Kaweah Subbasin Water Marketing Strategy

Strategy Committee Meeting

Wednesday, March 23, 2022
2:00 PM to 4:00 PM

Zoom Meeting Information
Teleconference Link: https://stantec.zoom.us/j/93164657809
Phone Number: +1 (669) 900-6833
Meeting ID: 931 6465 7809

In observance of health and safety needs presented as a result of the COVID-19 Pandemic, this meeting will be held in hybrid form. In-person attendance will be limited to the Project Team and Committee members out of respect for more vulnerable members of the community. Members of the public are asked to attend virtually for the same reasoning. The meeting will be broadcast via Zoom, with full audio and visual capabilities as normal.

I. Welcome and Previous Meeting Recap

II. Legal Team Update:

   a. Task 2.1: Analyze Water Rights Within the Marketing Strategy

III. Engineering Team Update:

   a. Tasks 2.3 and 2.4: Refine Groundwater Model, Update Water Budget & Accounting Framework

IV. Strategy Document Review and Comment:

   a. Task 2.2: Research Existing Water Markets (DRAFT)

V. Water Market Strategy Guiding Principles Feedback (continued from prior meeting)

VI. Next Steps

VII. Public Workshop No. 2 Scheduling

Acronyms/Abbreviations/Glossary

Updated 01/03/2022

Term	Definition/Explanation
AF/ac	Acre-foot per acre, a unit that is simply equivalent to one (1) foot of water depth, generally applied in the context of irrigation. For example, two (2) acre-feet applied to one (1) acre of land equals 2 (two) acre-foot per acre, while two (2) acre-feet applied to two (2) acres of land equals one (1) acre foot per acre.
AF	Acre-foot, a unit of water volume that is equivalent to one (1) acre area times one (1) foot depth. This is equivalent to 43,560 cubic feet or 325,800 gallons.
Allocation	The amount of water that is available to divert to a given entitlement owner. Varies year-to-year (generally more on years when there is more total water available) and generally is proportionate to the size of the entitlement.
Aquifer	An underground region that can store groundwater.
Artificial recharge	The construction and operation of facilities specifically intended to recharge groundwater (recharge basins, stormwater basins, injection wells).
City/Municipality	An incorporated settlement with a set city limit in which water and wastewater service are provided.
Conductivity	The ability of groundwater to flow within a given portion of an aquifer. Water can flow at higher rates through larger grained sediments which have larger voids (i.e., sand) and at lower rates through finer grained sediments (i.e., clay). This has implications for groundwater extraction as a pumping well in a high conductivity area can quickly pull in water from adjacent areas while a pumping well in a low conductivity area can only pull in water from surrounding areas at a very low rate.
Cone of depression	An observable phenomenon in which a pumping well drops the groundwater level in the immediate surrounding area, creating an upside-down cone in which groundwater level is lower. The cone dissipates once the well is turned off; however, in high conductivity (sandy) areas the cone of depression fills with groundwater from adjacent areas faster.
Conveyance Loss	Water in waterways (rivers, creeks, irrigation ditches) percolating into the groundwater.
Coordination Agreement	GSAs must establish Coordination Agreements with other GSAs in the same Subbasin to have a consistent plan for achieving groundwater sustainability across a Subbasin.
Corcoran Clay/Upper Aquifer/Lower Aquifer	The Corcoran Clay is a clay layer which occurs in the Kaweah Subbasin roughly to the west of the Highway 99. Because it has low conductivity, water levels tend to be different in the lower aquifer (below the Clay) and Upper Aquifer (above the Clay).
CVP	Central Valley Project, a Bureau of Reclamation (federal) water storage and diversion project which includes Lake Shasta, the Delta-Mendota Canal, Friant Dam/Lake Millerton and the Friant-Kern Canal. This constitutes the second largest source of surface water for the Kaweah Subbasin.

