CENTRAL VALLEY SALINITY CONTROL PROGRAM

Multi-State Salinity Coalition Annual Meeting

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ACKNOWLEDGEMENTS

- Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) Executive Committee
  - *State and Federal Agencies*
  - *Local Agencies*
  - *Discharger Community: Agriculture, Industry, Wastewater Treatment*
  - *Environmental Justice and Disadvantaged Community Representatives*
- Central Valley Salinity Coalition (CVSC)
- CV-SALTS Information
  - *CV-SALTS: www.cvsalinity.org*
  - *Central Valley Water Board: https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/*

CENTRAL VALLEY SALT & NITRATE MANAGEMENT PLAN (SNMP)

- In 2017, CV-SALTS completed a 10-year stakeholder effort to develop a Final SNMP:
  - *Addressed State Water Board Recycled Water Policy Requirements*
  - *Established baseline conditions in the Central Valley:*
    - Ambient water quality conditions and trends for salt and nitrate
    - Where salt and nitrate are in balance, accumulating or depleting
    - Estimated potential assimilative capacity given selected thresholds
    - Identified priority areas for implementation and resource allocation
  - *Developed recommendations for establishment of salt and nitrate control programs*

- Stakeholders currently working collaboratively to develop amendments to the Central Valley Basin Plans to establish Salt and Nitrate Control Programs

CONTROL PROGRAMS FRAMED AROUND THREE PRIORITIZED MANAGEMENT GOALS

Management Goal 1

- Safe Drinking Water Supply
  - Short & Long Term Solutions

Management Goal 2

- Balanced Salt & Nitrate Loadings
  - Ongoing and Expanding Efforts

Management Goal 3

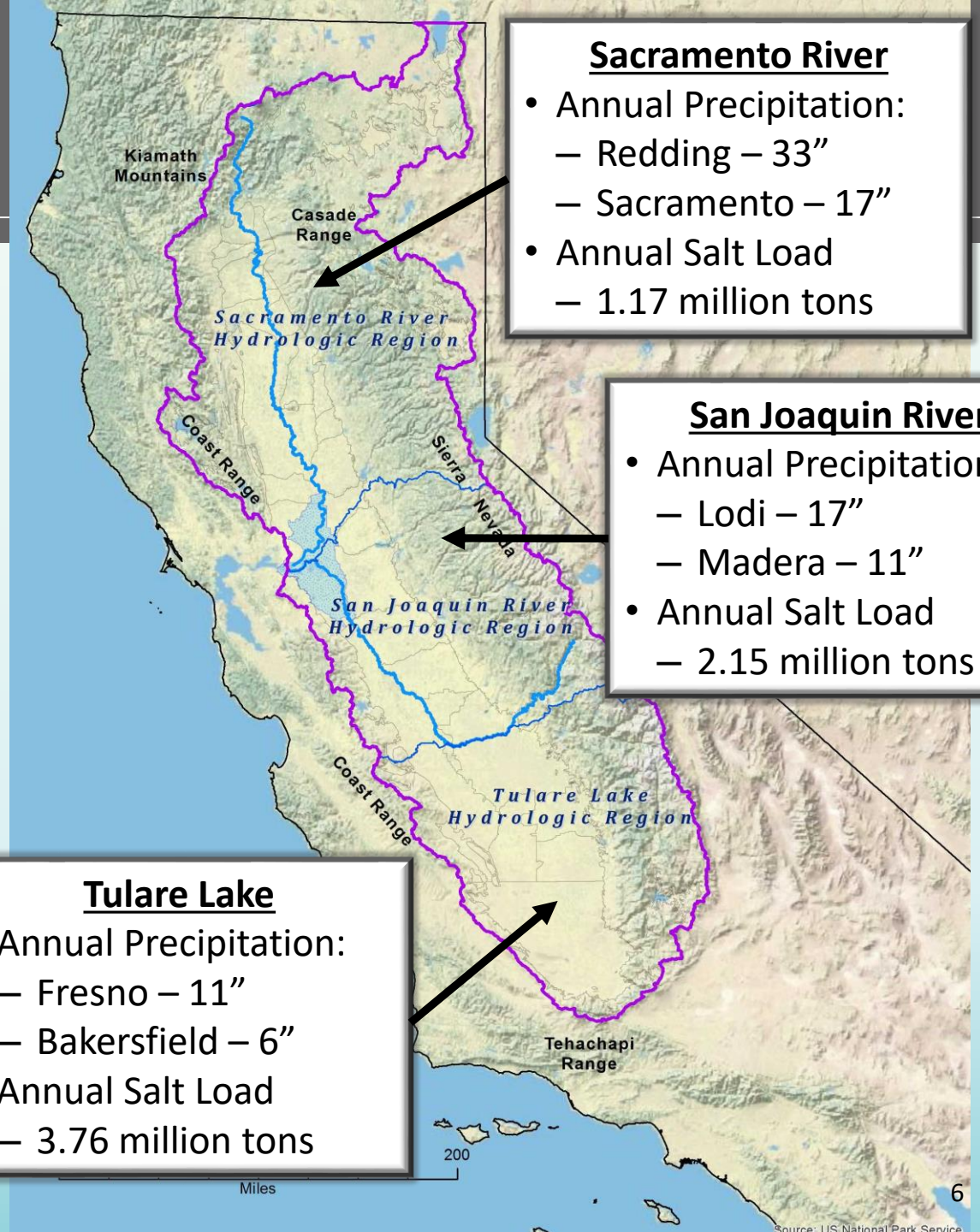
- Implement Managed Aquifer Restoration
  - Where Reasonable, Feasible & Practicable

