

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



December 4, 2014
LARWQCB SNMP Workshop

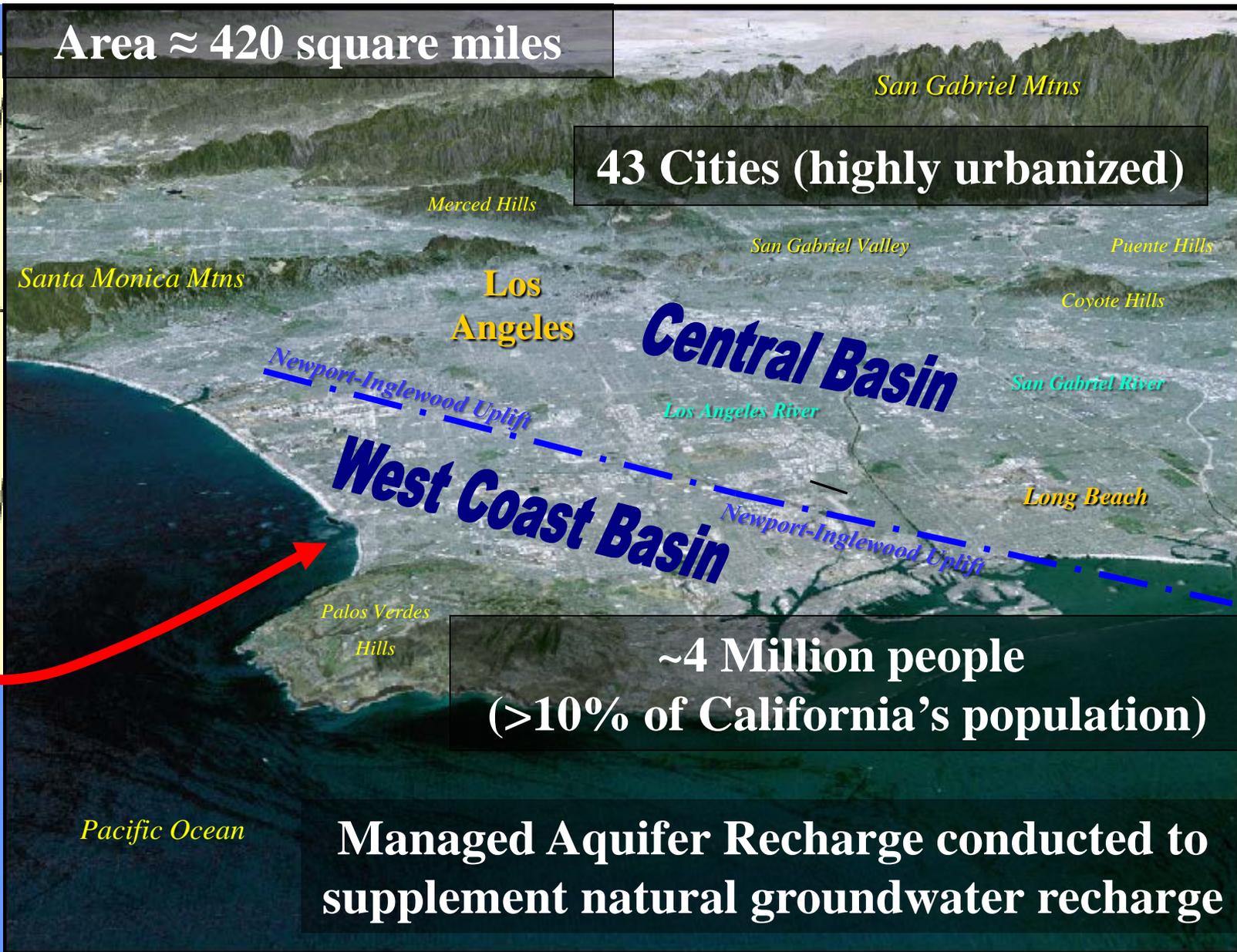
Presented by WRD on behalf of the CBWCB Stakeholders