DAC	Disadvantaged Community, a community that has low income/education levels and high exposure to environmental hazards as defined by the California Environmental Protection Agency.
Dairy	A dairy-producing facility containing cows which must be fed by row crops typically grown on the surrounding land.
Ditch Company	A not-for-profit cooperative of growers on land supplied by a common ditch which is responsible for distributing surface water to growers through a system of canals and/or pipelines. Typically (although not necessarily) smaller than an irrigation district.
EID	Exeter Irrigation District
EKGSA	East Kaweah Groundwater Sustainability Agency, which includes Lindsay-Strathmore Irrigation District, Exeter Irrigation District, Lindsay, and other areas roughly along the base of the foothills along the eastern side of the Kaweah Subbasin.
Engineering Consultants	In the context of this Project, teams hired by the GSAs to conduct hydrogeologic analysis (groundwater flow modeling) in order to establish a system of SGMA groundwater allocations for each GSA and the Kaweah Subbasin on the whole. Current engineering consultants include Provost & Pritchard (P&P) and Montgomery & Associates (M&A).
Entitlement	A water right owned by an individual surface water user.
ET	Evapotranspiration, a measure of how much water is lost by evaporation from crops. This can be measured by satellite image and is a rough indicator of how much water is used by crops excluding deep percolation.
Foreign	Imported from a different area (i.e., the Friant-Kern Canal)
GKGSA	Greater Kaweah GSA, which includes the remainder of the Subbasin, including Farmersville, Exeter, Ivanhoe, and Woodlake.
Groundwater Extraction	Removal of groundwater from the aquifer, generally through the use of a pumping well, for various uses, such as agriculture, municipal use, industrial use, rural domestic household use, etc.
Groundwater Recharge	Percolation of water from the surface into the groundwater.
Groundwater	Water that exists within pores (spaces) between sediment (sand, silt, clay). Generally, water percolates downward from the surface and sits at a particular level (water table, groundwater level) below which sediment is saturated and above which sediment is dry.
Groundwater-Dependent Areas/White Areas	Areas that do NOT have surface water rights and are NOT connected to a source of surface water, such as an irrigation district or ditch company
GSA	Groundwater Sustainability Agency, an agency that guides groundwater management and creates Groundwater Sustainability Plans for part of a Subbasin.
GSP	Groundwater Sustainability Plan, a plan to achieve groundwater sustainability by 2040, which was initially submitted by each GSA in 2020 and must be updated every five years.
Hydrogeologic Analysis/Groundwater Modeling	The mapping of an aquifer by sediment type and therefore conductivity and its use for analyzing the effects of groundwater recharge/groundwater extraction in different areas.

Irrigation District	A government water agency which is responsible for distributing surface water to growers through a system of canals and/or pipelines. May also conduct groundwater recharge/extraction.
Irrigation Return Flow/Deep Percolation	That portion of irrigation water which percolates past the root zone of the plants to be irrigated and continues downward to enter the groundwater.
Kaweah River	A river system draining a region of the Sierra Nevada to the East of the Kaweah Subbasin. This is the largest source of surface water for the Kaweah Subbasin.
Kaweah Subbasin	A geographic region established by SGMA which roughly corresponds to areas that receive surface water from the Kaweah River. It is mainly situated in Tulare County, including the Cities of Visalia, Tulare, Lindsay, Farmersville, Exeter, and Woodlake. It also includes a small adjacent portion of Kings County.
KDWCD	Kaweah Delta Water Conservation District, an agency whose boundaries roughly coincide with those of the Kaweah Subbasin, which conducts groundwater recharge and oversees various regulatory programs for its service area.
Kings Subbasin	A Subbasin to the north and northwest of the Kaweah Subbasin which roughly corresponds to areas that receive surface water from the Kings River.
KSJRA/Rivers Association	The Kaweah and St. Johns Rivers Association, which is responsible for allocating Kaweah River water to the various Kaweah River water right holders.
KSWMS/WMS	Kaweah Subbasin Water Marketing Strategy, a project to create a document for trading SGMA groundwater allocations in order to increase flexibility in groundwater usage while still accomplishing the goals of SGMA, while incorporating stakeholder input.
Lake Kaweah/Terminus Dam	A Project completed by the Army Corps of Engineers (federal) to create a dam on the Kaweah River to be used for flood control primarily and irrigation secondarily. This constitutes the largest source of surface water for the Kaweah Subbasin.
Legal consultants	In the context of the Project, teams hired by the GSAs to conduct legal analysis of water rights exchanges in support of establishing the legal parameters of the KSWMS.
LID	Lindmore Irrigation District
LSID	Lindsay-Strathmore Irrigation District
Management Actions	The adoption of certain strategies by managing agencies to accomplish groundwater sustainability (i.e., importing as much water into the Kaweah Subbasin as possible during wet periods when there is excess water available).
Meters/Metering	The practice of installing automated meters that measure the amount of water that flows through a pipe, such as at the outlet of a pumping well. This is a more accurate way of measuring water use than ET.
MKGSA	Mid-Kaweah Groundwater Sustainability Agency, which includes Tulare Irrigation District, Tulare and Visalia.
Monitoring Wells	Wells situated across the Subbasin to measure groundwater level and water quality in order to assess whether the Subbasin is

	achieving groundwater sustainability according to SGMA and the individual GSPs.
MOs	Measurable objectives, a term defined in the GSPs as the ideal goal for each metric.
Mountain-Front Recharge	Runoff from the foothills on the east side of the Kaweah Subbasin excluding the Kaweah River system (i.e., Yokohl Creek, other small streams, sheet flow and shallow groundwater flow off of hill slopes) which percolates into the ground in the adjacent area.
MTs	Minimum thresholds, a term defined in the GSPs as the minimum goal for a given measurement. If one-third or more monitoring wells have levels below the minimum thresholds, the GSP is considered to have failed, which may lead to state intervention.
Native	Locally sourced (i.e., creeks running out of the foothills)
Projects	The construction of physical facilities in order to accomplish groundwater sustainability (i.e., recharge basins).
Public well	A pumping well serving multiple rural households, such as a Rural DAC.
Row Crops/Field Crops	Low-growing non-tree crops, such as grains, alfalfa, cotton, legumes or tomatoes, which are replanted every year. These can forego watering in any given year since they will be replanted the next year regardless.
Rural DAC	Rural Disadvantaged Community, a disadvantaged community that is not within a city and may have problems with access to domestic water and/or domestic water quality.
Salvaged	Water that was initially designated for a different purpose (i.e., a wastewater treatment plant).
SGMA	Sustainable Groundwater Management Act, an Act passed by the California legislature in 2014, requiring Medium and High Priority Subbasins (geographic areas delineated by the State corresponding to shared aquifers/waterways/water sources) to address undesirable results (i.e. groundwater level decline, groundwater storage decline, seawater intrusion, water quality) by 2040. For example, in the Kaweah Subbasin, groundwater level decline must be stabilized by 2040.
Single/double/triple cropping	The practice of planting and harvesting one, two, or three rounds of row crops over the course of an annual cycle respectively. Different crops can be planted at different times of year.
Surface water	Water sourced from natural waterways and water-moving infrastructure designed to convey water from natural waterways, such as the Kaweah River and the Friant-Kern Canal.
SWP	State Water Project, a State of California water storage and diversion project which includes Lake Oroville and the California Aqueduct. Note that the SWP does not serve any areas within the Kaweah Subbasin; however, it does serve areas immediately to the west and so SWP conditions can indirectly affect the Kaweah Subbasin.
Three Buckets	A framework for legally dividing surface water into.
TID	Tulare Irrigation District, situated to the north and west of Tulare and currently administering a Bureau of Reclamation grant to partially fund the KSWMS.

Trees	Tree crops such as citrus or nuts which generally require a certain minimum amount of water each year so that they don't die or have reduced crop yields for a number of years.
Tulare Lake Subbasin	A Subbasin to the west of the Kaweah Subbasin which roughly corresponds to the Tulare Lakebed and is served by a variety of sources including the Kings River and SWP.
Tule Subbasin	A Subbasin to the south of the Kaweah Subbasin which roughly corresponds to areas that receive surface water from the Tule River.
Water Accounting Framework	The quantities of water LEGALLY flowing in and out of the Kaweah Subbasin (i.e., if a surface water right holder diverts water from another jurisdiction, and that water percolates within that jurisdiction, the water accounting framework counts that percolation towards the water right holder rather than the jurisdiction in which the water percolated).
Water Budget	The quantities of water PHYSICALLY flowing in and out of the Kaweah Subbasin or individual GSAs (i.e., surface water that percolates into the ground within a given jurisdiction adds to the water budget while crop evapotranspiration and groundwater flow out to adjacent jurisdictions subtracts from the water budget).
Water Marketing Consultant/Stantec Team	A Project Team which was chosen by the Kaweah Subbasin Water Marketing Strategy Committee to provide information on different alternatives for water markets and conduct economic analysis on different possible marketing rules.