



CENTRAL VALLEY WATER BOARD

Central Valley-wide Salt and Nitrate Control Program

Proposed Basin Plan Amendments

- *Strategies*
- *Supporting New and Revised Policies*



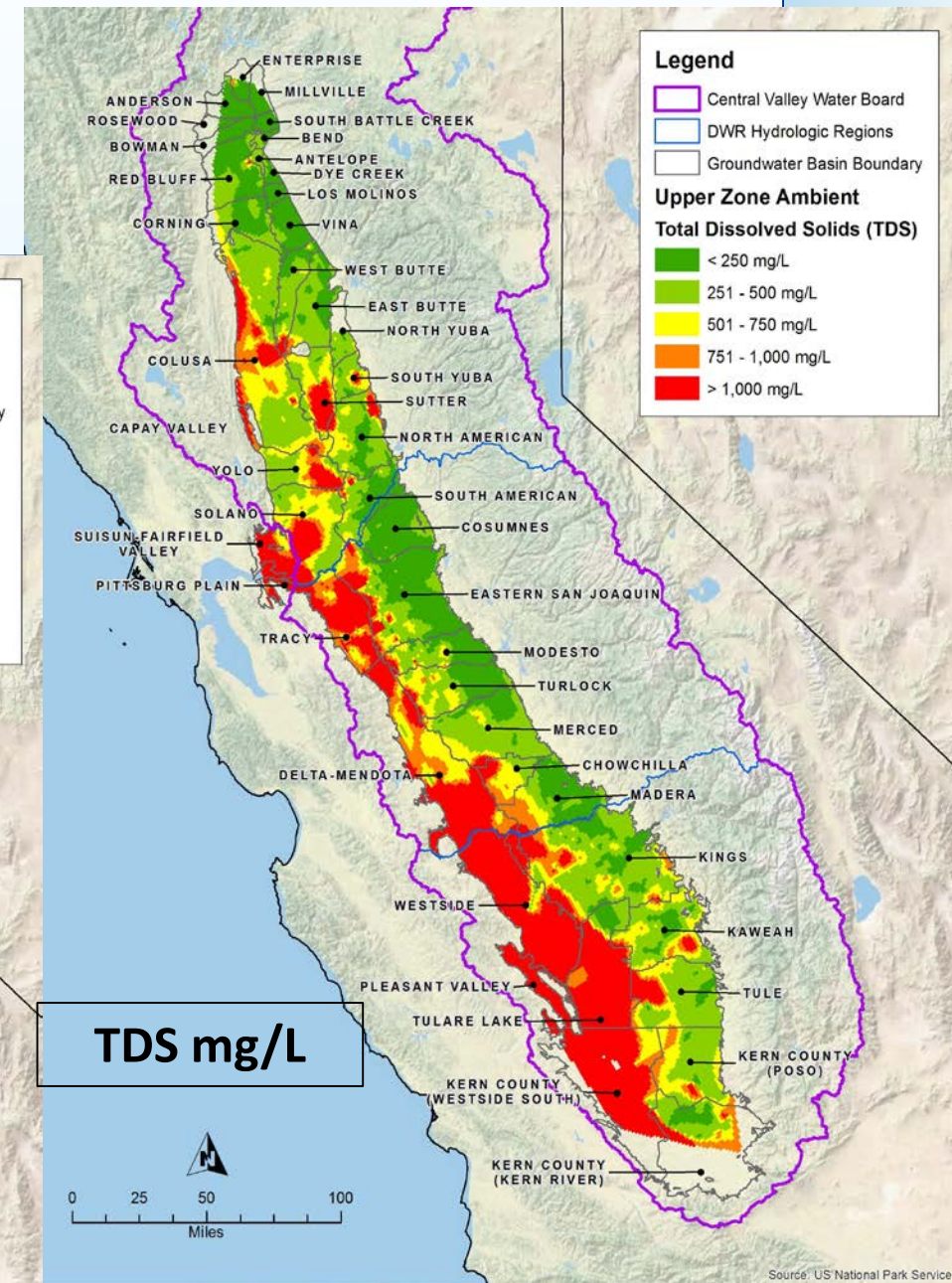
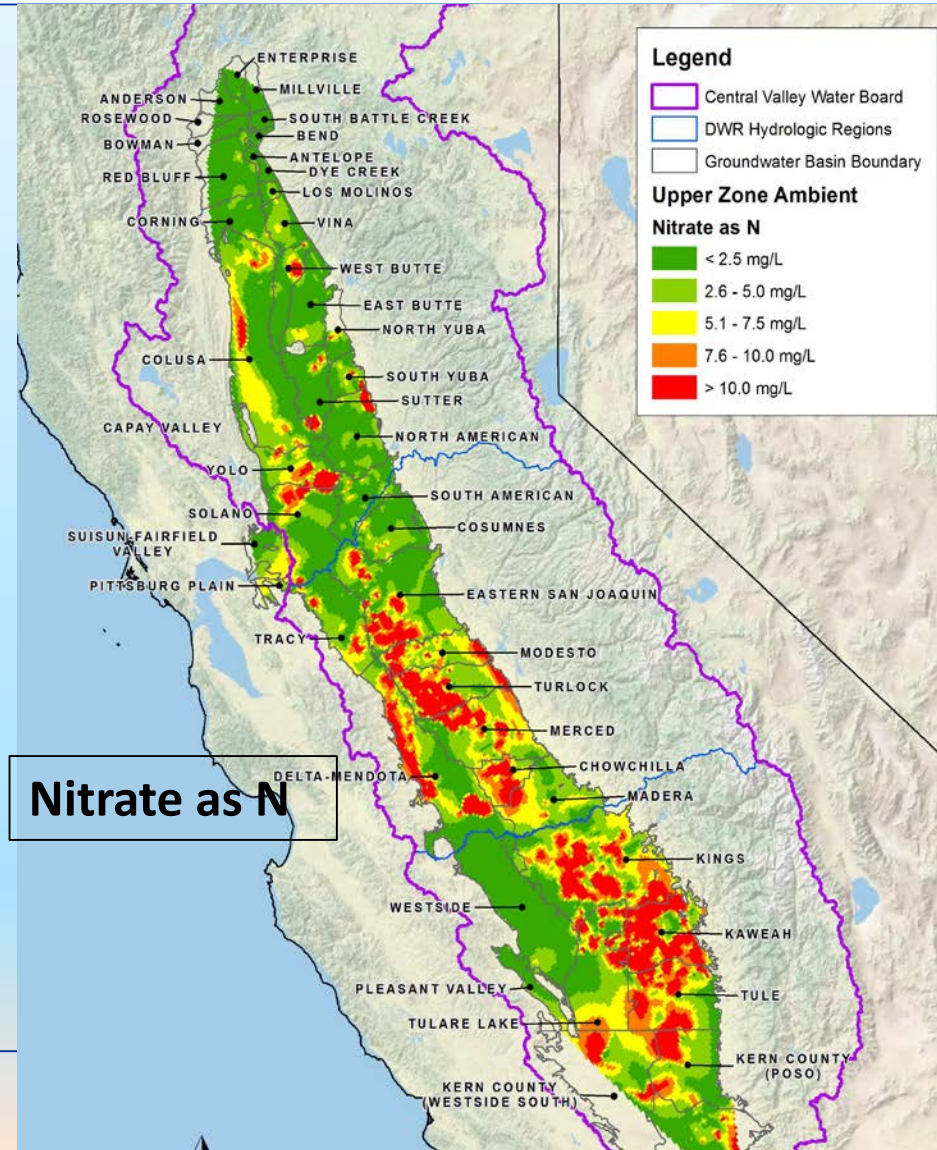
Central Valley/Sierra Foothills WaterReuse Meeting
26 April 2018



