

A Tale of Two Rivers in Mendocino County: Where the Eel and Russian Rivers Meet

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Introduction

The water supply for the southern half of inland Mendocino County is dependent on water from the Russian River. The West Fork begins on Tomki Road in Redwood Valley. The East Fork begins at the top of Powerhouse Road in Potter Valley and flows south into Coyote Valley which is flooded and becomes Lake Mendocino. The East Fork and West Fork join just beyond Coyote Dam in an area called The Forks on Lake Mendocino Drive. From there, the Russian snakes south past the City of Ukiah, Talmage then runs along Old River Road into the Sanel Valley, the town of Hopland, then exits Mendocino County.

For well over 100 years, the water flows of the Russian River have been supplemented from water diverted from the Eel River via the Potter Valley Project (PVP). The PVP includes Scott Dam which forms Lake Pillsbury, Cape Horn Dam which forms Van Arsdale Reservoir, and a diversion tunnel that transports water underground to the East Fork of the Russian River. All of that is about to drastically change, and possibly end, as Pacific Gas and Electric, who owns the PVP, has abandoned their license to operate the project and are moving forward with decommissioning.

The Potter Valley Project

Initially, the PVP was created to generate power to sell to the City of Ukiah, and the diverted water was a by-product. The community of Potter Valley voted to form the Potter Valley Irrigation District in 1924 to take advantage of the newly available water. In 1926 PVID contracted for some of the water, and in 1928 construction began on the irrigation canal system to deliver water to homesteads and farms (PVID 2023).

From 1922 to 2007, up to 150,000 acre-feet (AF) of water was diverted annually from the Eel to the Russian River. This is enough water to fill Lake Mendocino entirely plus half again. With an abundance of water stored in Lake Mendocino and Lake Sonoma, communities along the Russian River in Mendocino and Sonoma Counties boomed, and the populations that depend on the two reservoirs grew to approximately 600,000 people, including people in Marin County who buy water from Sonoma County Water Agency (SCWA 2023).

Lake Mendocino

In the 1930's, the federal government moved into the Big Dam Era, building many dams across the West to generate power, provide water to cities and farms, and attempt to tame flood waters. In the Russian River, communities struggled to develop in flood plains due to the frequency of flooding. After a series of especially damaging floods during this same time period, community members started advocating for a dam to be built on the Russian River. In 1944, the federal government passed the Flood Control Act of 1944 to study the feasibility of Coyote Dam, which now forms Lake Mendocino, and Warm Springs Dam, creating Lake Sonoma. After a few years of surveys and studies, the construction of both reservoirs was authorized by Congress in 1950. Due to the Korean War, funding wasn't made available to begin the projects until 1954. One of the stipulations for the projects to move forward was that local interests would have to provide some of the funding for construction to receive rights to the stored water. (USAOE 2023).

As they say, 'whiskey is for drinking and water is for fighting,' and fight we have. Initially, there was cooperation in financing the initial studies for Coyote Dam, but when it came time to commit to more substantial investment for construction, the cooperation between Mendocino and Sonoma Counties, and even among ourselves, came to an end. The Mendocino County Board of Supervisors decided not to fund construction of Coyote Dam and instead left it to communities that would benefit from the dam to pay for it through a bond measure or property tax. The community of Redwood Valley could not see how the reservoir would benefit them since the area was located adjacent to, not downstream of, the proposed dam. Hence, Redwood Valley was removed from the proposed measure. On January 24th, 1956, the communities of Calpella, Ukiah, Talmage, and Hopland overwhelmingly passed the bond measure which led to the formation of the Russian River Flood Control and Conservation Improvement District (RRFC) that would oversee the 11.3% share allocated to Mendocino County of the water stored behind Lake Mendocino (Kaplan 1979).

On January 16, 1964, Redwood Valley County Water District (RVCWD) incorporated to find a water source and develop a system to deliver water to homes and farms. On May 27, 1975 Redwood Valley voters would approve borrowing \$4.8 million from the Department of Reclamation to construct a water system and treatment plant. Construction lasted from 1977 to 1979. In April 1979, irrigation water service began, and in November 1979, domestic water service began. On April 8, 1980 Redwood Valley voters would approve borrowing another \$2.53 million dollars to expand water service (CLCAN 2022).

Redwood Valley has always been dependent on purchasing surplus water from either SCWA or RRFC. How that amount is determined has always been contentious. After litigation between RVCWD and RRFC, a stipulated judgment was handed down in 1980 directing RRFC to sell RVCWD any surplus water available. How that determination is made has been a point of contention, but recently, improved relations has resulted in RRFC supplying RVCWD surplus water since summer of 2022 (RRFC vs. RVCWD 1980).

Initially, RVCWD was prepared to make loan payments to the Bureau of Reclamation once enough service connections were attained and the district was able to pay. In 1989, RVCWD was served with a moratorium on new service connections because it lacked a secure water right. As of today, RVCWD still owes \$6.85 million on the principal of the initial debt with the Bureau of Reclamation (Fishman 2022).