SNMP Study Area (CBWCB)



Area \approx 420 square miles

43 Cities (highly urbanized)



San Gabriel Mtns

Merced Hills

Santa Monica Mtns

Los Angeles

San Gabriel Valley

Puente Hills

Coyote Hills

Central Basin

San Gabriel River

Newport-Inglewood Uplift

Los Angeles River

West Coast Basin

Newport-Inglewood Uplift

Long Beach

Palos Verdes Hills

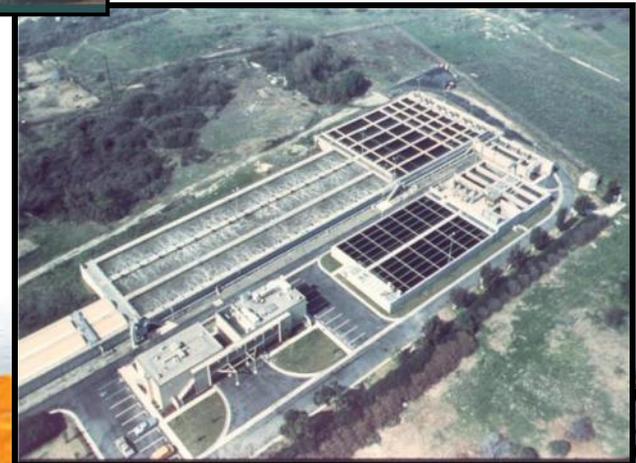
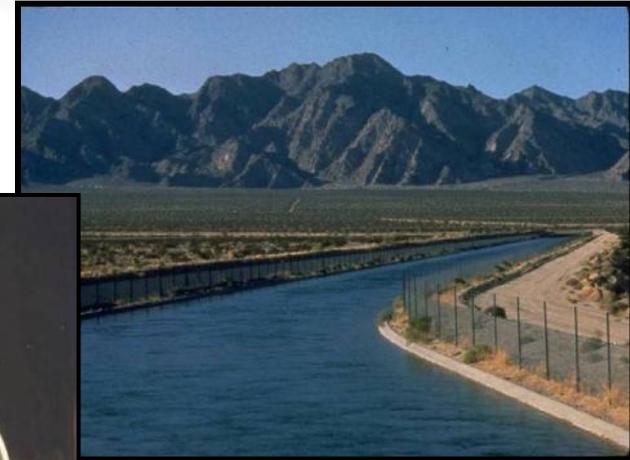
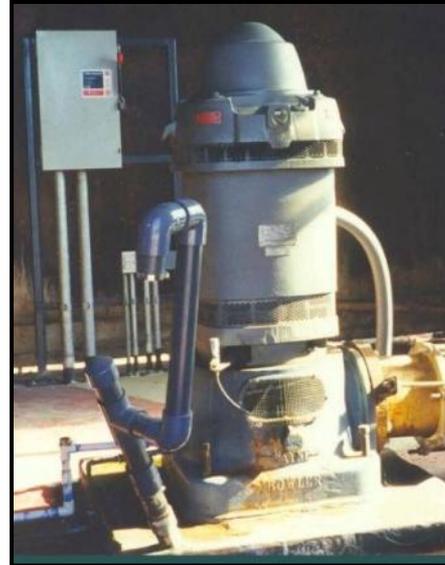
**~4 Million people
($>$ 10% of California's population)**

Pacific Ocean

Managed Aquifer Recharge conducted to supplement natural groundwater recharge

Sources of Water in CBWCB

- **IMPORTED WATER:** 60%
from State Water Project,
Colorado River, or
LA Aqueduct
- **GROUNDWATER:** 40%
>400 Active Production Wells
Pump ~245,000 acre-feet/yr
- **RECYCLED WATER:** Growing uses
(irrigation, industrial applications,
groundwater recharge)



Major Salinity Control Measures

Excessive pumping between 1900 and 1950s caused groundwater levels to drop below sea level, which resulted in seawater intrusion