Salt/Nitrate Issues

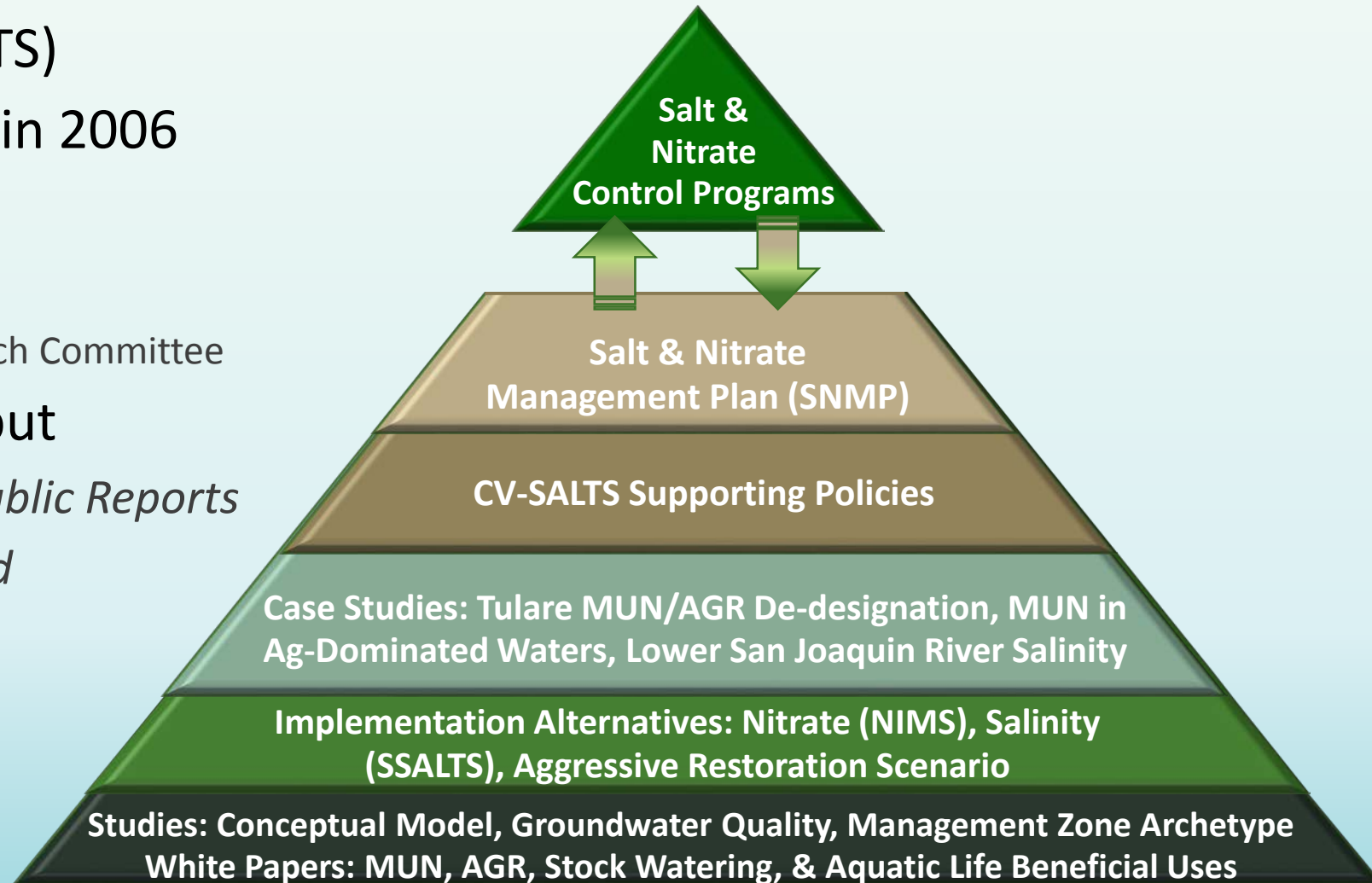
- Ambient Conditions
 - Upper Zone (Average)
 - Area containing 90% of domestic wells

* Where only Electrical Conductivity data were available, it was converted to TDS



CONTROL PROGRAM DEVELOPMENT PROCESS

- Stakeholder-driven (CV-SALTS)
- Multi-year effort – initiated in 2006
 - *Multiple Meetings*
 - >140 Policy
 - >50 Technical (+52 for LSJR)
 - >45 Misc. + Education/Outreach Committee
- Agency Oversight/Public Input
 - *Annual State Water Board Public Reports*
 - *Annual Regional Water Board Workshops*
- Materials posted at:
 - *www.cvsalinity.org*



CONTROL PROGRAMS FRAMED AROUND THREE PRIORITIZED MANAGEMENT GOALS

Management Goal 1

- Safe a Drinking Water Supply
 - Short & Long Term Solutions



Management Goal 2

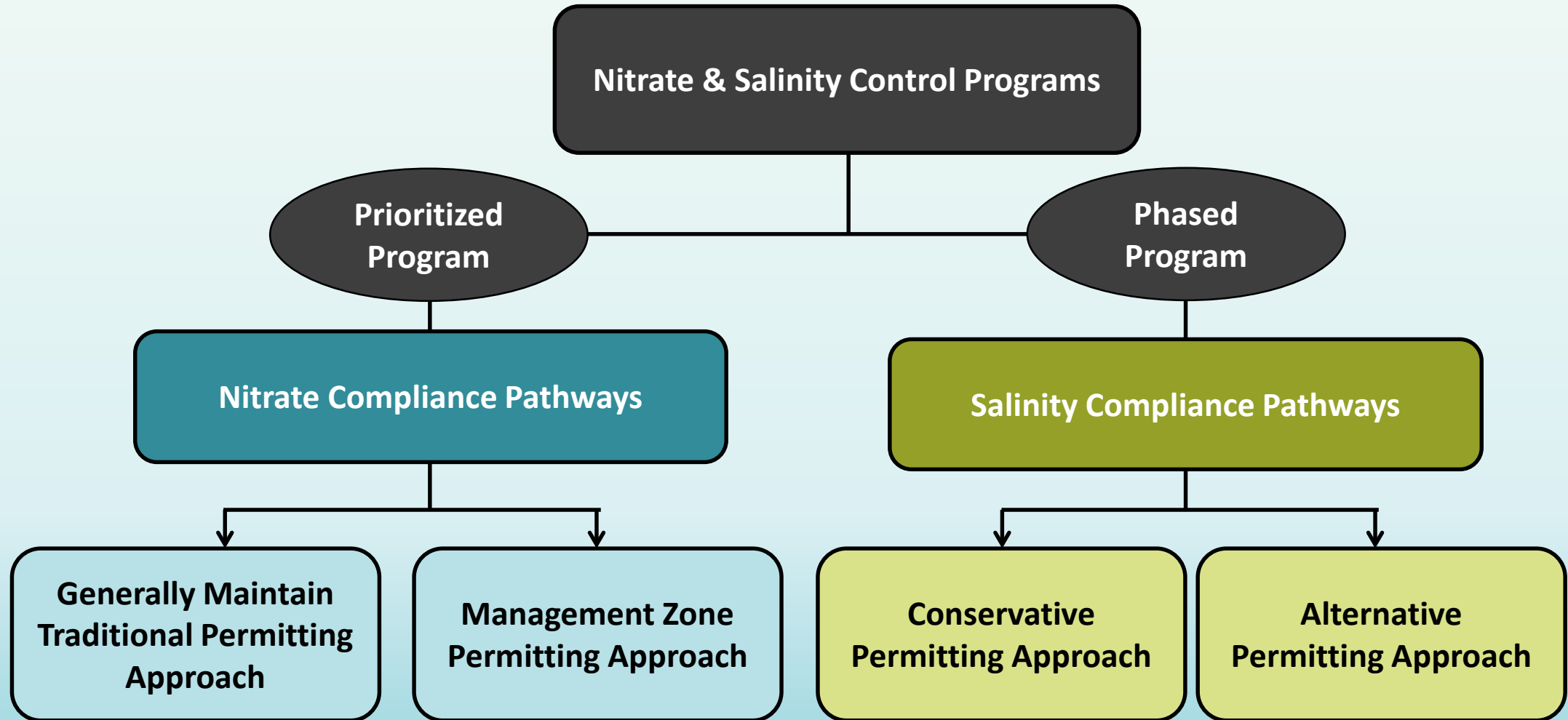
- Balanced Salt & Nitrate Loadings
 - Ongoing and Expanding Efforts



Management Goal 3

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

SALT & NITRATE MANAGEMENT STRATEGY – BROAD PERSPECTIVE



CENTRAL VALLEY SALT AND NITRATE CONTROL PROGRAM

- **Implementation Elements**

- Salt Control Program
 - Surface and Groundwater
- Nitrate Control Program
 - Groundwater
 - Prioritized Basins
 - Management Zones
- Conditional Prohibition of Discharge
- Surveillance and Monitoring
- Program Specific Definitions