Fast Forward, and Back to the Eel

In 2007, water diversions were cut to 60,000 AF a year out of concern for Eel River fisheries. In 2021, diversions were cut even more to 40,000 AF due to drought. Reduction in power generation, increased regulatory requirements, outliving its engineered lifespan, and failure of a powerhouse transformer have made it challenging for PG&E to continue profitably operating the PVP. On July 7th, 2023, PG&E submitted a letter to the Federal Energy Regulatory Commission that they would not be seeking to relicense the PVP and would be submitting a plan for decommissioning within 30 months. While that process continues, PG&E is proposing to cut the diverted flows even further to the point that less than 20,000 AF of Eel River water would be diverted to the Russian River. In dry years, Lake Mendocino may not fill without diverted flows. With summer time Russian River flows not supplemented with diversions from the Eel River, appropriative water right holders along the Russian River would see their summer time diversions limited by curtailment orders. There are minimum flow requirements to protect wildlife that must be maintained. Riparian and appropriative water right holders would come to depend more heavily on contracted stored water from RRFC and/or groundwater. RRFC would see their available supplies lessen drastically some years. (Ballman & Riedner 2022). Our region's users - domestic and agricultural - need to be prepared.

Inland Water and Power Commission (IWPC), Sonoma County Water Agency (SCWA), and Round Valley Indian Tribes (RVIT) submitted a proposal to PG&E for consideration to include in their draft decommissioning plan for public review. The proposal includes installing new infrastructure to seasonally pump and divert water after decommissioning

both dams. The Russian River Water Forum (RRWF), a reiteration of the Two Basin Solution,¹ was formed to host working groups to collaboratively work to find solutions for the issues of water supply and fisheries, water rights and water management, finance and economics, governance, and Russian River resiliency.

This proposal is not guaranteed to be accepted. There is still a lot of work to be done forming a legal entity that will assume responsibility for whatever new infrastructure is put in place and to manage it going into the future. This entity and infrastructure will cost money, which will increase the cost of water. It remains to be seen how much water will be diverted, but it will certainly be drastically less than what was historically available.

Regardless of the progress to form an entity and create this new infrastructure, dam decommissioning will still continue. PG&E would like to divest themselves from the PVP as quickly as possible. Scott Dam and Cape Horn Dam could be completely removed in less than a decade. If the greater community fails to move forward with a viable agency and plan to continue some level of interfacility transfer, another entity could form, similar to what is happening in the Klamath Basin (KRRC 2023).

Whatever the outcome, communities along the Russian River will be greatly impacted. Potter Valley, a community of 650 according to the last census, could see much of its groundwater dry up and domestic wells could fail. The aquifer under Potter Valley is shallow and mostly clay, meaning water doesn't easily percolate to recharge the aquifer. It has been constantly recharged by seepage from the canal system, composed primarily of open-air dirt ditches. Even with the canal system in operation, the California Department of Water Resources (DWR) estimates the annual sustainable yield of the aquifer to be 500 AF (DWR 2004). Even if the water diversion continues, the water will require a piped irrigation system, which will cost money, and groundwater will not be recharged by seepage from the canal system. A community that has come to rely on almost 20,000 AF a year at very low cost will see that supply drastically cut and the cost increase substantially. A community that has prospered from the diverted water will rapidly dry up to the point where even health and human safety will be in question. Piping or trucking water to Potter Valley is unfeasible, and the community could be in danger of being unlivable.

Glimmers of Hope for the Future

¹ The Two-Basin Solution Partnership was an effort convened by Congressman Jared Huffman to bring together Eel River and Russian River interests to explore terms for a new PVP license.
<https://www.twobasinsolution.org/>

The community of Redwood Valley has practically no secure water rights and will suffer as well if interfacility transfers cease. Currently, RVCWD relies on a well at the Masonite property owned by Millview County Water District for its domestic customers, just north of Ukiah, and surplus water purchased from RRFC to allow us to supply ag customers and supplement domestic supply. With the possibility of being annexed into RRFC, RVCWD would be allowed to purchase water on a contract basis. The district is also exploring to drill an additional well at the Masonite property owned by Millview Water District to supply RVCWD.

In response to the 2014 drought, the Upper Russian River Water Agency (URRWA) was formed as a Joint Powers Authority (JPA) with RVCWD, Calpella County Water District (CCWD), Millview County Water District (MCWD), and Willow County Water District (WCWD) to share water resources during times of emergency. With funding from DWR, interties between the separate water districts were constructed to allow sharing water resources in times of emergency. On December 30, 2014, all four water districts officially signed an agreement to form URRWA and to work toward a consolidated single-entity water agency. Currently, the four water districts are managed by WCWD through service contracts. In 2020, Ukiah Valley Sanitation District joined URRWA. Currently, URRWA is negotiating with the City of Ukiah to make the single-entity water agency a reality (SWRCB 2018).

