



Lake Berryessa Water Supply at Risk

By Cary Keaten, SID General Manager Update: 3/8/2024

The governance of the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) water quality falls under the authority of the State Water Quality Control Board (Water Board). Among other duties, the Water Board is responsible for adopting and updating the Bay-Delta Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan).

The Bay-Delta Plan's purpose is to set forth measures and flow requirements to safeguard various water uses within the watershed, including municipal, industrial, agricultural, and ecological needs. Comprising five political appointees with extensive powers, the Water Board plays a pivotal role in shaping California's water management policies.

In the fall of 2024, the Water Board issued a *Draft Staff Report/Substitute Environmental Document in Support of Potential Sacramento/Delta Updates to the Bay-Delta Plan (Staff Report)*. Comments were due January 19, 2024. The Solano Irrigation District (SID) was one of many commenting parties.

The legal obligation of the Water Board is to create water quality control plans that "reasonably" protect the beneficial uses of water encompassing diverse needs such as municipal, industrial, agricultural, and ecological requirements. However, many commenting agencies found the Bay-Delta Plan focused on protecting ecological systems at the expense of municipal, industrial, and agricultural uses.

Specifically, the Unimpaired Flow alternative proposed in the Staff Report would all but eliminate the uses of the Solano Project's water for anything other than the State's purposes (the Solano Project includes Lake Berryessa, Monticello Dam, Lake Solano, the Lake Solano Diversion Dam, and the Putah South Canal). There are several factors highlighting this conclusion.

- First, the 55% Unimpaired Flow
- Second, the 900,000 Acre-Foot (AF) Carryover in Lake Berryessa
- Third, Combining Unimpaired Flow with Carryover

This article discusses each of these factors but, first, good news. There is an effort to create an alternative to the imposition of the Staff Report. Specifically, the Bay-Delta Plan would be implemented through agreements referred to as the '*Agreements to Support Healthy Rivers and Landscapes*' rather than selecting the one-size-fits-all unimpaired flow or carryover option. Currently, the Solano County Water Agency (SCWA), which holds the primary contracts with the US Bureau of Reclamation and water permits with the State of California, is engaged in negotiations with the State of California. The negotiations focus on SCWA funding Putah Creek centric system improvements and enhanced flow contributions. The negotiations seek to preserve as much SID, Vacaville, Fairfield, Suisun City and Vallejo (and Benecia through contract with SID) Solano Project water for allocation. SID and its partners are fully behind the Healthy Rivers and Landscapes Agreements effort.

Backing up, the following sections describe in more detail the impacts of the 55% Unimpaired Flow and the 900,000 AF Carryover in Lake Berryessa criteria in the Staff Report:

55% Unimpaired Flow. The 55% Unimpaired Flow means that between January 1st of any year and June 30th of that same year (6-month time span) the Solano Project can only store 45% of the inflow to Lake Berryessa requiring SCWA to release 55% of the inflow downstream of the Lake Berryessa Dam (Monticello Dam). The actual reduction, however, is much more than just 55%. As noted in Staff Report (located in Table A1-10 of Appendix A1, Sacramento Water Allocation Model, Methods, and Results), the 55% Unimpaired Flow approach would reduce municipal and agricultural uses of the Solano Project watershed by 75% and more in dry years.

The current allocation methodology was established by the designers of the Solano Project, the U.S. Bureau of Reclamation. In doing so, they evaluated a historic 13-year drought and determined how the Solano Project would reliably make water deliveries year over year. In the 55% Unimpaired Flow plan, resulting in 25% allocations and bypassing 55% of flow during the first six months of the year, the reliability would be abandoned. Table 1 below is a re-print of Table A1-10 of Appendix A1 of the Staff Report. Table 1 does not, however, model the new reliability result of such an allocation and flow bypass plan. Table 1 not only shows significant impacts to SID but Vacaville, Fairfield, Suisun City, Benicia, and Vallejo as well.

Table 1. The 55% Unimpaired Flow of the Solano Project (Putah Creek Watershed)

Public Agency	Current Allocation (AF)	New 25% Allocation (AF)
Solano Irrigation District (Ag)	121,000	30,250
Solano Irrigation District (M&I)	18,000	5,000
Benicia (Through transfer agreement w/SID)	2,000	500
CA State Prison Solano	1,200	300
Fairfield	9,200	2,300
Maine Prairie Water District	15,000	3,750
Suisun City	1,600	400
UC Davis	4,000	1,000
Vacaville	5,750	1,438
Vallejo	14,600	3,650
Total =	192,350	48,088

900,000 Acre-Foot (AF) Carryover in Lake Berryessa. Further, the Staff Report identifies Water Allocation Model, Methods and Results in Table A1-3 of Appendix A1 and requires SCWA to store a minimum of 900,000 AF in Lake Berryessa for a cold-water storage supply for the Sacramento River. This carryover requirement is proposed to maintain cold temperatures of the unimpaired flow releases. Lake Berryessa’s total capacity is 1,600,000 AF of storage capacity. Therefore, this requirement would hold back 56% of the lake’s capacity. Also, the requirement would result in extended periods of times where the Water Board would disallow Solano Project water usage. For example, using the proposed 900,000 AF carryover requirement and history of storage in Lake Berryessa, the following indicates the number of days no water would have been available to SID, Vacaville, Fairfield, Suisun City, Vallejo, and Benicia from Lake Berryessa:

