Salinas Valley Basin
Groundwater Sustainability Agency

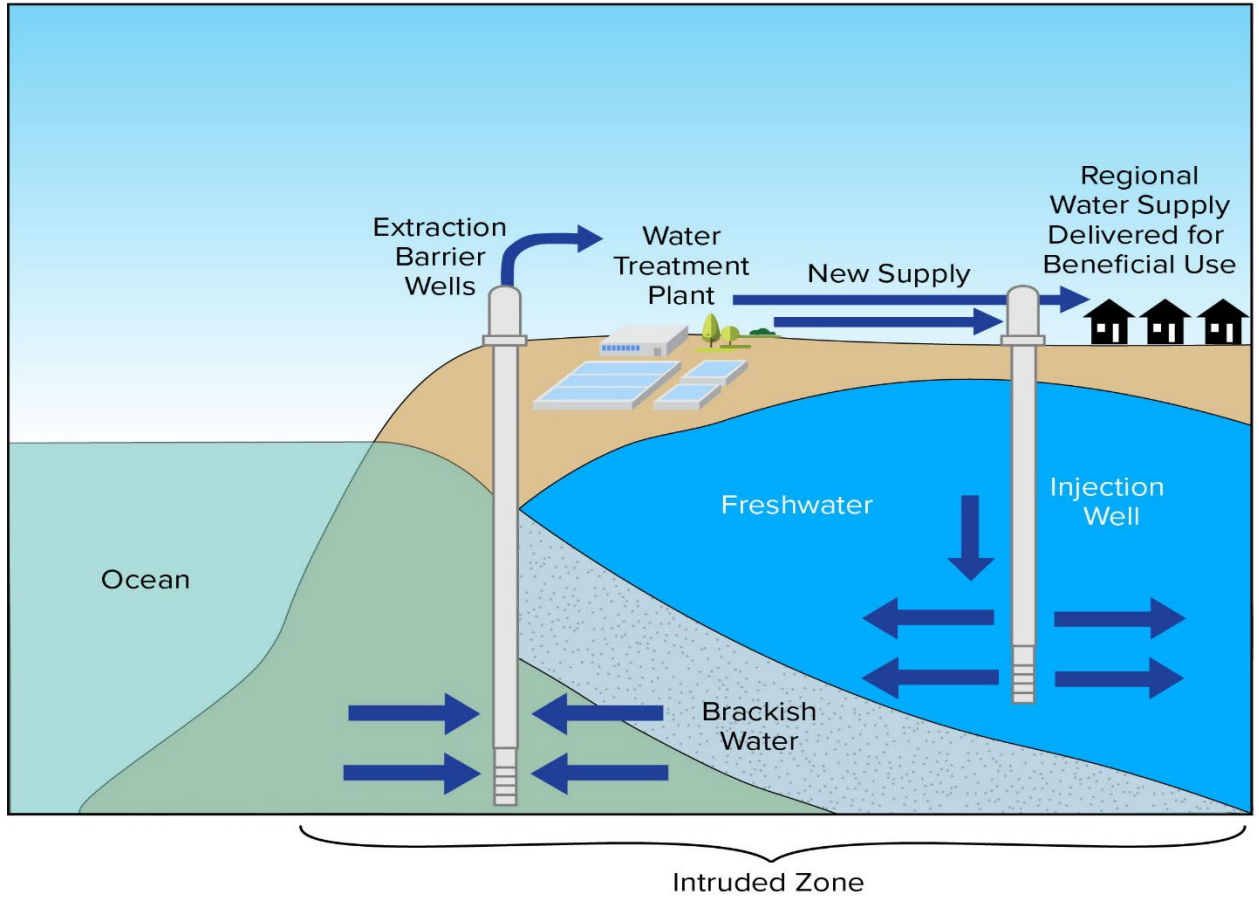
# Brackish Groundwater Restoration Project
# Phase 1 Feasibility Study

Board of Directors Meeting

October 9, 2025

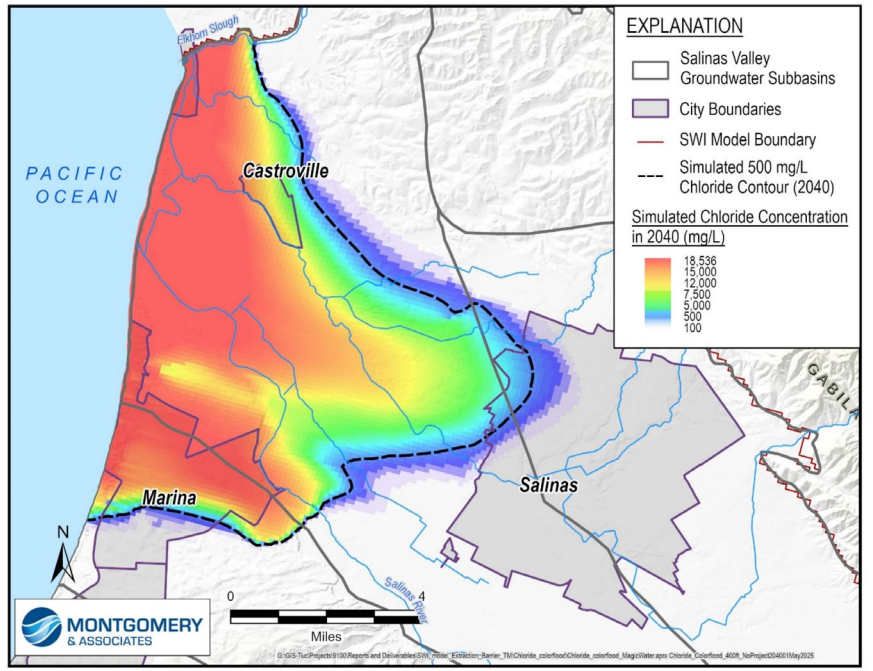
# Brackish Groundwater Restoration Project = BGRP

