



## Board Report

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Presentation on the Deep Aquifers Study. (Staff Presenting: Amy Woodrow)

SUMMARY/DISCUSSION:

The Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) and collaborative funding partners, including the Monterey County Water Resources Agency (Agency) jointly financed the Deep Aquifers Study (Study) to address critical questions regarding the geology and hydrogeology of the Deep Aquifers in the Salinas Valley Groundwater Basin and provide a scientific basis for decision making regarding management of this groundwater resource.

The need for additional study of the Deep Aquifers was identified by the Agency in its October 2017 report “Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin.” In response to a presentation of the “Recommendation” report the Agency’s Board of Directors directed staff to provide a scope and estimate of costs necessary to complete an investigation of the Deep Aquifers, as was suggested in the “Recommendations” report. In response, Agency staff convened the Deep Aquifers Roundtable Meeting in March 2018, which consisted of a group of fifteen professionals with expertise in geology, hydrogeology, or related fields and with specific experience studying the Deep Aquifers.

In April 2018, Agency staff provided recommendations for a comprehensive study of the Deep Aquifers at a special joint meeting of the Monterey County Board of Supervisors, Board of Supervisors of the Water Resources Agency, and Water Resources Agency Board of Directors. At that meeting, staff was directed to locate alternative funding to complete a Deep Aquifers Study.

In May 2018, the County of Monterey issued an interim ordinance (No. 5302) which prohibited construction of new wells in the Deep Aquifers unless exempted by the terms of the ordinance. In June 2018, Ordinance No. 5302 was extended under Ordinance No. 5303 through May 21, 2020.

In May 2020, the Agency provided an update to the 2017 “Recommendations” report that provided updated data on current groundwater level and water quality conditions and analyzed the impacts of Ordinance No. 5302 and No. 5303. The 2020 Update report set forth an updated set of nine recommendations to slow and halt seawater intrusion, as many of the recommendations from the 2017 report had not been implemented.

The following information is based closely on a staff report about the Study prepared by the SVBGSA for its May 9, 2024 Board meeting:

The importance of a Deep Aquifers Study was described in the 180/400 Foot Aquifer Groundwater Sustainability Plan (2020/2022) and Monterey Subbasin Groundwater Sustainability Plan (2022). Both groundwater sustainability plans (GSPs) include a Management Action to undertake and operationalize guidance from a study of the Deep Aquifers. In fall 2020, the SVBGSA developed an agreement with the collaborative funding partners, issued a request for proposals and, with input from other agencies, selected Montgomery & Associates to complete a Deep Aquifers Study.

The SVBGSA assembled a Groundwater Technical Advisory Committee (GTAC) to provide technical input on

interim work products of the Study and peer review of an administrative draft of the Study report.

The Study compiles all available data into a scientific report characterizing the geology and hydrogeology of the Deep Aquifers in the Salinas Valley. The Study resulted in collection of new data and integration of that with existing data sets. It provides definition of the Deep Aquifers and a hydrogeologic conceptual model (HCM) that describes the extent of the Deep Aquifers, aquifer hydraulic properties, groundwater chemistry, and potential natural recharge and discharge pathways. The Study presents a water budget; reviews historical and current conditions; and provides guidance for management.

The Deep Aquifers are defined as the water-bearing sediments that are below a relatively continuous aquitard or area of higher clay content encountered between approximately 500 feet and 900 feet below land surface within the Salinas Valley Basin, building on previous definitions of the aquifer system below the 400-Foot Aquifer. The HCM summarizes the physical framework of the Deep Aquifers and how the groundwater occurs and moves. With areas of uncertainty, primarily around the edges, the HCM shows the areas of the Deep Aquifers sampled have received no recharge of surficial water since at least 1953.

The Deep Aquifer Study water budget provides reasonable estimates of groundwater entering and leaving the Deep Aquifers and annual changes in groundwater storage. Groundwater inflow to and outflow from the Deep Aquifers can come from adjacent aquifers and/or the slow leakage of water between the Deep Aquifers and overlying 400-Foot or equivalent aquifer. Characterized by three different regions with varying degrees of certainty, there is the most data for the “Northern Region” where there is the largest storage decline as more water is extracted than replenished. The water budget for the entire extent of the Deep Aquifers shows groundwater storage has declined on average 9,000 acre-feet (AF) per year in the historical (2004-2017) water budget and 9,600 AF per year in the recent (2018-2020) water budget.

Historical and current conditions are summarized for the Deep Aquifers which describe how much groundwater has been extracted over time. Water Year 2022 groundwater extraction from the Deep Aquifers ranged from 13,800 AF from the true Deep Aquifers wells (i.e. screened only the Deep Aquifers) to 17,700 AF from all Deep Aquifers wells, with the difference being extraction from wells that are screened in the Deep Aquifers and overlying 400-Foot Aquifer. Groundwater elevations in the Deep Aquifers fluctuated historically but have been on a downward trend over the last 2 decades. The Study notes that lowering groundwater elevations and downward gradients put the Deep Aquifers at risk of seawater intrusion and subsidence.

Guidance for managing the Deep Aquifers is based on the findings of the Study. Management must fit within the existing regulatory context, including the adjudication of the Seaside Subbasin, Sustainable Groundwater Management Act (SGMA), and the County well permitting process. The goal of management should be to address the risks associated with further groundwater elevation declines. Lack of management of the Deep Aquifers could have severe economic implications due to seawater intrusion, subsidence, and lack of regulatory compliance. Local control may also be compromised without adhering to the Seaside adjudication or SGMA.

The Study provides 12 pieces of guidance aimed at halting further degradation and improving groundwater elevations to prevent seawater intrusion and subsidence. These focus on providing science-based principles to guide management where there is sufficient data for managing the Deep Aquifers. The guidance does not extend to policy decisions, the type of management actions or projects to implement, or how the guidance should be applied, as those are beyond the Study scope. Policies and implementation should be planned and created with local groundwater management agencies and key stakeholders. Finally, the Deep Aquifer Study makes recommendations for refining the existing monitoring networks to track trends, identify changes and enhance the understanding of groundwater conditions.

The Study reaffirms that the Deep Aquifers are in overdraft. It acknowledges areas of uncertainty and limitations in data and data gaps but confirms that sufficient data exists to manage the Deep Aquifers. Management and monitoring to ensure sustainability of the Deep Aquifers must be a deliberate, collaborative, and timely undertaking by all agencies with overlapping authority, interested parties and beneficial users.

The Deep Aquifers Study was presented to the SVBGSA Board of Directors and Marina Coast Water District Groundwater Sustainability Agency Board at their May meetings and will also be presented to the Monterey County Board of Supervisors in summer 2024. The full text of the Study is available at <https://svbgsa.org/deep-aquifer-study/> and slides for the presentation are provided as Attachment 2.

OTHER AGENCY INVOLVEMENT:

Salinas Valley Basin Groundwater Sustainability Agency and collaborative funding partners of the Deep Aquifers Study (ALCO Water, California Water Service, Castroville Community Services District, City of Salinas, irrigated agriculture, Marina Coast Water District Groundwater Sustainability Agency, and County of Monterey)

FINANCING:

There is no financial impact related to this presentation. The Agency contributed \$340,000 toward completion of the Deep Aquifers Study, provided as two payments of \$170,000, one each in 2022 and in 2023 (Attachment 2).

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Attachments:

1. Presentation on the Deep Aquifers Study
2. Deep Aquifers Study Funding Agreement with SVBGSA