Salt/Nutrient Management Plans,
Basin Plan Amendments,
And
Piru, Fillmore and Santa Paula Basins

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Introduction

- The State Water Resource Control Board has identified a need for salt and nutrient management in all groundwater basins.
- The objectives of this management are:
  - To optimize recycled water use
  - To protect groundwater supply and beneficial uses
  - To protect agricultural beneficial use and
  - To protect human health

Introduction

- The Recycled Water Policy adopted in 2009 described salt/nutrient management plans to be completed between 2014 and 2016.
  - Basin-wide approach to groundwater management
  - Stakeholders to develop implementation plans for meeting objectives for salts and nutrients.
  - Implementation plans to be adopted by Regional Water Boards as Basin Plan Amendments.

Introduction

- What if basin-wide Salt/Nutrient Management Plans are not completed?
  - Individual monitoring programs for each recycled water project
  - Sole mitigation requirements
  - Lose opportunity for regional salinity management
  - Stakeholders loss opportunity to control regional salinity management

Overview of Presentation

- Elements of Salt/Nutrient Management Plans
- Groundwater Basin Data
- Basin Planning Process
- Funding
- Santa Clara TMDLs
- Piru/Fillmore and Santa Paula Basins

Salt/Nutrient Management Plan: Required Elements

- Basin-wide Monitoring
  - Assess basin groundwater quality
  - Constituents and frequency
  - Monitor groundwater and surface water connectivity
  - Identify responsible stakeholder(s)
- Provision for monitoring of Constituents of emerging concern (CECs) in recycled water

Salt/Nutrient Management Plan: Required Elements

- Water Recycling and Stormwater Recharge/Use Goals and Objectives
- Salt/Nutrient Source Identification, Basin/Sub-Basin Assimilative Capacity, Loading Rates, Fate and Transport of Salt/Nutrients
- Implementation Measures to Manage S/N Loading
- Antidegradation Analysis

Salt/Nutrient Management Plan: Suggested Elements

- Groundwater Basin Overview
  - Physiographic description
  - Groundwater basin identification and boundaries
  - Watershed boundaries
  - Geology
  - Hydrogeology/Hydrology
  - Recharge areas
  - Climate
  - Landcover and landuse
  - Water sources

Salt/Nutrient Management Plan: Suggested Elements

- Basin Water Quality
  - Groundwater quality: Past and present
  - Beneficial uses
  - Surface water quality: Effect on groundwater
  - Delivered water, imported water, and recycled water
- Water Balance
  - Conceptual model
  - Basin inflow/outflow

Salt/Nutrient Management Plan: Suggested Elements

- Salt/Nutrient Balance
  - Conceptual model
  - Source identification
  - Loading estimates
  - Basin assimilative capacity
  - Fate and transport of salt/nutrients
- Salt/Nutrient Management Strategies
  - Load reduction goals
  - Changes in land development and use
  - Salt/Nutrient management options
    - Feasibility analysis
    - Cost analysis

