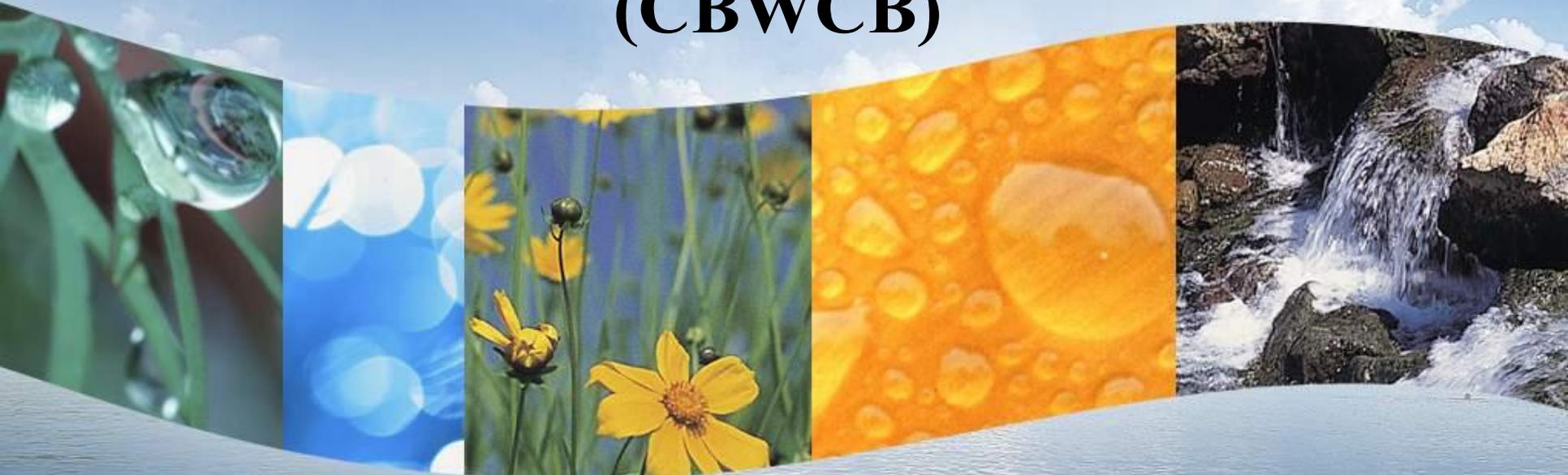


Salt/Nutrient Management Plan (SNMP) for the Central Basin and West Coast Basin (CBWCB)



November 15, 2012

**Los Angeles Regional Water Quality Control Board (LARWQCB)
Workshop for SNMP Development**

Background



Area \approx 420 square miles

San Gabriel Mtns

Merced Hills

San Gabriel Valley

Puente Hills

Santa Monica Mtns

Los Angeles

Central Basin

Coyote Hills

Newport-Inglewood Uplift

San Gabriel River

West Coast Basin

Los Angeles River

Long Beach

Newport-Inglewood Uplift

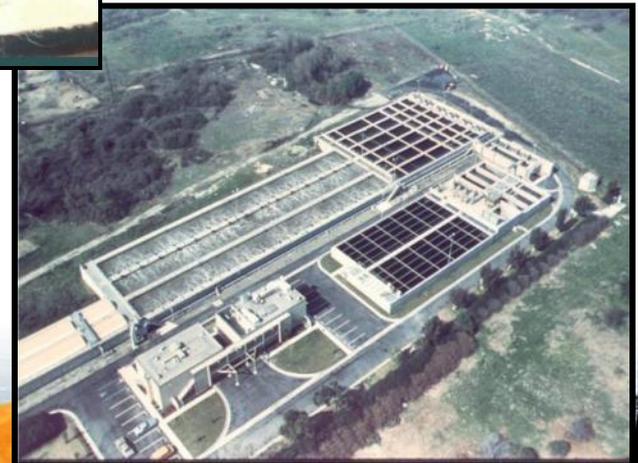
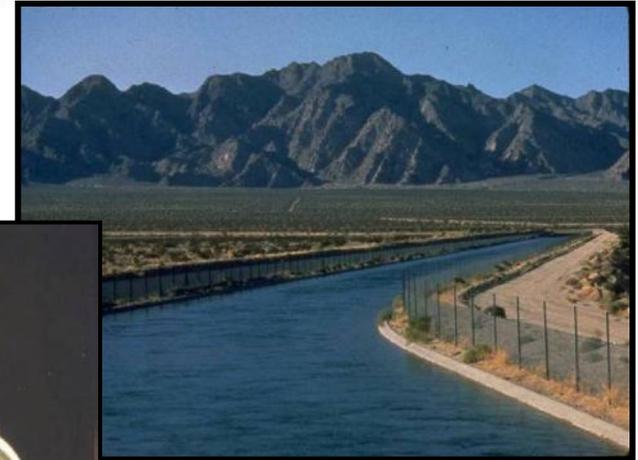
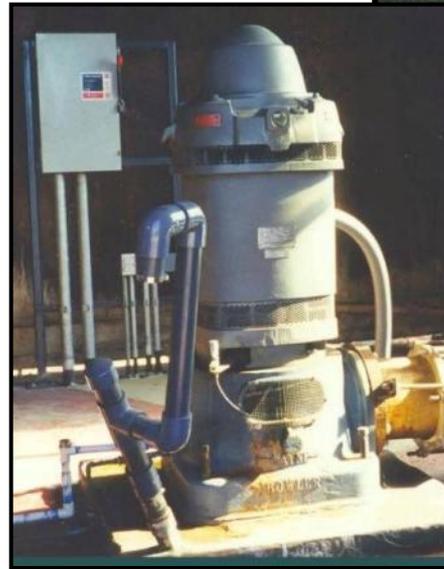
Palos Verdes Hills