- **New/Revised Policies**

- Variances and Exceptions
- Drought and Conservation
- Offsets
- Secondary Maximum Contaminant Levels (clarify application of SMCLs in permitting actions)

(See Handout)

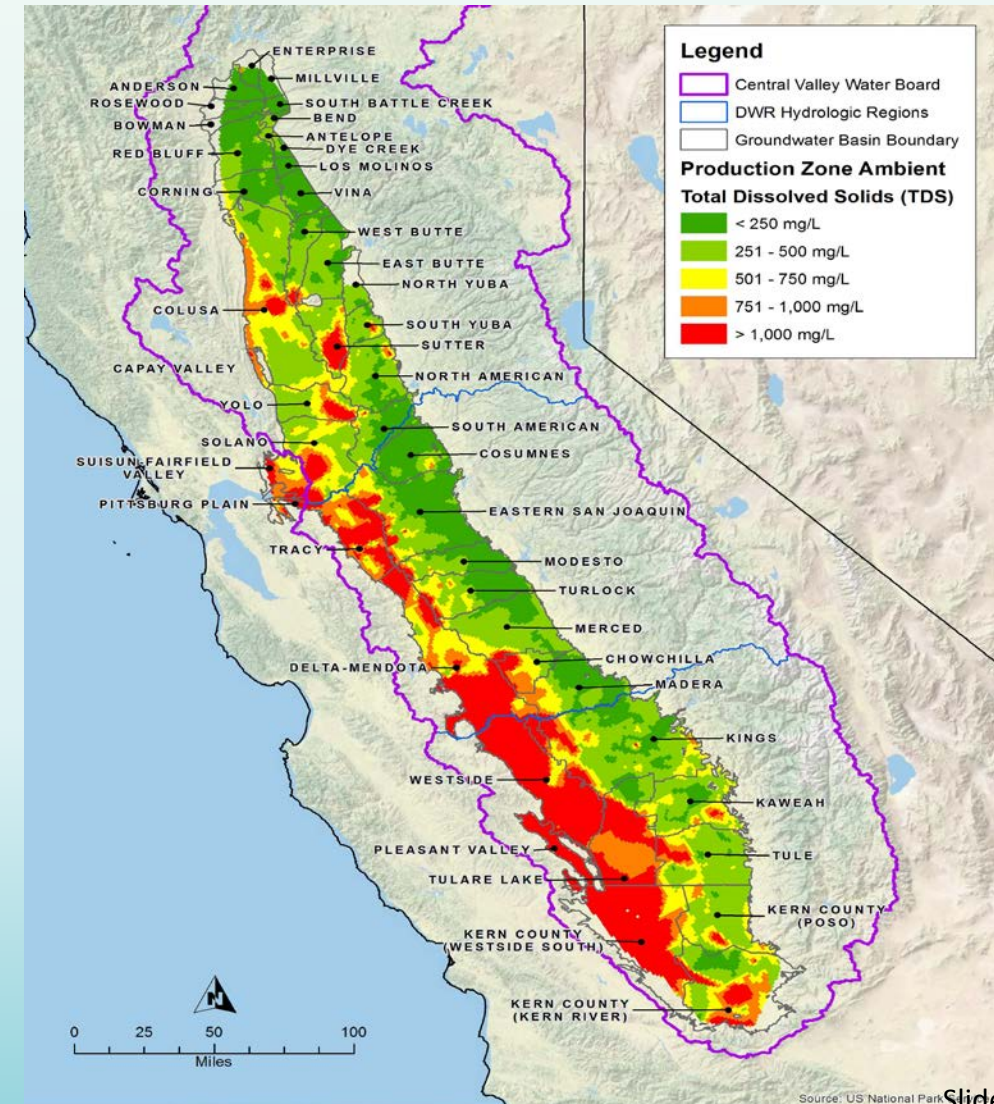


SALINITY CONTROL PROGRAM



SALINITY CONTROL PROGRAM

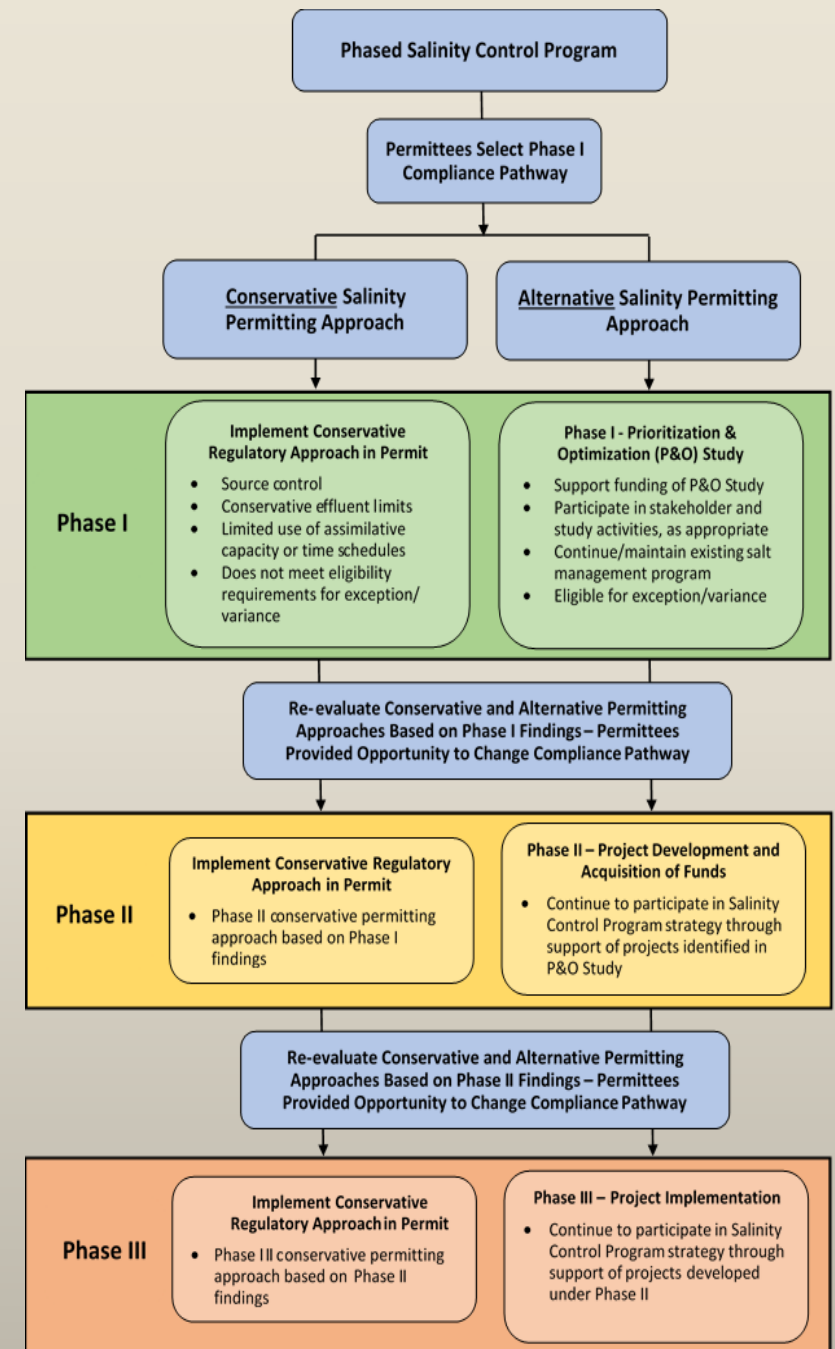
- Phased Approach
 - Basin-Wide
 - Long-term Sustainability
 - Maintain Good Water Quality
 - Improve Poor Water Quality
- Management Goals
 - “Managed Degradation”
 - Sustainability and Protect Salt Sensitive Areas
 - Meet Water Quality Objectives/Long-Term Restoration where reasonable, feasible and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



SALINITY PERMITTING STRATEGY

- Two Compliance Pathways
 - *Conservative Permitting*
 - *Alternative Compliance*
- Phased Approach
 - *10-15 years for each phase*
- Permittees “elects” their compliance pathway at beginning of each phase

(See Handout)