Salt/Nutrient Management Plan: Additional Elements

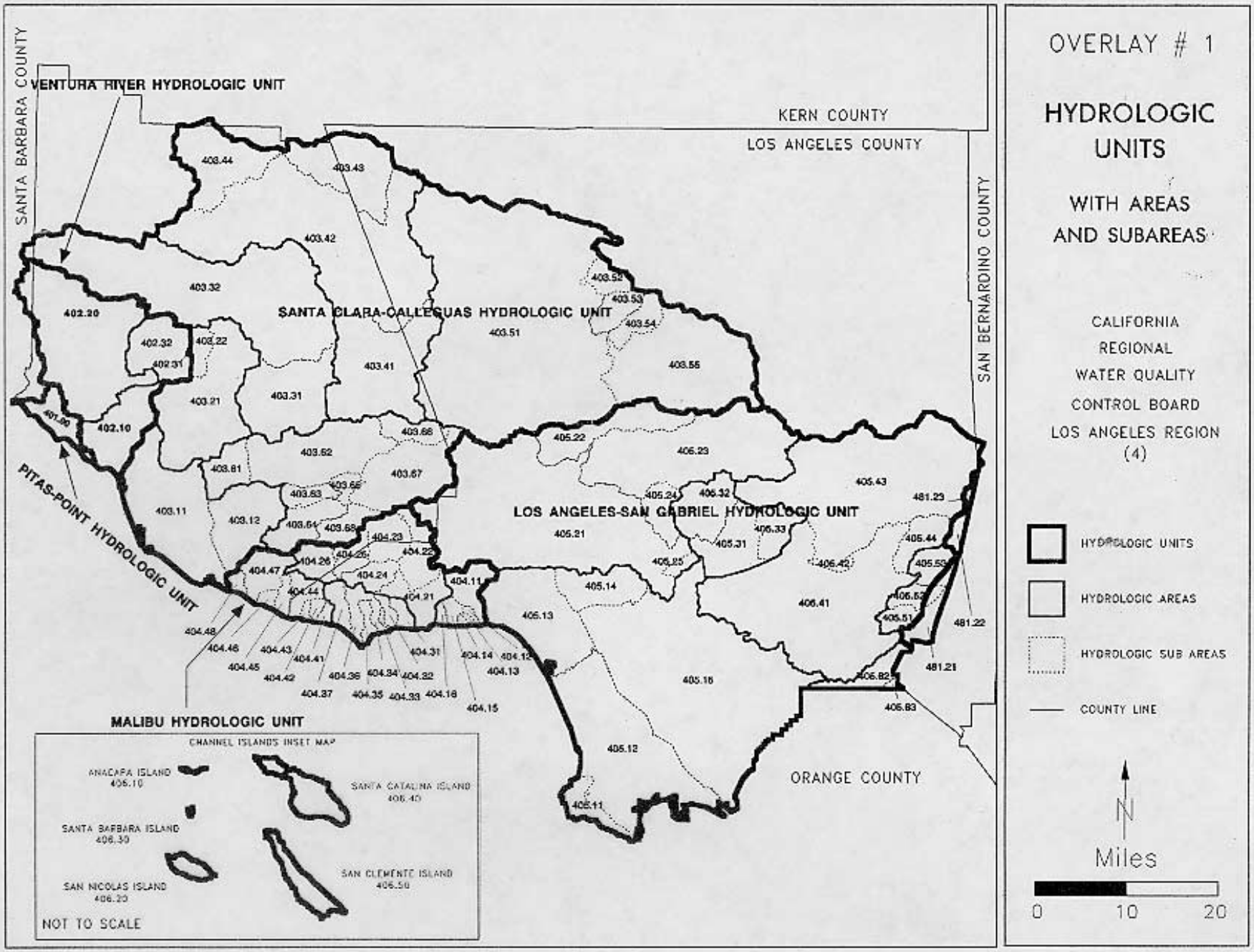
- The need for additional studies will be dictated by the complexity of the basin
  - Type and number of sources of salts/nutrients
  - Quantity (load) of S/N discharged
  - Impairments and/or threats to groundwater quality and beneficial uses
  - Data gaps

Next Up

- Groundwater Basins

Los Angeles Region: Groundwater basins

- Eleven major basins identified by hydrographic area (Central, West, San Gabriel, San Fernando, Las Posas, Santa Monica, Raymond, Pleasant Valley, Hollywood, Ventura, Santa Clara)
- Thirteen smaller basins (DWR Bull.118)
- Sixty four other sub-basins or small basins (LARWQCB Basin Plan)