**West Coast Basin
Barrier Project
1950s**

**Goldsworthy
Desalter
2002**

**Alamitos Gap
Barrier Project
1960s**

**Residual
“Saline
Plume”**

**Brewer
Desalter
1993**

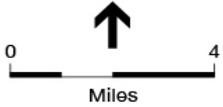
PV Hills

**Dominguez Gap
Barrier Project
1970s**

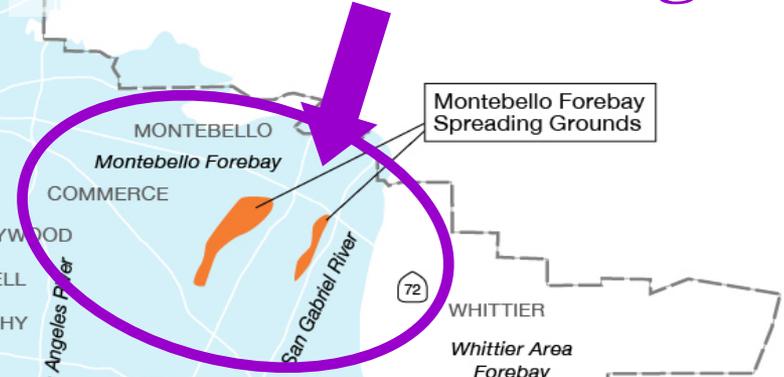
**Nearly 300 injection
wells and 16 miles long**

Main Groundwater Recharge Areas

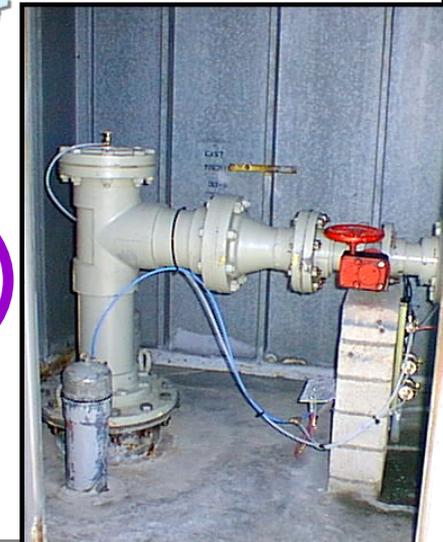
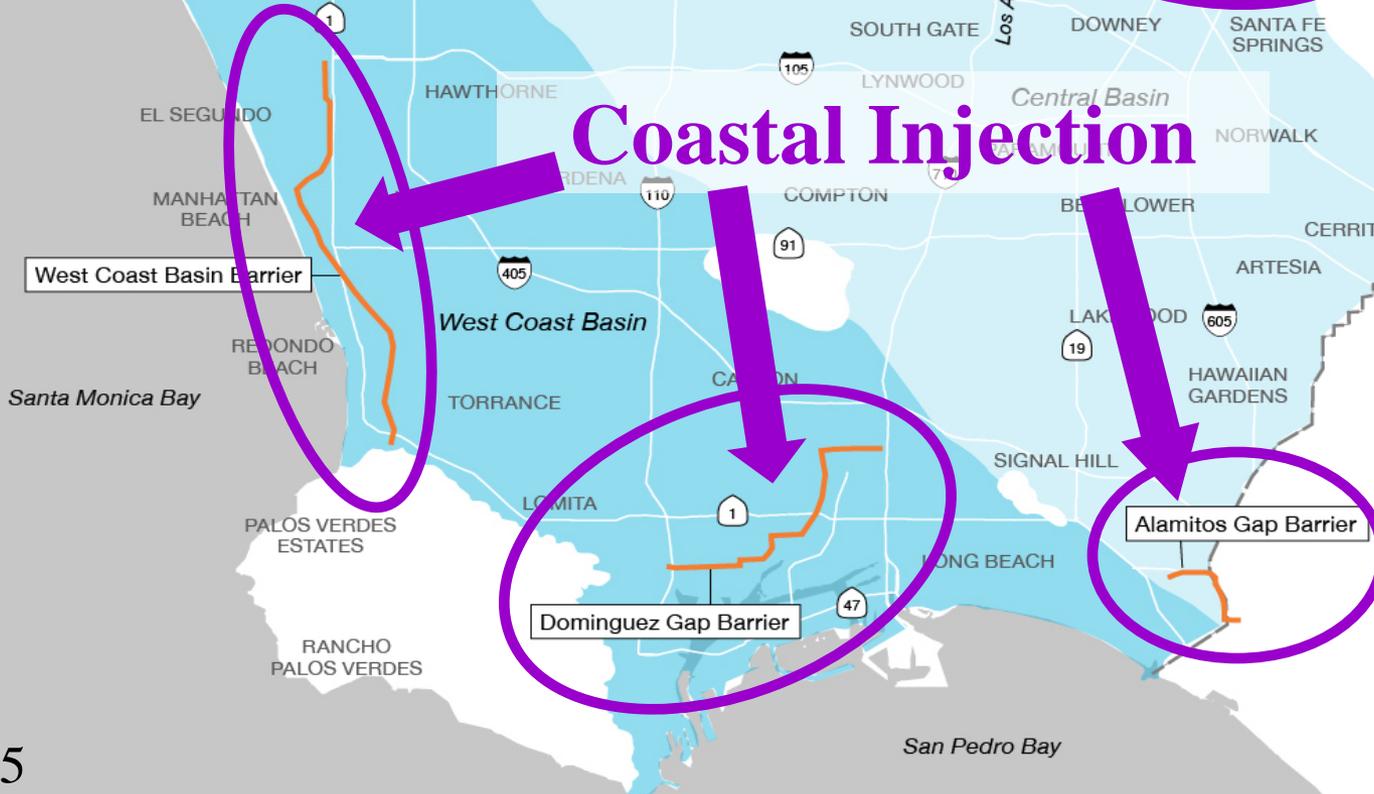
- Water Replenishment District Boundary
- West Coast Basin
- Central Basin



