



State Water Project Briefings: The State Water Project and the San Joaquin Valley

Introduction

The final State Water Project briefing of 2021 will continue to explore this year's theme of creating a resilient State Water Project (SWP) by addressing climate change and aging infrastructure to provide multiple benefits for Californians. The Commission will receive two presentations: a briefing on the Department of Water Resources (DWR) 2022 Drought Contingency Plan and an update on the California Aqueduct Subsidence Program (CASP).

2022 Drought Contingency Plan

On August 1, 2021, Lake Oroville, one of the largest SWP facilities, reached a historic low water elevation of just over 642 feet. The previous lowest elevation of just under 645 feet occurred in September 1977. Lake levels continue to fall as minimal amounts of water are released for critical needs and to meet water quality standards in the Delta.

On October 1, 2020, Lake Oroville held more than 1.6 million acre-feet of storage, which was 300 thousand acre-feet more than previous years. This increase represents a 20 percent increase over previous targets for carryover storage for Lake Oroville. Storage operators anticipated the current drought and increased the amount of water stored in Lake Oroville to try to mitigate the upcoming water shortage.

On April 1, 2021, snowpack in the Feather River watershed was nearly 70 percent of average. It was drier than other parts of the Sierra but had a reasonable amount of snowpack. However, in April and May, California saw extraordinary conditions. A combination of heat, humidity, high winds, and dry soils greatly reduced runoff from the Feather River Watershed into Lake Oroville. As the snowpack melted, very little runoff arrived in reservoirs. Only 20 percent of the water content in the snowpack ended up as inflow into Lake Oroville. In a typical year, California sees 60 to 80 percent of the snowpack end up as inflow depending on watershed conditions.

DWR's existing obligations need to be met regardless of the lower anticipated runoff. DWR continues to make reservoir releases that are necessary to support the local Feather River Settlement Contractors and to meet water quality and flow requirements in the Delta. DWR petitioned the State Water Resources Control Board (SWRCB) to reduce the Delta flow requirements and SWRCB granted DWR's request. A minimal amount of water – an amount less than three percent of typical summer pumping for SWP south-of-Delta deliveries - was also delivered to those SWP contractors who are dependent on the Delta for their minimum urban supplies.

California Aqueduct Subsidence Program

Central to the 700-mile-long SWP system is the California Aqueduct (Aqueduct), a portion of which is a 220-mile-long canal running along the west side of the San Joaquin Valley. This portion of the Aqueduct is subdivided into two field divisions for operational purposes. The southerly segment, located between Kettleman City and Edmonston Pumping Plant south of Bakersfield, is owned by DWR and operated and maintained by DWR's San Joaquin Field Division. The northerly segment between the San Luis Reservoir and Kettleman City, also known as the San Luis Canal, is a joint-use facility owned by the United States Bureau of Reclamation (USBR) and operated and maintained by DWR's San Luis Field Division. The Aqueduct, along with other key features of USBR's Central Valley Project – the Delta-Mendota Canal and the Friant-Kern Canal – operate as a water conveyance system serving the environment, millions of acres of agriculture, and millions of people, including disadvantaged communities in southern and central California. The Aqueduct serves as a key component of the flood management facilities of the Central Valley and is relied on for groundwater recharge and water transfer and exchange projects. The Aqueduct also facilitates meeting the State's commitment of supporting the Human Right to Water, codified in Water Code 106.3.

Groundwater overdraft in the San Joaquin Valley is causing subsidence across the valley. Subsidence has reduced delivery capacity and operational flexibility of the Aqueduct, with adverse impacts extending throughout the State. Subsidence along the Aqueduct has damaged numerous structures including canal liner, embankments, bridges, turnouts, utility crossings, recorder stations and check (gate) structures. By making interim repairs and modifying Aqueduct operations, DWR has managed to maintain water deliveries; however, these measures are becoming less effective as subsidence increases.

These adverse subsidence impacts increase the need, and demand, for local, state, and federal funding of water supply and flood projects in the Central Valley. The CASP addresses the impacts of subsidence on the Aqueduct while also ensuring continued deliveries to water users. The CASP comprises near-term and long-term projects. Early implementation projects include ongoing geotechnical investigations supporting multiple projects under design to raise the liner and embankment of multiple pools, re-construct a check structure, re-construct multiple turnout structures, relocate and raise bridges, and relocate utilities crossing the Aqueduct. Over the next three years, the projects determined to best remediate the consequences of long-term subsidence will emerge through an alternative evaluation process conducted as part of the recovery planning process. This process involves considerable outreach to, and coordination with, communities of interest in the San Joaquin Valley, and close cooperation with the USBR.

Background

The California State Water Project consists of 36 water storage facilities and 700 miles of rivers, pipelines, and canals. It supplies water to 27 million people and irrigates 750,000 acres of farmland. The system includes 21 pumping plants, powered by a system of power-generation and power-recovery plants. DWR also operates the world's tallest water lift – the Edmonston

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Pumping Plant – which pumps water more than 1,900 feet up and over the Tehachapi Mountains into Southern California.

Goal Two of the Commission’s Strategic Plan directs the Commission to remain apprised of the operations and construction activities of the SWP, focusing on how it adapts and responds to hydrological extremes expected with climate change, restores critical ecosystems, and addresses aging infrastructure. As required by Water Code section 165, the Commission conducts an annual review on the progress of the construction and operation of the SWP and reports its findings and recommendations to DWR and the Legislature. This series of briefings will inform the Commission of SWP activities in preparation for their 2021 annual review.

Meeting Overview

At the September 2021 meeting, John Yarbrough, Assistant Deputy Director of the SWP, will brief the Commission on California’s present hydrologic conditions and future outlook, covering the current conditions under the Governor’s declared drought emergency, including water storage levels in SWP reservoirs and a breakdown of 2021’s rainfall and snowmelt and their impact on water supply. The presentation will also compare 2021’s drought conditions to previous droughts and discuss the impact of rising temperatures on the SWP and will provide an overview of the drought actions being taken by DWR. CASP Manager Dan Whisman will address the status of the early-implementation and long-term projects of the CASP, the efforts of the CASP to address the Human Right to Water, and current work on remediating damage from subsidence.

This is an informational item.

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