SALINITY CONTROL PROGRAM

Baseline for Establishment of the Program

SIGNIFICANT VARIABILITY ACROSS CENTRAL VALLEY

- Central Valley comprised of three hydrologic regions
  - *Sacramento River*
  - *San Joaquin River*
  - *Tulare Lake*
- Annual precipitation declines while annual salt load increases from north to south
- Need for broad-based solutions that consider significant hydrologic differences across the Central Valley Region



Sacramento River

- Annual Precipitation:
  - Redding – 33”
  - Sacramento – 17”
- Annual Salt Load
  - 1.17 million tons

San Joaquin River

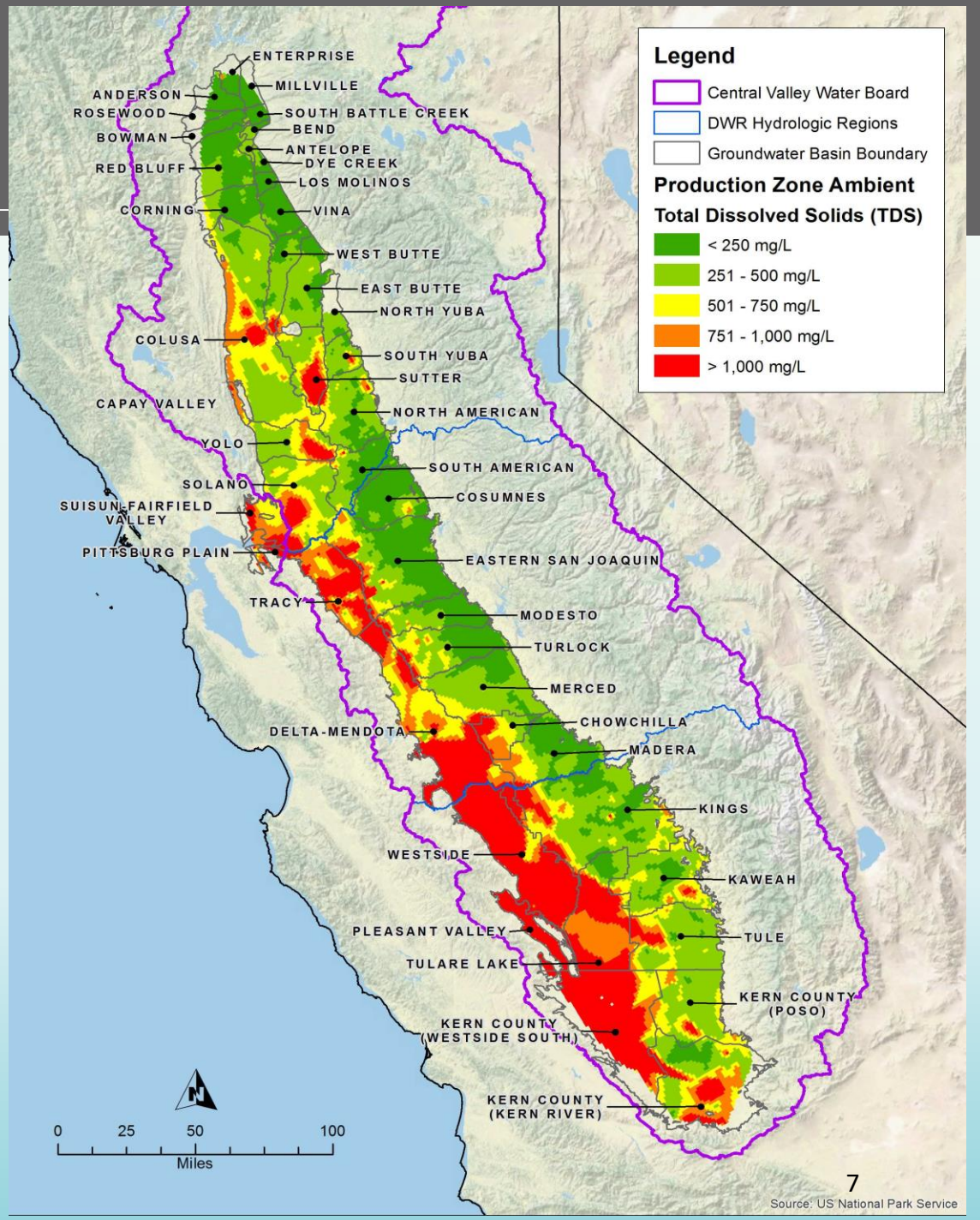
- Annual Precipitation:
  - Lodi – 17”
  - Madera – 11”
- Annual Salt Load
  - 2.15 million tons