Surface Recharge



Coastal Injection



Existing Monitoring Programs

➤ Robust and comprehensive existing monitoring programs for:

- ✓ Recycled water
- ✓ Wastewater
- ✓ Imported water
- ✓ Surface water
- ✓ Stormwater
- ✓ Groundwater



- Hundreds of constituents are analyzed for these different water types
- Over a million dollars a year are expended for water monitoring & compliance in the CBWCB
- Helped to develop the SNMP Monitoring Program (70 nested groundwater monitoring wells at 13 locations throughout the basins)

Major Accomplishments in CBWCB

- ✓ The basins are aggressively managed and monitored, with long-term replenishment & salinity control measures that have been in place for decades
- ✓ Groundwater replenishment utilizing the following:
 1. Stormwater: >2.8 MAF since 1960
 2. Recycled Water: >1.9 MAF since 1960
 3. Imported Water: >4 MAF since 1960
- ✓ Seawater intrusion control started in the 1950s
- ✓ Brackish groundwater treatment (desalters) began in 1993; will expand the Goldsworthy Desalter in 2015

SNMP Funding Partners



- **Water Replenishment District of Southern California (WRD)**
 - Groundwater basins manager; Administrative Watermaster; produces advanced treated recycled water for Alamitos Gap Barrier; facilitated SNMP development



- **Los Angeles County Department of Public Works (LACDPW)**
 - Owns & operates recharge facilities, including MB Forebay spreading grounds & seawater intrusion barriers; captures and replenishes stormwater



- **West Basin Municipal Water District (WBMWD)**
 - Produces recycled water for West Coast Basin Barrier & non potable uses; imported water wholesaler



- **Los Angeles Department of Water and Power (LADWP)**
 - Imports water for potable supply; produces advanced treated recycled water for Dominguez Gap Barrier



- **County Sanitation Districts of Los Angeles County (SDLAC)**
 - Produces recycled water for non-potable uses and for recharge at MB Forebay Spreading grounds