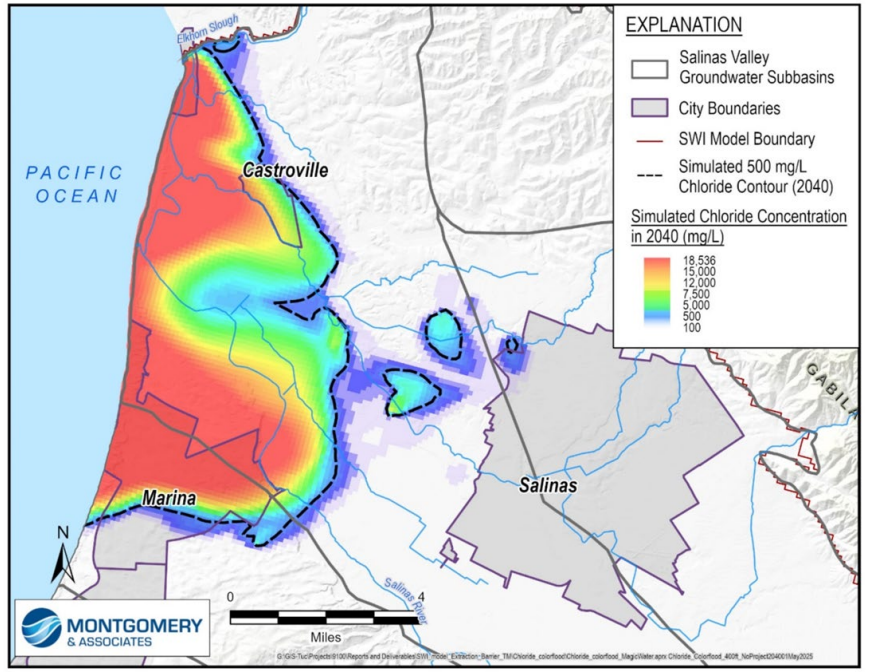
- Coastal extraction wells to intercept intruding brackish water
- Reverse osmosis (RO) treatment to produce potable-quality water.
- Treated water could be:
  - Delivered to urban and agricultural users, offsetting groundwater pumping.
  - Injected inland to raise groundwater levels and push seawater back.
- Brine disposal via Monterey One Water's ocean



# BGRP Scenarios Analysis

- **Effectiveness Evaluation** – assessing how well the project could achieve sustainability goals and mitigate undesirable results.
- **Scenarios Analysis** – examining potential end-user mixes, infrastructure and treatment needs, and preliminary cost estimates

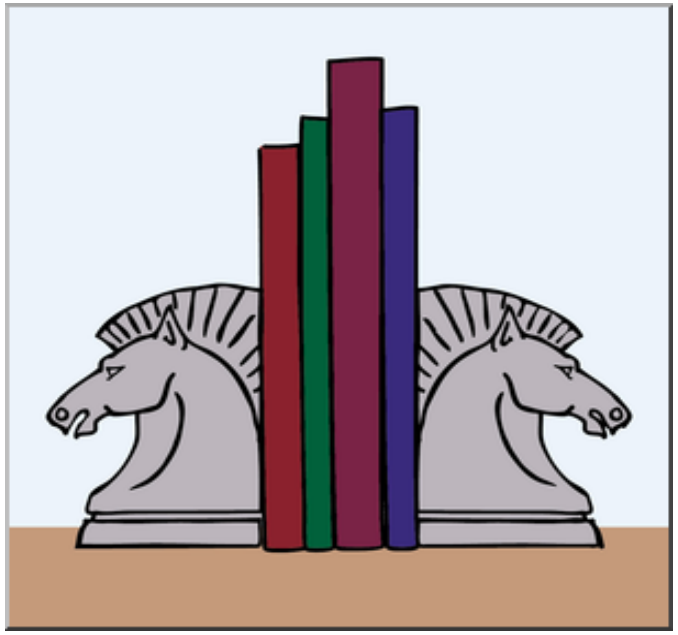


# Bookends Guided Scenario Development

**Small Scenario**

» Goal: GSP minimum threshold (2017 levels)



**Medium Scenario**

» Goal: Reasonable In Between Project

**Large Scenario**

» Goal: GSP measurable objective (Hwy 1)

# Range of Scenarios Evaluated

## Direct Delivery Scenarios

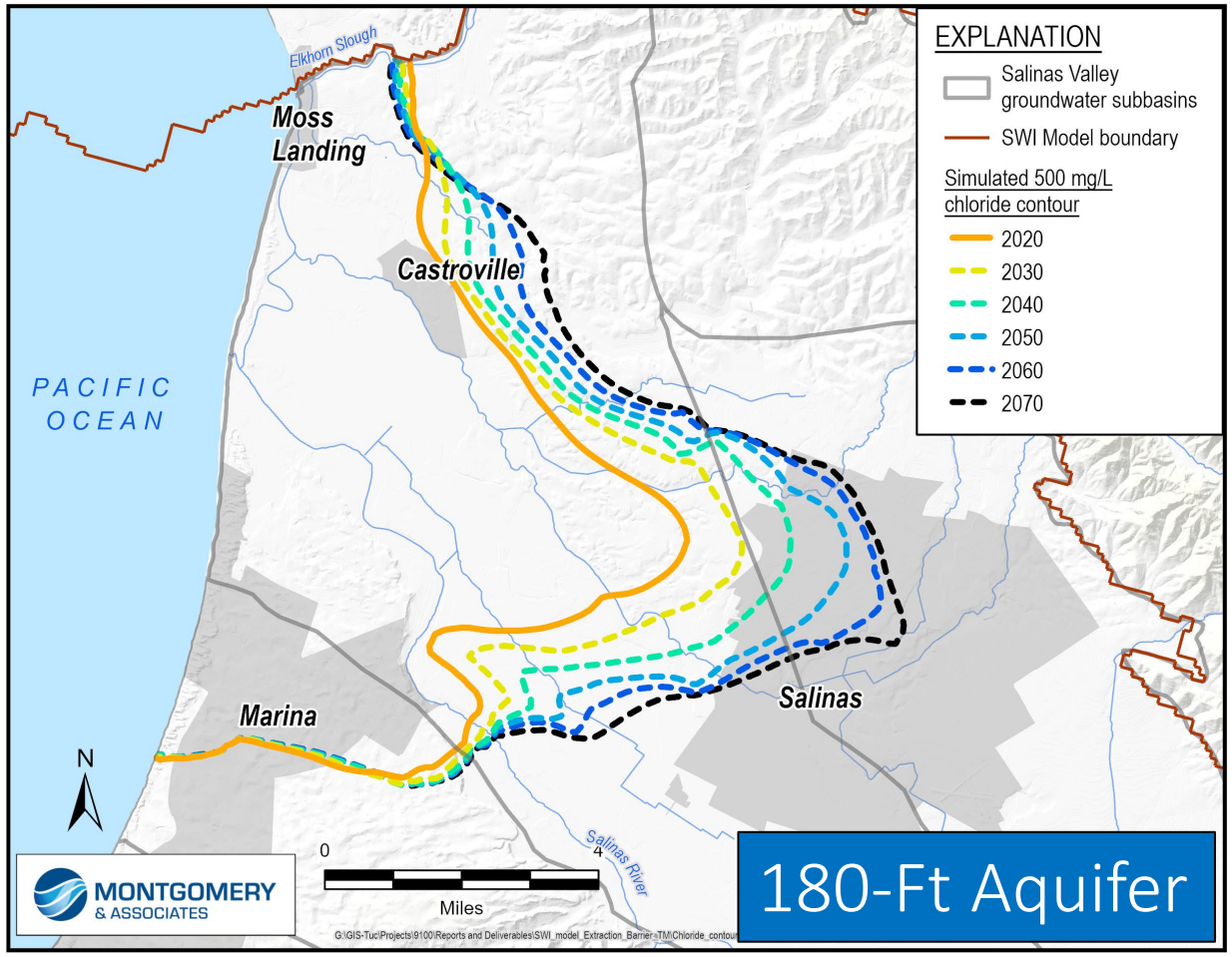
- **Small Project** – 12 extraction wells, 28,000 AFY treated supply.
- **Medium Project** – 20 wells, 47,000 AFY supply, 12 injection wells.
- **Large Project** – 24 wells, 68,000 AFY supply, 12 injection wells + cleanup wells, broadest coverage.

