Pajaro Valley
Water Management Agency

College Lake Integrated Resources Management Project

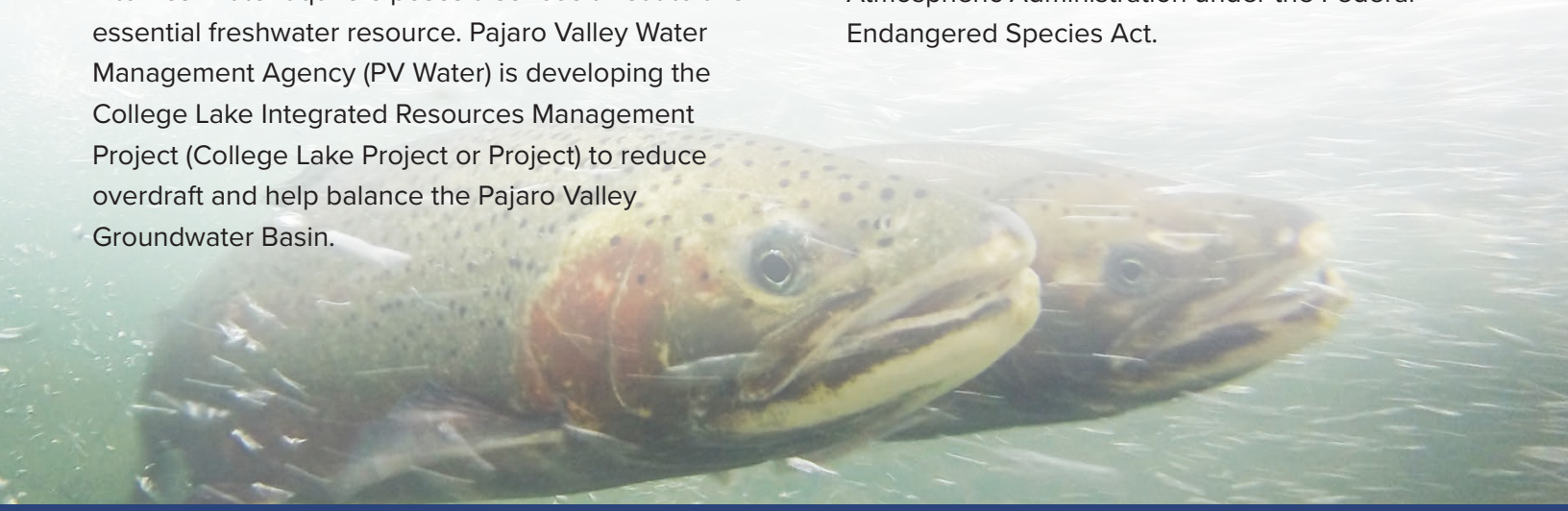
Protecting Groundwater, Improving Fish Passage, Maintaining Habitat for Waterfowl

The Challenge

The Pajaro Valley Groundwater Basin is in a state of critical overdraft as designated by the California Department of Water Resources. Overdraft occurs as a result of decades of pumping groundwater faster than rainfall and streamflow can recharge the aquifers. Throughout much of the Pajaro Valley, groundwater levels remain below sea level throughout the year; this is known as overdraft, which causes seawater to move inland. Seawater intrusion has elevated the chloride concentration in groundwater wells up to three miles inland from the coast, in some areas contaminating the groundwater to the point that it is unsuitable for human uses. The continued intrusion of seawater into freshwater aquifers poses a serious threat to this essential freshwater resource. Pajaro Valley Water Management Agency (PV Water) is developing the College Lake Integrated Resources Management Project (College Lake Project or Project) to reduce overdraft and help balance the Pajaro Valley Groundwater Basin.

The Setting

College Lake is a naturally occurring, seasonal lake which is located about 1-mile northeast of Watsonville City limits. It receives water from Green Valley Creek, Casserly Creek, and Hughes Creek, which collectively drain 12,736 acres of predominantly range and agricultural land. College Lake has the current capacity to store about 1,400 acre-feet (AF) of water. The lake provides valuable habitat resource for steelhead fish and waterfowl. One of the creeks feeding the lake – Casserly Creek – as well as two of its tributaries, Bates Creek and Gaffey Creek, support South-Central California Coast steelhead, which are listed as endangered species by the National Oceanic and Atmospheric Administration under the Federal Endangered Species Act.