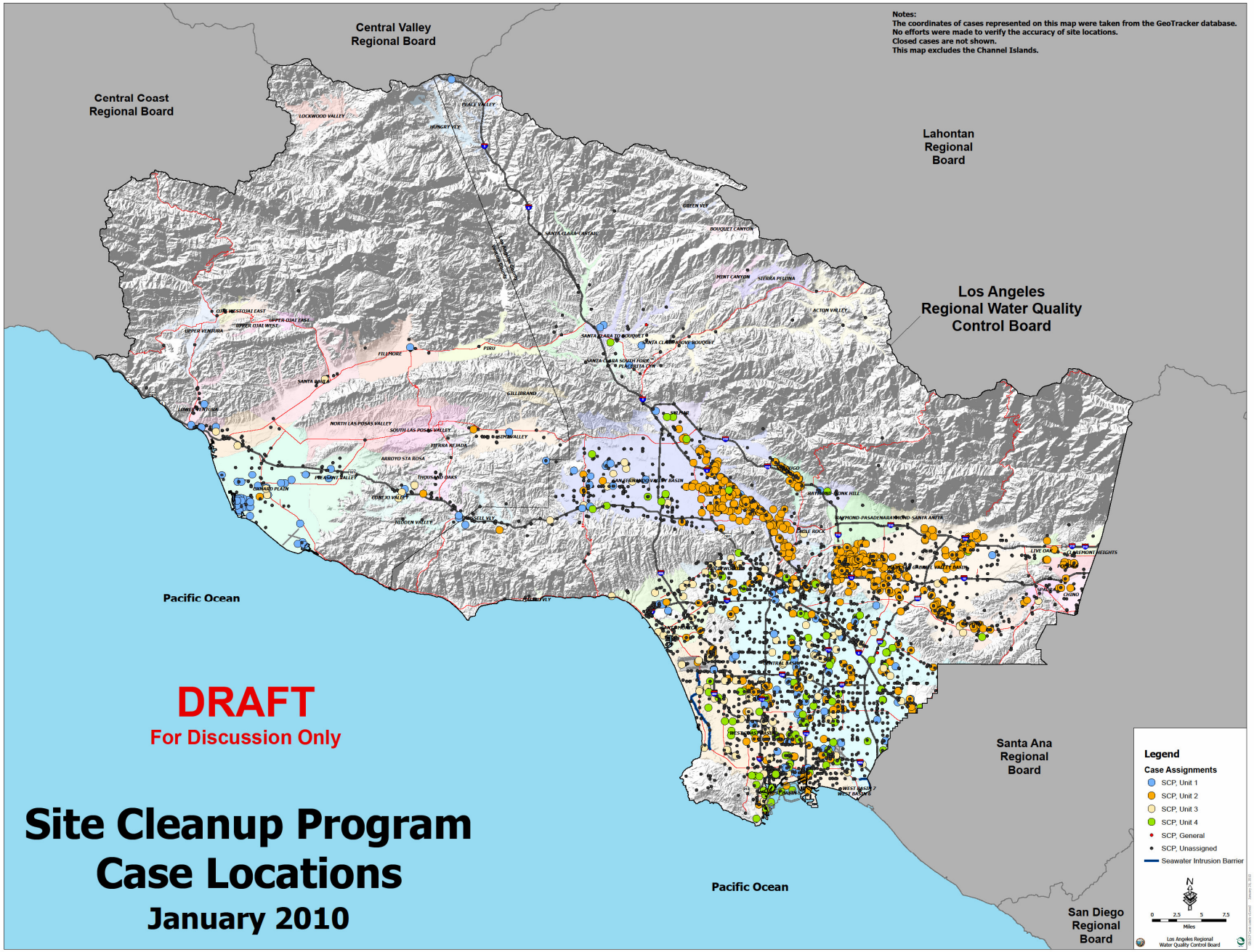

OVERLAY # 1
HYDROLOGIC UNITS
WITH AREAS AND SUBAREAS
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD LOS ANGELES REGION (4)
HYDROLOGIC UNITS
HYDROLOGIC AREAS
HYDROLOGIC SUB AREAS
COUNTY LINE
N
Miles
0
10
20
SANTA BARBARA COUNTY
VENTURA RIVER HYDROLOGIC UNIT
KERN COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SANTA CLARA-CALLEGUAS HYDROLOGIC UNIT
LOS ANGELES-SAN GABRIEL HYDROLOGIC UNIT
PITAS-POINT HYDROLOGIC UNIT
MALIBU HYDROLOGIC UNIT
ORANGE COUNTY
CHANNEL ISLANDS INSET MAP
ANACAPA ISLAND 406.10
SANTA CATALINA ISLAND 406.40
SANTA BARBARA ISLAND 406.30
SAN NICOLAS ISLAND 406.20
SAN CLEMENTE ISLAND 406.50
NOT TO SCALE

Groundwater Beneficial Uses

- All Groundwater basins: MUN beneficial use
- San Gabriel : AGR, River/Alamitos Bay Ecosystems
- San Fernando: AGR, River/RARE Long Beach Harbor Ecosytems
- Santa Clara: AGR, River/RARE Estuary Ecosystems
- Ventura: AGR, RARE Shore Ecosystem
- West/Central/Hollywood/Santa Monica: AGR, RARE Ballona Wetland Ecosystems
- Las Posas/Pleasant Valley: AGR, Calleguas Creek/RARE Mugu Lagoon Ecosystems

Limitations on Quality

- West: Seawater
- San Gabriel: Nitrate, VOC, 4 Superfunds
- San Fernando: Nitrate, VOC, PCE, Sulfate, Metals
- Raymond: Nitrate, VOC, Superfund
- Santa Clara: Salts, nutrients


Notes:
The coordinates of cases represented on this map were taken from the GeoTracker database.
No efforts were made to verify the accuracy of site locations.
Closed cases are not shown.
This map excludes the Channel Islands.
Central Valley Regional Board
Central Coast Regional Board
Lahontan Regional Board
Los Angeles Regional Water Quality Control Board
Santa Ana Regional Board
San Diego Regional Board
Pacific Ocean
Pacific Ocean
DRAFT
For Discussion Only
Site Cleanup Program
Case Locations
January 2010
Legend
Case Assignments
SCP, Unit 1
SCP, Unit 2
SCP, Unit 3
SCP, Unit 4
SCP, General
SCP, Unassigned
Seawater Intrusion Barrier
N
0 2.5 5 7.5
Miles