Tulare Lake

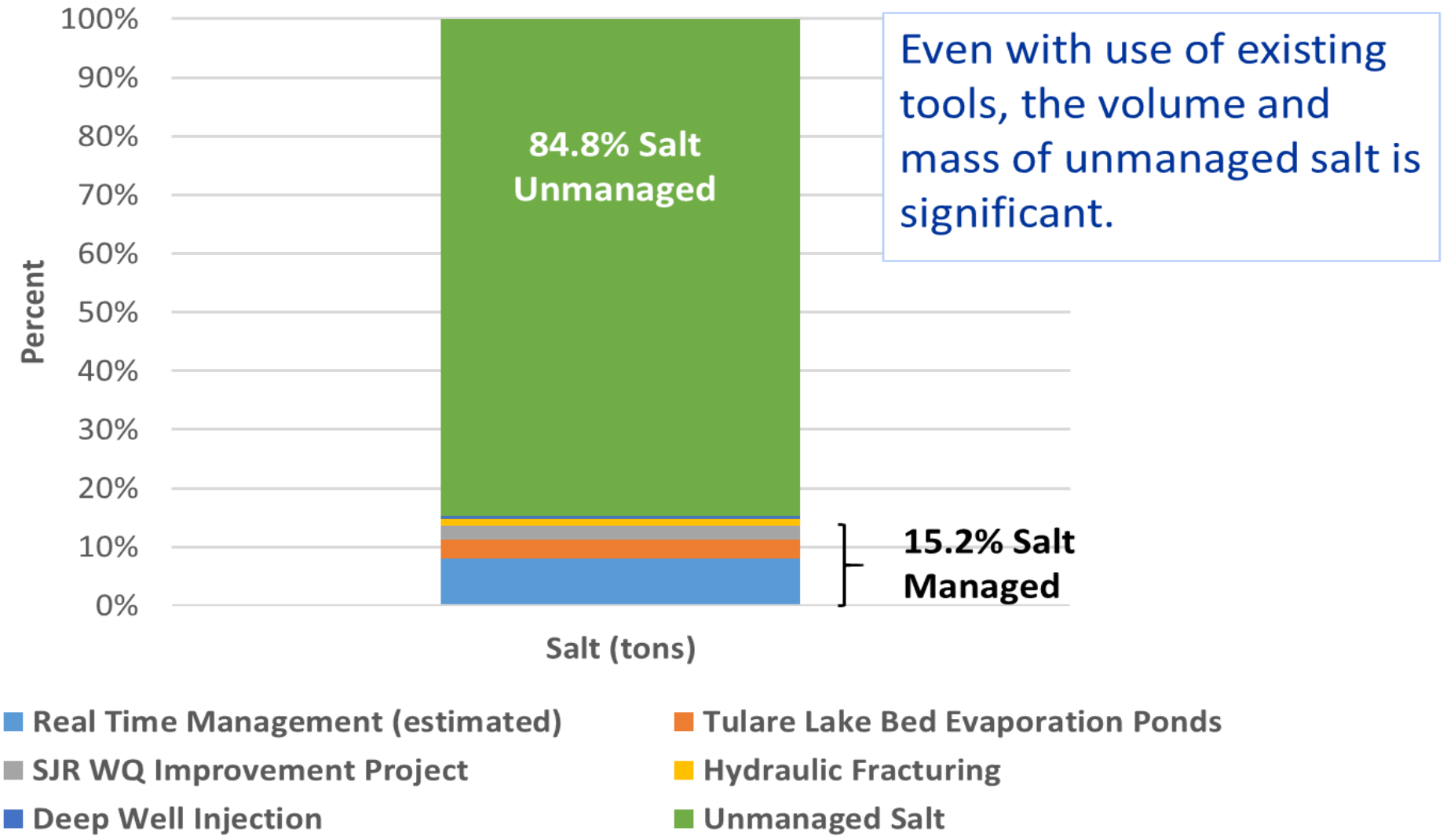
- Annual Precipitation:
  - Fresno – 11”
  - Bakersfield – 6”
- Annual Salt Load
  - 3.76 million tons

EXISTING WATER QUALITY – TOTAL DISSOLVED SOLIDS

- Ambient conditions in the Production Zone (volume-weighted average)
- Production Zone
  - *Portion from which ≈ 90% of groundwater is pumped and used for municipal/domestic water supply and agriculture*
  - *Generally extends from top of saturated zone to bottom of lowest screened production well*