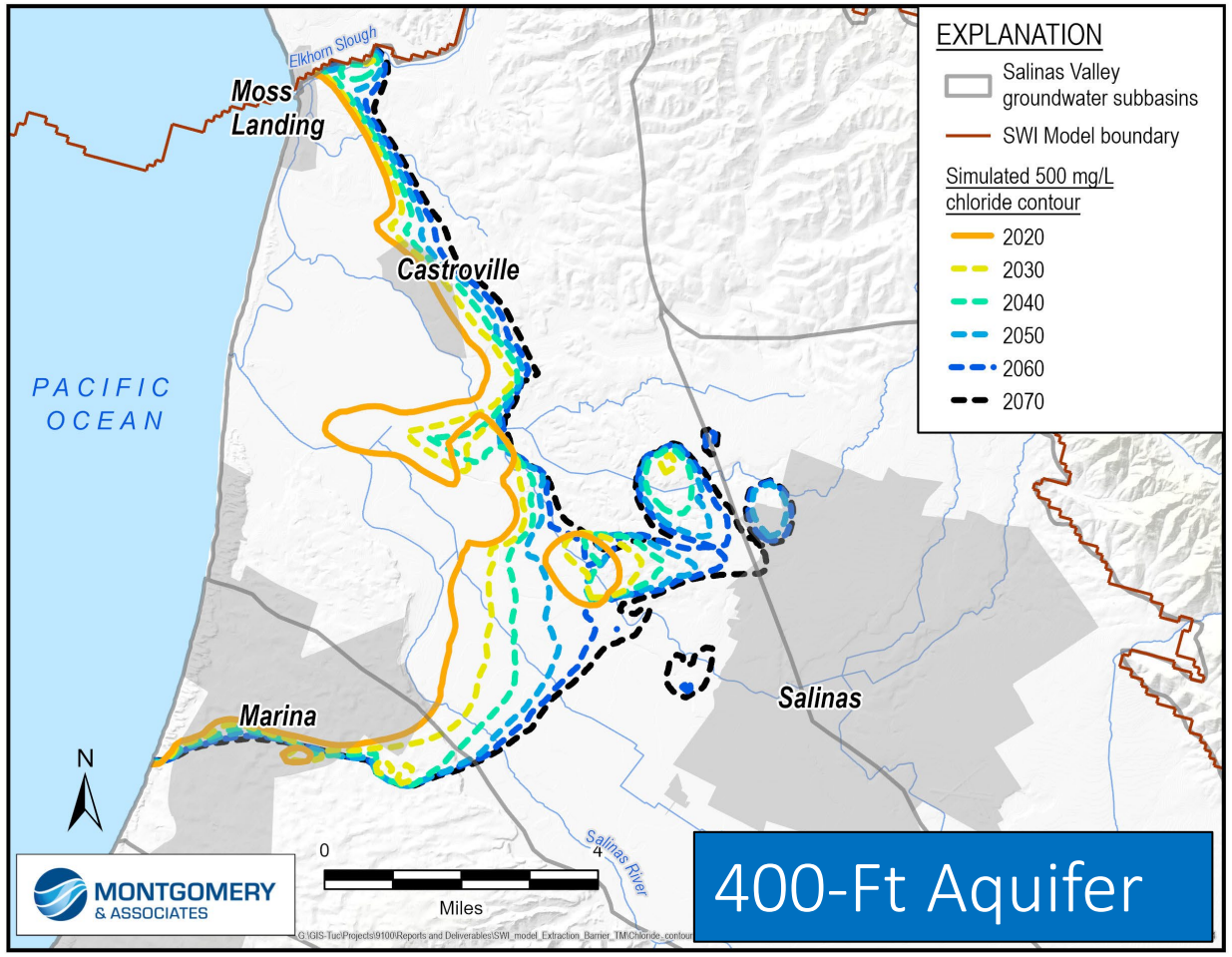
## Additional Scenarios

- **Injection-Only** – 20 wells, ~45,000 AFY injected, no direct deliveries.
- **Eastside Injection** – Raises water locally but limited intrusion protection.
- **North of River** – Local protection, but Marina and Salinas remain exposed.
- **Extract 180-Foot / Inject 400-Foot Aquifer** – Potential to achieve MT with refinements (e.g. cleanup wells).