SALINITY PERMITTING STRATEGY

Phase 1: Prioritization/Optimization Study

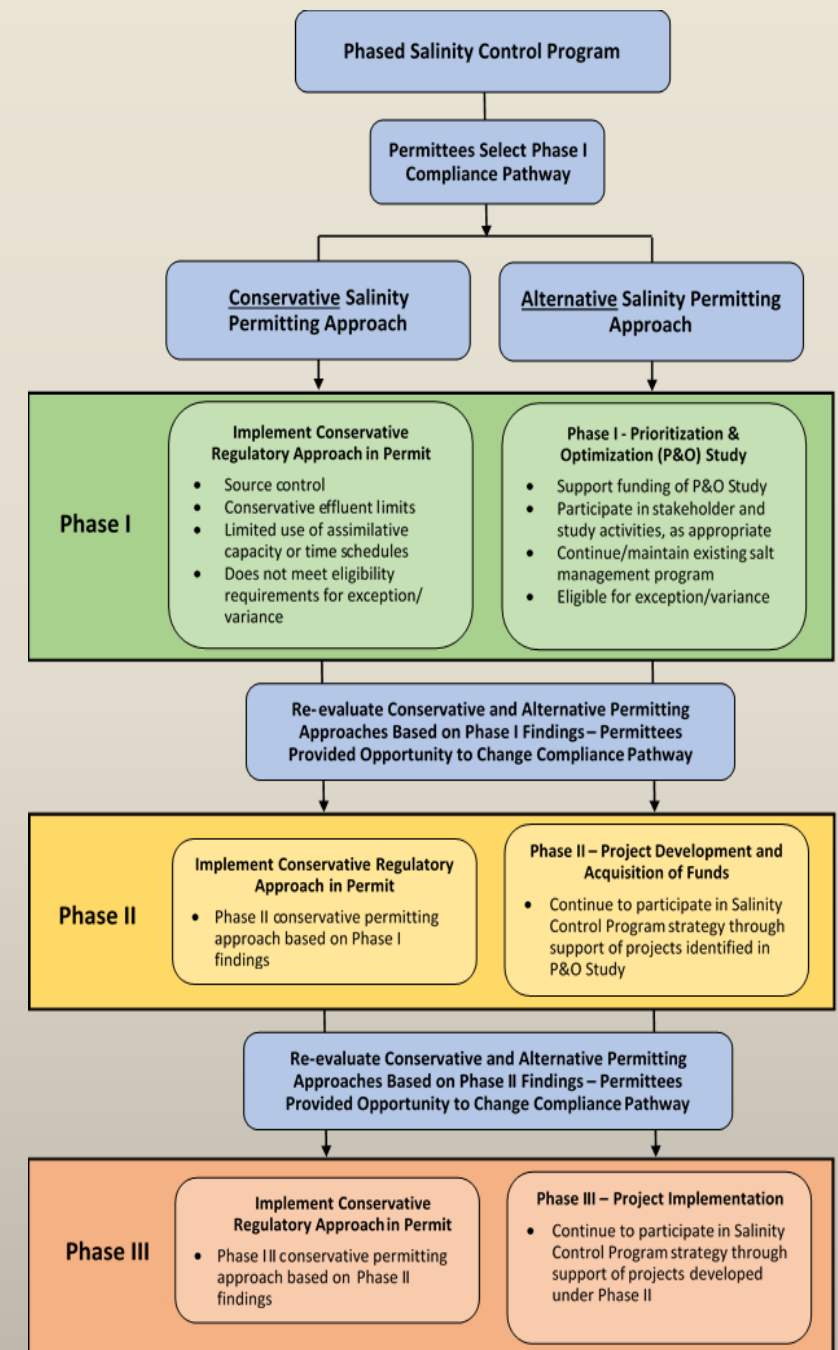
- *Expanded Evaluations*
 - Hydrologic/Policies/Programs
- *Physical/Non-Physical Projects*
- *Governance/Funding*

Phase 2: Project Development

- *Funding/Permits/Non-Physical Projects*

Phase 3: Project Implementation

- *Construction*



PHASE 1

Conservative

All Discharges

- Apply conservative assumptions for interpretation of the narrative objectives and application of numeric water quality objectives to protect AGR and MUN beneficial uses
- Limited availability of a compliance or time schedule to meet a salinity-related effluent limit or waste discharge requirement

Groundwater Discharge and Non-NPDES Discharge

- Limited new or expanded allocation of assimilative capacity in groundwater
- Does not meet eligibility requirements for an exception

NPDES Surface Water Discharge

- A new or expanded allocation of assimilative capacity may be authorized only where a permittee can show that the impact of the discharge is temporary or de minimus
- Does not meet eligibility requirements for a variance

Alternative

All Discharges

- Participate in the Phase I Prioritization and Optimization Study throughout its duration
- Continue implementing reasonable, feasible and practicable efforts to control salinity using performance-based limits, including:
 - Salinity management practices
 - Pollution prevention, watershed, and/or salt reduction plans
 - Monitoring
 - Maintenance of existing discharge concentration or loading levels of salinity

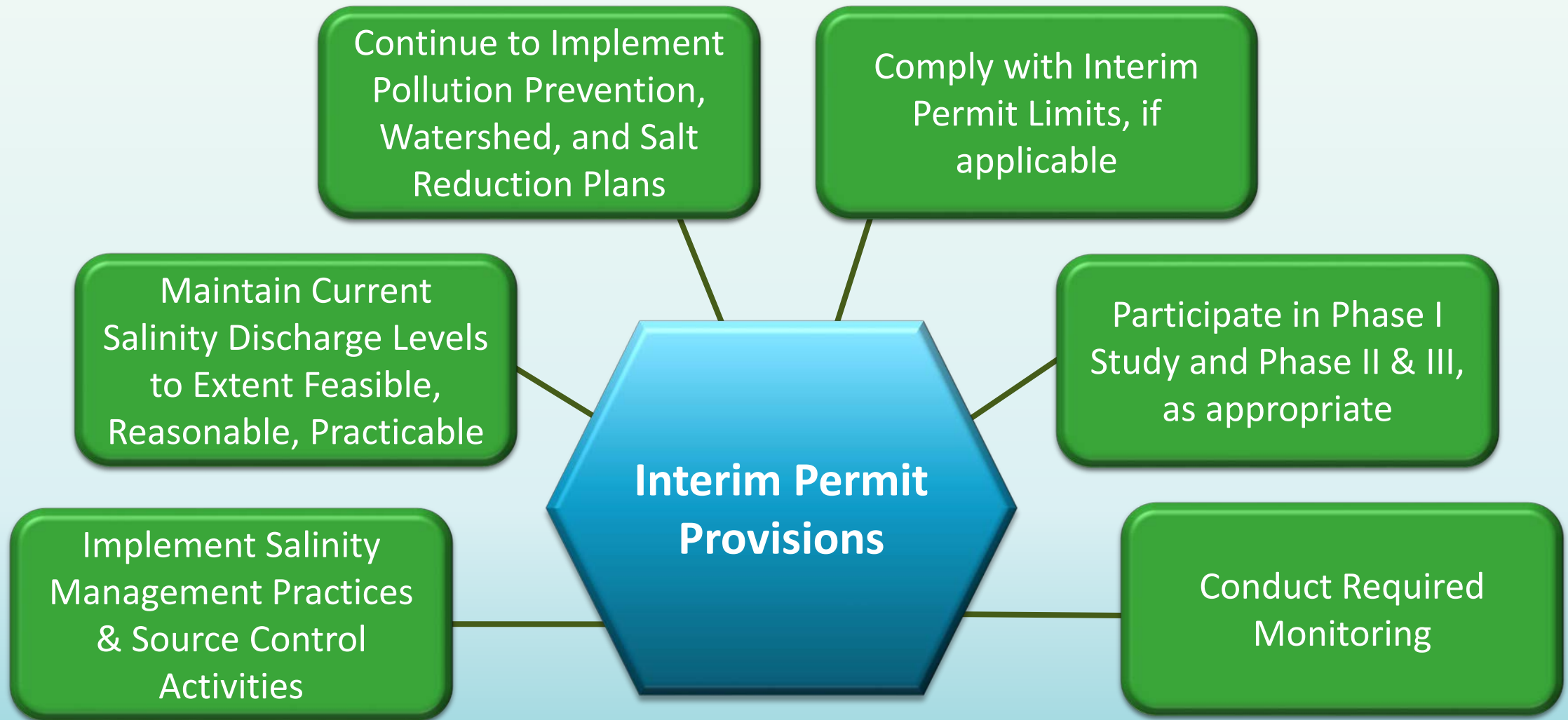
Groundwater and Non-NPDES Discharges

- Salinity limits not used as a compliance metric except to ensure implementation of performance-based measures;
- Permittees that meet requirements of the alternative salinity permitting approach are considered in compliance with their salinity limits

