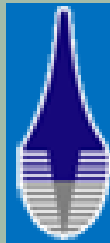




Main San Gabriel Basin
WATERMASTER



**RAYMOND BASIN
MANAGEMENT BOARD**

REGIONAL WATER QUALITY CONTROL BOARD WORKSHOP

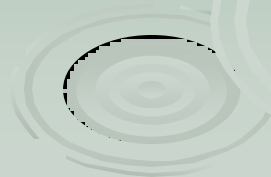
PROGRESS ON SALT AND NUTRIENT MANAGEMENT PLANS

November 15, 2012



Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

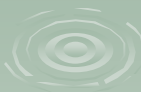
- Potential Stakeholders
- Components of Salt and Nutrient Management Plans (SNMP)
- Status of SNMP for Main San Gabriel Basin and Raymond Basin
- Schedule



Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

➤ Potential Stakeholders

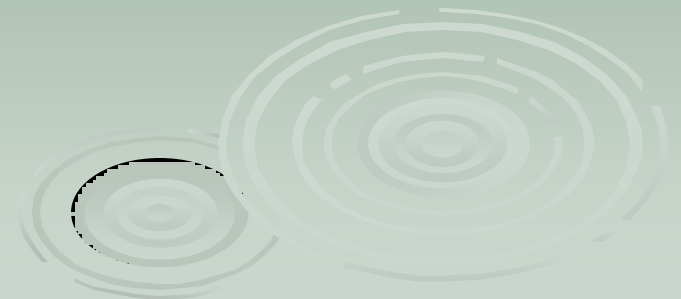
- Multiple Levels Based on Basin Management
 - Plan/Develop SNMP (Core Group)
 - Provide Supporting Data
 - Other Interested Entities
- Core Group
 - Main Basin Watermaster/Raymond Basin Management Board Staff (Committees)
 - Los Angeles County Sanitation Districts
 - Los Angeles County Department of Public Works
- Data Support
 - Municipal Water Districts
 - Upper District (Main Basin/Raymond Basin)
 - San Gabriel District (Main Basin/Raymond Basin)
 - Three Valleys District (Main Basin only)
 - Foothill District (Raymond Basin only)
 - Metropolitan Water District of Southern California



Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

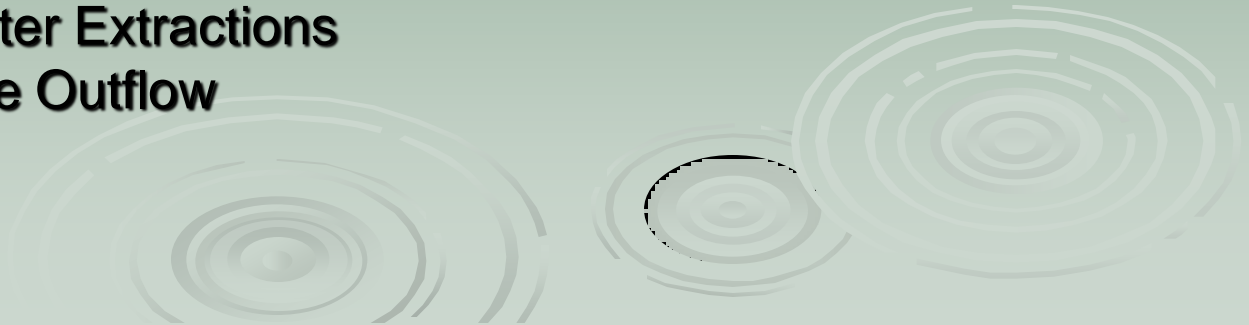
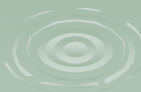
➤ Potential Stakeholders (Continued)