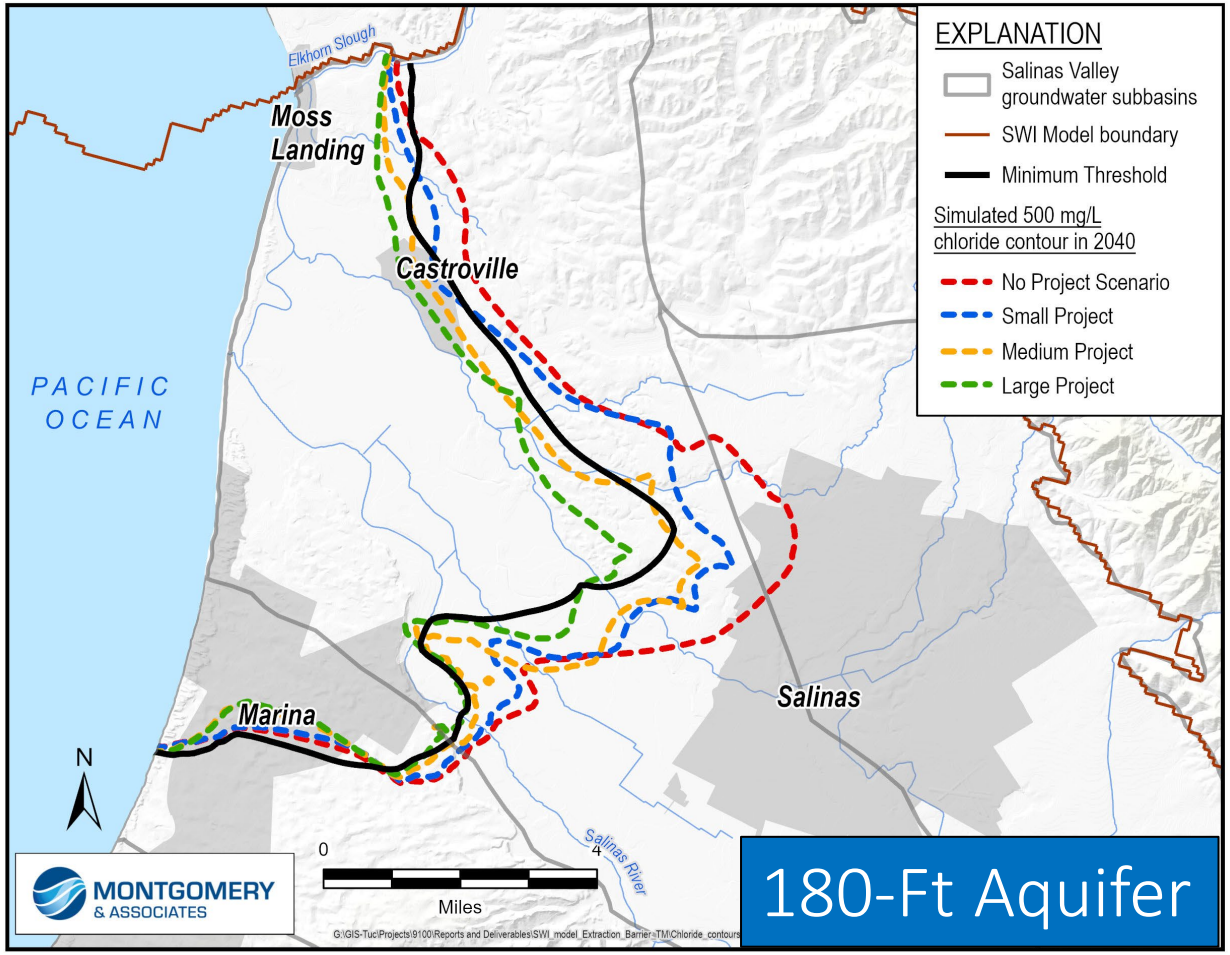
# No Project Scenario

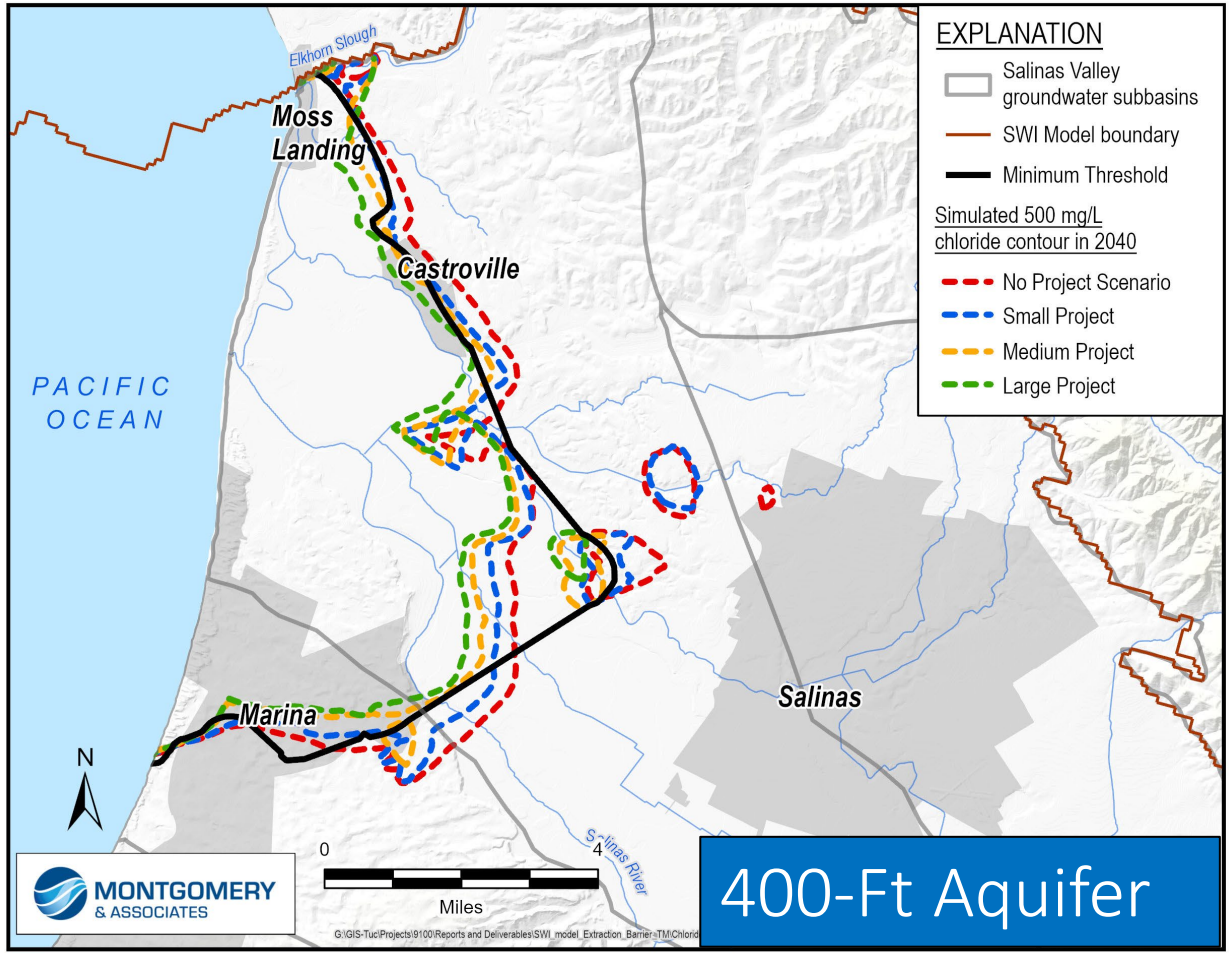
Intruded Area Increases due to chronic declines in GW levels