College Lake Project

The Project

The College Lake Integrated Resources Management Project (College Lake Project or Project) will reduce coastal groundwater pumping, helping to stop seawater intrusion and balance the groundwater basin by distributing 1,800 to 2,300 acre-feet per year with a maximum allowed under PV Water's Water Right Permit of 3,000 acre-feet. The Project will collect surface water runoff in College Lake for treatment and delivery through a new 6-mile pipeline to PV Water's existing 22 miles of pipeline, the Coastal Distribution System (CDS), where the water will be delivered to growers, to replace and reduce groundwater pumping along the coast, which will reduce overdraft and seawater intrusion.

The Project includes a fish ladder and fish screen to increase access for the endangered steelhead to enter and exit the lake.

To identify and evaluate the potential environmental effects of the Project, PV Water prepared an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA). The Final EIR includes all public comments and changes to the EIR including an impact analysis for many environmental resource areas, mitigation measures to reduce or avoid the potential environmental effects identified in the Draft EIR, and potentially feasible alternatives to the Project.

One of the commitments in the Final EIR and in the Basin Management Plan (BMP) 2014 Update Final EIR is to adaptively manage the College Lake Project. This commitment was solidified in the Adoption of the Adaptive Management Plan (AMP 2022), approved by the PV Water Board in January 2022. The AMP 2022 will guide PV Water staff and consultants after construction to adaptively manage the resources of College Lake, protect the endangered species, and comply with the regulations from the National Marine Fisheries Service and California Department of Fish and Wildlife, as mentioned in the December 2021 Approval of the Water Right Application.

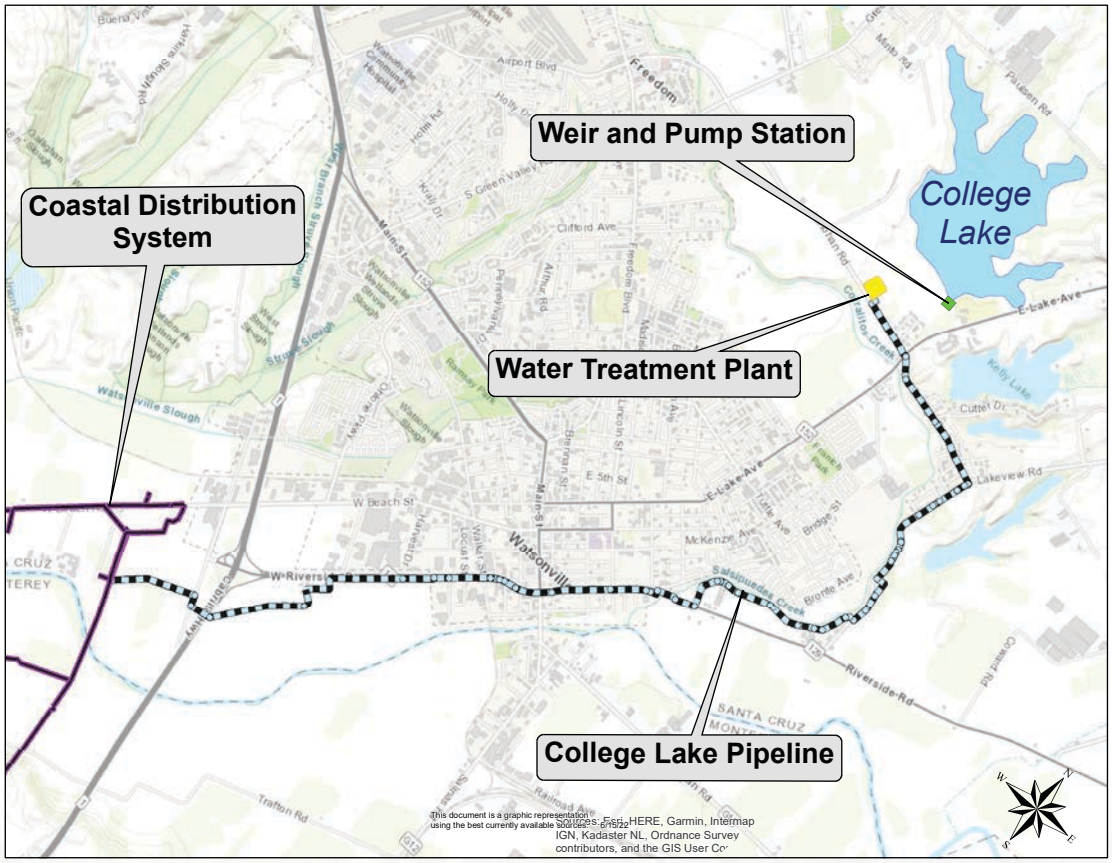
The new pipeline from the lake to the CDS takes a different route than what was in the EIR. The new pipeline alignment was proposed as a rural alternative that the PV Water Board supported as it went through fewer streets within the City of Watsonville. The pipeline was recommended under the BMP and now Groundwater Sustainability Plan, developed by interested parties of the Pajaro Valley. The PV Water Board approved an Addendum to the College Lake Final EIR in July 2022 to accommodate the pipeline changes, as well as a smaller footprint for the treatment plant.