Potential Impacts of Losing the PVP

Losing summer diversions from the PVP would result in frequent curtailments for Russian River water right holders and the region would depend more on water stored in Lake Mendocino. People who have wells would increase their dependence on groundwater, which occurred during the drought of 2020-2022 when curtailments were put in place. These lowered flows could also potentially impact the amount of recharge of the Ukiah Valley Groundwater Basin. The DWR has accepted the Ukiah Valley Basin Groundwater Sustainability Agency's (UVBGS) Groundwater Sustainability Plan. Currently, the Ukiah Valley Basin aquifer is considered of moderate concern, and the UVBGS is primarily monitoring groundwater levels to demonstrate that the groundwater basin is being managed sustainably. On an annual basis, 7,000-8,000 AF of water is extracted from the aquifer, and up to 10,000 AF more could be sustainably extracted. This projection assumes recharge amounts will be maintained, which is in question. Pumping this much more will require more careful management (i.e. additional monitoring and metering) to avoid overdraft and impacting water quality, such as contamination from minerals. Even with implementing best management, groundwater supply will not sufficiently counter the water availability reduction expected after the PVP is altered (UVBGS 2023).

The economic losses could be devastating if we are to entirely lose the ability to transfer water from the Eel to the Russian River. Over 20% of Mendocino County's economy is derived from agriculture, contributing \$743 million in annual revenue (EFA 2016). Removal of the dams and any infrastructure modifications made to allow for an interfacility transfer would have a short-term economic boost (BACEI 2023). But what is the associated cost, and who will pay? The costs of decommissioning the dams will ultimately be paid for by utility ratepayers through the power rates we pay to PG&E. It is uncertain that removal of the dams will result in the full recovery of the Eel River fishery to historic levels as there are many other factors that have contributed to the fishery's decline. New jobs may be created through new recreational opportunities from a freely flowing Eel River, but those jobs would not plausibly make up for the economic losses from other industries, especially considering the loss of Lake Pillsbury as a recreational venue and in some years, Lake Mendocino as well. The best case scenario of modifying the infrastructure to continue some level of diversion from the Eel to the Russian is going to result in less water available and at a higher cost. This increase in cost will strain farm businesses and deter new home building in a region that currently feels the constraint of low housing supply. RVCWD went through over two years, from 2021 to 2023, of water rationing which threatened the financial viability of the water district.

Where do we go from here?

First and foremost, conservation must become a way of life. Water is a precious resource and all life depends on it. Public health, quality of life, and our economy all suffer when we lack enough water to meet our basic needs. We must manage the water we use as efficiently as possible.

We must invest in water storage. Even in dry years, Mendocino County typically receives a substantial amount of rain in the winter. We must look at ways to store that water for use in summer, by capturing water off our roofs into tanks, catching rain in farm ponds, through groundwater recharge, and storing in larger reservoirs. The level of Lake Mendocino needs to be raised.

We need to invest in efficient water systems and recycle water to reuse as much as possible. Deferring maintenance and allowing our infrastructure to crumble is no longer an option. We need to use our infrastructure to the greatest extent and benefit possible. The agricultural water system of RVCWD can and should be used to deliver water from Lake Mendocino when it is full to flood fields for groundwater recharge instead of releasing water from the flood pool to the ocean. What few wetlands remain, must be protected.

We must work together to secure water supplies and to share what is available during drought. Some of this groundwork has been laid through the Voluntary Water Sharing Agreement (SWRCB 2022). More can be done if water districts adjust their bylaws and policies, and update their Municipal Service Review/Sphere of Influence to enable water sharing within the regulatory framework. Stakeholders in Humboldt, Sonoma, and Mendocino counties must cooperate to create a way forward that protects the health of both the Eel and Russian Rivers and everything that depends on them. Water must be put to its most beneficial use, which should factor in how that use affects our community, economy, and ecology. Failing to do so creates conflict within our community, which drains precious resources and puts the natural environment at risk. We must continue to improve our understanding of water cycles so that we can operate with the most current data and make decisions knowing that the next drought is around the corner. We have seen some of this work in the form of Forecast Informed Reservoir Operations.² Lake Mendocino was chosen as the first project to alter how the reservoir and releases have been managed. Because of the change in management, Lake Mendocino has 11,000 AF more water than it would have if past management protocols remained in place.

We must make land management decisions acknowledging how precious water is. Open space and farmland must be maintained and remain viable to maximize groundwater recharge, preserve refuges for wildlife, and to keep our communities safe from flood. We cannot control water. What we can do is plan and manage our usage, and build our communities and cities in ways that make water an asset, not a liability. We must acknowledge the value, rights, and entitlements of non-human interests, the very environment we depend on.

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² Forecast Informed Reservoir Operations (FIRO) is a reservoir-operations strategy that better informs decisions to retain or release water by integrating additional flexibility in operation policies and rules with enhanced monitoring and improved weather and water forecasts. FIRO is being developed and tested as a collaborative effort in the Russian River Basin (Lake Mendocino, Lake Sonoma).
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