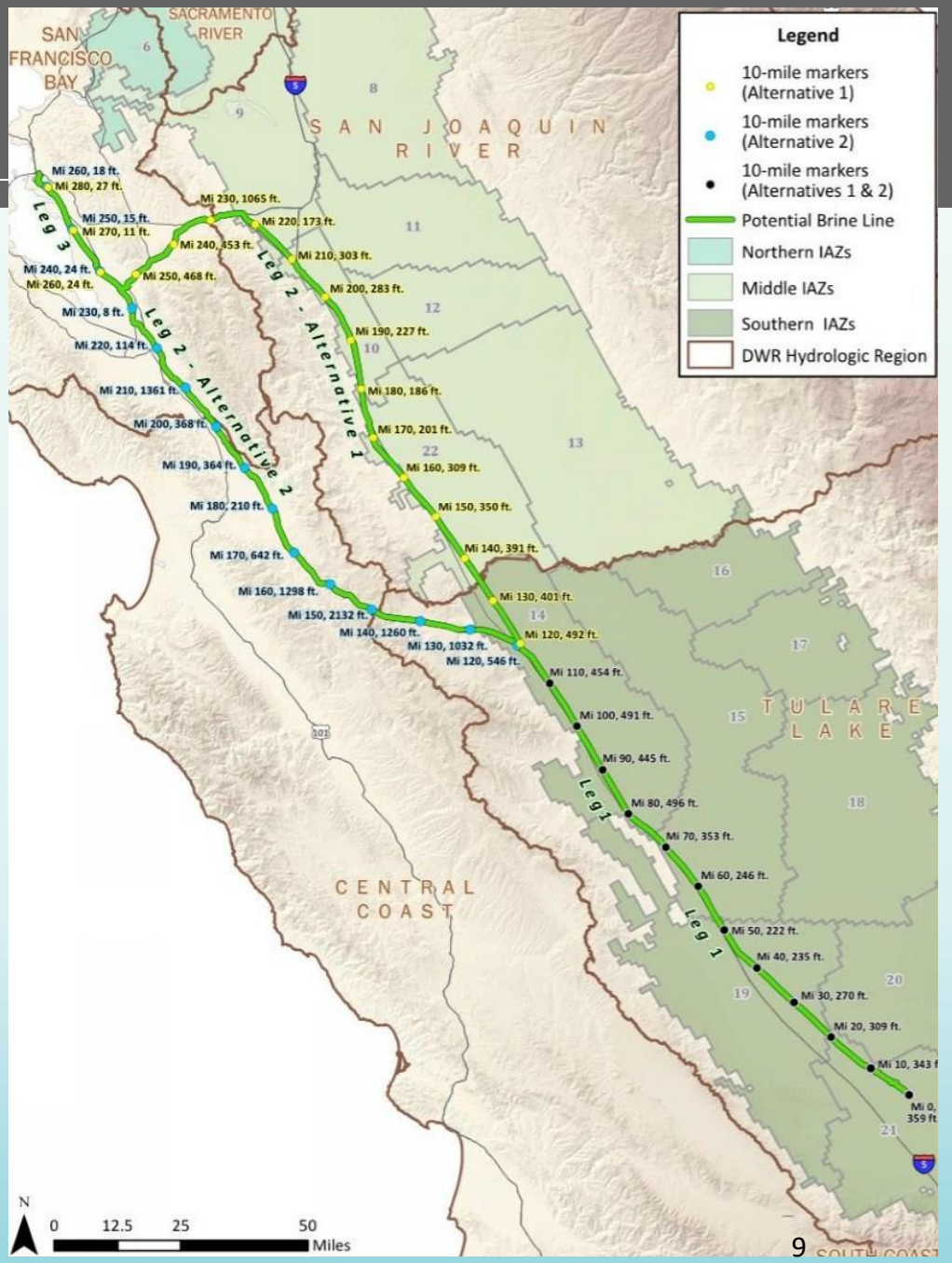
SALT SUSTAINABILITY – SCENARIO FROM SOUTHERN PART OF CENTRAL VALLEY



