Todd E. Steissberg, PhD, PE

Research Environmental Engineer
Environmental Laboratory
U.S. Army Engineer Research and Development Center (ERDC)
Portland, OR and Davis, CA

Dr. Todd Steissberg is a Research Environmental Engineer at the U.S. Army Engineer Research and Development Center's Environmental Laboratory (ERDC-EL). Dr. Steissberg leads a team at the U.S. Army Engineer Research and Development Center (ERDC) that develops and applies water quality and environmental systems models for rivers, reservoirs, and watersheds. His research provides interdisciplinary teams with the tools and methods needed to 1) perform integrated watershed-scale environmental impact assessments, 2) improve water quality management and real-time operations, and 3) design and implement ecosystem restoration projects that incorporate natural and nature-based features (NNBF) to improve the health and resiliency of ecosystems and communities.

Dr. Steissberg obtained his B.S. in Civil Engineering from Washington State University, where he researched air pollution chemistry and transport processes and aquatic ecosystem restoration. Dr. Steissberg completed his M.S. and Ph.D. in Civil and Environmental Engineering at the University of California, Davis, while serving as a NASA Earth System Science fellow at NASA's Jet Propulsion Laboratory (JPL), focusing on satellite-based remote sensing, physical limnology, and water quality. In his postdoctoral research at the Tahoe Environmental Research Center, John Muir Institute of the Environment, University of California, Davis 2008-2010, Dr. Steissberg developed innovative methods to characterize nearshore and offshore water quality and its spatial-temporal variability using satellite and field measurements.

As a Senior Hydraulic Engineer at the U.S. Army Corps of Engineers' Hydrologic Engineering Center (USACE-HEC) 2008-2019, Dr. Steissberg lead development and application of water quality models and geospatial tools. This includes leading water quality modeling capability development in the widely deployed USACE models, HEC-RAS (river hydraulics), HEC-ResSim (reservoir operations), and HEC-HMS (watershed runoff), for planning studies and real-time operation decision-making.

In 2019, Dr. Steissberg transitioned to ERDC, continuing his research by building a team of researchers to address complex issues in water quality and environmental water resources modeling; ecosystem restoration; natural and nature-based feature design; and environmental resiliency and adaptation of freshwater and coastal ecosystems, civil works infrastructure, and military installations under threat of climate change.

Dr. Steissberg is the lead developer of ERDC's CE-QUAL-W2 model, the Corps Library for the Environmental Analysis and Restoration of Watersheds (ClearWater), the ClearWater-Riverine water quality model for complex river systems and floodplains, and the Hydrologic Simulation Program Python (HSP2/HSPF). He continues to lead water quality capability development for the USACE-HEC models (HEC-RAS, HEC-ResSim, and HEC-HMS) and the Gridded Surface Subsurface Hydrologic Analysis (GSSHA) program.