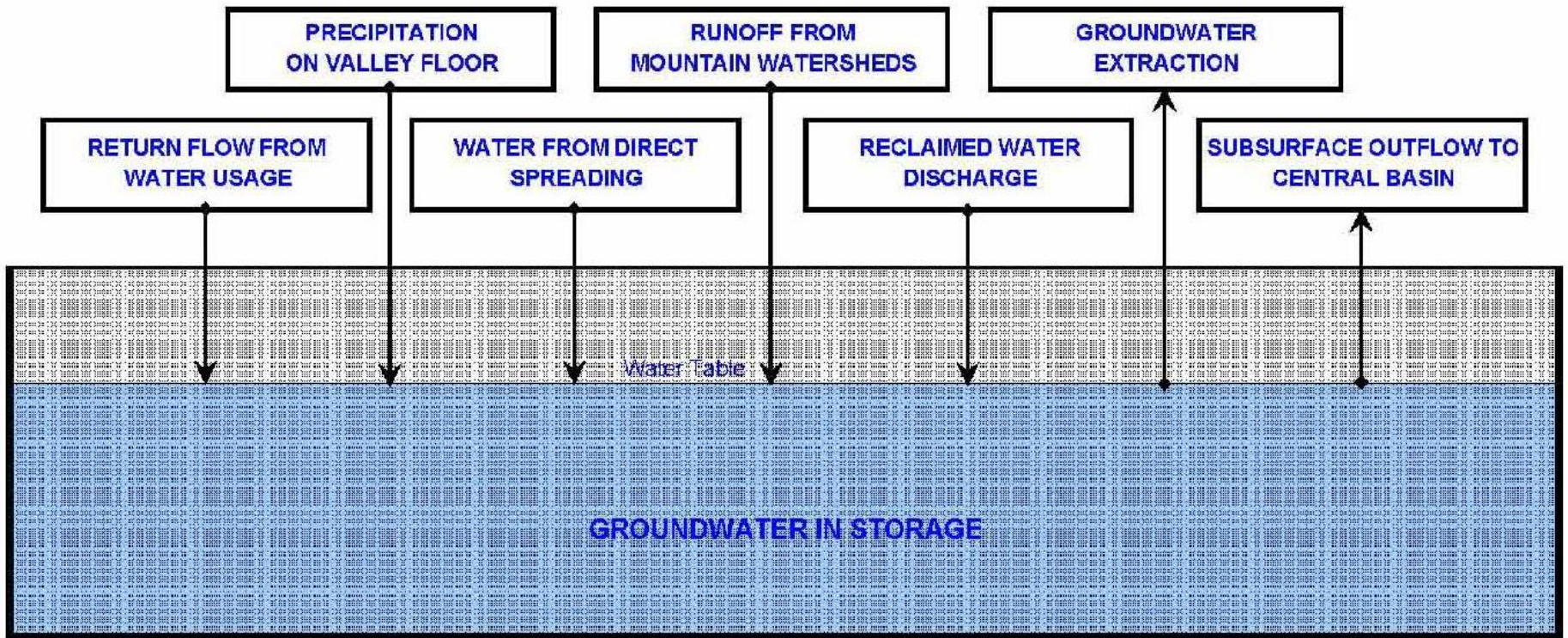
- Other Interested Entities
 - Producers
 - Cities
 - Environmental Groups
- Regulatory Agencies
 - RWQCB
 - U.S. EPA (Impacts of Operable Units)



Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

- **Potential Salts and Nutrients Loading**
 - Return Flow from Water Usage
 - Precipitation on Valley Floor
 - Water from Direct Spreading
 - Local Storm Water
 - Untreated Imported Water
 - Runoff from Mountain Watersheds
 - Recycled Water Discharge (no existing groundwater replenishment projects)
- **Potential Salts and Nutrients Unloading**
 - Groundwater Extractions
 - Subsurface Outflow





STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER
RAYMOND BASIN MANAGEMENT BOARD

