



# ASSESSMENT OF INTERIM DRINKING WATER NEEDS AND COSTS IN CENTRAL COAST AREAS AFFECTED BY AGRICULTURAL NITRATE GROUNDWATER CONTAMINATION

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION

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## Executive Summary

This assessment includes a preliminary estimate of (1) the need (expressed in terms of the number of public water systems, state small water systems, and domestic wells), and (2) cost of providing interim<sup>1</sup> alternative water supplies for residents and communities whose drinking water exceeds the maximum contaminant level (MCL) for nitrate as a result of agricultural discharges to groundwater. This assessment used State Water Resources Control Board's (State Water Board) 2024 California Drinking Water Needs Assessment<sup>2</sup> data and methodology and tailored it to be specific to the direction provided by the State Water Resources Control Board (State Water Board) in Order WQ 2023-0081 (Remand Order).<sup>3</sup> In the Remand Order, the State Water Board directs the Central Coast Regional Water Quality Control Board (Central Coast Water Board) to establish an alternative water supply program “...for residents relying on groundwater in areas where the Maximum Contaminant Level (MCL) for nitrate is exceeded as a result of agricultural operations.”

The goal of this Assessment of Interim Drinking Water Needs and Costs is to provide insights into: 1) the scope of the impacts from nitrate on drinking water in the Central Coast region as a result of agricultural operations, 2) the populations affected, and 3) the potential costs of interim alternative water supplies to mitigate the impacts from nitrate for the residents on the Central Coast. These interim alternative water supply cost estimates will allow for the development of an early implementation program to address immediate alternative water supply needs while planning and prioritization for long-term solutions can be completed.

This assessment does not evaluate options and costs for implementing long-term solutions, which will be developed as part of a companion document, separate from this assessment. However, the Central Coast Water Board's Assessment of Interim Drinking Water Needs and Costs does include cost estimates for planning and prioritizing long-term solutions.

## Commitment to the Human Right to Water

This assessment is also an important step toward fulfilling the Central Coast Water Board's commitment to ensuring that every resident has access to safe, clean, affordable, and accessible drinking water, in alignment with the Human Right to Water

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<sup>1</sup> Interim Alternative Water Supplies: includes, but is not limited to, bottled water, vended water, and point-of-use or point-of-entry treatment units.

<sup>2</sup> 2024 Drinking Water Needs Assessment:

[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/needs/2024/2024-needs-assessment.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024-needs-assessment.pdf)

<sup>3</sup> Order WQ 2023-0081:

[https://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality/docs/2023/wqo2023-0081.pdf](https://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/2023/wqo2023-0081.pdf)

law (California Water Code section 106.3)<sup>4</sup> and the Central Coast Water Board’s Human Right to Water Resolution.<sup>5</sup> Moving forward, a collaborative and well-coordinated effort among regulatory agencies, agricultural stakeholders, and impacted communities is essential to achieving both short-term relief and long-term water security for the Central Coast region.

## 1. Findings

### 1.1. Impacted Residents

- **Extent of Impact:** Based on water quality data and water quality risk modeling, it is estimated that there are 17 public water systems, 117 state small water systems, and 3,005 domestic wells within the Central Coast Water Board’s geographic boundaries exceeding the MCL for nitrate as a result of agricultural activity. These water systems and domestic wells serve an estimated 6,938 households and 20,265 individuals, with the majority relying on domestic wells. Notably, 14% of the affected population are located in disadvantaged or severely disadvantaged communities (DAC/SDAC).

Wells modeled as being impacted by agricultural discharges, and used to estimate the need and cost in this analysis, are identified based on the spatial footprint of irrigated agriculture, plus a 0.5 mile impact extent to account for migration of nitrogen in groundwater. The agricultural spatial footprint is based on the Department of Water Resources’ 2022 Statewide Crop Map. Using this data, there are currently an estimated 475,000 irrigated areas in the Central Coast region that are subject to the Central Coast Water Board’s Irrigated Land Program and apply nitrogen fertilizer.