- 1977-1978 Approximately 210 days

- 1989-1995 Approximately 1,896 days (5.1 years)
- 2014-2016 Approximately 387 days
- 2021-2023 Approximately 180 days

Combining Unimpaired Flow with Carryover. The Staff Report did not model or project the remaining available allocation out of Lake Berryessa when combining the 25% allocation with the 900,000 AF carryover requirement. When looking in isolation in a water year, assuming the lake level is 1,200,000 AF or higher (which is when Solano Project customers would be allocated 48,088 or 25%), in only 5 years would the Solano Project customers even receive the full 25%. However, every water year is different, therefore, impacts to Cities and Agriculture is not known because no model has been developed to estimate actual loss to Solano Project customers. This is because of:

- a) The inability to build any carryover water from wet years to dry years due to the 25% allocation.
- b) The State is using the remaining 75% allocation for release.
- c) The State is requiring a minimum of 900,000 AF impoundment in Lake Berryessa.
- d) In addition to the above, there are normal variable hydrologic cycles to wet and dry years.

On a year over year basis, therefore, it is unlikely there will be little if any water for delivery for Solano Project customers. However, until the State or local agency develops a model of impacts, we do not know the span of impacts on local agencies and agriculture. What we do know, however, is that during dry years where Lake Berryessa water levels are low, the State Water Project will also experience water reductions. By comparison, during the 2014-2016 and 2021-2022 water years, the State Water Project had a 5% allocation. For Vacaville, Fairfield, Suisun City, Vallejo, and Benicia this means they would not have enough water to function. Combined with zero surface water for agriculture, Solano County would be facing a public health crisis.

Path Forward: Healthy Rivers and Landscapes

If the Water Board implements the proposed Bay-Delta Plan amendment as written, the combined unimpaired flow and carryover criteria will result in a public health crisis in Solano County. Elsewhere in the State too. SCWA, for example, noted in their January 19, 2024, letter to the Water Board that the 55% Unimpaired Flow and Carryover approach would reduce municipal and agricultural use in the Putah Creek watershed by 75% and significantly impact Lake Berryessa reservoir operations and simultaneous cold-water storage. This approach would reduce the region’s water supply by 144,000-AF resulting in building moratoriums within the Cities of Benicia, Fairfield, Vallejo, Vacaville, and Suisun City, limiting affordable housing opportunities for severely disadvantaged communities in the region and in direct conflict to the Governor’s efforts in increasing affordable housing. The significant reductions in water supply would force Solano County agencies to rely more heavily on our Sacramento-San Joaquin Delta water supplies, counter to the WQCP and Delta Stewardship Council’s Delta Plan. Additionally, during drought-driven and environmental curtailments in the Delta, Vallejo, Vacaville, Fairfield, Suisun City, and Benicia would have no other source of water. Furthermore, 46,000-acres of classified “Prime Agricultural” land that also provides important buffers between the urban communities would no longer produce agricultural. The Unimpaired Flow and Carryover approach places one of the most significant burdens on Solano County, on one of the smallest watersheds (1%) of the Sacramento River Watershed, with little to no additional benefit to the environment, imposing a very detrimental and unmitigated impact on the municipal, agricultural, and recreational users in Napa, Solano, and Yolo Counties.

Some agencies will turn to groundwater where available. This would increase demands on groundwater and with reduced recharge from Lake Berryessa water causing Solano County to return to its pre-Lake Berryessa days where wells will again go dry. This would impact those groundwater users in Yolo County, Solano County, the City of Dixon, the community of Elmira, and Vacaville.

As previously stated, the purpose of the Bay-Delta Plan is to set forth measures and flow requirements to safeguard various water uses within the watershed, including municipal, industrial, agricultural, and ecological needs. Putah Creek is already an exemplary model of successfully balancing beneficial uses including municipal, agricultural, and environmental needs within the watershed. The SCWA, the City of Davis and others adopted an "Accord" in 2000 (the Putah Creek Accord) that settled 10 years of litigation, provided additional water for salmon and funding for habitat restoration. The 55% Unimpaired Flow approach will reduce the water supply reliability of the Solano Project and decrease the availability of water outside of the January - June period. In Putah Creek, the approach would undo 14 years of resolute and effective restoration projects that enabled the return of Chinook salmon to the creek. In this scenario, neither fish nor users benefit.

The Agreements to Support Healthy Rivers and Landscapes would allow the Water Board to support the continuance of successful programs in support of fisheries, such as the one that exists on Putah Creek, and capitalize on local expertise and stakeholders in implementing watershed-specific, carefully tailored solutions to the challenge of declining fisheries. However, to provide for a balanced beneficial use of the State of California's water resources.

There is significant uncertainty regarding the Bay-Delta Plan. For all the reasons outlined in this article, however, the necessity of entering into Agreements between the State and the Solano County Water Agency to Support Healthy Rivers and Landscapes as an alternative to the 55% Unimpaired Flow and the 900,000 AF carryover requirements is paramount. Provided, however, the terms protect the current reliability of our water supplies. The alternative in the Bay-Delta Plan is bleak for Solano County because we would not have enough water for food production nor basic human consumption.