NPDES Surface Water Discharges

- Eligible for a salinity variance

SALINITY ALTERNATIVE PERMITTING APPROACH








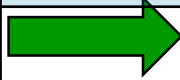



PHASE I – PRIORITIZATION AND OPTIMIZATION STUDY

Category	Year of Implementation										
	1	2	3	4	5	6	7	8	9	10	
Stakeholder Coordination	Stakeholder Coordination Meetings (as needed frequency)										
	SGMA GSA Coordination Meetings (as needed frequency)										
Strategic Planning	Regulatory and Policy Evaluations									Phase II Planning	
Governance	Governance Plan – Formation and Structure					Implementation and Refinement of Governance Plan					
Funding	Funding Plan and Financing Strategy					Implementation of the Funding Plan and Financing Strategy					
Prioritization & Salinity Management Analyses	Prioritization/Salt Management Analyses to Support Identification of Salt Management Projects				Interim Report						
Conceptual Design of Salt Management Project						Concept Design for Subregional Salt Management Projects and Regional CVBL Project					
Special Studies				Groundwater Quality Trace Constituent Study							
			Emerging Tech Update			Emerging Tech Update			Emerging Tech Update		
						Recycled Water Imports Study					
								Stormwater Recharge Master Plan Study			

PHASE I PRIORITIZATION & OPTIMIZATION STUDY IMPLEMENTATION

Issue	Expectations
Who could potentially participate?	<ul style="list-style-type: none">• 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?	<ul style="list-style-type: none">• Anticipated lead - Central Valley Salinity Coalition
How will the Study be implemented?	<ul style="list-style-type: none">• 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?	<ul style="list-style-type: none">• Anticipated to be determined based on a variety of factors, e.g., facility size/type; discharge volume, salt loading, others

SALINITY CONTROL PROGRAM SCHEDULE

Regulatory Actions (Current Estimate)	2018	2019	2020	2021 & following
Central Valley Board Consideration				
State Water Board Consideration				
Office Administrative Law (OAL) Consideration			<i>Trigger to Initiate GW implementation</i>	
EPA Approval (Surface Water only: 6/19)			<i>Trigger to Initiate SW implementation</i>	
Notice to Comply (NTC) Groundwater				<i>w/in 1-yr of OAL approval</i>
Notice of Intent (NOI) – Groundwater				<i>w/in 6-mo of NTC</i>
Notice to Comply - Surface Water				<i>w/in 1-yr of EPA approval</i>
Notice of Intent – Surface Water				<i>w/in 6-mo of NTC</i>
Phase I Implementation (10-15 years)				

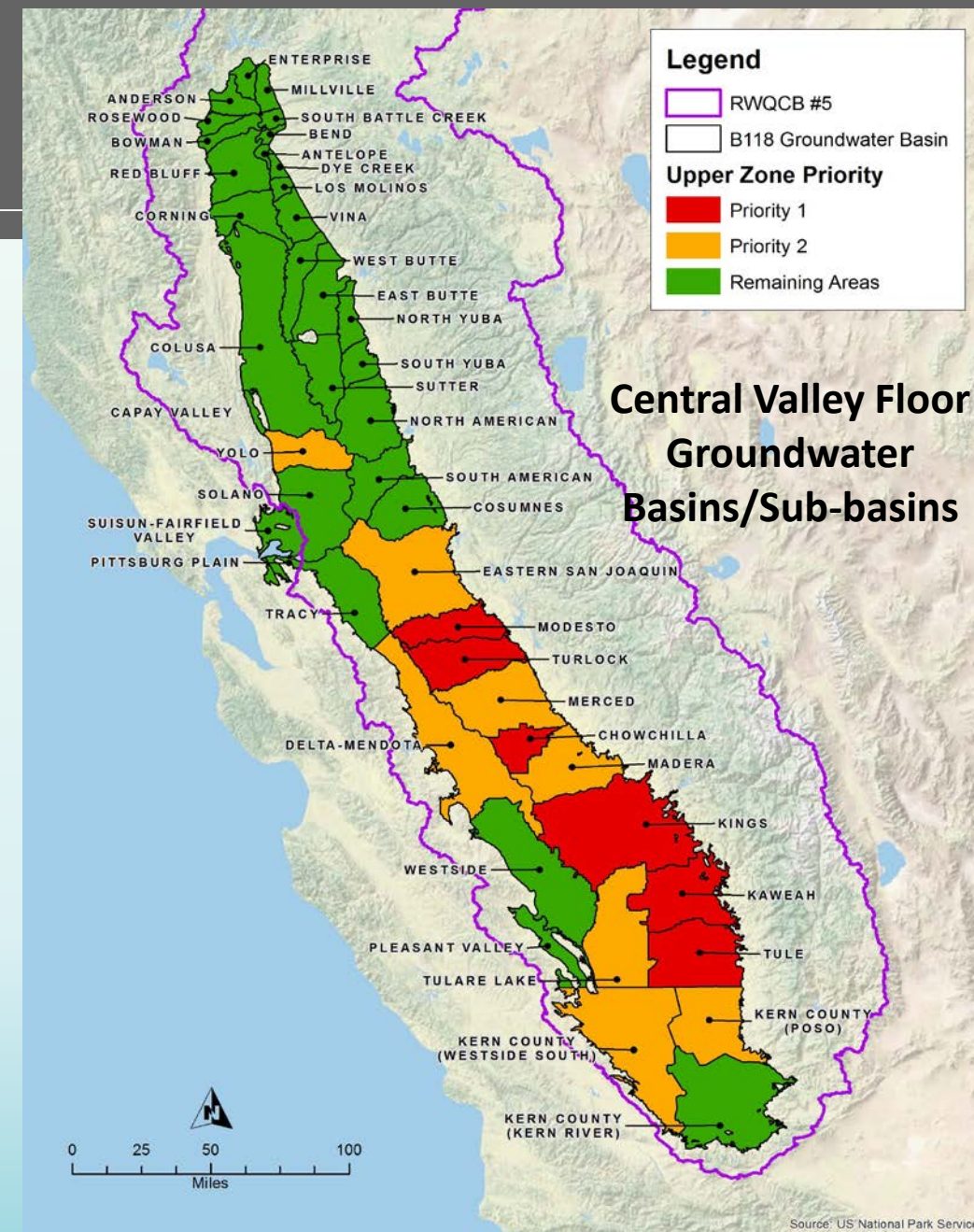


NITRATE CONTROL PROGRAM



RECOMMENDED PRIORITY AREAS

- Groundwater Basins/Sub-basins
 - *Priority 1 Area (Central Valley Floor, Red) – Notice to Comply within one year of Basin Plan amendments becoming effective*
 - *Priority 2 Area (Central Valley Floor, Orange) – Notice to Comply within 2-4 years of Basin Plan amendments becoming effective*
 - *Remaining Areas (Central Valley Floor, Green, and other Basins/Sub-basins outside of the Valley Floor) – Based on available resources, and as determined necessary by the Executive Officer*
- Areas Not Part of a Groundwater Basin
 - *As determined necessary by the Executive Officer*



NITRATE PERMITTING STRATEGY

- Compliance Pathways
 - Path A – Individual Permittee
 - Path B – Management Zone

(See Handout)



COMPLIANCE

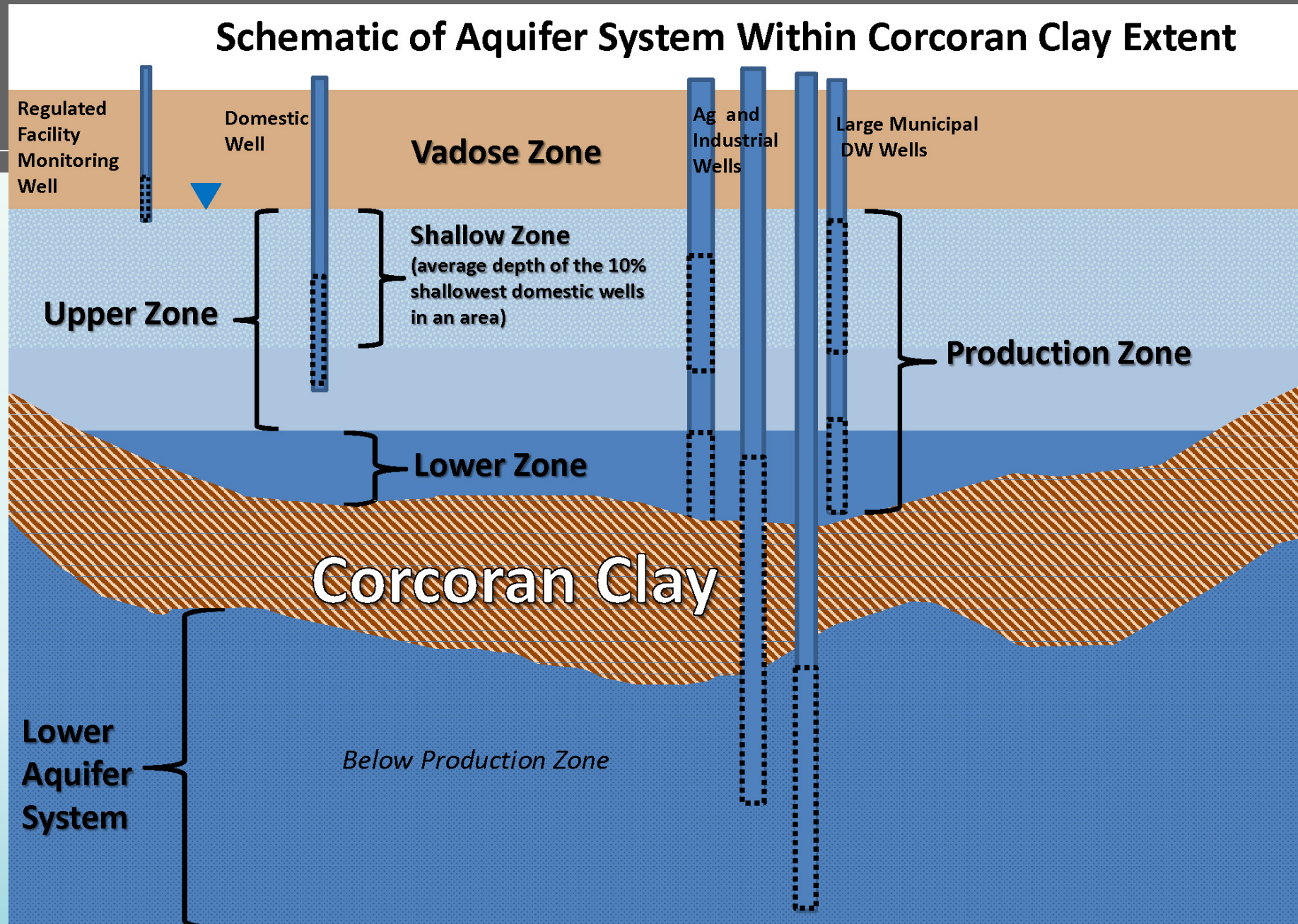
Individual

- *Shallow Zone*

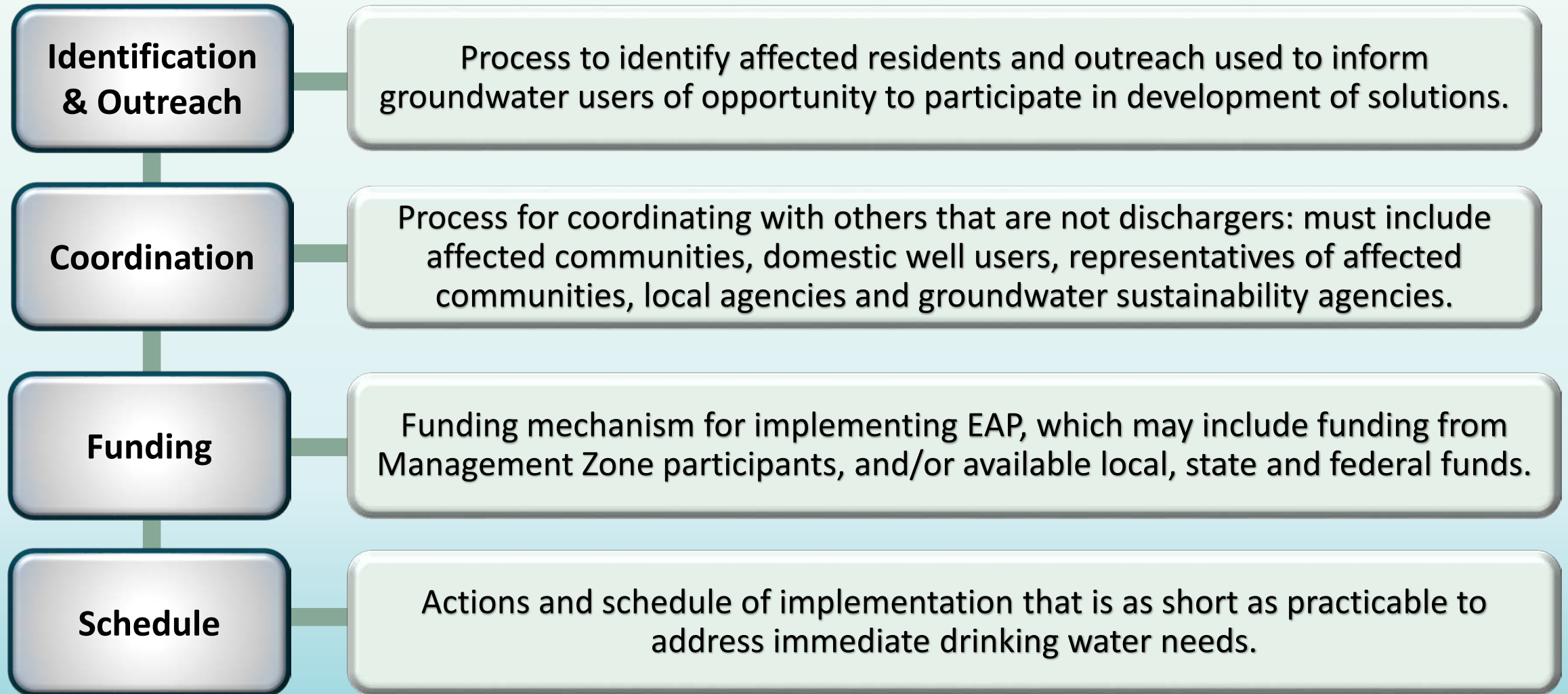
Management Zone

- *Upper Zone*

See
Handout



EARLY ACTION PLAN COMPONENTS (PATH A & B)



ALTERNATIVE COMPLIANCE PROJECT (ACP) REQUIREMENTS

Element	Requirements
Reasons to Request an ACP	<ul style="list-style-type: none">• Support an allocation of assimilative capacity on a volume-weighted basis for a Management Zone• Support an allocation of assimilative capacity request where nitrate is above a trigger level• Support authorization for an Exception
Schedule to Request an ACP	<ul style="list-style-type: none">• Path A, Individual Approach – Submit with Notice of Intent• Path B, Management Zone Approach – Submit with Management Zone Implementation Plan
Minimum Requirements	<ul style="list-style-type: none">• Identification of public water supply and domestic wells contaminated by nitrates within a discharge area's zone of concern• Schedule with milestones for addressing nitrate drinking water issues• Identification of steps to be taken to meet SNMP Management Goals 2 and 3

NITRATE/SALT MANAGEMENT STRATEGY: GENERAL TIMELINE/MILESTONES FOR EXISTING DISCHARGERS

Activity	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	2 nd 10 Years	3 rd 10 Years
Effective Basin Plan amendment		★										
Nitrate – Priority 1 Areas			1		3	4						
Nitrate – Priority 2 Areas					2	3	4					
Nitrate – Remaining Areas								5				
Salinity Management	Phase I Prioritization and Optimization Study (further define short and long-term projects to manage salt in the Central Valley)										Phase II – Permitting, Engineering Design	Phase III – Project Construction

- 1** Notice to Comply (NTC) (within 1 year of BPA effective date)

2 NTC (within 2-4 years of BPA effective date)
- 3** Initial planning (w/i ~15 months of NTC), including develop/implement Early Action Plan to address drinking water concerns

5 For remaining areas, the time to a NTC to be determined
- 4** ~180 days to complete Management Zone Implementation Plan; per Board review, process to revise existing WDRs/Waivers with discharger-specific nitrate management requirements initiated



SURVEILLANCE AND MONITORING



SURVEILLANCE AND MONITORING PROGRAM

Goals (Salt and Nitrate)

