Tuolumne County Resource Conservation District (TCRCD)
PO Box 4394
Sonora, CA 95370

Request for Proposals

For

System Modeling of Climate Change Impacts in the Tuolumne-Stanislaus Watershed

1. Introduction

The TCRCD, on behalf of the Tuolumne – Stanislaus Integrated Regional Water Management Collaborative (TStan-IRWM,) was awarded a WaterSMART grant from the Bureau of Reclamation Cooperative Watershed Management Program to update the T-Stan Regional Water Management Plan. The TCRCD is seeking proposals from qualified consultants, academic institutions, or firms to develop a comprehensive system model that simulates and assesses the impacts of climate change on the Tuolumne-Stanislaus Watershed to be included as a part of the document. The goal is to inform future water management, conservation planning, and policy decisions based on robust scientific modeling and data analysis.

2. Background

The Upper Stanislaus and Upper Tuolumne River watersheds are critical water sources relied upon by river ecosystems, millions of people, hundreds of thousands of acres of farmland, and those receiving hydroelectric power throughout California. With the increasing threat of climate change—manifesting as altered precipitation patterns, increased temperatures, and extreme weather events—there is a pressing need to understand potential future scenarios and plan accordingly. The benefit to incorporating climate change modeling into the update of the watershed plan is the ability to quantify the potential impact that restoration projects can have on water supply, water quality, ecosystem and habitat vulnerability, hydropower and local water conveyance infrastructure.

3. Project Objectives

- Develop a dynamic systems model to simulate hydrological, ecological, and land-use processes under varying climate scenarios.
- Evaluate the impacts of climate change on key watershed parameters (e.g., streamflow, snowpack, nutrient and sediment loads, water quality, ecosystem services).
- Provide tools and visualizations to support decision-making for a variety of restoration projects and watershed management strategies, such as stormwater management, fuel treatment, and other disaster mitigation efforts.
- Identify and incorporate best management practices, adaptation strategies and mitigation measures.
- Carry out quantitative evaluation of climate risks, such as water supply, groundwater, drought, flood management, wildfire, ecosystems, and water quality.

4. Scope of Work

The selected contractor shall:

1. **Data Collection and Assessment**
    a. Compile and assess existing data sources (climate, hydrology, land use, socio-economic).
    b. Identify data gaps and propose methods to address them.
2. **Model Development**
    a. Select or develop an appropriate modeling framework (e.g., SWAT, WEAP, HEC-HMS, MIKE SHE).
    b. Calibrate and validate the model using historical data.
3. **Scenario Analysis**
    a. Incorporate climate projections (e.g., from CMIP6) under multiple RCP/SSP pathways.
    b. Simulate future watershed responses.
4. **Deliverables**
    a. Final report detailing methodology, results, and recommendations to be incorporated into the final document.
    b. A user-friendly modeling tool or dashboard licensed to T-Stan IRWM.
    c. Technical documentation and training for local staff.
    d. Attendance at four TSTAN-IRWM WAC meetings that take place the 3rd Wednesday of the month at 9 am in Sonora. The first meeting will be January 21, 2026. It is

anticipated that the remaining meetings will be June, August and November of 2026.

5. Proposal Requirements

Proposals must include:

- Executive Summary
- Technical Approach and Methodology
- Experience and Qualifications of the Team
- Detailed Work Plan and Timeline
- Budget (including a breakdown by task)
- References and Relevant Project Examples

6. Evaluation Criteria

- Technical expertise and experience
- Quality and feasibility of the proposed methodology
- Cost-effectiveness
- Stakeholder engagement strategy
- Project timeline and management plan

7. Submission Instructions

Please submit proposals electronically in PDF format by Wednesday, November 5th 2025, 5 pm to Renata Di Battista, Program Specialist at renata@tcrcd.org.

8. Timeline

Milestone	Date
RFP Release	September 23, 2025
Proposal Submission Deadline	November 5, 2025
Selection and Notification	November 19, 2025
Project Kickoff	January 21, 2026 (TSTAN IRWM WAC meeting @ 9 am in Sonora)
Final Analysis Due	January 8, 2027