Los Angeles Regional Water Quality Control Board

Next Up…

- Basin Plan Amendments

Basin Plans – Brief Overview

- 10 Regional Water Quality Control Plans
  - 9 Regions in California
  - Los Angeles Water Board has 1 Plan
- Regional Water Quality Control Plan = Basin Plan
- Los Angeles and Ventura Counties Salt and Nutrient Management Plans to be incorporated into each regions Water Quality Control Plan

Basin Plans – Brief Overview

- Basin Plans are adopted as regulations
  - They have the force and effect of law.
- Basin Plans must be reviewed "from time to time"
- Basin Plans may be revised
- Basin Plan Revisions must be done in accordance with State and Federal Laws
- Basin Plans apply to both surface and ground water in California

Basin Plans – Brief Overview

- Basin Plans consist of a designation or establishment for the waters within a specified area of the following:

  (1) Beneficial uses to be protected.

  (2) Water quality objectives.

  (3) A program of implementation needed for achieving water quality objectives – including monitoring and surveillance

Basin Plan Amendments

- Must include Implementation (Water Code § 13242)
  - Options for Program of Implementation include:
    - No change to implementation provisions
    - Modification of implementation provisions
    - New implementation provisions
    - Evaluate alternative implementation mechanisms, if appropriate
      - Prohibition of discharge
      - Waste discharge requirements
      - Waiver of waste discharge requirements
      - Cleanup and abatement order
      - 13267 orders

Basin Plan Amendments

- Must Include Monitoring and Surveillance
- Alternatives to Consider
  - No change – monitoring currently described in Basin Plan addresses new amendment
  - Adopt general monitoring goals – provide flexibility, but ensure basic information is collected
  - Specific direction (sites/constituents) – if flexibility is not desired and no changes in monitoring expected