Pacific Ocean

~4 Million People
(>10% of California's population)

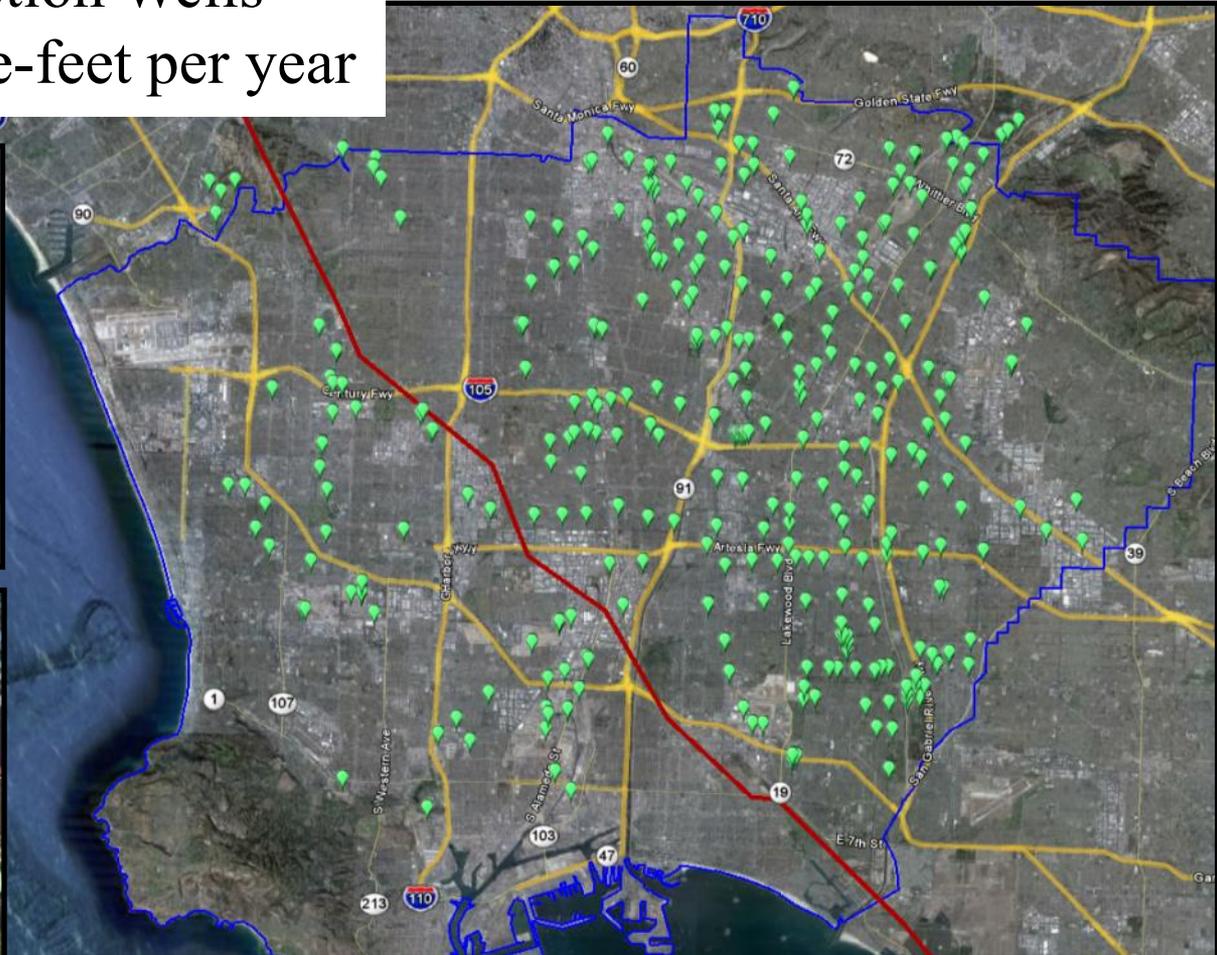
Sources of Water in CBWCB

- Imported Water: 60% from State Water Project, Colorado River, or LA Aqueduct
- Groundwater: 40%
- Recycled Wastewater: Growing uses (irrigation, industrial applications, groundwater recharge)