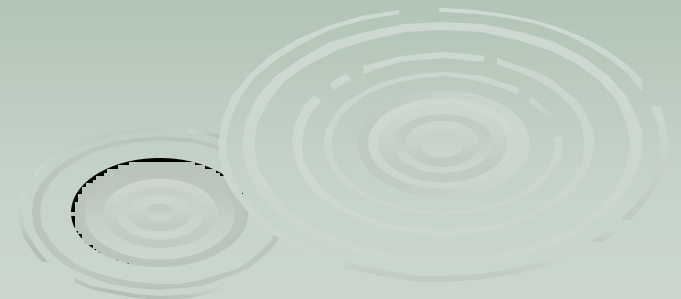
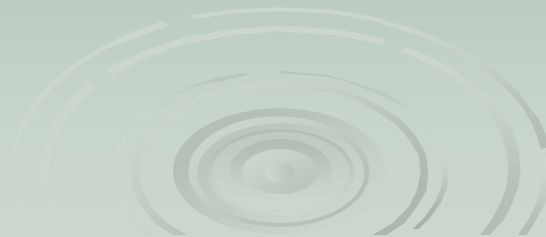
COMPONENTS OF THE SPREADSHEET GROUNDWATER BALANCE MODEL

Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

➤ Components of the SNMP

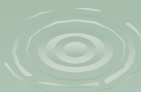
- Goals and Objectives

- Identify and Monitor Sources of Salt/Nutrient Loading
- Develop Tools to Predict Potential Impacts of Future Projects
- Identify Assimilative Capacity of the Basin

