



# County of Monterey

Item No.

## Board Report

Board of Supervisors  
Chambers

168 W. Alisal St., 1st Floor  
Salinas, CA 93901

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Review of the 2024 Seawater Intrusion Contour Maps

### SUMMARY/DISCUSSION:

The Monterey County Water Resources Agency (Agency) is responsible for data collection and analysis of groundwater data throughout the Salinas Valley to support the ongoing groundwater level contouring, seawater intrusion mapping, and other programs related to current groundwater conditions. Conditions are assessed throughout the year to better understand how aquifers are responding during different hydrologic conditions as well as the relative groundwater storage fluctuations that occur on an annual basis. These activities align with Strategic Plan Goals B7, *Use of data and analysis to make informed decisions based on science* and E1, *improve public outreach to increase transparency, communication, education and information about Agency projects and programs*. Activities associated with this program are included in Funds 111 & 116 of the FY 24-25 budget.

### Program Background

Seawater intrusion was first detected in the Salinas Valley Groundwater Basin in 1933. As seawater intrudes into an aquifer there is a transition zone where seawater and freshwater mix. The chloride concentrations in this transition zone are between 50 milligrams per liter (mg/L), which is the native water quality of the 180-Foot and 400-Foot Aquifers, and 19,000 mg/L, which is the concentration of chloride in Pacific Ocean water.

The Agency uses the 500 mg/L chloride iso-contour as the threshold for determining seawater intrusion into the coastal aquifers. This definition of "seawater intruded" is described in Agency Ordinance No. 03790, Section 1.01.13. A chloride concentration of 500 mg/L is roughly ten times the native concentration of chloride in these aquifers, two times the regulatory limit set by the E.P.A Drinking Water Secondary Maximum Contaminant Level (250 mg/L), and exceeds the USDA concentration (350 mg/L) for water considered to be of "Class III - injurious or unsatisfactory" quality for agricultural irrigation.

### Data Collection and Analysis

Each summer, Agency staff samples approximately 120 agricultural, urban purveyor, and small diameter monitoring wells in the coastal area of the northern Salinas Valley. Water quality samples are collected from the agricultural and urban wells twice, once in June and again in August. This year the Agency's network of small diameter monitoring wells were sampled once in July.

The water quality samples are analyzed by the County's Consolidated Chemistry Lab (ELAP #

1395). The data are then evaluated with several geochemical tools and chloride isocontours are developed using an ArcMap interpolation tool to map the approximate location of the seawater intrusion front. Supporting data from several other Agency programs are used to provide additional data validation of the chloride isocontour locations. The new polygons depicting the areas that increased above the seawater intrusion threshold are then added to the Historical Seawater Intrusion maps, which illustrate the seawater intrusion front while highlighting the changes seen over the period of record. As in prior years, the 250 mg/L isocontour is also included on both the 180-Ft Aquifer and 400-Ft Aquifer Seawater Intrusion Maps as an indicator of areas where chloride concentrations are increasing but have not yet surpassed the 500 mg/L threshold. The evaluation of the geochemical composition of each groundwater sample is also represented in an additional map where the resulting seawater intrusion phase (Not Intruded, Phase I or Phase II) is indicated on the location of each well.

#### 2024 Seawater Intrusion Maps

In 2024, the 500 mg/L contour within the 180-Foot Aquifer has not changed significantly in respect to 2023's contour. However, the 250 mg/L contour at the leading edge of the main lobe advanced slightly towards the western city limit of Salinas (Attachment A).

Most samples from wells screened in the 180-Foot Aquifer showed no change in the Seawater Intrusion Phase respect to 2023, except for two (2) samples from wells located within and near the southwestern boundary of the main lobe, which progressed from Phase 1 to Phase 2. One (1) sample collected near the leading edge of the 250 mg/l contour progressed from Not Intruded to Phase 1 (Attachment B).

Regarding the 400-Foot Aquifer, the main area of regional seawater intrusion did not show additional advancement in 2024, although the "island" of seawater intrusion that is isolated from the regional intrusion area displayed a slight expansion along the southeastern 500 mg/L contour that was identified in 2023 (Blanco and McFadden Roads area, shown in Attachment C).

Within the 400-Foot Aquifer, seven (7) groundwater samples from wells located ahead of the eastern edge of the 250 mg/L contour and ranging from the northern side of Espinosa Lake to Reservation Road showed a progression from Not Intruded in 2023 to Phase 1 in 2024 (Attachment D).

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#### Attachments:

1. Attachment A: 2024 Historical Seawater Intrusion Map, 180-Ft Aquifer
2. Attachment B: 2024 Seawater Intrusion Phases Map, 180-Ft Aquifer
3. Attachment C: 2024 Historical Seawater Intrusion Map, 400-Ft Aquifer
4. Attachment D: 2024 Seawater Intrusion Phases Map, 400-Ft Aquifer