- *Assess the effectiveness of the Control Program;*
- *Develop statistically-representative ambient water quality and trends*
 - Surface Water and Groundwater (Upper, Lower and Production Zones)
- *Maximize the use of existing monitoring programs.*

General Requirements:

- *Lead Entity: Gather, consolidate and evaluate*
- *Within two years: Work Plan and a Quality Assurance Project Plan.*
- *Reports at least once every 5-years (unless alternative schedule EO approved)*
- Permittees must provide confirmation of program support through Lead Entity

ENSURE IMPLEMENTATION OF TIME SENSITIVE COMPONENTS



CONDITIONAL PROHIBITION OF SALT AND NITRATE DISCHARGES—DIRECTLY ENFORCEABLE

- Permittees that discharge salt and/or nitrate pursuant to a WDR or Conditional Waiver and are not regulated under the Irrigated Lands Regulatory Program (ILRP):
 - *Upon receiving a Notice to Comply, discharges of salt and/or nitrate are prohibited unless a permittee implements the requirements of the Salt and Nitrate Control Program*
 - *Prohibition applies until such time that the permittees' existing WDR or Waiver is updated or amended*
- Timing for Permit Updates
 - *Salinity: After receipt of Notice of Intent*
 - *Nitrate: Path A—After receipt of Notice of Intent*
Path B—After receipt Management Zone Implementation Plan





SELECT SUPPORTING POLICIES



- Variance/Exception
- Drought and Conservation
- SMCLs

VARIANCE AND EXCEPTION POLICIES

Salt Variance Policy*

- *Extend 15-years from effective date amendment*
- *Requires participation in P&O Study*

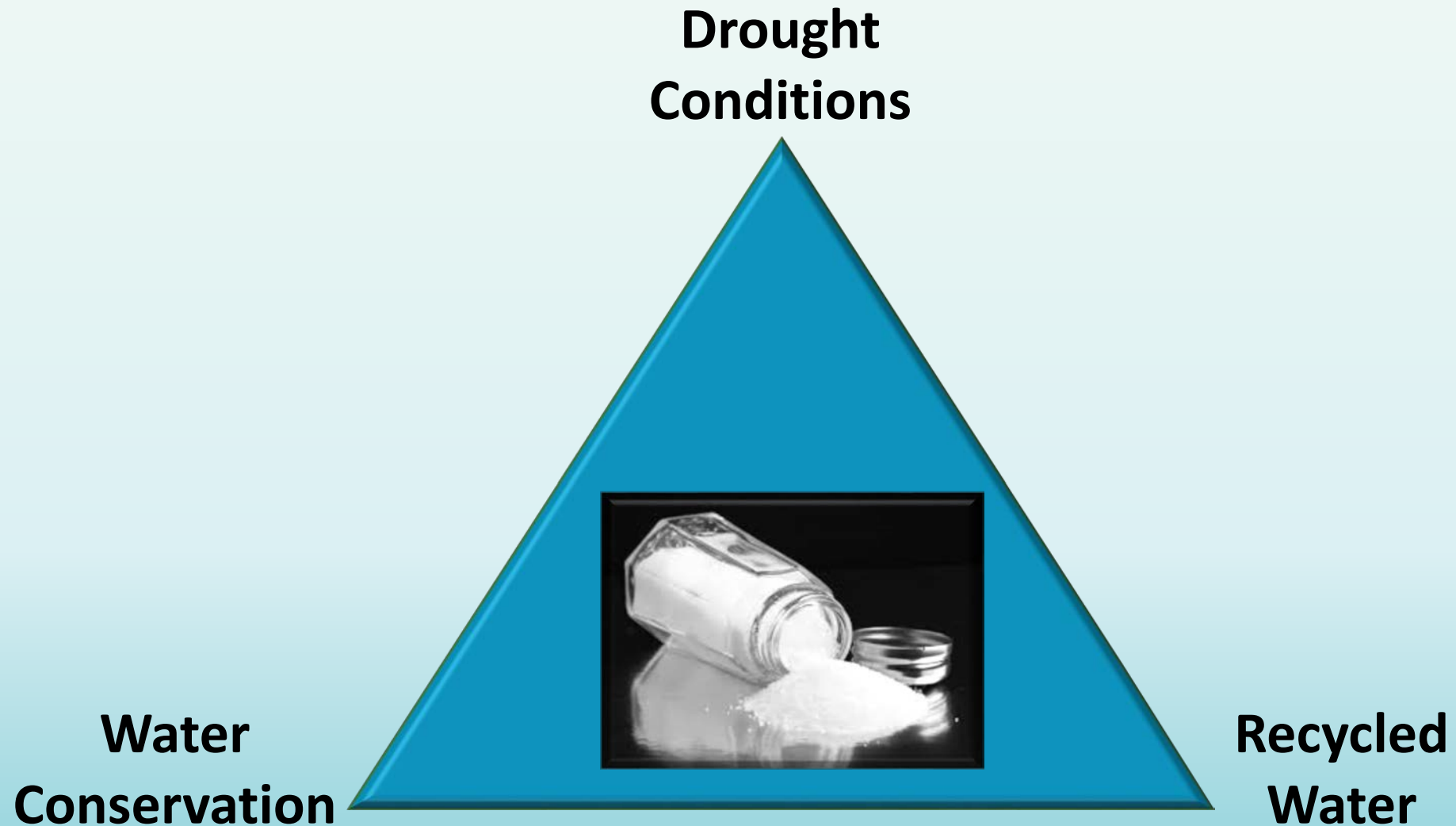
*Under Salt Control Program:

Only dischargers participating in P&O Study Eligible

Exceptions Policy*

- *Adds Nitrate and Boron*
- *Notes for Phase I Salt Exception not Required*
- *Term generally <10-yrs (Renewable)*
 - *Can only exceed 50-yrs if significant, measurable, continuing improvements*
- *5-year status reports*
- *Nitrate: MUST insure safe drinking water supplies to impacted users (short and long-term) and meet long-term program goals*
- *Boron: More detailed requirements (reduction workplan; CEQA; etc.)*

NEED FOR A DROUGHT AND CONSERVATION POLICY



DROUGHT AND CONSERVATION POLICY

Criteria

- *Drought and/or local emergency declared that impacts supply*
- *Conservation and/or Recycling increase salinity in effluent, discharges to receiving water and/or the receiving water*

Provisions

- *Drought*
 - *Interim limits to 2,200 EC for 30-day running average*
 - *Concentration OR Loading Limit*
- *Conservation and/or Recycling*
 - *Receiving water quality set as limit if no downgradient impacts*
 - *Limit based on historic TDS loading with increment for growth*
 - *GW Limits: Long-term (>10-yr) flow-weighted average*
 - *Need 20+ year commitment*

22 CALIFORNIA CODE OF REGULATIONS §64449

Table A

Constituents	Maximum Contaminant Levels/Units
Aluminum	0.2 mg/L
Color	15 Units
Copper	1.0 mg/L
Foaming Agents (MBAS)	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Methyl-tert-butyl ether(MTBE)	0.005 mg/L
Odor – Threshold	3 Units
Silver	0.1 mg/L
Thiobencarb	0.001 mg/L
Turbidity	5 Units
Zinc	5.0 mg/L

Table B

Constituents, Units	Recommended	Upper	Short Term
Total Dissolved Solids, mg/L, or -- Specific Conductance, µS/cm	500 -- 900	1,000 -- 1,600	1,500 -- 2,200
Chloride, mg/L	250	500	600
Sulfate, mg/L	250	500	600

CLARIFICATIONS USE OF SMCLS

Water Quality Objectives

- Incorporate Title 22 Contextual Language
 - *Ability to utilize range of salinity to “Upper” level*
 - *“Short-term” concentrations can only be authorized temporarily under certain conditions*
- Encourage use of the “Recommended” concentrations where feasible
- Compliance with Table A & B parameters:
 - *Surface Water: Annual Averages*
 - *Groundwater:*
 - Annual Average for water supplied to consumer
 - Long-term average for ambient groundwater quality



CLARIFICATIONS USE OF SMCLS

Implementation

- For waters *NOT* exempt from filtration requirements
 - *Utilized dissolved results to measure compliance for up to 10-years*
 - Aluminum, Copper, Iron, Manganese, Silver, Zinc, Turbidity, Color
 - *During 10-years studies to be completed to determine appropriate total to dissolved ratios (“translators”)*
- Factors to consider included in Staff Report Appendix (e.g. environmental conditions; treatment capabilities; cost; cumulative impacts)