Other SNMP Stakeholders

Metropolitan Water District of Southern California

Council for Watershed Health

City of Los Angeles, Bureau of Sanitation

Los Angeles Regional Water Quality Control Board

Heal the Bay

State Water Resources Control Board, Division of Drinking Water

California Department of Water Resources

Central Basin Municipal Water District

Central Basin Water Association

City of Compton

City of Inglewood

City of Long Beach

City of Manhattan Beach

City of Torrance

Golden State Water Company

West Basin Water Association

Timeline of SNMP Stakeholder Efforts

- WRD began development
- Formed
- Research & attend

Last week, Regional Board staff issued the Proposed Basin Plan Amendment for 45-day public review. The public hearing is scheduled on Feb 12, 2015.

Hold CEQA hearing on 21, 2013

2009

- Prepared SNMP Workplan
- Received approval from

LARWQCB in Dec 2011

and SED to LARWQCB on Aug 29, 2014

2015

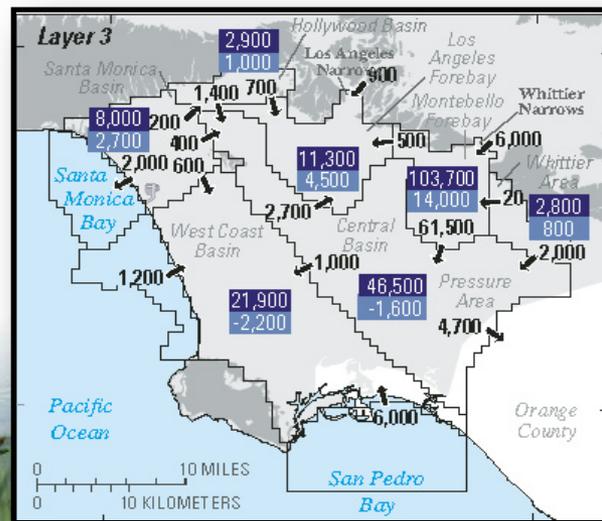
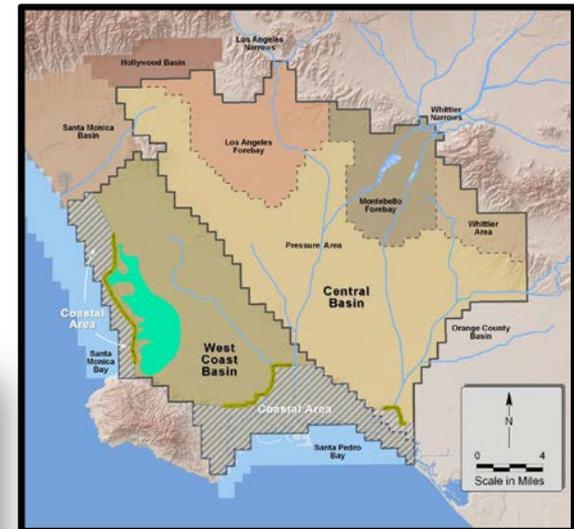
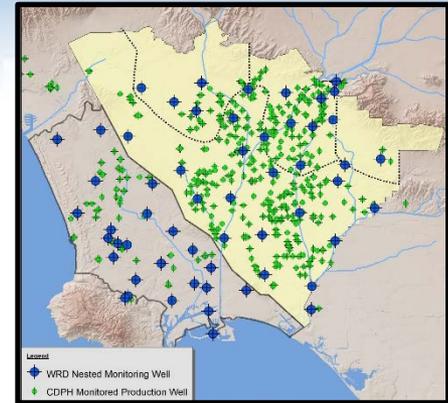