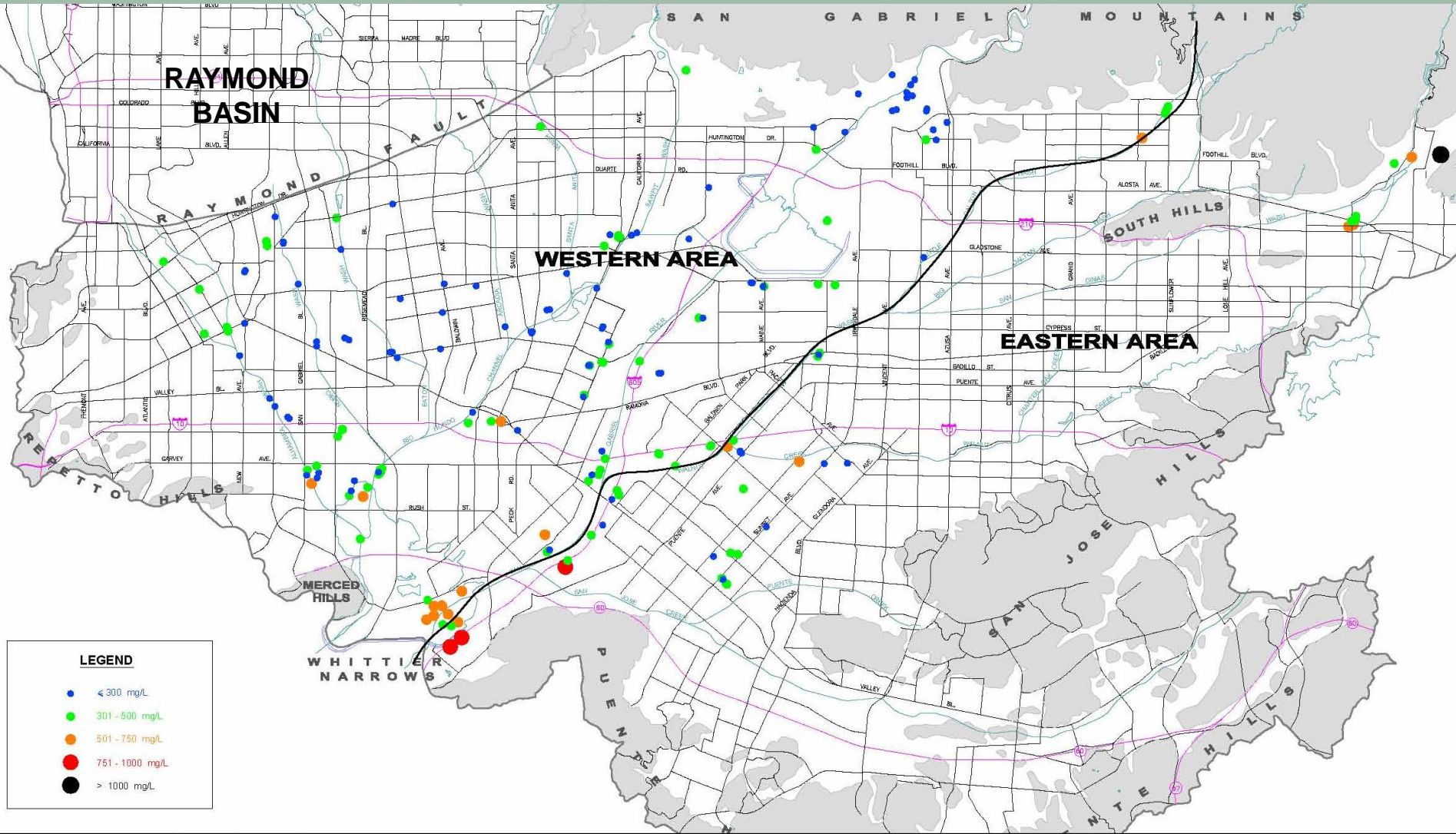


Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

- Components of the SNMP (continued)
 - RWQCB Basin Plan Groundwater Water Quality Objectives
 - Total Dissolved Solids (TDS):
 - Western Portion of Main Basin and Raymond Basin: 450 milligrams per liter (mg/l)
 - Eastern Portion of the Main Basin: 600 mg/l
 - Sulfate: 100 mg/l
 - Chloride: 100 mg/l
 - Nitrate: 45 mg/l



Water Quality



LEGEND

- < 300 mg/L
- 301 - 500 mg/L
- 501 - 750 mg/L
- 751 - 1000 mg/L
- > 1000 mg/L

MAIN SAN GABRIEL BASIN WATERMASTER


MAIN SAN GABRIEL BASIN

TOTAL DISSOLVED SOLIDS CONCENTRATIONS DURING FISCAL YEAR 2008-09

 861 VILLAGE OAKS DRIVE, SUITE 300
COVINA, CALIFORNIA 91724
TEL: (626) 967-6332
FAX: (626) 951-7066

2171 E Francisco Blvd., Suite K
San Rafael California 94901
2651 W Guadalupe Rd., Suite A209
Mesa Arizona 85202

APPROXIMATE SCALE



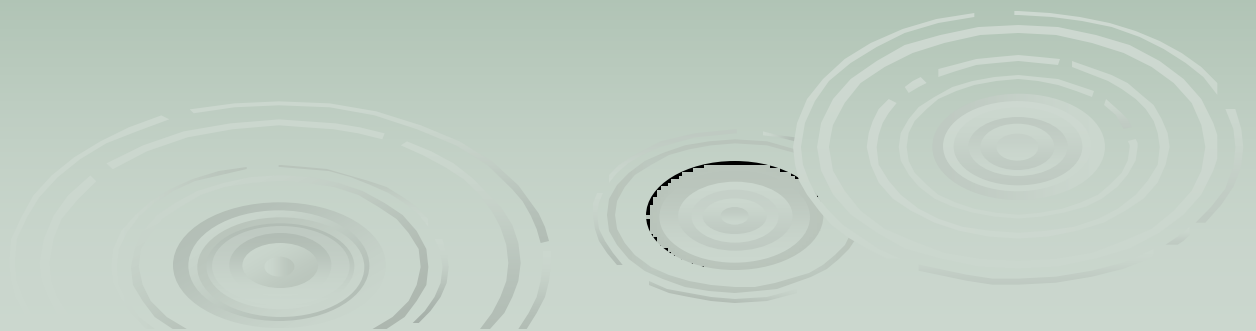
4,000' 0 4,000'

Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

- Components of SNMP (continued)
 - Basin Characterization
 - Basins Are Adjudicated and Groundwater Production Managed
 - Existing Salt and Nutrient Management Activities
 - Criteria for Delivery of Supplemental Water
 - Main Basin (1996)
 - Raymond Basin (2006)
 - Water Quality Monitoring
 - Geography
 - Geology

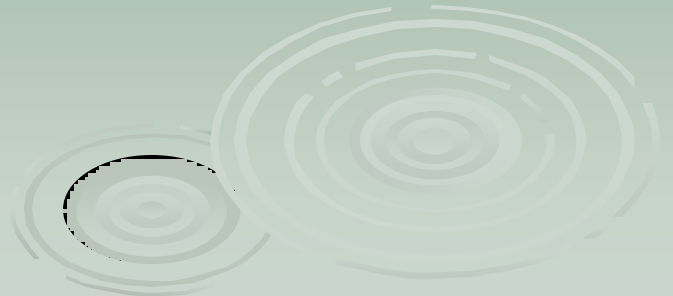
Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

- Components of SNMP (continued)
 - Hydrology
 - Hydrogeology
 - Groundwater Storage
 - Groundwater Recharge
 - Groundwater Quality
 - Groundwater Production and Uses



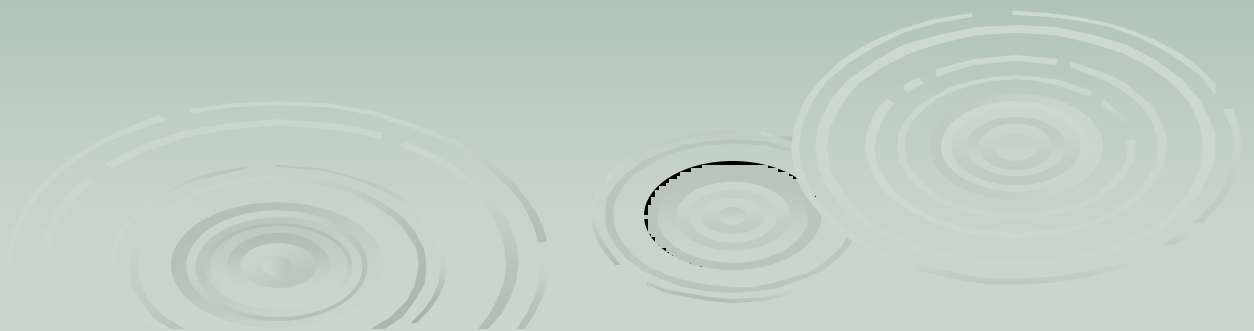
Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

- Components of SNMP (continued)
 - Salt and Nutrient Sources
 - Source Identification
 - Salts (TDS, Sulfate, Chloride)
 - Nutrients (Nitrate)
 - Fate and Transport
 - Loading Estimate
 - Assimilative Capacity



Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

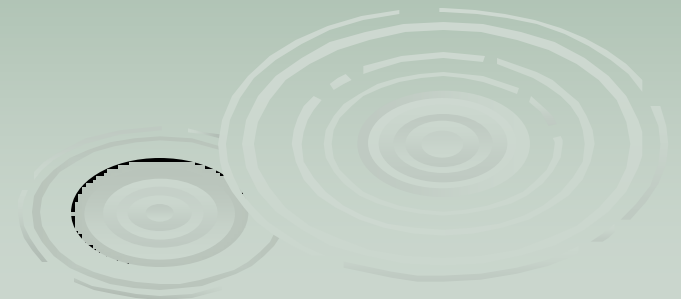
- Components of SNMP (continued)
 - Implementation Measures
 - Anti-degradation Analysis
 - Basin-wide Salt/Nutrient Monitoring Plan (Based on Existing Title 22 Program)



Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

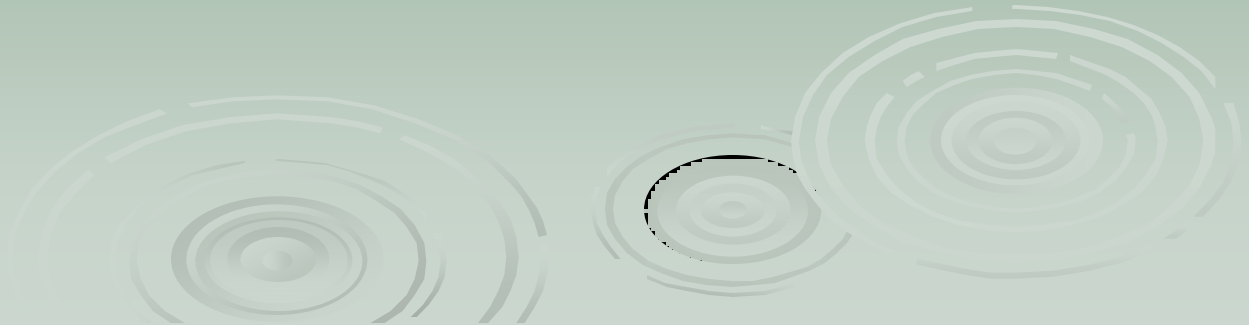
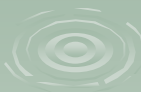
➤ Status

- Coordination with RWQCB
 - RWQCB Workshops
 - November 15, 2010
 - November 15, 2011
 - SNMP Outline to Approved by RWQCB Staff



Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

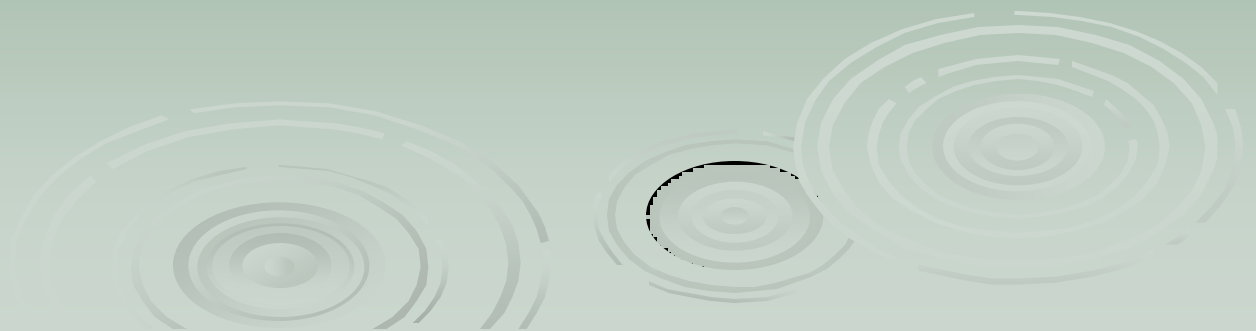
- Status (continued)
 - Accomplishments
 - Spreadsheet Tabulation of Salt/Nutrient Loading
 - TDS
 - Nitrate
 - Assimilative Capacity Evaluation
 - TDS
 - Nitrate