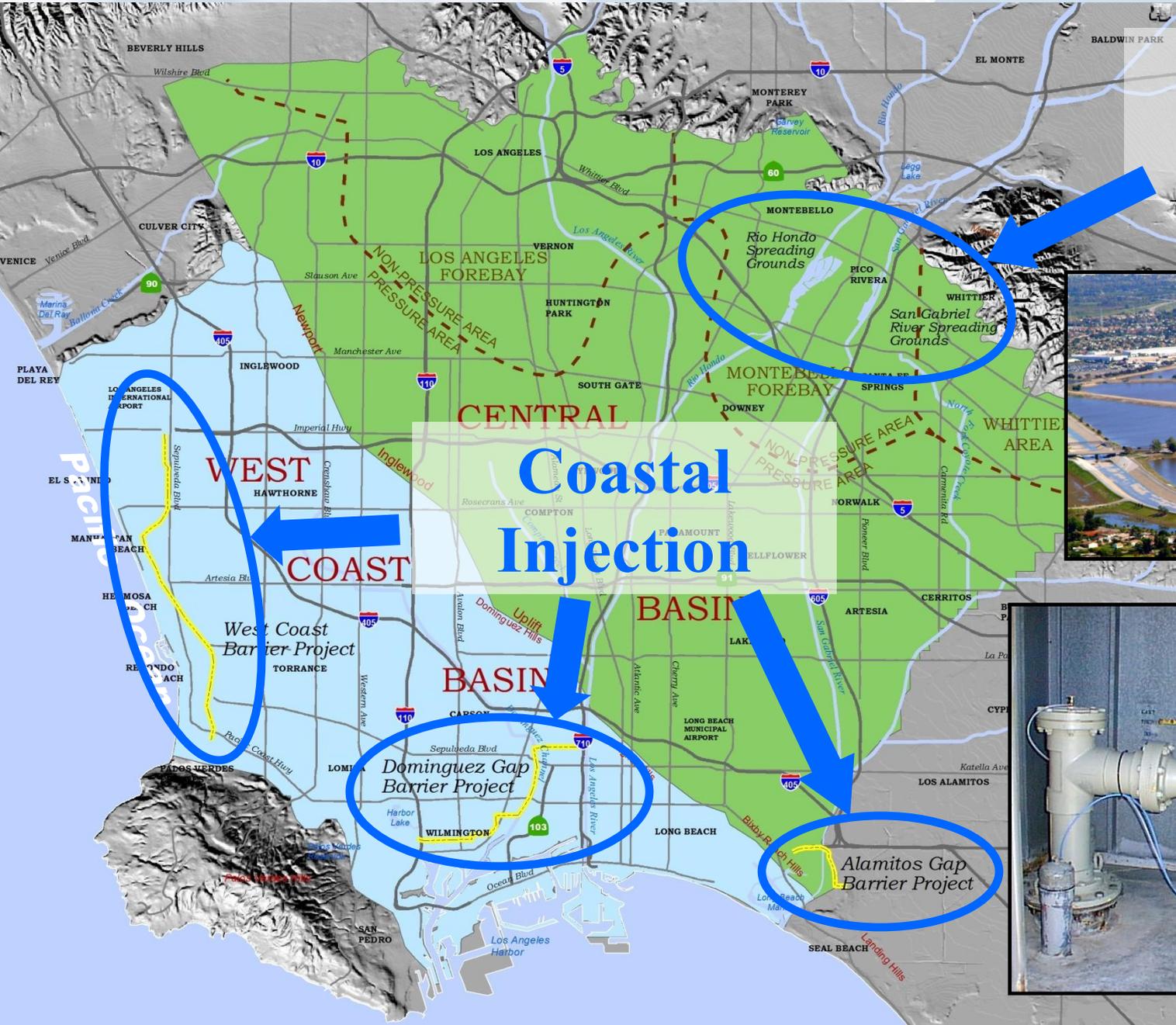
Groundwater Production

>400 Active Production Wells
Pumping ~245,000 acre-feet per year



Main Groundwater Recharge Areas

Surface
Recharge



SNMP Stakeholder Efforts to Date

- **2009 – 2010**: Researched SNMP guidelines, attended numerous workshops, formed stakeholder group
- **2010 – 2011**: Prepared SNMP Workplan
- **December 2011**: Received LARWQCB approval of SNMP Workplan
- **May 2012**: Retained technical consultant (Todd Engineers) to assist in preparation of SNMP
- **June 18, 2012**: Held first stakeholder workshop with consultant team to begin preparing SNMP (meeting regularly since then)

LARWQCB-Approved SNMP Workplan

- **October 2011:**
Submitted Final Revised Workplan of the SNMP to LARWQCB staff for approval
- **December 2011:**
Received approval letter from LARWQCB on the Final Revised Workplan of the SNMP



