

**POTTER VALLEY PROJECT HUFFMAN AD-HOC COMMITTEE
WATER SUPPLY WORKING GROUP**

**RESULTS OF INITIAL WATER SUPPLY MODELING FOR POTTER VALLEY PROJECT
AND RUSSIAN RIVER ALTERNATIVES**

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Summary of Modeling Scenarios Evaluated

Modeling Scenarios Updated 4/16/19		Russian River & Lake Mendocino Alternatives		
		Current Operations	Lake Mendocino FIRO (Hybrid) with Fish Flow EIR Operations ⁵	Raise Coyote Valley Dam ⁶
Potter Valley Project Alternatives	Current Operations ¹	Baseline: Existing Climate (n=1)		
		Baseline FC: Future Climate (n=4)		
	PVP Revised Operations ²	Scenario 4: Existing Climate (n=1)		
	Run-of-the-River ³		Scenario 2: Existing Climate (n=1)	
			Scenario 2FC: Future Climate (n=4)	
PVP Decommission ⁴	Scenario 1: Existing Climate (n=1)	Scenario 3: Existing Climate (n=1)	Scenario 5: Preliminary analysis with Existing Climate	

GREEN boxes are scenarios that are run using existing (historic) climate conditions (WY1911-WY2017). Green boxes (scenarios) will be compared with each other.

ORANGE boxes are scenarios that are run using 4 future climate models, and are run into the future (CY2006-CY2099) rather than historical. At this point, the only comparisons will be 1) Baseline FC with Baseline, and 2) Scenario 2FC with the Scenario 2 (no other scenarios modeled for climate change except Baseline and Scenario 2).

¹ Current operations: Scott Dam and Cape Horn Dam stays in place, flows and diversions based on 2002 Biological Opinion RPA flows, maximum diversion=170 cfs based on model calibration mass balance. Russian River flows based on 2008 Biological Opinion RPA and 1986 Decision 1610, existing flood control rule curve (no FIRO).

² PVP Revised Operations Assumptions: 1) allow discretionary PVP diversions when Scott Dam is spilling up to 170 cfs, 2) reduce Eel River minimum instream flow “floor” by up to 50 cfs in winter and spring, and 3) reduce minimum flows on the East Fork Russian River year-round by different amounts for different water year types.

³ Run-of-the-River Assumptions: Remove Scott Dam; continue Van Arsdale diversions with a maximum PVP diversion of 300 cfs; achieve unmet Potter Valley Irrigation District (PVID) demands (up to 15,320 ac-ft) via PVID pumpback from Lake Mendocino.

⁴ PVP Decommission Assumptions: Scott Dam, Cape Horn Dam, and PVP Diversion would be completely removed, no water diversions from Eel River to Russian River, Eel River flows would be unimpaired.

⁵ Lake Mendocino FIRO and Fish Flow EIR Assumptions: Maximum allowed reservoir elevation during November-March flood reserve space raised from 68,400 ac-ft to 80,050 ac-ft. Reduces Lake Mendocino releases in all years except driest year by up to 80 cfs. Achieve unmet Potter Valley Irrigation District (PVID) demands (up to 15,320 ac-ft) via PVID pumpback from Lake Mendocino.

⁶ A preliminary analysis of needed storage to avoid draining the reservoir during series of drought years, assuming historic Lake Mendocino inflow (with no PVP diversions), Fish Flow EIR demands from Lake Mendocino, no Lake Mendocino flood control reserve space, and achieve unmet Potter Valley Irrigation District (PVID) demands (up to 15,320 ac-ft) via PVID pumpback from Lake Mendocino.