For approximately the last 100 years, the College Lake Reclamation District has drained the lake in spring to allow row crops to be grown on the lake bottom in the summer and fall. The pumping of the lake continues intermittently until late fall to protect crops. The lake flows downstream to Salsipuedes Creek in the winter. A weir on the south side of the lake operated by the College Lake Reclamation District, causes the inundation of about 234 acres of lake. A new adjustable weir structure will be built just downstream of the current weir, increasing the water surface area to 285 acres and increasing the storage capacity to around 1,800 acre-feet at an elevation of 62.5 feet.

College Lake Project

The College Lake Pipeline to Coastal Distribution System

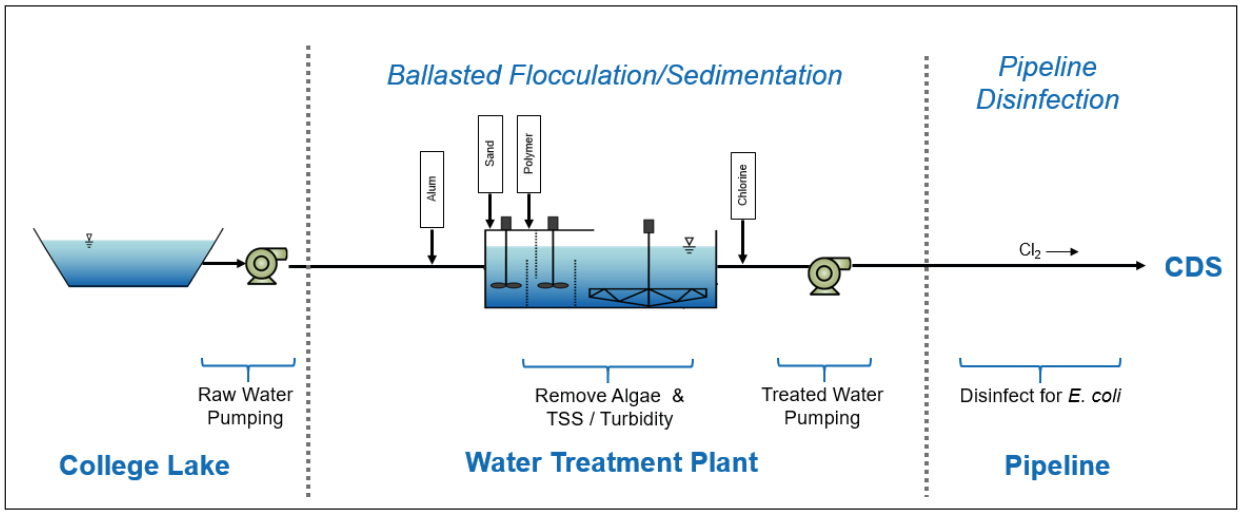
- In the summer, water will be treated near the lake to Title 22 standards and sent through a new 30 inch, 6-mile pipeline from College Lake to supply the CDS and over 5,500 acres of farmland.
- With College Lake Water Right Approval in Dec. 2021, annual yield put to beneficial use will be about 2,200 AF, including the volume of the lake of 1,800 AF plus the estimated inflow of 700 AF during the irrigation season, minus 300 AF outflow for steelhead habitat.



College Lake Project

Project Overview

Once in-stream flow conditions are met, operators will pump water from the new fish-screen structure at the new weir, conveying water to the water treatment facility on Holohan Road. Following treatment, pumps will send water through a 6-mile pipeline to the CDS. Details of the facilities follow:

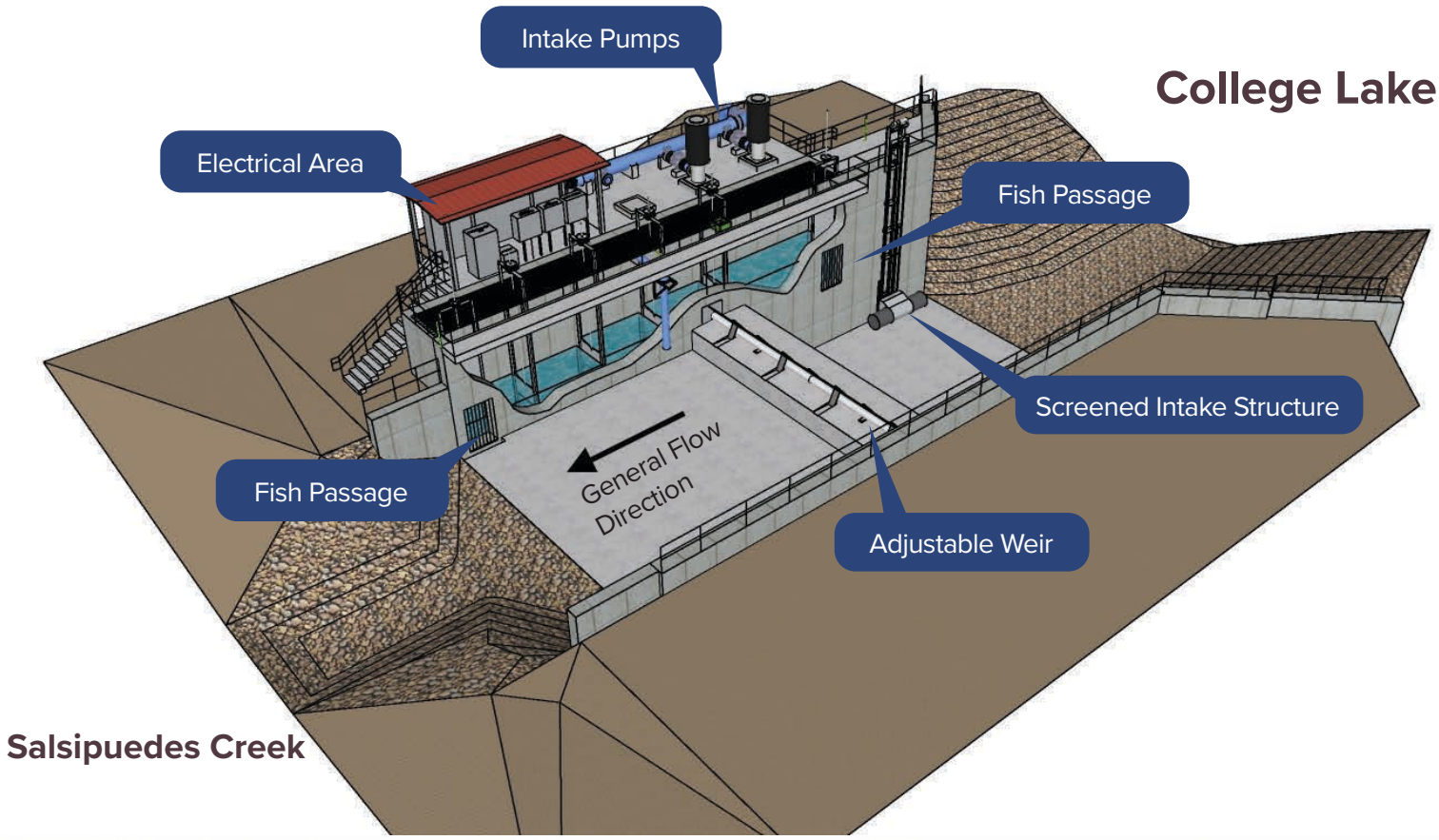


Proposed Fish Passage, Bypass of Casserly Creek Flows;[d]	Adult Steelhead Migration Dec. 15 - Mar. 31	Smolt Outmigration Apr. 1 - May 31
Minimum flow between Corralitos-Salsipuedes Confluence and Pajaro River	21 cfs	8 cfs
Minimum flow at weir and in Salsipuedes Creek between weir and Corralitos Creek	1.8 cfs	1.0 cfs
Minimum lake level	59.5 feet NAVD88	59.3 feet NAVD88
Flood Hazards	Weir height during wet season would be managed so as not to exacerbate upstream or downstream flooding (refer to Section 2.7, Operations and Maintenance)	
Water Supply Diversons	• Dec. 15 - May 31: would occur after minimum lake level and proposed fish passage flows have been achieved, and would be based on demand • May 31 - Dec. 14: would occur based on demand, considering water supply portfolio priorities	