Incorporating CEQA

- Basin Planning is a "certified regulatory program"
  - Exempt from requirement to prepare
    - Initial study
    - Negative Declaration
    - Environmental Impact Report
  - Instead, prepare" substitute environmental documentation" that fulfills same information needs as traditional CEQA documents
- Scoping Meeting Required

  (Pub Res Code §§21080.5; 14 CCR 15250, 15251(g); 23 CCR 3782)

Scientific Peer Review Requirement

- Health and Safety Code § 57004
  - Applies to all Cal/EPA Organizations
    - "Submit the scientific portions of the proposed rule, along with a statement of the scientific findings, conclusions, and assumptions on which the scientific portions of the proposed rule are based and the supporting scientific data, studies, and other appropriate materials, to the external scientific peer review entity for its evaluation."
  - Standing contract with the University of California for independent reviewers
- Regional Boards request peer review when Basin Plan Amendment is complete

Public Review of Documents

- Legal Requirements:
  - **Notice**
    - 45-days notice of a public hearing on proposed basin plan amendments is required (40 CFR 25.5(b)(applies to water quality standards actions for surface waters; Cal. Code Regs., tit. 23, §3777(b))
    - Response to Comments Required
  - Water Board must Adopt at a Public Meeting
    - State Water Board, Office of Administrative Law Approvals Needed Before Effective
    - Need U.S. EPA Approval for changes to Surface Water Standards

Statewide Consistency for Basin Plan Amendments

- Documents designed to accommodate range of Basin and Salt/Nutrient plan complexity
  - Can accommodate additional water quality issues
- Documents include:
  - Standardized basin plan list of ground water basins and associated beneficial uses
  - Basin plan amendment in table format
  - Environment analysis with check list
  - Regional Water Board Staff Report
  - Suggested S/N plan table of contents to support the Regional Board's process.

Basin Plan Amendments for Salt/Nutrients

- Envision three types of Basin Plan Amendments, characteristics include:
  - Big Plan-basin large in size, complex land-use, heavily used, water quality threatened
  - Limited Plan-basins with less extensive water quality limitations not currently used as a source of water
  - No Threat Plan-basins with minimal or no known current threat to water quality-address all within a Region with single basin plan amendment

Next Up

- Funding

Funding

- State Water Board working with DWR on Integrate Regional Water Management Grant-Prop 84 guidelines language
- $870 million implementation, $30 million in planning funds to update 46 IRWM Plans
- State Water Board will send letter to IRWM Regions asking them to support S/N Planning
- S/N Stakeholders need to work with IRWM Regions to update Plans to incorporate S/N Planning Language

Prop 84 Requirements

- Eligible projects must:
  - Implement an IRWM Plan
  - Be consistent with an adopted IRWM Plan or its functional equivalent
  - Provide multiple benefits
- Draft guidelines can be found at:
- http://www.water.ca.gov/irwm/integregio_new10.cfm

Prop 84 Requirements Related to S/N Plans

- Eligible projects must include one or more of the following project elements:
  - Storm water capture, storage, clean-up, treatment, and management
  - Groundwater recharge and management projects
  - Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users

Prop 84 Requirements Related to S/N Plans

- Eligible projects must include one or more of the following project elements (cont.):
  - Water banking, exchange, reclamation and improvement of water quality
  - Planning and implementation of multipurpose flood management programs