FINAL REVISED WORKPLAN
Salt/Nutrient Management Plan

Central Basin and West Coast Basin
Southern Los Angeles County, California

October 24, 2011

Consultant Scope of Work

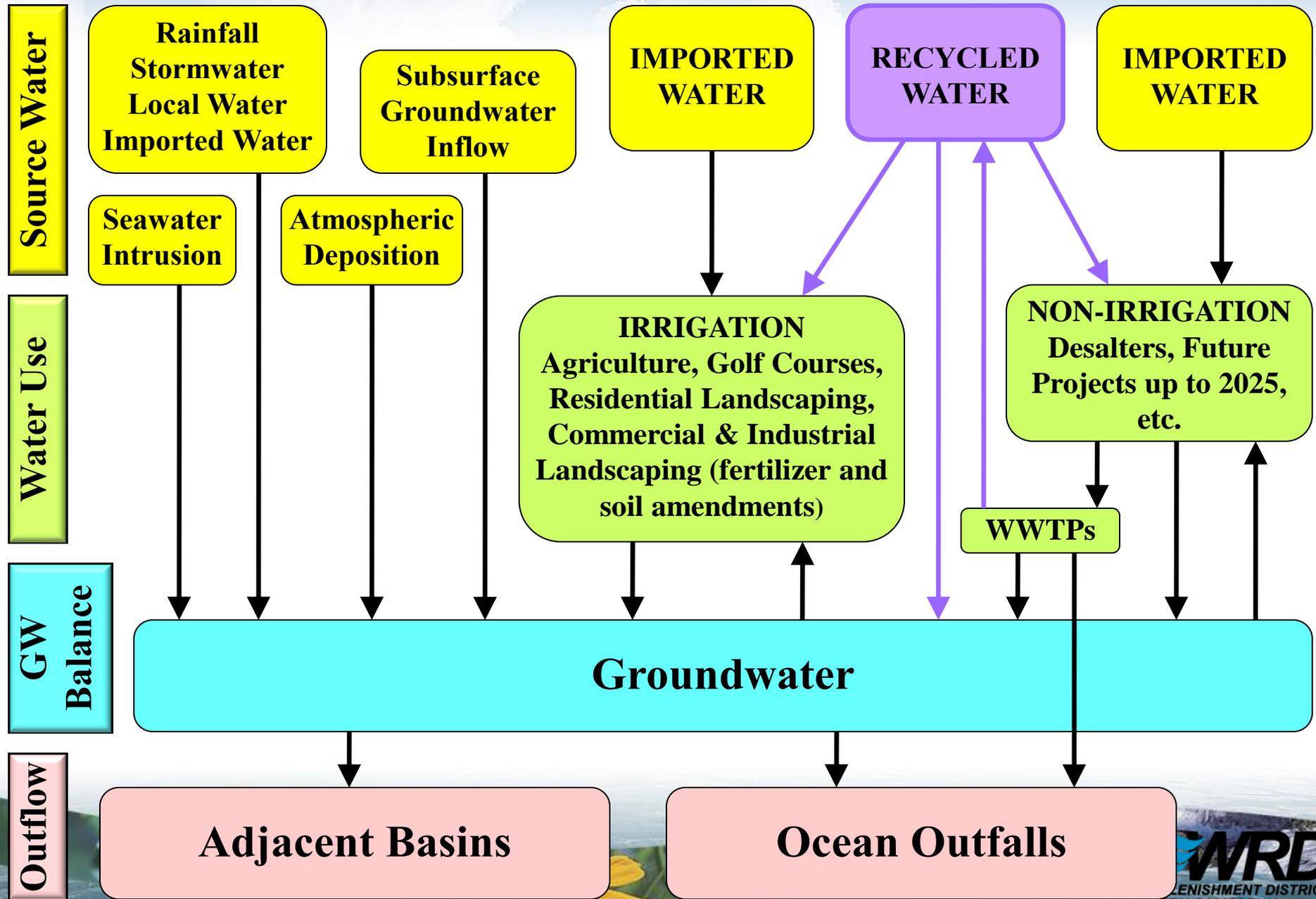
1. Project Management and Stakeholder Process
2. Prepare Tech Memos (TMs) for Stakeholder Review & Approval
 - TM-1: Salt/Nutrient Goals & Objectives and Management Measures
 - TM-2: Definitions, Concepts, & Approaches for SNMP
 - TM-3: Hydrogeologic Conceptual Model
(Hydrogeology, WQ, Develop Conceptual Model)
 - TM-4: Basin Monitoring Programs & CECs
 - TM-5: Assimilative Capacity & Anti-Degradation Analyses
 - TM-6: Implementation Measures to Manage Salt/Nutrient Loading
3. Prepare CEQA Documents
4. Prepare SNMP
5. Basin Plan Amendment Support