# Seawater Intrusion Minimum Threshold Compared to Direct Delivery Scenarios




**Results shown for 2040**

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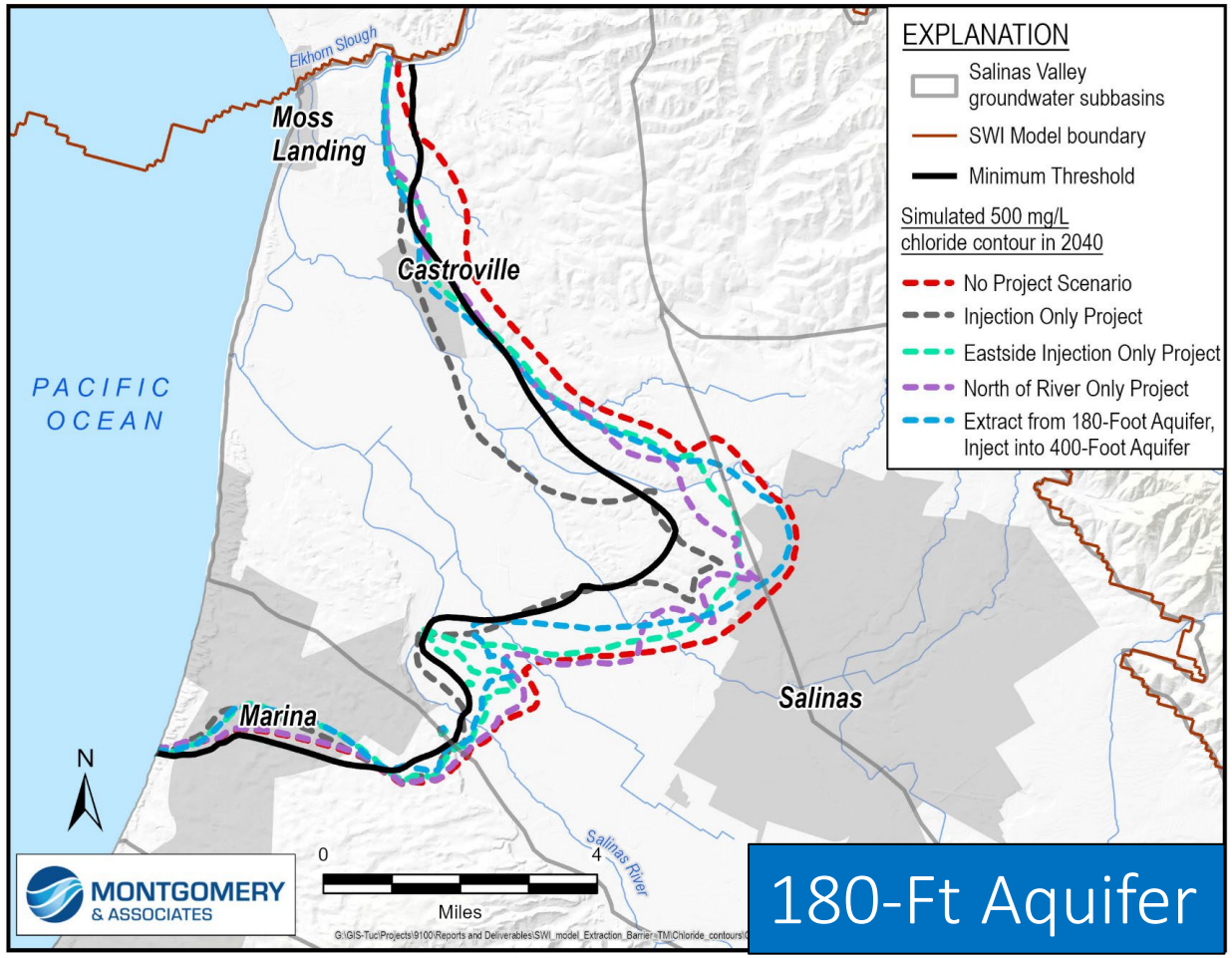
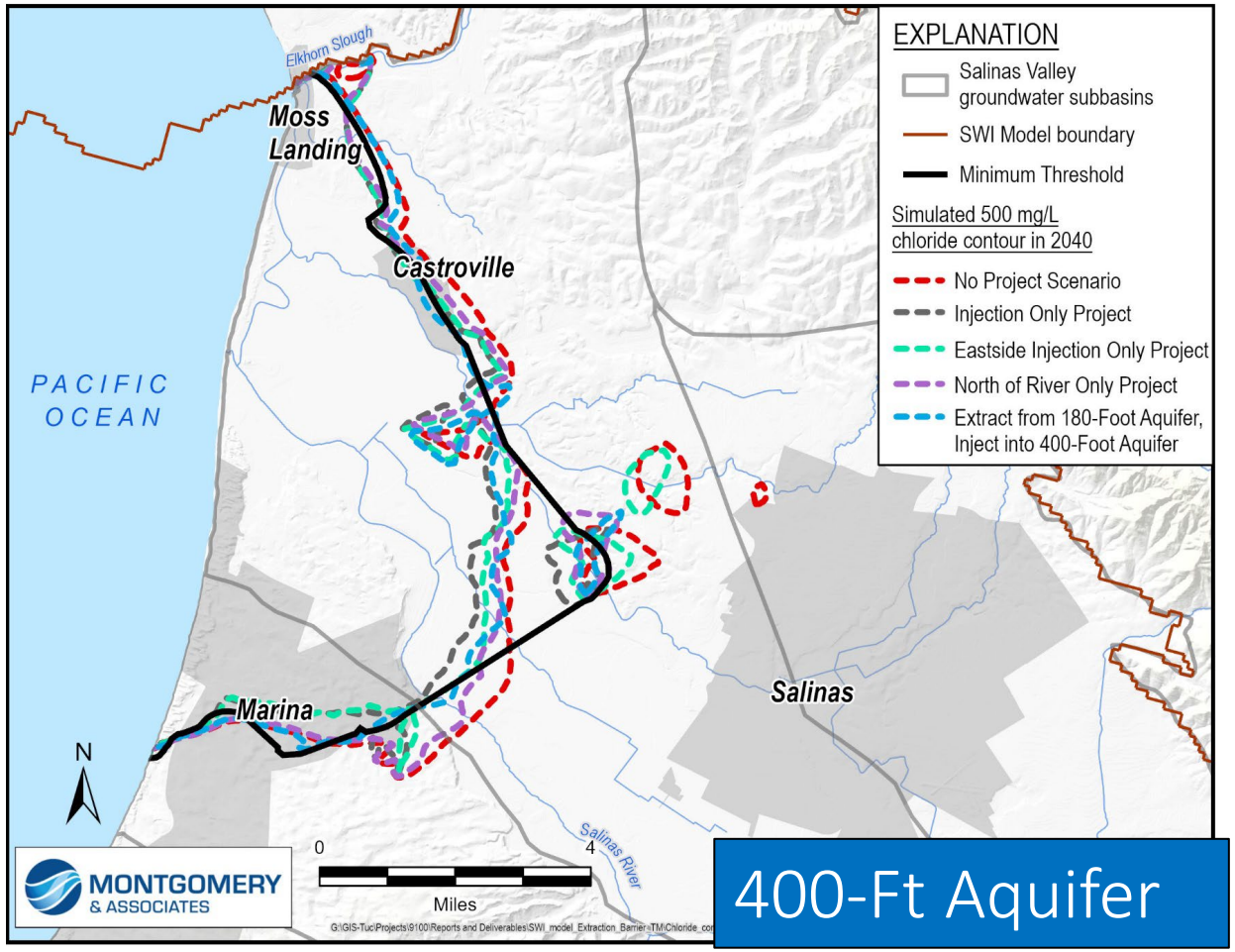
# Seawater Intrusion Minimum Threshold Compared to Additional Scenarios




