



COUNTY OF SONOMA

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

SUMMARY REPORT

Agenda Date: 10/22/2024

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 Watershed Future Climate Hydrologic Modeling

Recommended Action:

Authorize Sonoma County Water Agency's General Manager to execute an agreement with Flint HydroScience, LLC, in substantially the form as the draft presented to this Board, for Russian River watershed future climate hydrologic modeling through October 31, 2027, in the not-to-exceed amount of \$86,000.

Executive Summary:

The Daily Basin Characterization Model (BCM Model) was initially developed for Sonoma County Water Agency (Sonoma Water) in collaboration with the U.S. Geological Survey (USGS) to estimate observed daily local unimpaired stream flows along the Russian River and Eel River. Sonoma Water has used the BCM Model to analyze climate change impacts to water supply at Lake Mendocino, Lake Sonoma, and flows on the Russian River, and for many other water supply studies in the region. New climate data is now available from the Intergovernmental Panel on Climate Change (IPCC) that Sonoma Water will use in the BCM Model to create updated estimates of future climate stream flows. Obtaining the most recent data available is critical to analyzing climate change impacts on the operations of the new Eel-Russian facility, future operations of Lake Mendocino and Lake Sonoma, and other water planning projects on the Russian River.

Discussion:

HISTORY OF ITEM/BACKGROUND

The BCM Model was initially developed for Sonoma Water in collaboration with U.S. Geological Survey to estimate observed daily local unimpaired stream flows at stream gage locations along the Russian River and Eel River from 1910 to 2023 using observed historical climate data.

The BCM Model has been used to estimate stream flows that incorporate climate change hydrology using information from the Coupled Model Intercomparison Project Phase 5 (CMIP5) Global Circulation Models (GCM) included in the IPCC Fifth Assessment Report. These estimates were used to analyze climate change impacts to water supply at Lake Mendocino and Lake Sonoma, and flows on the Russian River.

The CMIP5 GCMs have been utilized in multiple studies including the Sonoma Water 2021 Climate Change Adaptation Plan Water Supply Analysis, and various water supply planning studies and Russian River environmental flow analyses including: monthly Lake Mendocino and Lake Sonoma storage level projections, the Fish Habitat Flows and Water Rights Project Draft Environmental Impact Report, the Lake Mendocino

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Water Supply Reliability Evaluation Report, and the Eel-Russian Two Basin Solution by the Huffman Ad Hoc Committee.

New climate data is now available from the CMIP Phase 6 (CMIP6) GCMs that incorporate the latest science and updated assumptions for future stream flow projections. Using this new data in the BCM Model, Sonoma Water will estimate future climate stream flows. This information will be critical in analyzing climate change impacts on the operations of the new Eel-Russian facility, future operations of Lake Mendocino and Lake Sonoma, and other water planning projects on the Russian River.

SELECTION PROCESS

A competitive selection process was not completed, and a Single/Sole Source Waiver was obtained from County of Sonoma Public Infrastructure Department, Purchasing Division.

Lorraine and Alan Flint developed the original BCM Model dataset in 2013 and updated it in 2018 when they worked for USGS. They are now retired from USGS, but provide consulting services as Flint HydroScience, LLC (Consultant).

USGS does not have the resources to run future climate modeling for the Russian River in the timeframe desired, so services of Consultant are needed. Consultant has the data and tools needed to run the BCM Model, while another consultant would need to be trained and supervised to conduct the work. Therefore, Consultant was the only firm contacted to perform the work.

SERVICES TO BE PERFORMED

Under the agreement, Consultant will conduct future climate modeling with the new CMIP6 data and provide results in a calibration spreadsheet for Sonoma Water to utilize in water planning. Consultant will also prepare a white paper describing methods, results, data collection, data sources, the model, and climactic trends and ranges of flows over time.

Under the agreement, the General Manager shall have the ability to extend the term of the agreement for two additional years by providing written notice to the other party thirty days in advance of the expiration date. The extension shall be formalized in an amended agreement or amendment signed by the parties.

County of Sonoma Strategic Plan Alignment

N/A

Sonoma Water Strategic Plan Alignment

Goal: Planning and Infrastructure.

Strategy: Conduct planning that integrates and balances operational, maintenance, and infrastructure priorities.

Action: Continue to engage in planning efforts and partnerships to protect and enhance our water supply.

By utilizing the new data from the CMIP6 in its BCM Model, Sonoma Water is continuing its planning efforts for optimal investment in infrastructure to meet the demands of our future climate and protect water supply.

Racial Equity:

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

No

Prior Board Actions:

04/21/2015: A) Authorize Water Agency's GM to execute an agreement with USGS for Russian River Daily Unimpaired Flows Climate Change Impact study for the amount of \$347,000; agreement terminates on September 30, 2017. Consistent with other agreements, authorize the GM to terminate this agreement. B) Authorize the Water Agency's GM to amend the agreement provided amendments do not cumulatively increase the total cost to the Water Agency by more than \$25,000 and do not substantially change the scope of work.

08/25/2009: 1. Authorize the Agency's General Manager/Chief Engineer to execute the Joint Funding Agreement for Water Resource Investigations - Influence of Climate Change on Hydrology of the Russian River Basin between the Water Agency and USGS, United States Department of the Interior (\$471,250). 2. Authorize the Agency's GM/Chief Engineer to amend the Agreement provided amendments do not cumulatively increase the total cost to the Agency by more than \$25,000 (taking into account all prior amendments) and do not substantially change the scope of work. 3. Authorize the Agency's GM/Chief Engineer to terminate the Agreement, if appropriate.

FISCAL SUMMARY

Expenditures	FY24-25 Adopted	FY25-26 Projected	FY26-27 Projected
Budgeted Expenses	\$86,000		
Additional Appropriation Requested			
Total Expenditures	\$86,000		
Funding Sources			
General Fund/WA GF			
State/Federal			
Fees/Other	\$86,000		
Use of Fund Balance			
General Fund Contingencies			
Total Sources	\$86,000		

Narrative Explanation of Fiscal Impacts:

Budgeted amount of \$86,000 is available from FY 2024/2025 appropriations for the Russian River Projects fund (\$43,000), the Watershed Planning and Restorations Fund (\$25,800), and the Warm Springs Dam fund (\$17,200). No additional appropriation is required.

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

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Narrative Explanation of Staffing Impacts (If Required):

N/A

Attachments:

Agreement with Flint HydroScience, LLC.

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

None.