



COUNTY OF SONOMA

575 ADMINISTRATION
DRIVE, ROOM 102A
SANTA ROSA, CA 95403

SUMMARY REPORT

Agenda Date: 12/12/2023

To: Board of Directors, Sonoma County Water Agency
Department or Agency Name(s): Sonoma County Water Agency
Staff Name and Phone Number: John Mendoza 707-547-1929
Vote Requirement: Majority
Supervisorial District(s): Countywide

Title:

Russian River ResSim Water Quality Model Update

Recommended Action:

Authorize Sonoma County Water Agency's General Manager to execute an agreement with Resource Management Associates, Inc., in a form approved by County Counsel, to update the Russian River Reservoir System Simulation (ResSim) water quality model through December 30, 2026, in the not-to-exceed amount of \$165,658.

Executive Summary:

Sonoma County Water Agency (Sonoma Water) uses a comprehensive water quality model of the Russian River system that reflects natural variability of meteorology and hydrology to help water managers selectively retain or release water from reservoirs. The model includes Lake Mendocino, Lake Sonoma, and the connecting river reaches down to the ocean boundary. Because the current model uses data from 2000 through 2017, Sonoma Water requires that the model be updated to include new data collected between 2017 and 2023.

Discussion:

HISTORY OF ITEM/BACKGROUND

Forecast Informed Reservoir Operations (FIRO) is a water management strategy that uses data from watershed monitoring programs and improved weather and hydrologic forecasting to help water managers selectively retain or release water from reservoirs in a flexible manner that reflects natural variability of meteorology and hydrology. The Lake Mendocino FIRO Steering Committee (SC) was formed in 2014 and consists of representatives from United States Army Corps of Engineers (USACE); Sonoma Water; Scripps, National Oceanic and Atmospheric Administration including National Marine Fisheries Service, Oceanic and Atmospheric Research, National Weather Service, United States Geological Survey; U.S. Bureau of Reclamation; and the California Department of Water Resources.

The Lake Mendocino FIRO SC developed the FIRO workplan in September 2015 to develop a framework to evaluate whether FIRO is a viable strategy to improve water supply reliability while not reducing the existing flood protection capacity of Lake Mendocino. The FIRO Water Quality Modeling project is part of the FIRO workplan and is designed to develop a comprehensive modeling framework to evaluate changes in water quality conditions in Lake Mendocino and discharge from Coyote Valley Dam for simulated changes in hydrologic conditions under FIRO.

In 2021, Resource Management Associates, Inc. (Consultant) configured and calibrated the ResSim water quality model of the Russian River system for Sonoma Water. The model includes Lake Mendocino, Lake Sonoma, and the connecting river reaches down to the ocean boundary. The ResSim water quality model represents reservoirs using one-dimensional vertical discretization and river reaches using one-dimensional longitudinal discretization.

In 2022, after the completion of the Lake Mendocino FIRO Final Viability Assessment (FVA), the Lake Mendocino FIRO SC reformed as the Russian River FIRO SC with the focus on expanding FIRO through the Russian River, specifically Lake Sonoma to Dry Creek. A work plan was developed highlighting the importance of water quality, specifically water temperature, in rearing salmonids in the Don Clausen Fish Hatchery at Lake Sonoma. Due to its importance, water temperature out of Lake Sonoma will need to be simulated with the Russian River ResSim Water Quality Model as part of the Lake Sonoma FIRO FVA analysis.

The ResSim model was calibrated for the period of 2000 through 2017, with emphasis on 2011 through 2017 when additional boundary condition data was available. While ResSim has the capability to model multi-year water quality simulations in the Russian River watershed, improved calibration can be accomplished using additional water quality data.

Consultant will update the calibration of the ResSim Russian River model using new data collected between 2017 and 2023 and provide training to Sonoma Water staff on using the updated model.

SELECTION PROCESS

A competitive selection process was not completed, and a Single/Sole Source Waiver was obtained from the County of Sonoma, Sonoma Public Infrastructure Department, Purchasing Division. A Single/Sole Source Waiver was used because Consultant developed the original model that will be updated, and it would require significant time and funding for another consultant to become familiar with the model which may delay the Lake Sonoma FIRO FVA analysis. The Single/Sole Source Waiver form is attached.

SERVICES TO BE PERFORMED

Under the agreement, Consultant will update the ResSim Russian River model calibration using new data collected between 2017 and 2023 and will perform a set of model simulations with the updated model related to ongoing FIRO studies being conducted by Sonoma Water. In addition, Consultant will provide training to Sonoma Water staff on use of the updated ResSim Russian River water quality model.

The cost of services will not exceed \$165,658; the term end date is December 30, 2026.

The agreement includes authorization for the General Manager to make changes to lengthen time schedules or make minor modifications to the scope of work, which do not increase the amount paid under the agreement, in a form approved by County Counsel.

The agreement includes two options for Sonoma Water to extend the term for a period of one year each by providing written notice to Consultant thirty days in advance of the expiration date of the agreement and of the first extension option. The extension will be formalized in an amended agreement or amendment signed by Sonoma Water.

County of Sonoma Strategic Plan Alignment
N/A

Sonoma Water Strategic Plan Alignment

Goal: Environmental Stewardship

Strategy: Protect, enhance, and monitor natural resources, watershed conditions, and ecosystem health that are vital to the Russian River, Petaluma River, and Sonoma Creek watersheds

Action: Conduct fisheries, wildlife, and water quality monitoring through existing programs and use of new technologies

This item aligns with the selected strategic plan goal by modelling the effects of a changing climate on our natural resources and applying these lessons to our management of natural resources.

Racial Equity:

Was this item identified as an opportunity to apply the Racial Equity Toolkit?

No

Prior Board Actions:

09/11/2018: Approved agreement between Sonoma Water and Resource Management Associates, Inc. for water quality modeling of the Russian River system. Cost \$230,000; term end December 31, 2020.

05/19/2015: Approved agreement between Sonoma Water and Resource Management Associates, Inc. to update the water quality model for the Russian River system. Cost \$50,000; term end June 30, 2017.

FISCAL SUMMARY

Expenditures	FY23-24 Adopted	FY24-25 Projected	FY25-26 Projected
Budgeted Expenses	\$97,392	\$68,266	
Additional Appropriation Requested			
Total Expenditures	\$97,392	\$68,266	
Funding Sources			
General Fund/WA GF			
State/Federal			
Fees/Other	\$97,392	\$68,266	
Use of Fund Balance			
General Fund Contingencies			
Total Sources	\$97,392	\$68,266	

Narrative Explanation of Fiscal Impacts:

Budgeted amount of \$97,392 is available from FY 2023/2024 appropriations for the Russian River Projects fund. FY 2024/2025 appropriations will be budgeted in that fiscal year.

Staffing Impacts:			
Position Title (Payroll Classification)	Monthly Salary Range (A-I Step)	Additions (Number)	Deletions (Number)

Narrative Explanation of Staffing Impacts (If Required):

N/A

Attachments:

Attachment 1 - Single Source Waiver

Related Items "On File" with the Clerk of the Board:

None