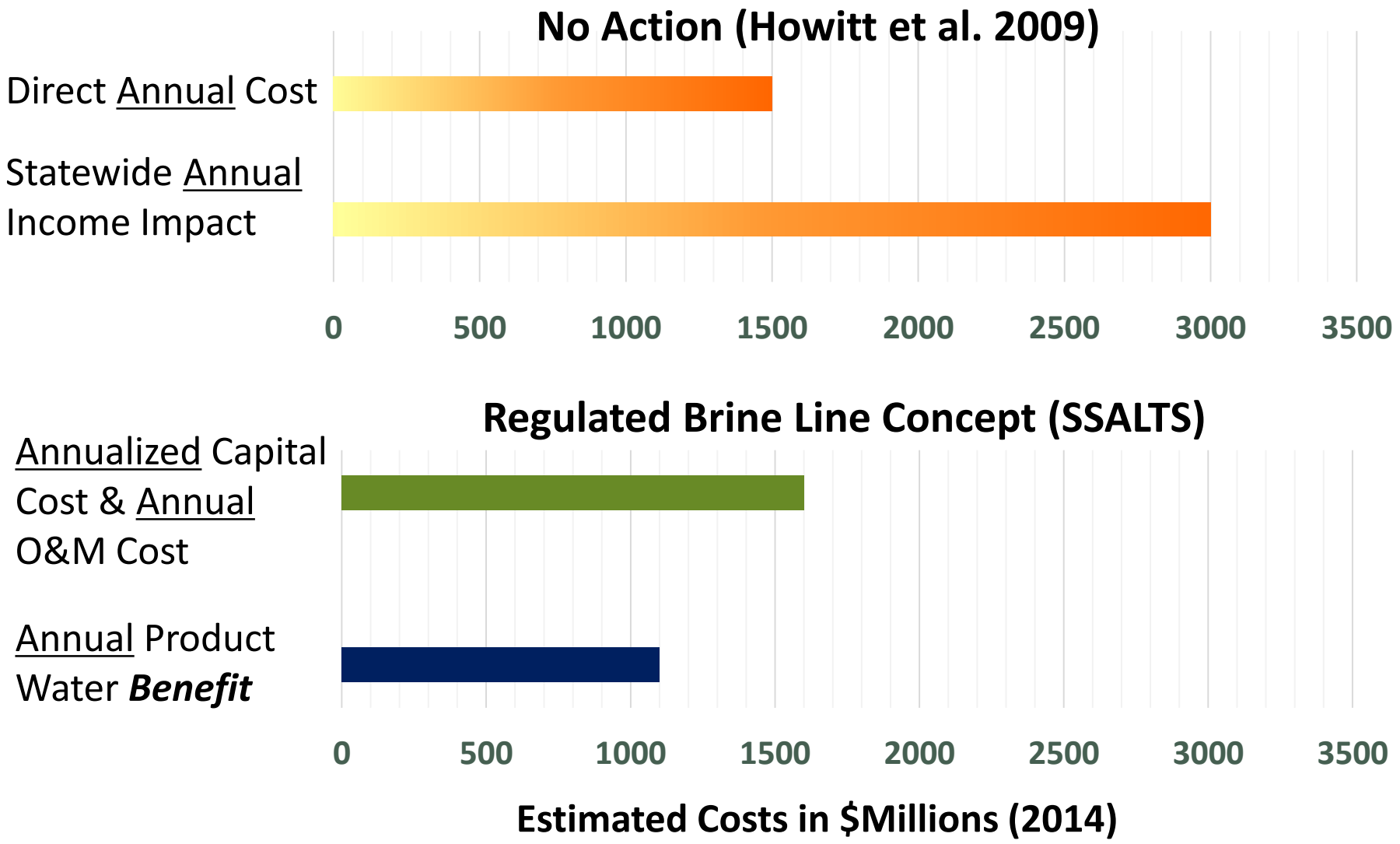
Even with use of existing tools, the volume and mass of unmanaged salt is significant.