Salts & Nutrients in the CBWCB

- Evaluated constituents with WQOs and other constituents of concern in the CBWCB
- Determined TDS, nitrate, and chloride to be most representative of salts and nutrients

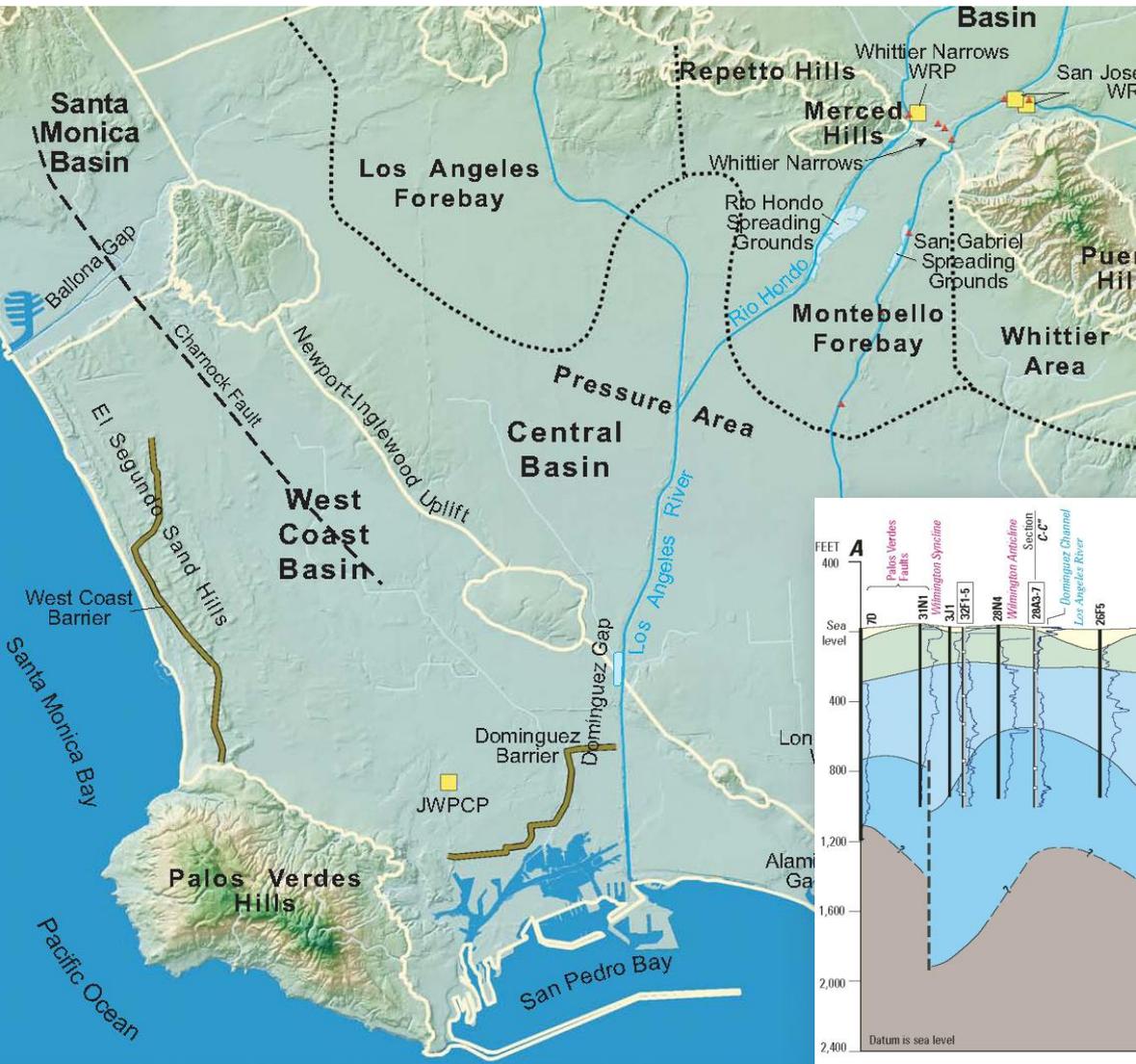
Constituent	Central Basin	West Coast Basin
TDS	700 mg/L	800 mg/L
Chloride	150 mg/L	250 mg/L
Nitrate-Nitrogen (NO ₃ -N)	10 mg/L	10 mg/L
Sulfate	250 mg/L	250 mg/L
Boron	1.0 mg/L	1.5 mg/L
Nitrate (NO ₃)	45 mg/L	45 mg/L
Nitrite-Nitrogen (NO ₂ -N)	1 mg/L	1 mg/L
Nitrogen as Nitrate-Nitrogen plus Nitrite-Nitrogen (NO ₃ -N + NO ₂ -N)	10 mg/L	10 mg/L
Arsenic	10 µg/L	10 µg/L
Iron	300 µg/L	300 µg/L
Manganese	50 µg/L	50 µg/L
Color	15 Units	15 Units
Odor	3 TON	3 TON
Other constituents of concern	N/A	N/A