**Results shown for 2040**

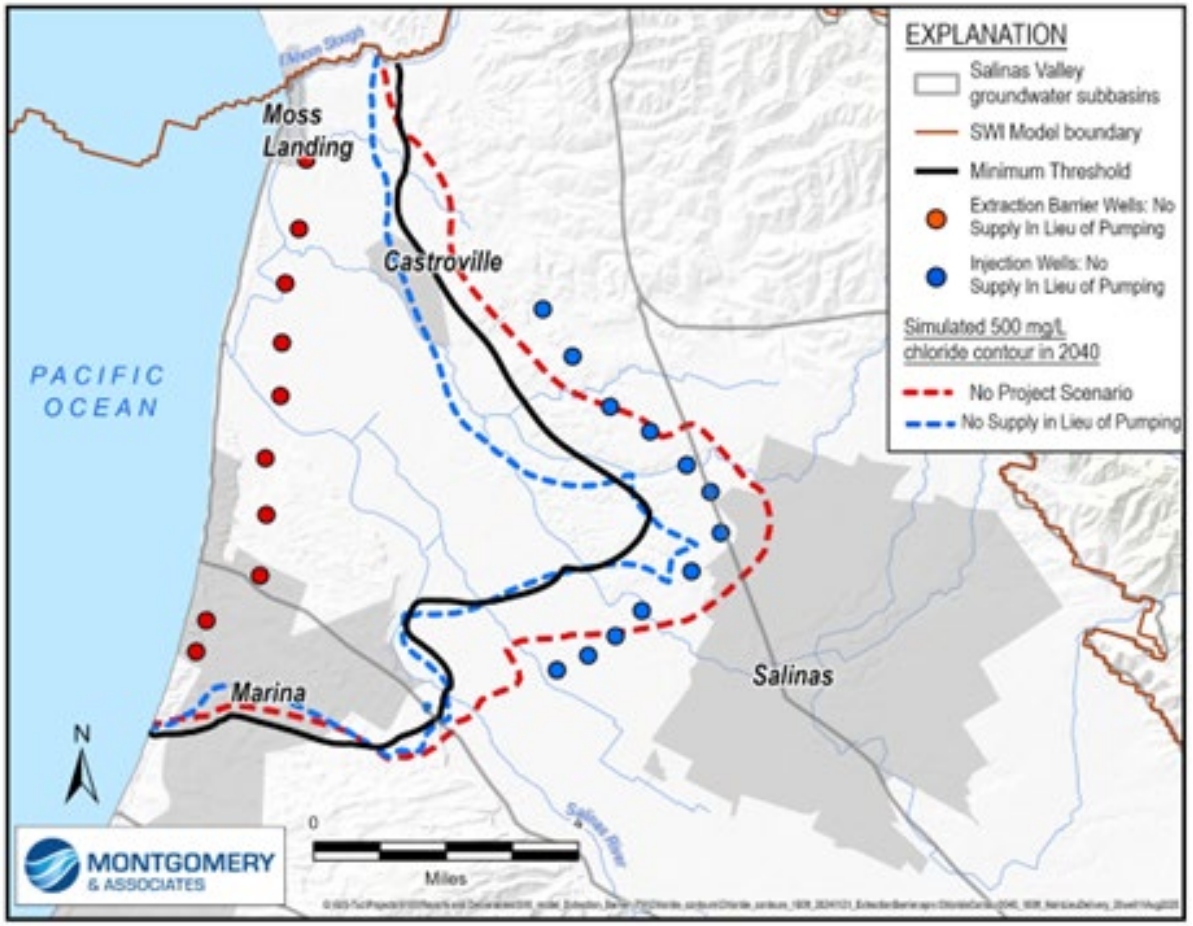
MONTGOMERY & ASSOCIATES

# Recommended Scenario for Further Analysis

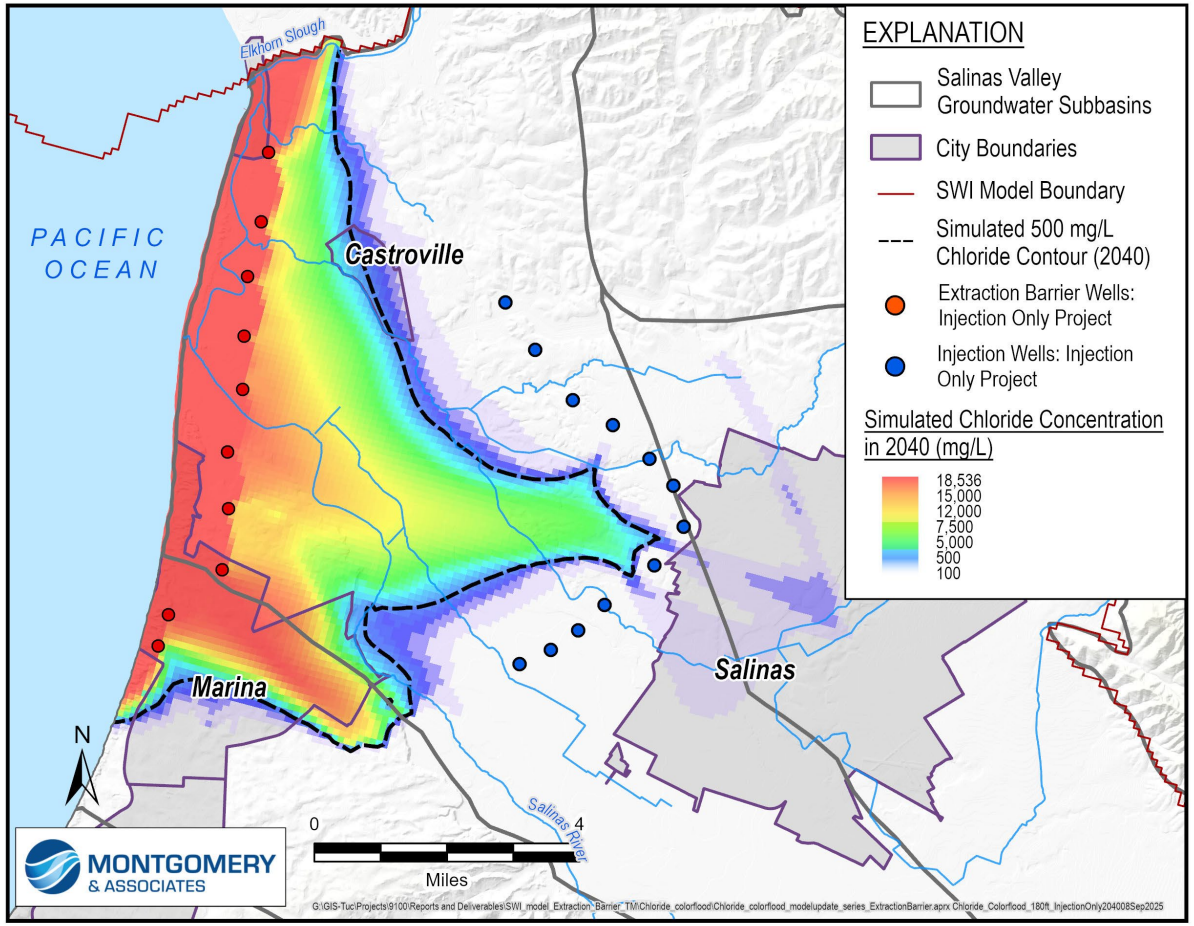
Staff recommend advancing the **Injection-Only scenario** (with refinements)

- Strong modeling performance, achieving thresholds faster than Medium or hybrid scenarios.
- Lower operational complexity, not replacing users' pumping with delivered water.
- Flexibility for refinements, such as modifying pumping rates, adding coastal injection, and providing in-lieu supplies to impacted areas