Next Up

- Santa Clara TMDLs

Santa Clara TMDLs

- Chloride TMDL
  - Upper River
  - Lower River
- Nutrient TMDL

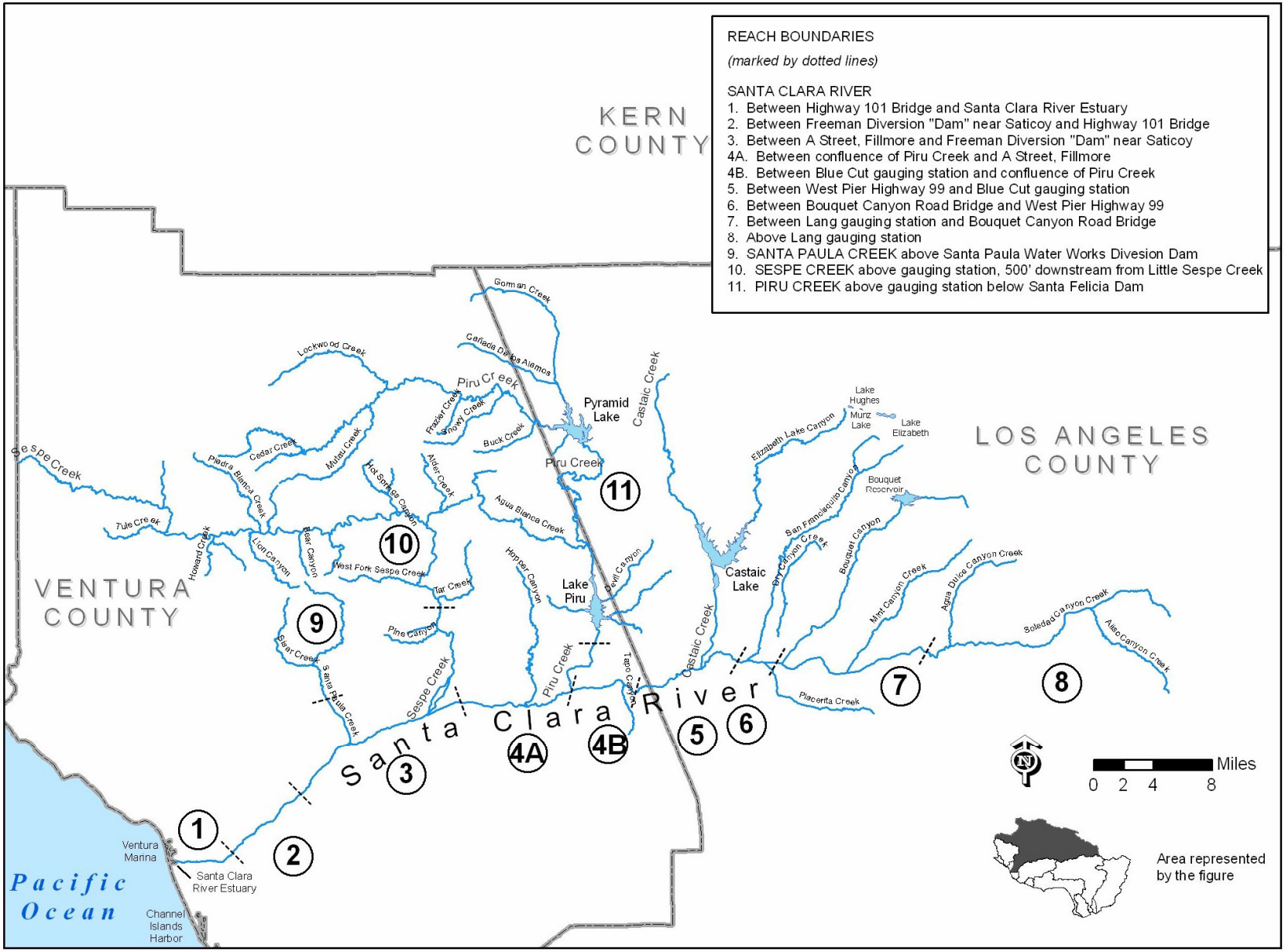
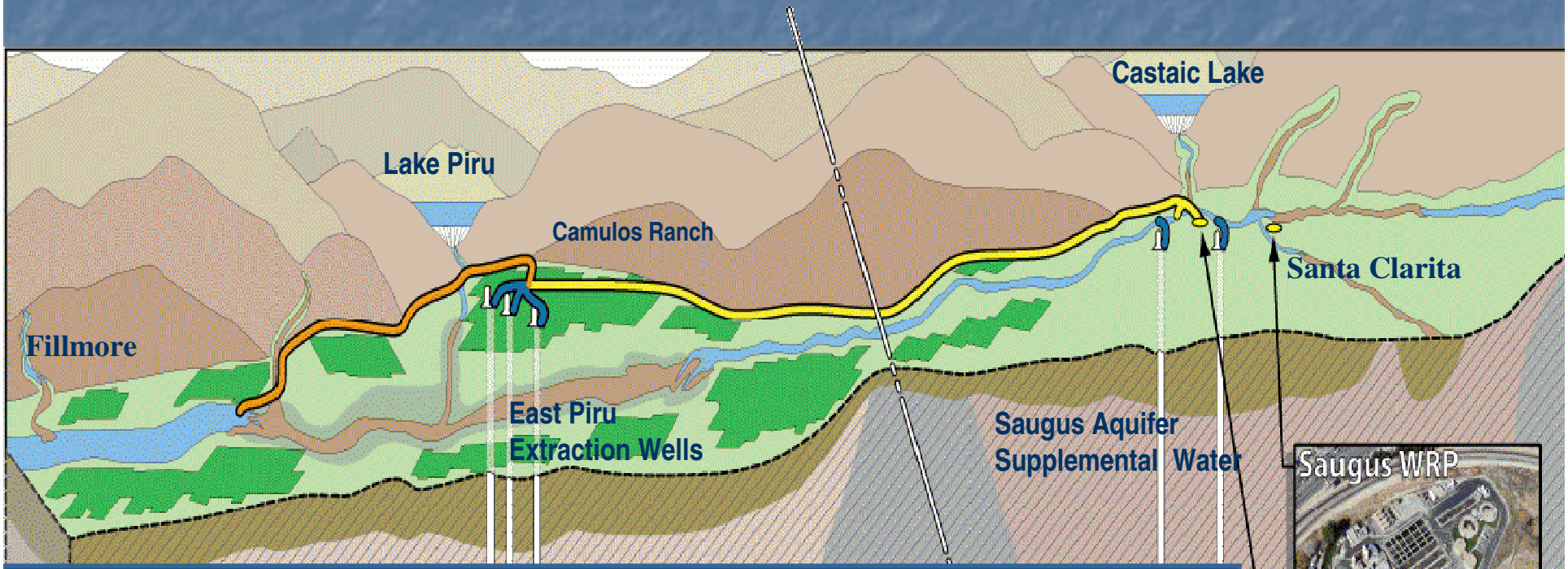