S/N Inflows and Outflows in CBWCB

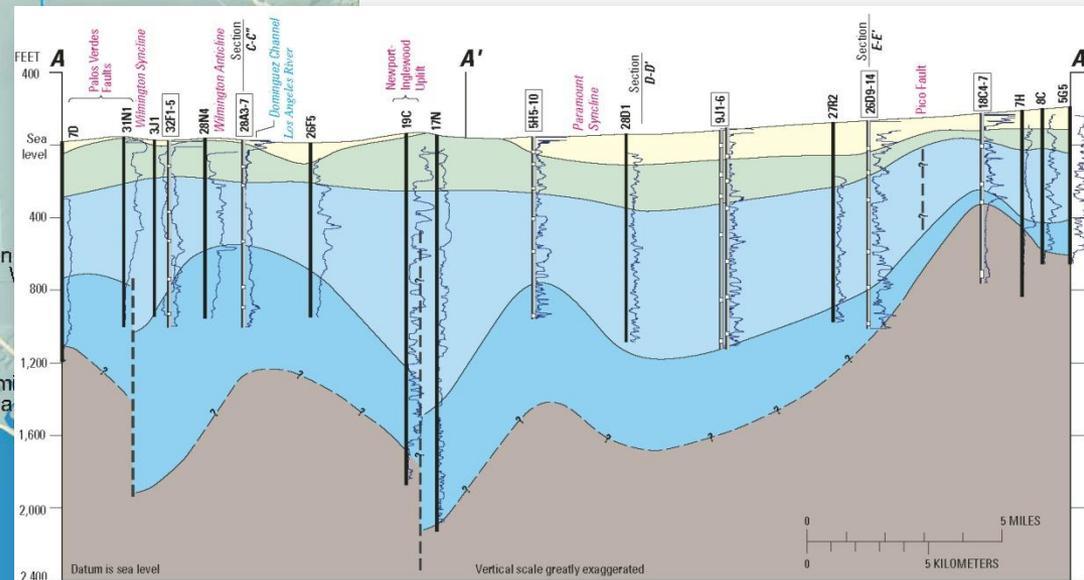


Salt and Nutrient Loading Analysis

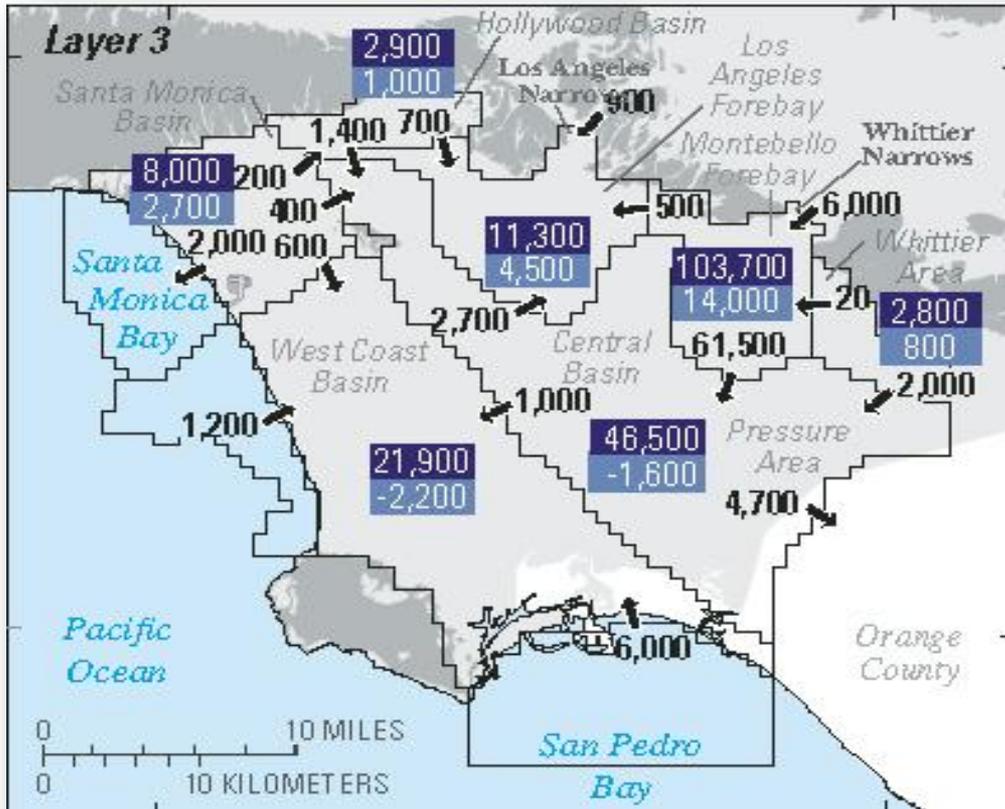
- Compiled all WQ data from 2000 to 2010 (baseline)



