Initiation of Groundwater Sustainability Plan for Santa Rosa Plain

Regional Water Quality Control Board
North Coast Region
May 17, 2018
Item 5

Marcus Trotta, PG, CHg,
Principal Hydrogeologist, Sonoma County Water Agency
Presentation Overview

1. Background
2. Groundwater Sustainability Plan (GSP) Requirements
3. Planned Approach to Develop GSP in the Santa Rosa Plain
4. Proposed Schedule/Next Steps
5. Questions & