



Coachella Valley Resource Conservation District

81077 Indio Blvd. Suite A Indio, CA 92201

P: 760.347.3675 ext. 3453 E: Info@cvrcd.com

www.cvrcd.com

White Paper

January 2022

Coachella Valley Ground Water

Prepared by the

Coachella Valley Resource Conservation District

Ruben Arias, President

Blaine Carian, Vice President

Don Ackley, Director

Celeste Alonzo, Director

Juan De Lara, Director

Yvonne Franco, District Manager

Carlos Velazquez, Irrigation Specialist

MANAGING COACHELLA VALLEY GROUNDWATER

Executive Summary

The Coachella Valley Resource Conservation District (CVRCD) was founded in 1956 to assist public and private land owners in the protection and conservation of natural resources.

Resource Conservation Districts were created after the Dust Bowl era in the 1930s to bring federal and state funding to assist farmers and ranchers so that they could voluntarily conserve water, soil, and wildlife habitat on their land with the help of a local and neutral partner.

In this spirit the CVRCD undertook a study of our most important resource, water. What we discovered was a complex set of circumstances that makes the Coachella Valley unique in California. The source of the Valley's water and local stewardship shown in the last 100 years has created a distinctive condition. This White Paper will hopefully create a dialogue surrounding future mandates emanating from Sacramento.

Since the early 1920's, the Forefathers in the Coachella Valley planned for future water use and a sustainable groundwater basin. The Coachella Valley benefits from this early planning and continues to grow and thrive due to their water management. There is significant potable water held in underground storage.

Conservation and re-use projects will help maintain this Basin. Colorado River and State Water Project Agreements import substantial water to help sustain a balanced Basin. Other sources of inflow to the Indio Subbasin include natural recharge, subsurface inflows, wastewater percolation, and return flows from domestic use, agriculture, golf courses and other turf areas.

The Coachella Valley Groundwater Basin is monitored by several water agencies and regulated by Coachella Valley Water District (CVWD) and Desert Water Agency (DWA) to stay within balance. It is totally unique and separate from other California groundwater Basins. The Basin is in a Desert with minimal annual rainfall but has major storage capacity measured in many millions of acre-feet.

Introduction

The Coachella Valley stretches from the windmills northwest of Palm Springs to the Salton Sea and Riverside County line. The Indio Subbasin (Subbasin) is one of four Subbasins within an extensive aquifer under the Coachella Valley Groundwater Basin (Basin). Several State and Federal Water Agreements help make this Basin sustainable.

Various water agencies monitor groundwater pumping throughout the Basin. Participants include:

Coachella Valley Water District (CVWD)

Desert Water Agency (DWA)

Indio Water Authority (IWA)

Coachella Water Authority (CWA)

Plus several smaller agencies

There are many myths and misinformation regarding this Basin. It is located in a Desert, which, by definition, is always in a “Drought Condition”. Coachella Valley’s annual rainfall is generally 4” or less. Annual rainfalls in other areas throughout the State vary more significantly. Overuse and lower water storage levels can negatively affect many aquifer characteristics such as subsidence, water quality, power cost, Salton Sea water intrusion and potential environmental impacts.

The Basin is affected by supplemental imports, and conservation measures as explained below:

- State of California, Sustainable Groundwater Management Act (SGMA)
- Natural Recharge
- California State Water Project Reliability
- Federal Colorado River Compact
- Storage in Aquifer
- Conservation Programs
- Recycled Water

Sustainable Groundwater Management Act (SGMA)

Per SGMA opening remarks, “Groundwater is a critical resource for the sustainability of Coachella Valley communities, agriculture, economic activities, environmental benefits, and other beneficial uses.” In 2014, the State Department of Water Resources (DWR) enacted a plan to preserve and protect California’s groundwater resources throughout the State. The edict is for each Groundwater Sustainability Agency (GSA), depending upon their overdraft priority, to prepare a detailed ground water management plan. The goal is to stabilize the local water table to reasonable extent with better water management. Each Plan must be developed to manage groundwater over the next 20 years. Annual reporting is required. The plan must be updated and reviewed every 5 years.

Many of the statistics and quantifications presented in this paper emanate from the draft Indio Subbasin Water Management Plan Update: SGMA Alternative Plan which is updated per California Department of Water Resources (DWR) requirements. The Draft Report conducted seven (7) Public Workshop and several Public Hearings for review from every facet of the community. The Indio Subbasin Water Management Plan Update is due for submittal to DWR by January 1, 2022.

Natural Recharge vs Current Use Estimate

While the Coachella Valley is a portion of the Colorado Desert with less than 4” annual rainfall, runoff and natural springs from the surrounding mountains contribute to Natural Recharge of the aquifer. Depending upon annual weather patterns, long term Natural Recharge of the Indio Subbasin averages 50,000 acre-feet per year (AFY). Periodic large storm water events, on the surface of the Basin and the surrounding mountains, may occur with such ferocity, minimal Basin recharge is realized. Most of the flood water and debris is deposited in the Salton Sea.

Estimated annual demand via ground water extraction is 280,000± acre-feet. This demand is expected to increase 8 percent over the next 25 years. Except for a few areas in the East Valley, water quality is within safe drinking water standards. There is no domestic or potable water supplied from canal water. Canal water is used only for irrigation and groundwater recharge.

California State Water Project Reliability-Imported Agreements

Circa 1963, the California State Water Project (SWP) was designed to transport water from Northern to Southern California. CVWD and DWA are the third largest contractors on this Project. The amount of water received each year is dependent upon snowpack in the Sierra-Nevada Mountains. Water Year 2022 is projected to deliver 0% of the allocation of CVWD and DWA combined SWP allocation of 194,000 acre feet.

Water from a Metropolitan Water District (MWD) pipeline is delivered to recharge basins near Palm Springs via the Colorado River Aqueduct and Whitewater River. CVWD/DWA trade their SWP annual allocation to MWD in exchange for water delivered to the recharge ponds located in the Whitewater River drainage area near the windmills. This water is allocated to alleviate a declining water table in the Western portion of the Basin. Recharge basins in the Whitewater area receive water from the Colorado River Aqueduct (owned and operated by MWD) in exchange for equal allocation to the CVWD/DWA Contract amount.

Federal Colorado River Compact

The Colorado River water supply is allocated to several Western States via multiple complicated Agreements. The Federal Colorado River Compact was signed in 1922 allocating 50% of Colorado River estimated flow to Upper Basin (Colorado, Wyoming, New Mexico and Utah) and Lower Basin (California, Arizona and Nevada). In 1931, California developed their own sub Agreement known as the Seven Party Agreement to allocate Colorado River water to Seven Parties in California. CVWD is a portion of Priority Number 3.

Cutbacks on the Colorado River system reduce deliveries to Arizona and Nevada starting at Lake Mead water level 1075 feet above sea level. California will not receive cutbacks until Lake Mead water level is at 1040 feet. Lake Mead and Lake Powell are currently less than 40% storage capacity and dependent upon snowpack and rainfall in Upper Basin States. A Drought Emergency Plan has been declared on the Colorado River by the US Bureau of Reclamation.

In 2003, a Quantification Settlement Agreement (QSA) was approved between the California Colorado River water users. On a graduated scale, CVWD was awarded up to 459,000 AFY through 2077. Several lawsuits were filed challenging the QSA with minimal changes to date.

Storage

The Basin is capable of storing 30 million acre-feet of potable water in the upper 1,000 feet. The aquifer is estimated to be several thousand feet deep. Water table depths are monitored in over 50 wells throughout the Basin. Changes in water storage are measured annually. From 1970 to 2009, cumulative storage decreased almost 2,000,000 acre-feet. Since 2009, the Basin has recovered 840,000 acre-feet.

Side effects of a declining water table can be:

Subsidence throughout the Basin

Decreasing water quality

Increase pumping costs

Salton Sea water intrusion

Other potential environmental impacts

Conservation

In 1972, drip irrigation was introduced to Coachella Valley agriculture and landscaping communities. Currently, over 80% of the agricultural land in the Indio Subbasin is irrigated via drip or low pressure sprayer. This conversion was primarily to increase crop uniformity and production. A significant side effect has also been water conservation.

DWA, CVWD and other water agencies "Turf Removal Rebate Programs" are designed to reduce water consumption for golf courses and Homeowner's Associations (HOA). Desert landscape, artificial turf and drip irrigation contribute to residential water conservation with assistance from these Programs. Every year, more Colorado River is being distributed from the Coachella Canal to golf courses and HOA's in the Central Coachella Valley.

CVWD has also spent several million dollars on the Oasis In-Lieu Recharge Program for agricultural lands in the East Valley. Source substitution for the Oasis agricultural area will supply Colorado River water to 7,000± acres in lieu of existing groundwater use. Upon completion of construction, approximately 25,000 acre-feet per year will be saved from groundwater.

Recycled Water

Current recycled or treated sewer flow programs are allocated for irrigation of turf and agriculture only. Recycled water will soon be increased and distributed to more farms and golf courses via an aggressive CVWD program. Total current recycled water use in the Basin is estimated at 13,000 acre-feet per year. Additional amounts are forthcoming from several Water Reclamation Plants, estimated to total 20,000 acre-feet per year by 2045.

Conclusion

All of these factors contribute to sustainable groundwater storage in the Coachella Valley helping to make it unique in the State. This water supply will continue to help the Coachella Valley grow and prosper with a substantial, sustainable groundwater supply. Any forthcoming State Drought Mandates must take these factors into account.