Figure 2-3. Major surface waters of the Santa Clara River watershed.

Upper SCR Chloride TMDL

- Applies to Reach 4B and upstream
- Conditional SSOs and WLAs implement AWRM and protect beneficial uses
  - Increase some water quality objectives
  - Decrease water quality objective in Piru Basin
  - Required salt removal and export

Alternative Water Resources Management Plan



- Reduce WRP Cl Levels (Softeners & UV Disinfection)
- 3 MGD MF-RO at Valencia WRP (local brine disposal)
- Salt management facilities (extraction wells, pipelines)
- Supplemental water to dilute chloride levels
- Alternative water supply to protect Camulos Ranch

Conditional Surface Water SSOs

Reach	Current Instantaneous Chloride Objective (mg/L)	Proposed Conditional Chloride Objective (mg/L)	Proposed Averaging Period
6	100	150	12-month
5	100	150	12-month
4B	100	117	3-month
4B Critical Conditions	100	130	3-month

Conditional Groundwater SSOs

Constituent	Santa Clara--Bouquet & San Francisquito Canyons		Castaic Valley		Lower Area East of Piru Creek	
	Proposed Objective (mg/L)	Current Objective (mg/L)	Proposed Objective (mg/L)	Current Objective (mg/L)	Proposed Objective (mg/L)	Current Objective (mg/L)
Chloride	150	100	No Change	150	150	200
Averaging Period	12-month	None	12-month	None	12-month	None