NOTES:
AFY = acre feet per year
AF = acre-feet
CDFW = California Department of Fish and Wildlife
cfs = cubic feet per second
NAVD88 = North American Vertical Datum of 1988
NMFS = National Marine Fisheries Service
NOAA = National Oceanic and Atmospheric Administration
WTP = water treatment plant

Adjustable Weir and Intake Pump Station Facilities

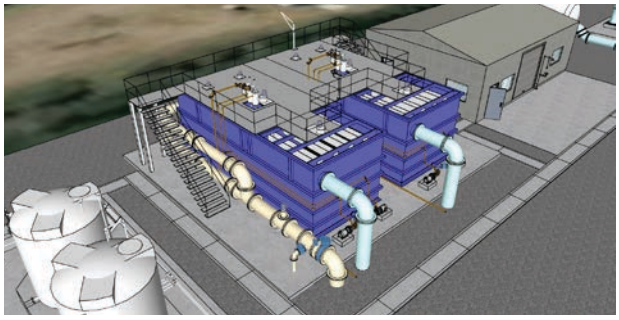
The intake facilities will have two pumps that pull water from the lake through a fish screen. The new weir will be adjustable to not increase or change flood conditions at College Lake. The weir will also have a fish passage allowing fish to enter and exit College Lake during migration and outmigration periods.



A new adjustable weir will be installed downstream of the existing low dam, raising the lake outlet elevation by 2.3 ft to 62.5 ft, similar to the sandbag level at the current dam. Lake storage capacity will be increased to approximately 1,800 AF of water, growing the total inundated area to 285 acres.

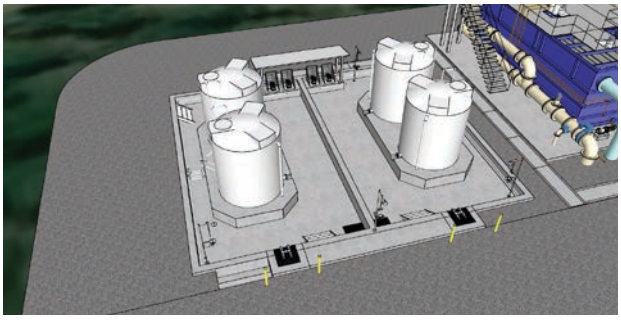
College Lake Project

Water Treatment Plant



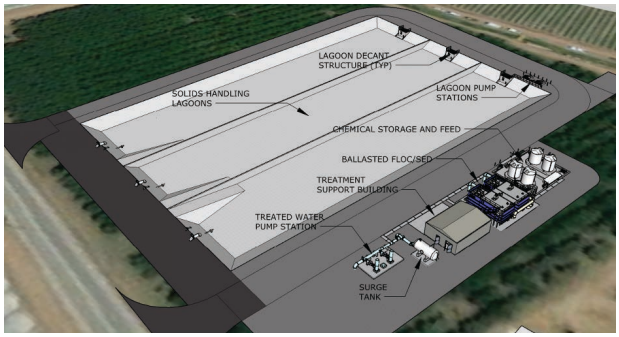
The Ballasted Flocculation and Sedimentation Process

The ballasted flocculation/sedimentation process removes algae and solids to meet water quality goals.



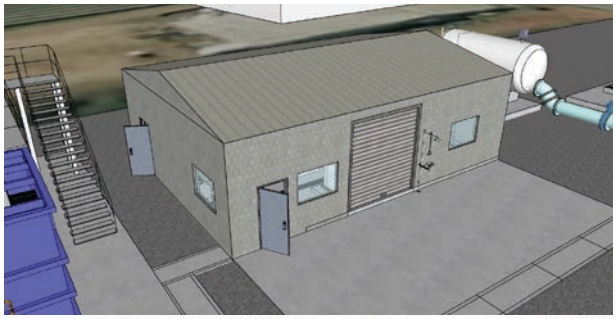
Chemical Storage

Chemical storage will hold two sodium hypochlorite tanks and two aluminum sulfate tanks. The tanks will be in concrete basins to protect from any spillage.