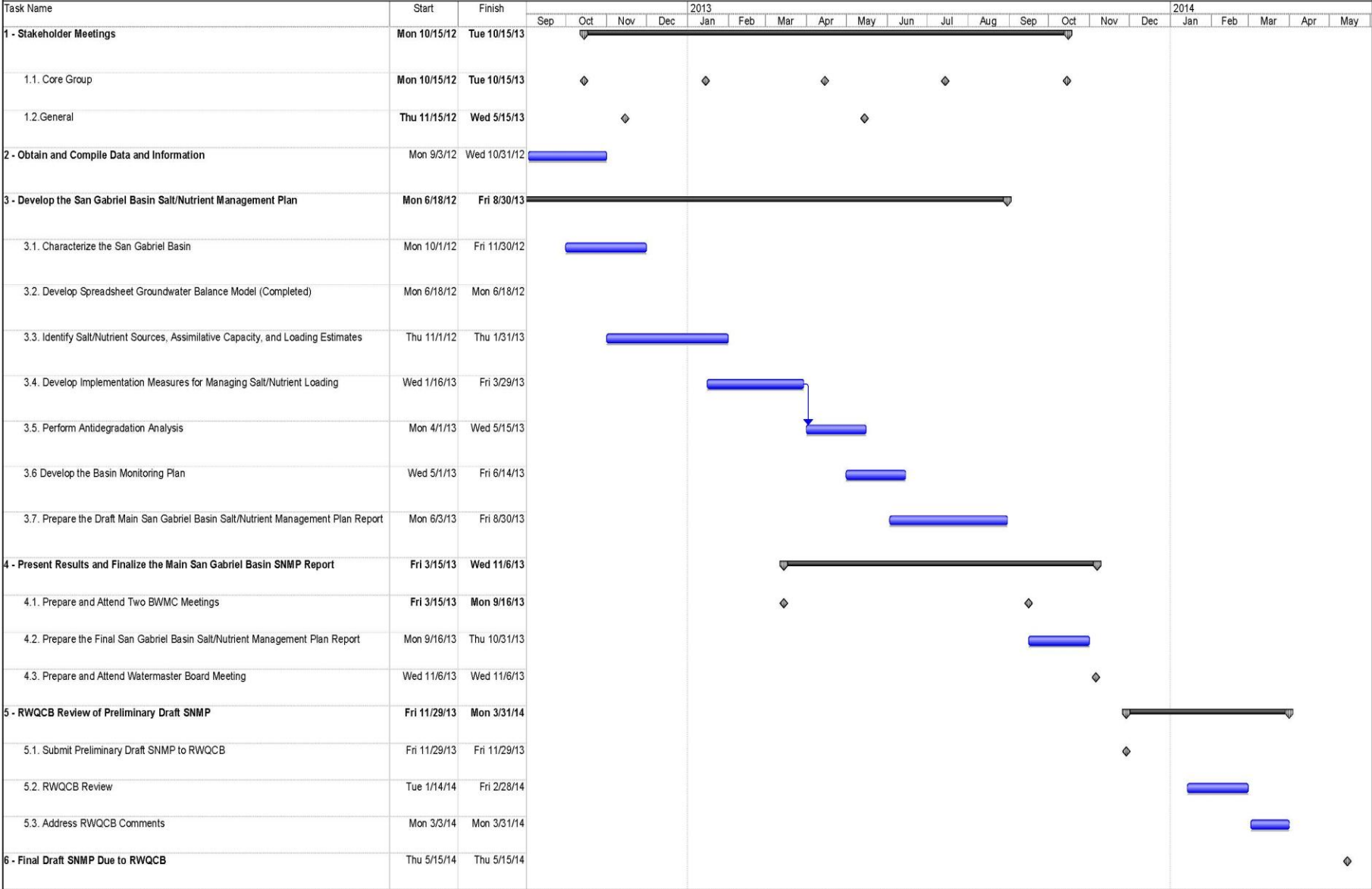
Main San Gabriel Basin/Raymond Basin Salt and Nutrient Management Plans

➤ Status (continued)

- Next Steps
 - Basin Characterization
 - Salt/Nutrient Loading and Assimilative Capacity
 - Chloride
 - Sulfate
 - Other



**MAIN SAN GABRIEL BASIN WATERMASTER
TENTATIVE SCHEDULE FOR DEVELOPMENT OF SALT/NUTRIENT MANAGEMENT PLAN**



Project: Draft_Schedule(082212) Task Progress Summary External Tasks Deadline
 Date: Thu 8/23/12 Split Milestone Project Summary External Milestone