# Injection-Only Scenario 180-Foot Aquifer

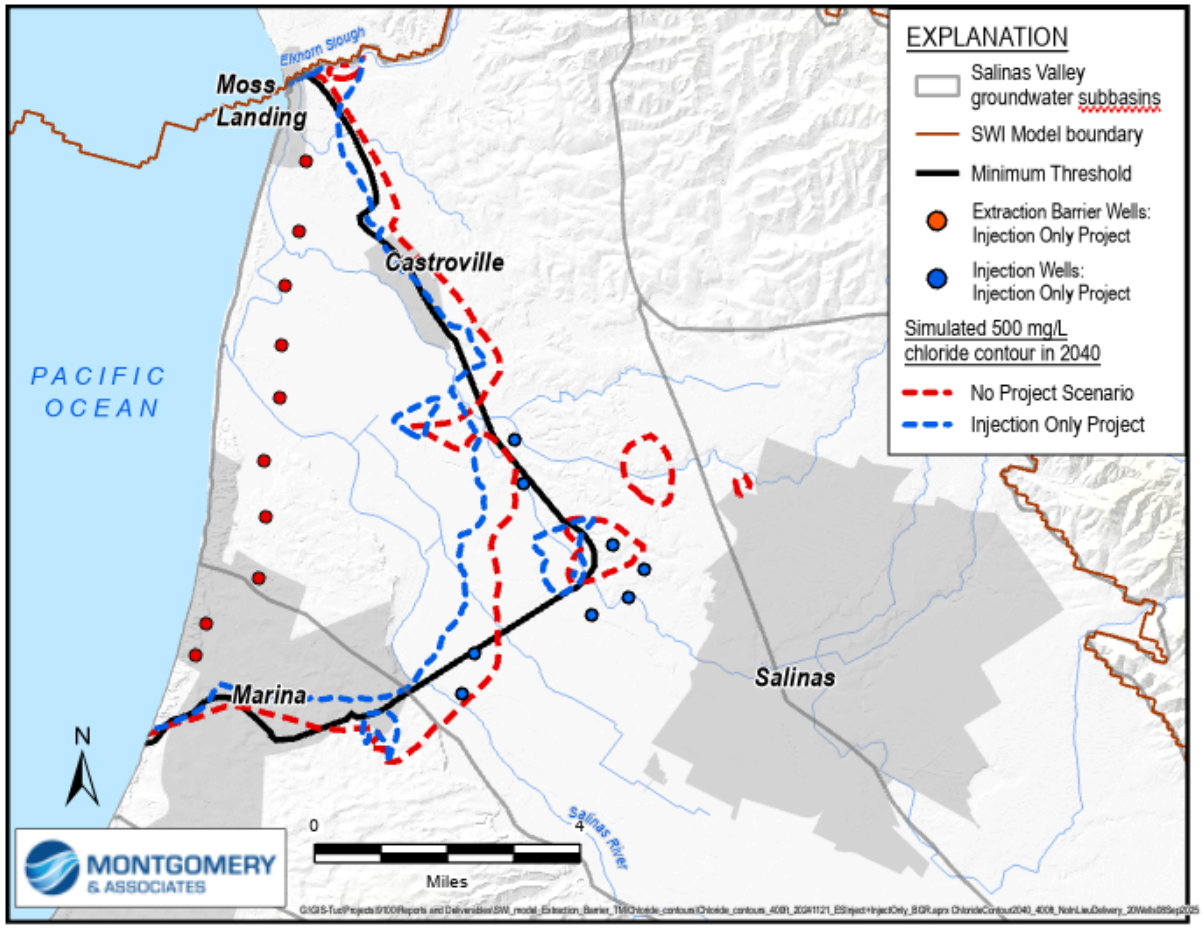



Injection Only Project Scenario Modeling Results 180-Foot Aquifer

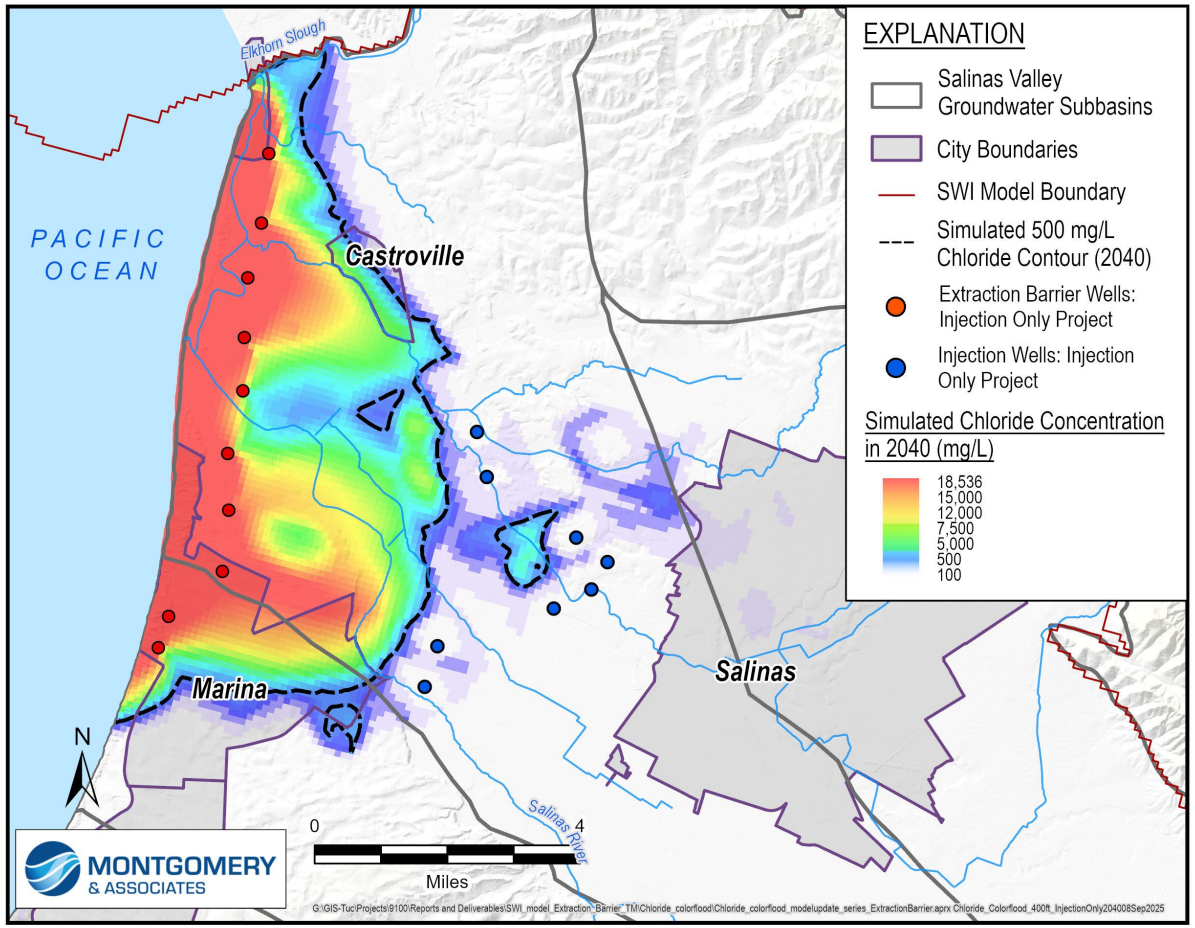



Injection Only Scenario Chloride Concentrations Modeling Results 180-Foot Aquifer

# Injection-Only Scenario 400-Foot Aquifer




Injection Only Project Scenario Modeling Results 400-Foot Aquifer




Injection Only Scenario Chloride Concentrations Modeling Results 400-Foot Aquifers

# Feasibility Study Phase 1 Findings

- All projects can slow or reverse seawater intrusion.
- Brackish desalination can provide a treated water supply to urban and agricultural end users.
- Project costs range from $632 million to $1.48 billion, with unit water costs of $1,700–$3,000 per acre-foot. Unit costs do not include potential grant funding.
- Injection-Only scenarios perform best, reaching thresholds within 10 years. End user operations continue without direct delivery of treated water.
- Localized projects (North of River, Eastside Injection) help specific areas but fall short basin-wide.
- None of the options fully achieve the long-term measurable goal of pushing seawater back to Highway 1 by 2040.

# 180/400 GSP 5-Year Evaluation PMA Findings

- SVBGSA explored the 3 types of PMAs that can potentially mitigate seawater intrusion:
  - Extraction barrier (Brackish Groundwater Restoration Project)
  - Injection of surface water (Seasonal Release or High Flows to ASR)
  - Extraction reduction (Demand Management)

"Feasibility studies show that at least one project can meet the seawater intrusion minimum threshold: the Brackish Groundwater Restoration Project, which pairs an extraction barrier with desalination for a drought-proof alternative in lieu supply."

# Recommendation

Receive Brackish Groundwater Restoration Project Feasibility Study Phase 1 Report and Scenarios Analysis Technical Memorandum, and direct staff to complete Feasibility Study and Initial Study with the Injection-Only Scenario as the preferred project.

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Groundwater Sustainability Agency

# Questions and Comments

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