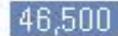
- Subareas/Sublayers
- Use previous regional modeling efforts (USGS/GBMP) as inputs for spreadsheet mixing model



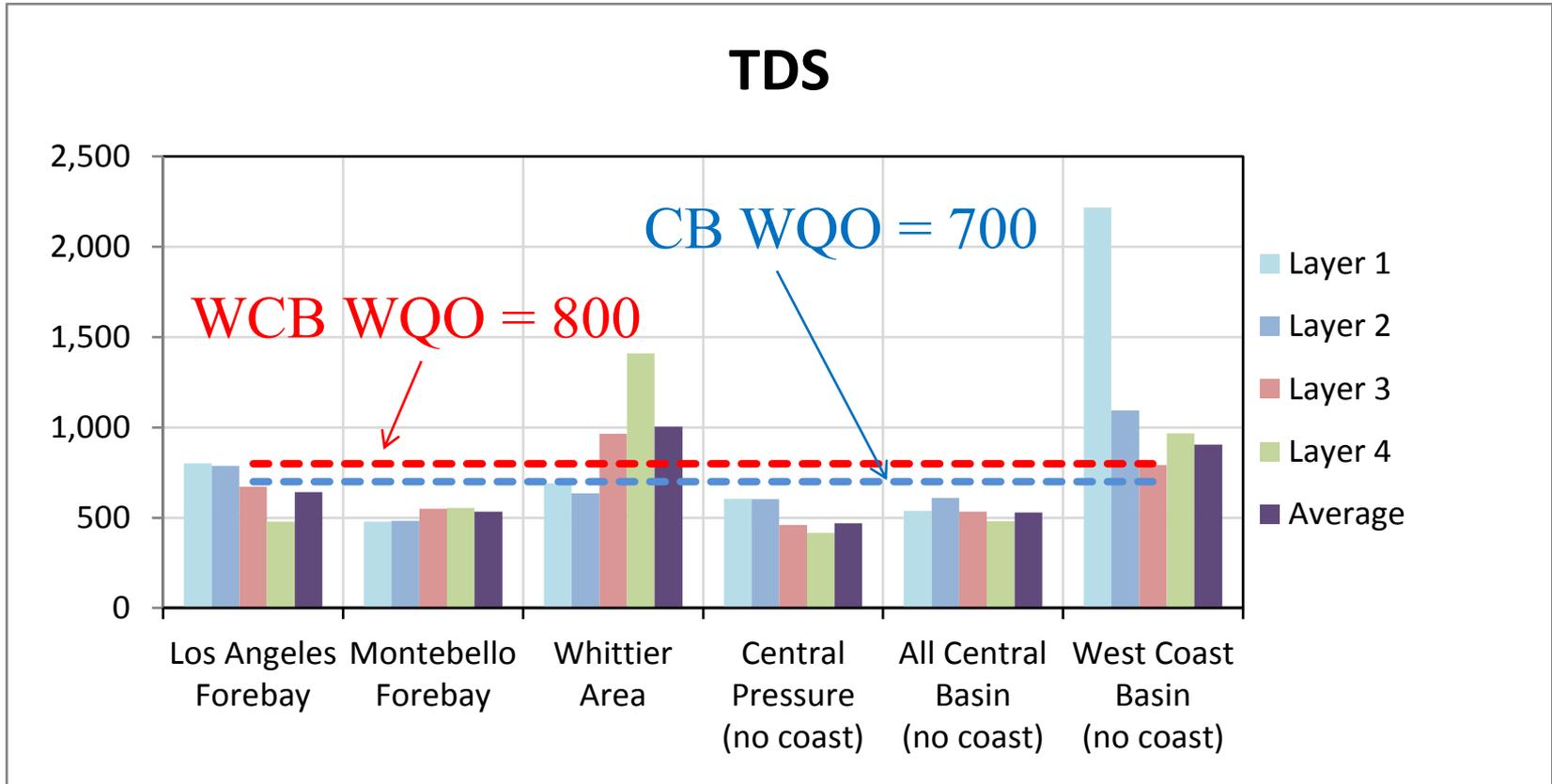
Salt and Nutrient Loading Analysis



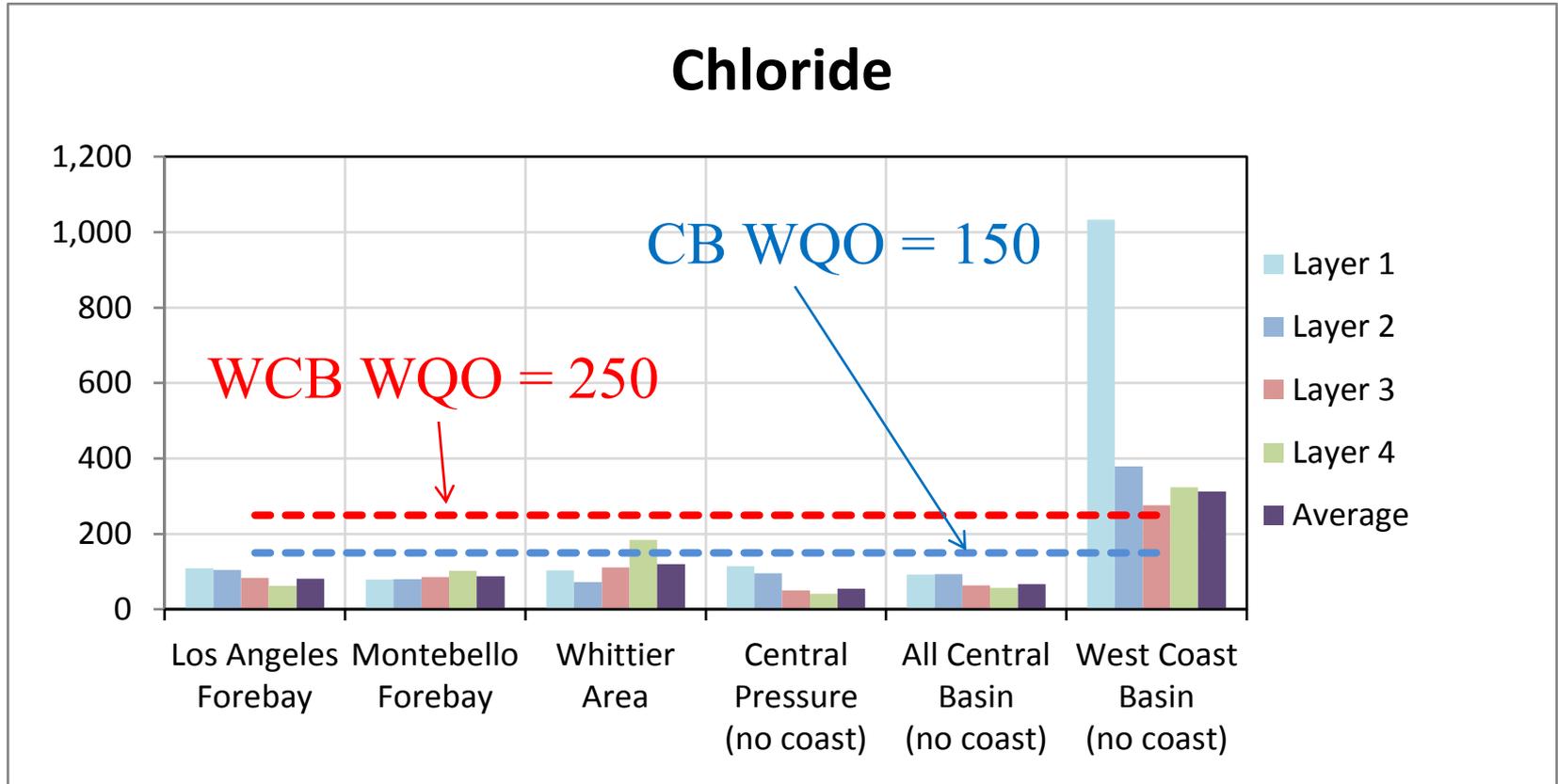
- From the existing model:
 - Volume of water within each subarea/layer
 - Flows for each subarea/layer
- Assign salt/nutrient concentrations to each inflow/outflow in the spreadsheet mixing model

 **6,900** Average simulated horizontal flow and direction (1996-2000) – In acre-feet per year
 **26,100** Average simulated vertical flow from overlying layer (1996-2000) – In acre-feet per year
 **46,500** Average simulated vertical flow to underlying layer (1996-2000) – In acre-feet per year