Key Tasks Completed for the SNMP

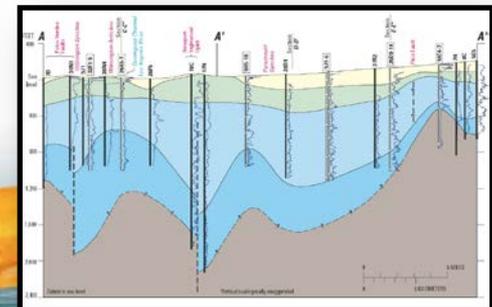
- ✓ Groundwater basin hydrogeology & identified inflows/outflows
- ✓ Recycled water & stormwater use/recharge goals & objectives
- ✓ Estimated current and future salt/nutrient loading and water quality through 2025
- ✓ Calculated assimilative capacity & performed antidegradation analysis
- ✓ Summarized all basin monitoring programs (including CEC monitoring) & developed SNMP Monitoring Plan
- ✓ Implementation Plan – Identified implementation measures to manage salt/nutrient loading & described planned major recycled water projects
- ✓ CEQA analysis & prepared SED

SNMP Water Quality Assessment

- Compiled all water quality data in the basins
- Used existing groundwater model to assess water quality in subareas and model layers
- Developed a mixing model to estimate future groundwater quality based on implementation measures and planned major recycled water projects



- 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



Summary of SNMP Results

- In Central Basin, TDS and chloride concentrations are below WQOs & not expected to exceed of WQOs in the future
- In West Coast Basin, water quality is improving and TDS & chloride concentrations expected to achieve WQOs in the future
- Current and planned implementation measures (desalters, increased use of advanced treated recycled water) improving groundwater quality in CBWCB
- Nitrate is not a concern and concentrations remain significantly below the MCL in the CBWCB

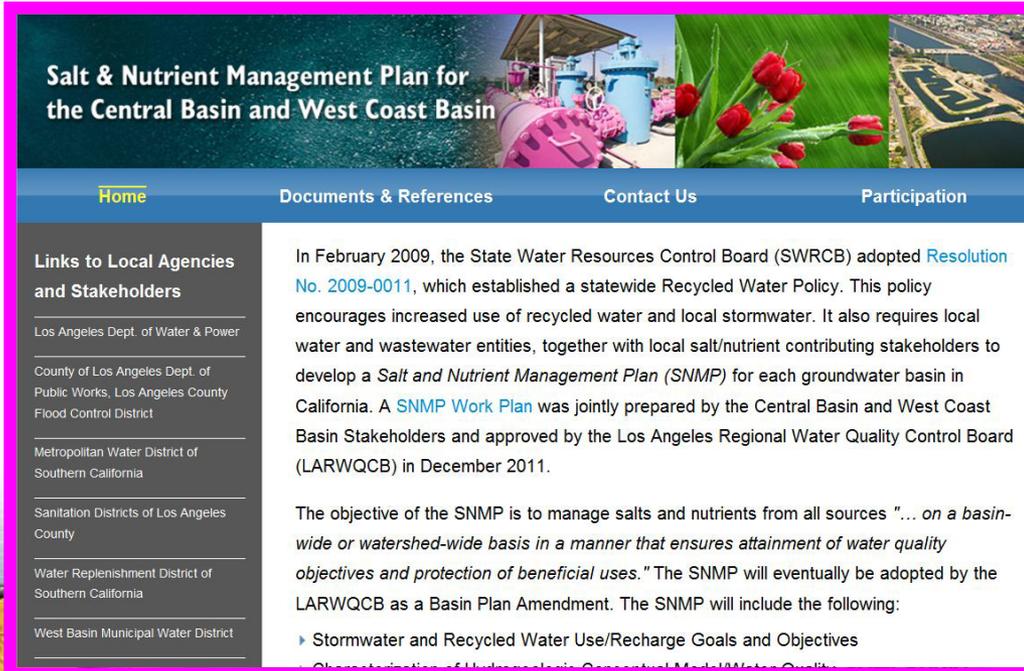
Data Sharing and Communications

Project Website: www.wrd.saltnutrient.com

Project E-Mail: wrd@saltnutrient.com

FTP Site: fileshare.rmcwater.com

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



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

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

A serene sunset scene over a calm body of water. The sun is low on the horizon, casting a golden glow across the sky and reflecting on the water's surface. Silhouettes of trees and houses are visible along the shoreline. The overall mood is peaceful and contemplative.

Questions?

Thank You