a registered scientist with the American Fisheries Society. He has over 25 years of experience working with aquatic resources and has been the principal scientist on several habitat restoration programs, including fish passage, in the California Central Valley. He has taught environmental science, salmonid ecology, and restoration courses for the past fifteen years.

Joe is known for his work with human and fisheries habitat interactions, and for his ability to communicate with scientific and stakeholder audiences alike. He has earned degrees in Environmental and Systematic Biology (Bachelors), Cal Poly at San Luis Obispo (1991); Biological Conservation (Masters), California State University, Sacramento (1994); and Conservation Ecology (Ph.D.), University of California, Davis (2004).

Dr. Merz has worked for California public, private and non-profit entities on resource monitoring and fisheries habitat enhancement. He is noted as an environmental studies and natural resources lecturer, and for his successes working with stakeholders. He has coauthored a variety of peer-reviewed publications focusing on river rehabilitation, fish movement, invasive species, woody debris/redd associations, and evaluation of spawning habitat enhancement, among others. In line with his professional interests, he is a

member of the Ecological Society of America, the American Fisheries Society and the Southwestern Association of Naturalists. Dr. Merz has been honored with a variety of awards and has received research and restoration grants from multiple stakeholders for restoration related projects in California, Oregon and Washington for salmonid habitat restoration; salmonid management and reintroduction; monitoring of fish migration and movement; fish passage improvement; and assessment of invasive species interactions with native salmonid populations.

### **Fish Passage Class Description**

Anadromous fishes, such as salmon, trout, lamprey and sturgeon, are not only key features of ecosystem function, but are vital aspects of our heritage, culture, economy, and health. As they utilize both freshwater and marine environments, these fish are concurrently subjected to the multiple stressors of an ever-increasing human population, facing habitat degradation and fragmentation. Many non-anadromous fish also make significant migrations, including catostomids and cyprinids, and are faced with similar impacts.

Of the many stressors facing migratory fishes, one of the most profound and understated is human-caused barriers to their natural migration. In California alone there are over 29,000 barriers to anadromous fish migration, blocking access to at least 75% of their historic range.

This workshop will introduce participants to the field of fish passage, a subsidiary of the broader stream restoration community, drawing on a diverse array of traditional disciplines such as civil engineering, hydrology, geomorphology, biology, and ecology. The workshop will provide participants a working framework to approach fish passage projects, with a practical and working emphasis on lowhead (less than 10 meters) barriers at road crossings. We will cover several aspects of fish passage in this course, ranging from barrier assessment to design to construction.