List of Included Reports and Presentations

File Name	Description
Overview of Scenarios and Glossary-updated.doc	Overview of Scenarios, list of products from Water Supply Subgroup, and Glossary of Terms used in the products
Validation Review 10-3-2018.pdf	Presentation of HEC-ResSim validation for 2007-2017 time series, presented at 10/3/19 Water Supply Working Group meeting, will NOT be presented again on 5/22/19
Scenario 1 Report Summary.pdf	Overview of Scenario 1, assumptions, and results (PVP Decommissioning, Russian River current ops)
Scenario 1 Appendix.pdf	Detailed output file of Scenario 1 (exceedance plots, hydrographs, storage plots)
Scenario 2 Report Summary.pdf	Overview of Scenario 2, assumptions, and results (Eel Run-of-the-River, Russian River FIRO and Fish Flow EIR ops)
Scenario 2 Appendix.pdf	Detailed output file of Scenario 2 (exceedance plots, hydrographs, storage plots)
Scenario 3 Report Summary.pdf	Overview of Scenario 3, assumptions, and results (PVP Decommissioning, Russian River FIRO and Fish Flow EIR ops)
Scenario 3 Appendix.pdf	Detailed output file of Scenario 3 (exceedance plots, hydrographs, storage plots)
Scenario 4 Report Summary.pdf	Overview of Scenario 4, assumptions, and results (PVP Revised Ops, Russian River current ops)
Scenario 4 Appendix.pdf	Detailed output file of Scenario 4 (exceedance plots, hydrographs, storage plots)
Scenario 5 Preliminary.pdf	PowerPoint of reconnaissance-level analysis of Scenario 5 (Raise Coyote Valley Dam)
Climate Change Scenario.pdf	Overview of results of 4 climate change scenarios for: Baseline Conditions, and Scenario 2 (Eel Run-of-the-River, Russian River FIRO and Fish Flow EIR ops)
2007-2017 Time Series Charts.pdf	Daily flow and storage plots for Eel River and Russian River basin computational nodes for Scenarios 1-4, plus baseline (current ops), will NOT be presented on 5/22/2019
5-22-2019 WS Working Group.pdf	Presentation by Water Supply Subgroup to Water Supply Working Group on 5/22/2019 (will likely be posted after meeting)

GLOSSARY OF TERMS

2002 Biological Opinion – Biological Opinion for the Potter Valley Project issued by the National Marine Fisheries Service (NMFS) to protect salmonids listed under the Endangered Species Act.

2008 Biological Opinion – Biological Opinion for Water supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River watershed issued by NMFS.

ACOE – U.S. Army Corps of Engineers

Baseline operations – Current RPA flows, reservoir operations, diversions, and other conditions on both the Eel River and Russian River to meet the requirements of the respective 2002 and 2008 Biological Opinions.

BO TUC – Biological Opinion Temporary Urgency Change Petition, which SCWA is required to submit annually until Decision 1610 (see below) is permanently changed.

Block Water – 2,500 acre-ft of water to be released from Cape Horn Dam to the Eel River for fisheries purposes; established in the 2002 Biological Opinion.

Calpella Reach Losses – Water “losses” between E-16 and the USGS gage above Lake Mendocino due to PVP water use and other water losses.

CY – Calendar year (January 1 – December 31)

CVD – Coyote Valley Dam

D1610 (or 1986 Decision 1610) – State Water Resources Board decision that establishes minimum dry season flows to the Russian River and Dry Creek for fisheries and recreational purposes. These Russian River flows are higher than those in the Fish Flow EIR.

E-2 – Stream flow gaging location on Eel River immediately below Scott Dam; PGE operational compliance point.

E-11 – Stream flow gaging location on Eel River immediately below Van Arsdale Dam; PGE operational compliance point.

E-16 – Stream flow gaging location entering Potter Valley Powerhouse via the Eel River diversion; PGE operational compliance point.

FIRO – Forecast Information Reservoir Operations, relevant to Lake Mendocino flood control operations. In this report, FIRO is represented by a guide curve that is consistent with the 2019 Major Deviation to Lake Mendocino flood control operations.

Fish Flow EIR – Environmental Impact Report developed by the Sonoma County Water Agency to comply with the 2008 Biological Opinion (currently under review). Includes a proposed hydrologic index that

relates minimum flows to Lake Mendocino storage unlike the current index based on Lake Pillsbury storage. Proposed minimum flow schedule with flow rates generally lower than currently required.

GLOSSARY, Continued

Historical Cardno hydrology – Computation of Lake Pillsbury inflows and accretion between Scott Dam and Van Arsdale Dam by Cardno and Western Hydrology for the WY1911-2017 period of record

LM – Lake Mendocino

NMFS – National Marine Fisheries Service

PVID Pumpback – Large pumps and pipeline from Lake Mendocino to (approx.) Potter Valley powerhouse to enable delivery of up to 15,140 ac-ft from Lake Mendocino to headgates of PVID canal system.

PVID – Potter Valley Irrigation District

PVP – Potter Valley Project

RPA – Reasonable and Prudent Alternative for the Potter Valley Project, which include Eel River flow requirements established in the 2002 Biological Opinion.

SCWA – Sonoma County Water Agency, now Sonoma Water

PVP Tunnel Capacity – maximum capacity is 320 cfs, maximum functional capacity is 240 cfs with fish screens, current operations model runs assume 170 cfs based on model calibration process, other scenarios assume various maximum diversion rates.

USGS -BCM hydrology – Unimpaired flow hydrology on the Russian River developed using the USGS Basic Characterization Model hydrologic model.

WRS – Warm Springs Dam

WY – Calendar year (October 1 – September 30)