SCR Reach 3 Chloride TMDL

- WLAs = 80 mg/L
  - Fillmore WRP
  - Santa Paula WRP
  - MS4 Stormwater
  - Construction General Permit
  - CalTrans Permit
  - Other minor permits
- SCR Reach 4: LAs = 100 mg/L
- Sepe Creek: LAs = 40 mg/L
- Other tributaries: LAs = 80 mg/L

SCR Nitrogen TMDL

- Effective March 23, 2004
- Eight year implementation Schedule
- TMDL based on Watershed Analysis Risk Management Framework (WARMF)
  - Simulates physical and chemical processes that affect river hydrology and water quality
  - Considers surface water and groundwater

SCR Nutrient TMDL

- Major Point Sources

	NH3-N (mg/L)	
POTW	1-hour avg.	30-dayavg.
Saugus WRP	5.6	2.0
Valencia WRP	5.2	1.75
Fillmore POTW	4.2	2.0
Santa Paula POTW	4.2	2.0

	30-day avg. (mg/L)		
POTW	NO2-N	NO3-N	NO2-N+NO3-N
Saugus WRP	0.9	7.1	7.1
Valencia WRP	0.9	6.8	6.8
Fillmore POTW	0.9	8.0	8.0
Santa Paula POTW	0.9	8.0	8.0

SCR Nutrient TMDL

- Other Point Sources
  - Reach 7
    - 30-day ammonia avg. = 1.75 mg/L
    - 1-hour ammonia avg. = 5.2 mg/L
    - 30-day nitrate plus nitrite avg. = 6.8 mg/L
  - Reach 3
    - 30-day ammonia avg. = 2.0 mg/L
    - 1-hour ammonia avg. = 4.2 mg/L
    - 30-day nitrate plus nitrite avg. = 8.1 mg/L.

SCR Nutrient TMDL

- Nonpoint Sources
  - Reach 7
    - (NH3-N + NO2-N + NO3-N) = 8.5 mg/L
  - Other reaches
    - (NH3-N + NO2-N + NO3-N) = 10 mg/L

Downstream Water Quality

- Will AWRM or the Nutrient TMDL impact groundwater quality in the Fillmore basin?
  - Chloride: AWRM maintains surface water and groundwater objectives in Reach 4A and Fillmore Basin. AWRM MOU will implement extension of GSWI to Fillmore and Santa Paula basins
  - TMDL reconsidered if chloride or nutrient trend monitoring indicates degradation of groundwater or surface water due to AWRM or Nutrient allocations.

Piru, Fillmore and Santa Paula Basin

- Salt and Nutrient Management Plan required for Santa Clara River Basins.
- Upper Santa Clara surface/groundwater model for TMDL through upper Piru quantified salt and nutrient loading, including remedy of de-salter at Camulos.
- Santa Paula Basin volumes adjudicated.
- Lower Santa Clara/Oxnard salt and volume managed by surface/groundwater model by United
- Oxnard Plain salt and volume manageed by Oxnard's GREAT plan and Fox Canyon GWMA.
- Santa Paula, Fillmore and Piru Recycled Water Plants permits require 100 mg/l chloride and are in violation.

Piru, Fillmore and Santa Paula Basins: Next Steps?

Piru, Fillmore and Santa Paula Basins: Next Steps?

- Participants?
- Data Gaps?
- Base on new or existing Groundwater/Surface water model?

Piru, Fillmore and Santa Paula Basins: Timeline?

- September 1, 2010:
  - First meeting/ Identify Participants
- 2011-2012
  - Monitoring and Reporting
  - Modeling?
- 2013:
  - Timetable for plan due to LARWQCB
- 2014:
  - Draft Basin Plan amendment
- February 2016:
  - Adoption of Basin Plan amendment

Next Steps?

Questions?

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