ACHIEVING SALT SUSTAINABILITY – EXPORT THE SALT

- Sustainability only achieved if the salt is exported out of the Central Valley
- Central to all CV-SALTS evaluated salt management alternatives is a regulated brine line
- Conceptual level analysis developed for exporting brine to San Francisco Bay
  - *Brine Line capital cost: ~$11B (2014 dollars)*
  - *O&M: ~$1.2B annually*
  - *Benefit: Product water produced along with other sources of revenue: ~$1.1B annually*
  - *Costs do not include development of local facilities to collect/transport brine*



REGULATED BRINE LINE CONCEPT VS. NO ACTION



FINDINGS USED TO SUPPORT ESTABLISHMENT OF PHASED SALINITY CONTROL PROGRAM

- Stakeholders agreed additional study required to develop program that considers:
  - *Differences across hydrologic regions*
  - *Potential local or sub-regional solutions vs. a broad region-wide solution*
  - *Existing state policies/programs that impact salt management*

- Phasing allows time to complete additional studies and addresses need to allocate resources to other SNMP requirements, in particular implementation of the Nitrate Control Program

SALINITY CONTROL PROGRAM

Phased Regulatory Framework

SALINITY CONTROL PROGRAM

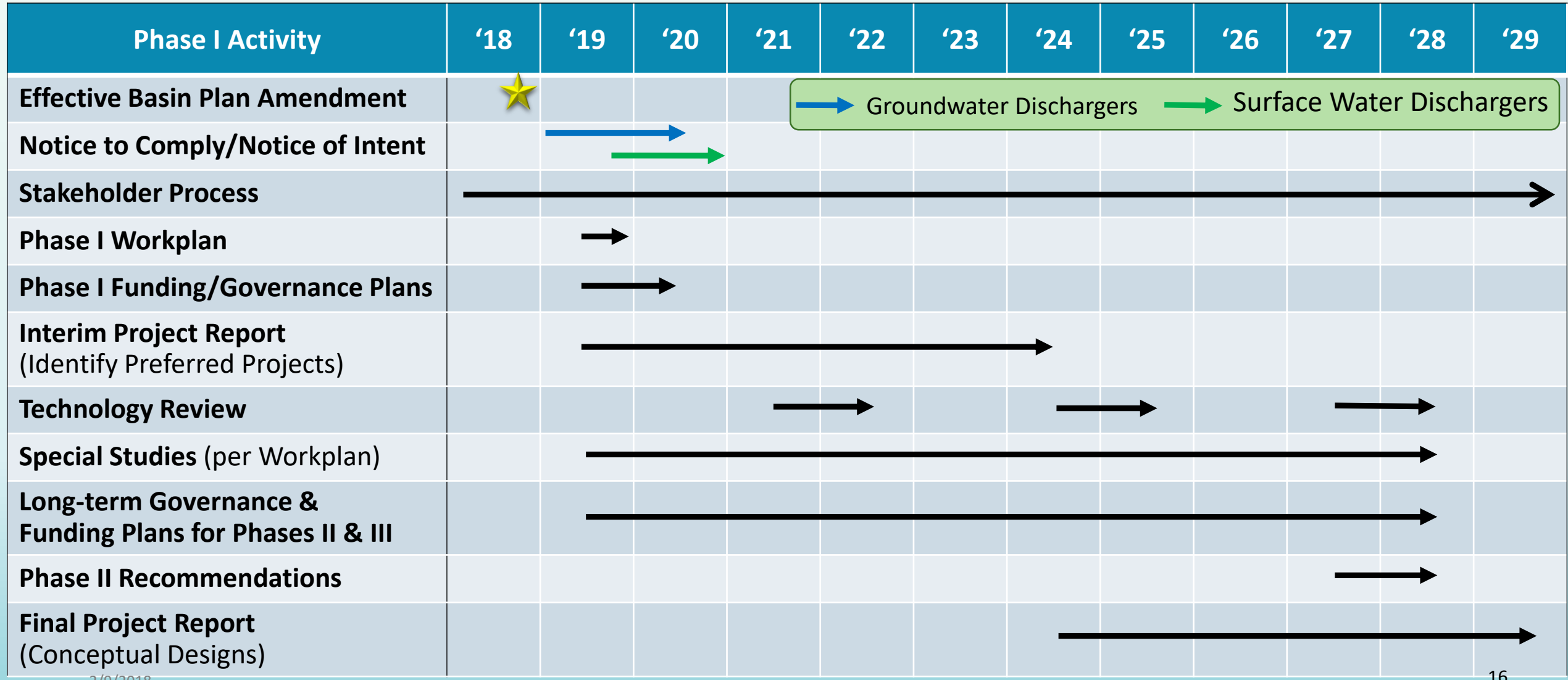
- Phased Approach
  - *Basin-Wide*
  - *Long-term Sustainability*
    - Maintain Good Water Quality
    - Improve Poor Water Quality
- Management Goals
  - *"Managed Degradation"*
  - *Sustainability and Protect Salt Sensitive Areas*
    - Meet Water Quality Objectives/Long-Term Restoration where reasonable, feasible and practicable
    - Protect High Quality Water (anti-degradation)

