Workshop: Water Quality Modeling with CE-QUAL-W2

**Dates:** September 17-18, 2025

**Course Coordinator:** Dr. Todd Steissberg, ERDC-EL. Email: Todd.E.Steissberg@usace.army.mil

**Instructors:** Dr. Todd Steissberg (ERDC-EL, Lead Developer) and Dr. Hailie Suk (ERDC-CRREL)

**Target Audience:** USACE engineers, scientists, researchers, and planners involved in water quality modeling, ecosystem restoration, and environmental management

**Format:** Tentatively planned as a hybrid event. Virtual participation available. In-person participation at HEC in Davis, CA pending classroom availability.

**Attendance Costs:** The workshop is free of charge. Travel funds are not available.

# Overview

Engineers, scientists, researchers, and planners are invited to participate in the CE-QUAL-W2 Water Quality Modeling Workshop, a comprehensive training program designed to enhance understanding and proficiency in reservoir and river water quality modeling. Hosted by the Environmental Laboratory (EL) of the Engineer Research and Development Center (ERDC), U.S. Army Corps of Engineers (USACE), this two-day workshop will take place September 17-18, 2025.

The workshop combines lectures and hands-on exercises covering an overview of water quality modeling using CE-QUAL-W2, including the simulation of hydrodynamics, water temperature, dissolved oxygen, nutrients, and Harmful Algal Blooms (HABs).

CE-QUAL-W2 is a state-of-the-art, two-dimensional (2D), longitudinal/vertical hydrodynamic and water quality model specifically designed to capture dynamic changes within reservoirs. With over 1,100 applications worldwide, this widely used model has contributed invaluable insights into the flow dynamics and water quality conditions of reservoirs, lakes, rivers, and estuaries. By facilitating environmental impact assessments, informing reservoir operations decision-making, and supporting the planning, design, and evaluation of water resources systems and infrastructure, CE-QUAL-W2 has become an essential tool in addressing both national and global environmental challenges.

Furthermore, recent enhancements to the model have expanded its capabilities, enabling more detailed modeling of phenomena such as Harmful Algal Blooms (HABs). These enhancements make CE-QUAL-W2 an even more powerful resource for tackling complex water quality issues.

This workshop is made possible through the support of the USACE Scientific and Engineering Technology (SET) numerical model maintenance program, managed under the Hydrology, Hydraulics, and Coastal Community of Practice (HH&C CoP). This program recognizes the significance of CE-QUAL-W2 in improving the management and protection of water resources worldwide, supporting maintenance and ongoing development to improve and extend the capabilities of CE-QUAL-W2.