- **Geographic Concentration:** Monterey and Santa Clara counties are the most impacted, with Monterey County alone having an estimated 7,300 people that may be relying on groundwater where nitrate exceeds the MCL as a result of agricultural activities. However, impacts aren’t limited to the northern portion of the region - the Santa Maria groundwater basin, which overlies portions of both San Luis Obispo and Santa Barbara counties, contains an estimated 386 domestic wells, 10 state small water systems, and 3 public water systems (serving approximately 3,000 people) that are impacted by agricultural discharges to groundwater. Note that only the portions of Santa Clara County

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<sup>4</sup> California Water Code, section 103.6:

[https://leginfo.ca.gov/faces/codes\\_displaySection.xhtml?lawCode=WAT&sectionNum=106.3](https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=106.3)

<sup>5</sup> Central Coast Water Board Resolution R3-2017-0004:

[https://www.waterboards.ca.gov/centralcoast/board\\_decisions/adopted\\_orders/2017/2017-0004\\_hrtw\\_fnl.pdf](https://www.waterboards.ca.gov/centralcoast/board_decisions/adopted_orders/2017/2017-0004_hrtw_fnl.pdf)

within the Central Coast Water Board regional boundaries are evaluated as part of this assessment.

## 1.2. Proposed Interim Supplies and Associated Costs

This Assessment of Interim Drinking Water Needs and Costs evaluates options for providing interim alternative water supplies that address nitrate impacts and estimates the cost of these options.

- Costs were estimated for scenarios that varied the duration of interim supply provision from 3-10 years and varied the types of interim supplies offered. Scenarios included the following:
  - 1) preliminary bottled water (modeled for 3–5 years for domestic wells and state small water systems only),
  - 2) bottled water only (modeled for up to 10-years for domestic wells, state small water systems, and public water systems),
  - 3) bottled water or point-of-use (POU) (modeled for up to 10 years where POU is selected if it is viable based on water quality; if POU is not viable, bottled water is selected), and
  - 4) bottled water only, point-of-use (POU) only, bottled water and point-of-entry (POE), or POU and POE (modeled for up to 10 years and where POU is selected if it is viable based on water quality, POE is selected if constituents are present that pose an inhalation or skin exposure risk, and bottled water is selected if POU is not viable).

Cost estimates for POU and POE include the cost of Operations and Maintenance (O&M) necessary to provide safe drinking water. The type of interim supply selected for scenarios 3 and 4 above was based on the modeled water quality relative to the modeled ability of a treatment technology (i.e., POU or POE) to address a particular constituent.

- Interim alternative water supplies are estimated to cost approximately \$1,250–\$1,400 per service connection per year over a 10-year period, depending on the type of alternative supply provided. This amounts to an average annual cost of \$8.6–\$9.9 million.
- Scenario 3 (bottled water or POU) is the least expensive over a 10-year period, followed by Scenario 2 (bottled water only). Scenario 4 is the most expensive because it includes the widest range of interim alternative water supplies: bottled water only, POU only, POU and POE, or bottled water and POE).
- The average annual cost for all scenarios decreased as the duration of the program increased. This is because the first-year cost to provide bottled water or

POU and/or POE is higher than the ongoing cost to continue to provide bottled water or the O&M required for POU and POE.

- First year costs for scenarios that include POE or POU are higher than first year costs associated with bottled water only scenarios because of the high capital costs associated with POU and POE. The financial resources to support a program that includes POU or POE will need to be higher at the program outset compared to a bottled water only scenario. However, because the O&M required for POU is lower than the ongoing cost of providing bottled water, the overall cost is lower for programs that include POU compared to bottled water only, over 10 years.

### 1.3. Conclusion

The Central Coast Water Board's Assessment of Interim Drinking Water Needs and Costs highlights the urgent need for immediate and sustained action to address nitrate contamination and ensure access to safe drinking water for all affected residents.

#### **Need and Cost Summary for Central Coast Water Supply Systems Exceeding the Nitrate MCL due to Agricultural Activities**

- Impacted supply wells: 17 public water systems, 117 state small water systems, and 3,005 domestic wells are estimated to exceed the MCL for nitrate as a result of agricultural activities.
- Approximately 20,265 individuals impacted, including 2,755 in disadvantaged or severely disadvantaged communities.
- Annual costs for interim alternative water supplies projected at approximately \$8.6–\$9.9 million.

Although the cost of addressing these problems is substantial, swift implementation of interim alternative water supplies is imperative given the need estimated in this report and the scale of the public health risk.