

RWA Watersheds Resilience Pilot Study Advisory Committee Meeting

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Project name: RWA Watersheds Resilience Pilot Study

Project no: W8Y34200

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Attendees

Project Team

Name	Organization
Ryan Ojakian	Regional Water Authority (RWA)
Jim Peifer	RWA
Grace Kaufman	Valley Vision
Gretchen James	Valley Vision
Ibrahim Khadam	Khadam Consulting
Sirisha Nemani	Jacobs
Armin Munevar	Jacobs
Vijay Kesavan	Jacobs
Tapash Das	Jacobs
Shannon Litchfield	Jacobs

Advisory Committee

Name	Organization
Andy Fecko	Placer County Water Agency (PCWA)
Ashlee Casey	Water Forum
Alice Towey	East Bay Municipal Utility District
Austin Miller	Sacramento County
Brian Sanders	City of Sacramento
Christine Kohn	IN Communications
Clyde Macdonald	Save the American River Association
Greg Jones	Nevada Irrigation District
John Hansen	Sacramento Municipal Utility District
Laura Rodarte	PCWA
Michelle Banonis	RWA

Name	Organization
Mike Grinstead	Sacramento County Water Agency
Raiyna Villasenor	RWA
Ted Rauh	Environmental Council of Sacramento
Kerry Schmitz	Sacramento County

Agenda

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Meeting Notes

Introductions

Jim Peifer (JP): Jim provided an introduction to the team and listed those joining online. Welcome all to this advisory committee meeting.

Pilot Roadmap

Devyani Kar (DK): We are working towards the development of the adaptation strategies. Today, we will share some of technical work that will go into this and the future implementation plan. By March, we hope to have the Draft Watershed Resilience Plan completed with your input.

Vulnerability Assessment Feedback

DK: Last time we met, we discussed the vulnerability assessment and revised the clarity of the rating scales. We also considered the scale of effects and refined the qualitative assessment. Additionally, we identified vulnerability drivers and separated the Upper and Lower Watershed per your feedback.

Climate Change Scenarios

Tapash Das (TD): We are evaluating three climate change scenarios including the current conditions, mid-future Central Tendency, and the late future. The three major models being used for this effort are for hydrology (Variable Infiltration Capacity model), system operations (CalSim 3), and water temperature (HEC-5Q) for the eight sectors evaluated.

Temperature

TD: Mid-future indicated an average increase of 4 degrees Fahrenheit (°F) and 6.3°F for the late future. The Valley Floor area is warmer than the Sierra region, but the Sierra region is projected to see a larger increase in temperatures. Temperature increase will cause earlier snowmelt in the Sierra region.

Clyde Macdonald (CM): Why does the temperature go up so much in the higher elevations?

TD: The change in temperature is greater between the Valley Floor and the Sierra region.

Armin Munevar (AM): Areas with lower temperatures to begin with due to higher elevation have a higher potential for warming and, thus, have a greater temperature change.

Andy Fecko: "Clyde, in the ARBS, we found that lack of overnight cooling was the driving factor in driving higher elevation temperature averages higher. In other words, nights are hotter year-round." (via chat)
[ARBS = *American River Basin Study Interior Region 10—California Great Basin*]

Precipitation

TD: Annual precipitation increase is modest for mid-future and late future. Changes are most pronounced in the Upper Watershed.

Extreme Precipitation

TD: Extreme precipitation increases by 15% in mid-future and 18% in late future.

Ted Rauh (TR): Are these slides referring to each of the three climate scenarios?

TD: We are showing the median change of 41 climate model projections in these graphics.

JP: Does this 18% increase come from the Hot-Dry or Warm-Wet scenario? What scenario does this come from?

TD: This is more reflective of the Warm-Wet scenario but includes the median of 41 climate projections.

TR: Is this work incorporating newer information compared with the ARBS?

TD: This work is built upon the newest models (CMIP 6 vs CMIP 5) as well as Sacramento County Department of Water Resources' weather generator.

Alice Towey: I would be interested in knowing the ranges that we are seeing from these models as compared to just the median.

AM: The late future ranges from approximately 10% to 30%, but all models are showing trends of increase in precipitation.

DK: We do have these ranges in our deck that we can share.

Snow

TD: Significant reduction in snow is noted under both future periods, as early snow melt and more precipitation will fall as rain instead of snow. Average snow water increase is expected to decrease by 66% for mid-future.

Flood

TD: A change is noted in annual 1-day floods; we see an increase for the mid-future of 16% and for the late future of 31%.

CM: Have we evaluated flood for longer than 1-day? The largest impacts are usually from multiple day events.

Michael Saunders: We usually see the 1-day impacts in combination with the multiple day events.

JP: We will look into the impacts of a large event and explore intense local rainfalls in the basin region.

Streamflow Hydrograph

TD: Under future conditions, due to warming, we are seeing an increase in Fall-Winter and a decrease in Spring-Summer: this will create water supply challenges when the demand is higher. All three climate change scenarios are showing a shift to earlier runoff compared with historical data. Peak inflow to Folsom Reservoir could occur up to 2 months earlier.

TR: From the work that you are showing, the water will be coming to Folsom Reservoir, and it will not be possible to store the water? Will this type of analysis be evaluated?

AM: It will not be possible to store a large portion of the earlier runoff due to operational constraints.

Drought Severity

AM: Drought severity is defined as the maximum cumulative annual deficit. What we are seeing through our modeling is a 4% to 5% increase in the drought severity, with disproportionate effects on the Upper Watershed. The drought severity and duration projections indicate that two representative droughts from our projections show increased deficits or increased deficit lengths, or both.

CM: We should also evaluate the effects of demand on these droughts and salinity considerations.

Mike Grinstead: It would be good to know how these two simulated droughts were selected.

AM: One of these was selected due to its deficit and the other due to its length. These two are trying to represent the bounds of the simulations.

RO: I want to underscore that how we address these challenges may be beyond our existing technical expertise and may cause the need to develop new and innovative solutions.

Wildfire Probability

AM: The historical probability of fires doubles by the late future, with the highest increases in the Upper Watershed.

Discussion

Michael Saunders: With wildfire, what happens in the areas that have already burned; was this evaluated?

AM: Post-fire regrowth is incorporated into the model, but we hope to also add management actions to our strategies to prevent this increase in fire probability.

Laura Rodarte: "Armin, what was the return interval used for the wildfires? Was it a uniform number across the entire project area?" (via chat)

AM: I believe the interval for regrowth varies across the project area. This model is from UC Merced; I will confirm.

Adaptation Strategies Approach

AM: We are moving towards the development of adaptation strategies, starting with prioritizing the areas of highest vulnerability. We are seeking a breadth of adaptation strategies and suggestions from this group.

DK: We will be using an online tool to solicit input from this group. Our project area is broken down into subregions (Upper Bear River, Upper American River, Lower American River, and Upper Cosumnes River).

Within the tool, you will be able to enter strategies by water resources category, adaptation strategy type, and so forth.

JP: We also want to encourage everyone to submit ideas in whatever format you have them.

AM: We are planning to develop an evaluation criteria spreadsheet as shown.

Next Steps

DK: We would like to have all strategies from this group and the Watershed Network by December 19, 2025, so that we can evaluate strategies by February 2025.

Laura Rodarte: Rebecca Guo and I have done some work evaluating previous strategies for the Upper Watershed, and I will get this to you soon.

JP: We have a Nimbus Hatchery Salmon Run Event coming up on November 14, 2025, from 11 am to 2 pm.