Phase	Purpose/Activities
Phase I – Prioritization & Optimization (P&O) Study (10-15 years)	• Develop data/information for sensitive/non-sensitive areas for Central Valley hydrologic regions, including guidelines to protect salt sensitive crops; • Identify sources of salinity and actions that impact salinity concentrations; • Evaluate impacts of state policies and programs; • Identify/prioritize preferred physical projects for long-term salt management (e.g. regulated brine line(s), salt sinks, regional/subregional de-salters, recharge areas, deep well injection); • Develop preferred physical project conceptual designs/assess environmental permitting requirements/costs associated with projects; • Identify non-physical projects and plan for implementation; and • Develop a governance structure and funding plan.
Phase II – Project Development & Fund Acquisition (10-15 years)	• Obtain long-term funding; • Complete environmental permitting and engineering/design for physical projects identified in Phase I; and • Implement non-physical projects
Phase III - Implementation (10+ years)	• Construct salt management projects as designed in previous phases

PHASE I PRIORITIZATION & OPTIMIZATION STUDY IMPLEMENTATION

Issue	Expectations
Who could potentially participate?	• All (or almost all) permitted dischargers of salt (surface water or groundwater) • Non-discharging entities that would benefit from Central Valley salinity management and control activities
Who will manage the Study?	• Intended lead - Central Valley Salinity Coalition
How will the Study be implemented?	• Activities to occur in an open stakeholder process • Workplan (scope, budget, schedule) to be developed prior to implementation • Meet milestones established in Phase I Salinity Control Program
How will required level of commitment be determined?	• Anticipated this will be determined based on a variety of factors, e.g., facility size/type; discharge volume, salt loading, others

GENERAL TIMELINE FOR PHASE I PROGRAM ACTIVITIES



WHAT IF A DISCHARGER DOES NOT WANT TO PARTICIPATE IN THE P&O STUDY?

Permittees Have the Opportunity to Select a Compliance Pathway at the Beginning of Phase I

Phase I - Conservative Salinity Permitting Approach

- Source control
- Conservative effluent limits for MUN & AGR
- Limited use of assimilative capacity or time schedules
- Eligibility requirements for exception/ variance not met

Phase I - Alternative Salinity Permitting Approach

- Support funding of P&O Study
- Participate in P&O Study activities, as appropriate
- Continue/maintain existing salt management program
- Eligible for exception/variance

SALINITY CONTROL PROGRAM SUMMARY

- Central Valley Region is establishing a Phased Salinity Control Program
  - *Formal Proposal – February 20, 2018*
  - *Public Hearing – March 22, 2018*
  - *Adoption Hearing – May 31/June 1, 2018*
- Dischargers Encouraged to Participate in Phased Approach
  - *Defers immediate compliance with stringent salinity discharge requirements*
  - *Creates opportunity to work collectively with other permittees to establish appropriate policies/mechanisms to manage salt*
  - *Provides mechanism to contribute to studies that will develop long-term solutions to the salt accumulation problem*

Central Valley Water Board: https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/


Questions