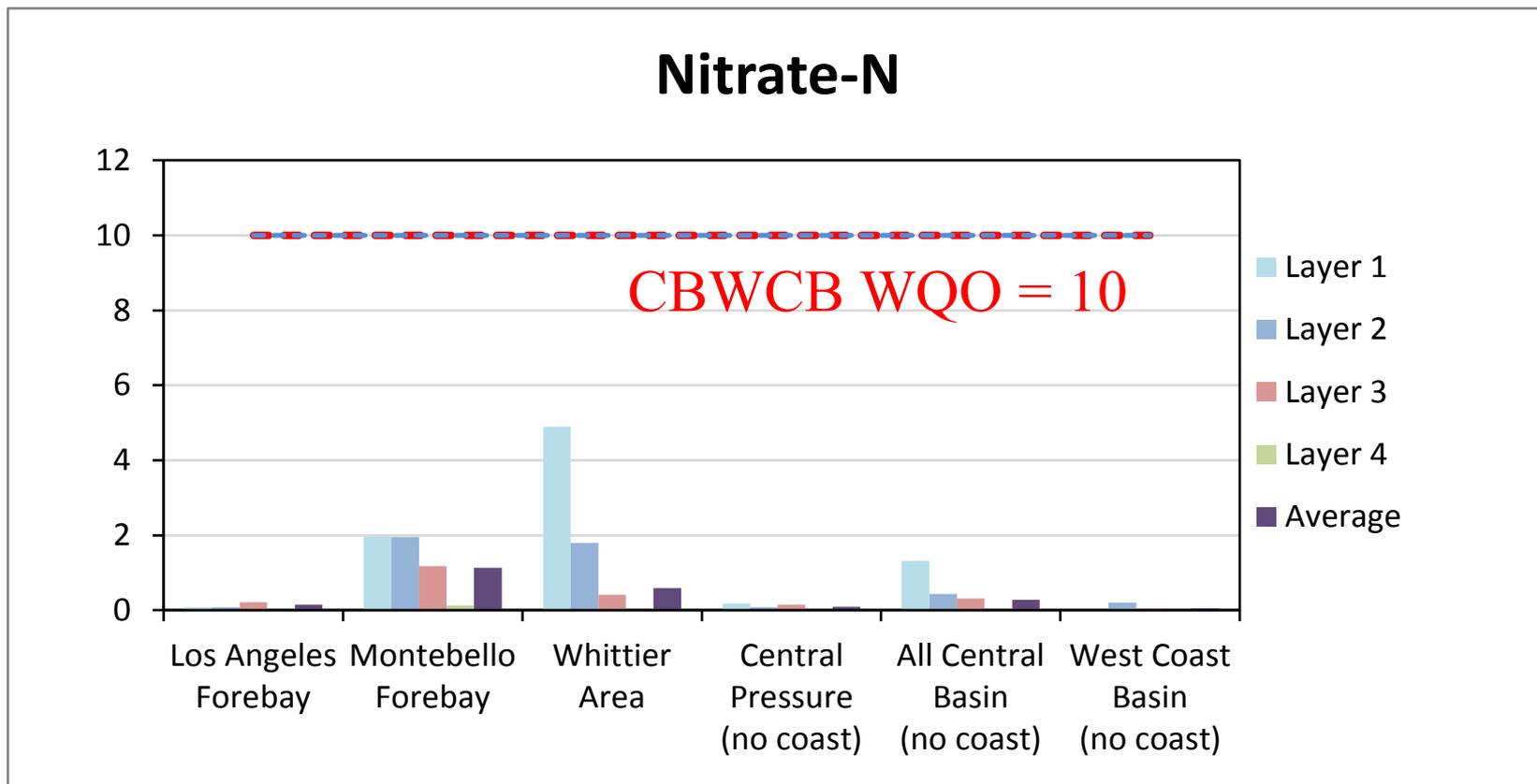
Current TDS Concentrations (mg/L) in GW



Current Chloride Concentrations (mg/L) in GW



Current Nitrate Concentrations (mg/L) in GW



Assimilative Capacity in Central Basin

Central Basin (All Model Subareas & Layers)

	TDS	Chloride	Nitrate
Water Quality Objective	700	150	10
Average Water Quality	539	73	0.28
Assimilative Capacity	161	77	9.72

Central Basin (no coast)

	TDS	Chloride	Nitrate
Water Quality Objective	700	150	10
Average Water Quality	532	67	0.28
Assimilative Capacity	168	83	9.72

Assimilative Capacity in West Coast Basin

West Coast Basin (All Model Layers)

	TDS	Chloride	Nitrate
Water Quality Objective	800	250	10
Average Water Quality	1,424	660	0.04
Assimilative Capacity	-624	-410	9.96

West Coast Basin (no coast)

	TDS	Chloride	Nitrate
Water Quality Objective	800	250	10
Average Water Quality	890	306	0.05
Assimilative Capacity	-90	-56	9.95

Next SNMP Steps

- **Current** – Compiling & evaluating data, coordinating with ongoing regional planning efforts, stakeholder workshops, technical memorandums
- **Mid-2013** – Finalize Draft SNMP & submit to LARWQCB for review and comments
- **May 2014** – Approval of Final SNMP by LARWQCB

SNMP Challenges

- **Stakeholder outreach**
 - Keep stakeholders involved and informed
- **Stakeholder process requires a lot of time**
 - Want to stay within budget and on schedule
- **Funding**
 - Trying to establish stakeholder cost sharing agreements and find other sources of funding

SNMP Project Website

www.wrd.saltnutrient.com

Salt & Nutrient Management Plan for the Central Basin and West Coast Basin

[Home](#)

[Documents & References](#)

[Contact Us](#)

[Participation](#)

Links to Local Agencies and Stakeholders

[Los Angeles Dept. of Water & Power](#)

[County of Los Angeles Dept. of Public Works, Los Angeles County Flood Control District](#)

[Metropolitan Water District of Southern California](#)

[Sanitation Districts of Los Angeles County](#)

[Water Replenishment District of Southern California](#)

[West Basin Municipal Water District](#)

[California Regional Water Quality Control Board, Los Angeles Region](#)

In February 2009, the State Water Resources Control Board (SWRCB) adopted [Resolution No. 2009-0011](#), which established a statewide Recycled Water Policy. This policy encourages increased use of recycled water and local stormwater. It also requires local water and wastewater entities, together with local salt/nutrient contributing stakeholders to develop a *Salt and Nutrient Management Plan (SNMP)* for each groundwater basin in California. A [SNMP Work Plan](#) was jointly prepared by the Central Basin and West Coast Basin Stakeholders and approved by the Los Angeles Regional Water Quality Control Board (LARWQCB) in December 2011.

The objective of the SNMP is to manage salts and nutrients from all sources "... on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses." The SNMP will eventually be adopted by the LARWQCB as a Basin Plan Amendment. The SNMP will include the following:

- ▶ Stormwater and Recycled Water Use/Recharge Goals and Objectives
- ▶ Characterization of Hydrogeologic Conceptual Model/Water Quality

Data Sharing and Communications

Project E-Mail: wrd@saltnutrient.com

FTP Site: fileshare.rmewater.com

WRD Contact: Phuong Ly, P.E.
562-275-4246
ply@wrd.org

Questions?