NEXT STEPS



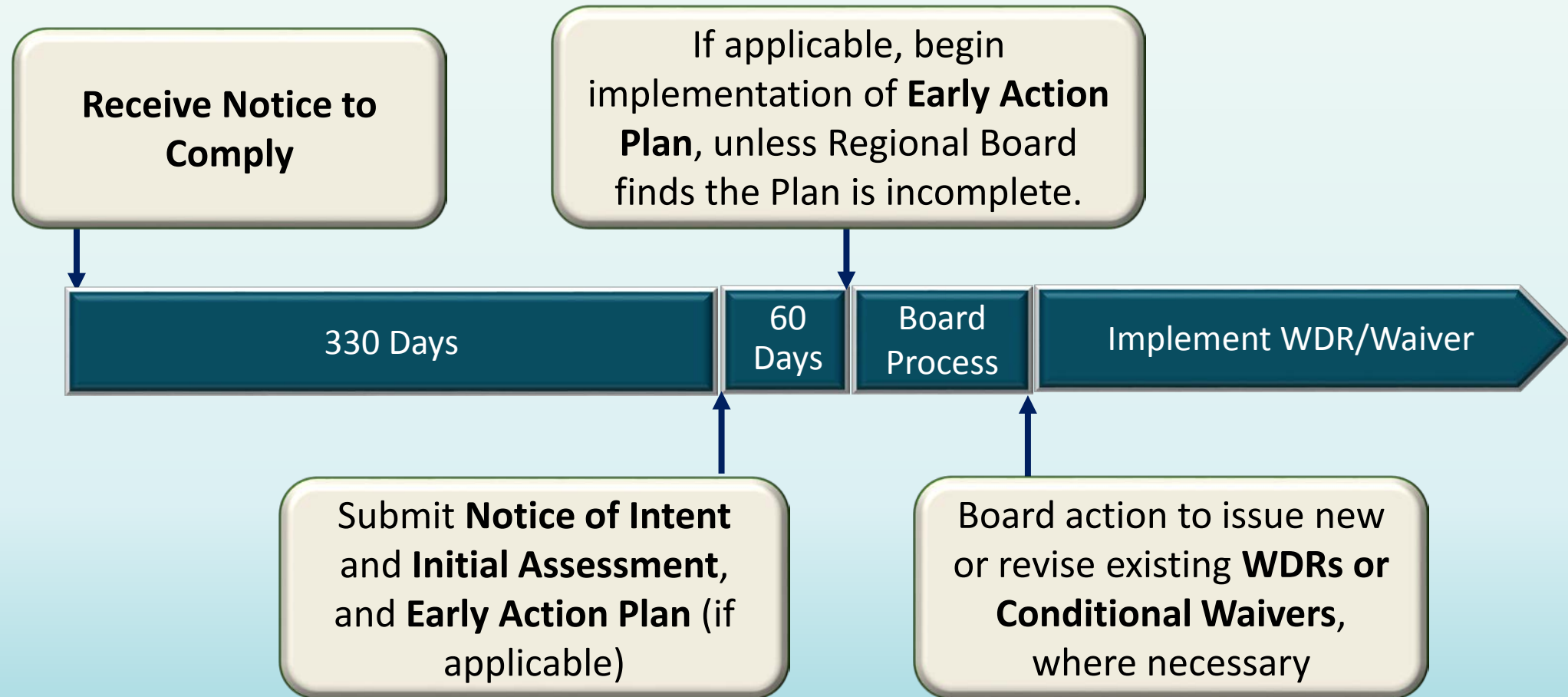
SCHEDULE TO ADOPT BASIN PLAN AMENDMENTS AND IMPLEMENTATION

Date	Deliverable/Action
22 March 2018	Draft Staff Report Released
7 May 2018	Written Comments Due
31 May and 1 June 2018	Public Hearing to Consider Adoption
2019	State Water Board Approval Consideration
2019	Office Administrative Law Approval Consideration - Groundwater Components Effective Upon Approval
2020	USEPA Approval Consideration - Surface Water Components Effective Upon Approval
2020	Initiate Notice to Comply Mailings

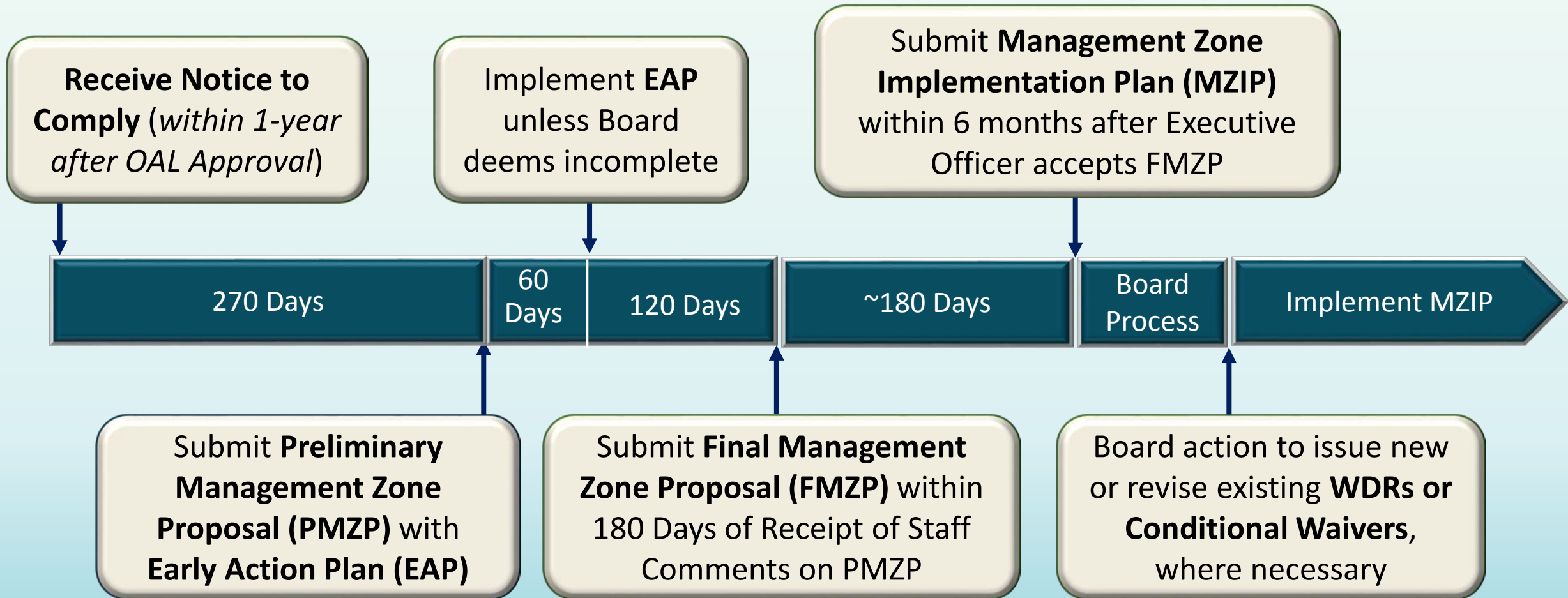
An aerial photograph showing a landscape with a winding river or canal. The river flows from the top left towards the right, then curves downwards. The banks are lined with dense green trees and vegetation. In the foreground, there are large, rectangular plots of land, some of which appear to be planted with young trees or crops. The background shows a mix of green and brown fields, suggesting a rural or agricultural area. The word "Questions?" is overlaid in white text in the center of the image.

Questions?

PATH A - INDIVIDUAL DISCHARGER TIMELINE



MANAGEMENT ZONE DELIVERABLES: PRIORITY 1 AREAS



CENTRAL VALLEY SALT & NITRATE ISSUES

Nitrate Issues

Human Health

- Legacy and existing conditions
- Direct impacts to drinking water supplies
- Significant economic costs
 - Treatment
 - Alternate supply
- Diverse sources of nitrate to managed

Salt Issues

Long-term Sustainability

- More salt enters the Central Valley Region than leaves
 - Impacts (current/legacy)
 - *Agricultural Production*
 - *Drinking Water Supplies*
 - Economic Cost
 - *Direct Annual: \$1.5 Billion*
 - *Statewide Annual Income Impact: \$3.0 Billion*
 - Diverse Sources