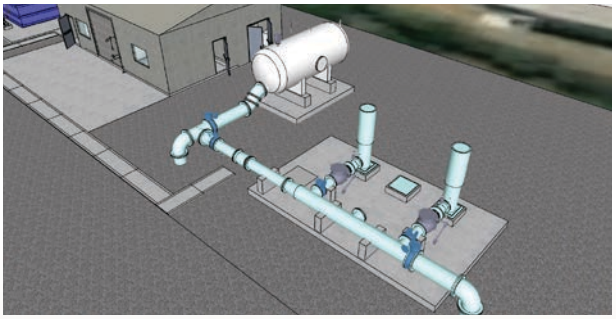
Sediment Drying Beds

The solids coming out of ballasted flocculation/ sedimentation process will be sent to sediment drying beds, then water and solids will be separated with water being sent to the start of the treatment process and the solids drying fully before being sent to the landfill.



Treatment Support Building

The electronics, monitoring equipment, lab station and polymers will be stored in a treatment support building.



Treated Water Pumping

Two treated water pumps, with room for a third pump (if needed), will send chlorinated College Lake water to the Coastal Distribution System pipeline.

Preliminary Construction Task Timeline

Construction is anticipated to take 18-24 months. PV Water is coordinating to reduce traffic impacts.

Task	Year 1	Year 2
Notice to Proceed		
Submittal for long lead items		
Mobilization		
Intake construction (in creek)	No work allowed	No work allowed
Intake construction (outside of creek)		
Water Treatment Plant Construction		
Site work		
Ballasted flocculation/ sedimentation		
Chemical storage area		
Treated water pump station		
Treatment support building		
Solids handling facilities		
Treated water pipeline to CDS		
Raw water pipeline		
Commissioning		

College Lake Project

About Our Groundwater Sustainability Plan

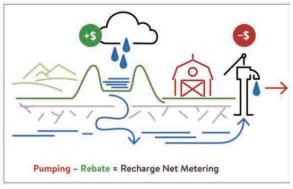
The primary source for water in the Pajaro Valley is groundwater. Aquifers have been in a state of overdraft since before the 1950s, leading to falling groundwater levels and seawater intrusion within the Basin's aquifers, which threatens the long-term viability of the Pajaro Valley's groundwater supply. The Groundwater Sustainability Plan, which includes the Basin Management Plan, was developed with the help of Pajaro Valley interested parties to help ensure groundwater sustainability is achieved by 2040, with interim milestones along the way, to ensure the future of local water resources and the agricultural economy. The College Lake Project is included in these plans as a source for increased surface water supply to the basin.

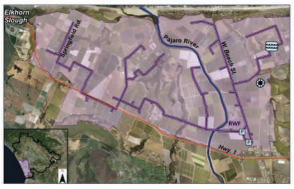
Existing Projects and Programs

Recycled Water Facility Optimization Project *(ongoing)*

Recharge Net Metering (*ongoing*)

From "Recharge Net Metering to Enhance Groundwater Sustainability," April 2018, by UC Water, Berkeley Law, and UC Santa Cruz



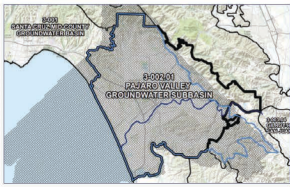


Increased Recycled Water Deliveries (including the Coastal Distribution System Expansion Project; *ongoing*)

Coastal Distribution System F-Pipeline Expansion Project (*complete*)

Water Conservation Program: Agricultural and Domestic (*ongoing*)

Pajaro Valley Hydrologic Model Update, Data Collection, and Analysis for Sustainability (*ongoing*)



About PV Water

The Pajaro Valley Water Management Agency (PV Water) is a state-chartered water management agency formed to efficiently and economically manage existing and supplemental water supplies in order to prevent further increase in, and to accomplish continuing reduction of, long-term overdraft. PV Water also works to provide and ensure sufficient water supplies for present and future anticipated needs within its boundaries, generally the greater Pajaro Valley.

To learn more, visit pvwater.org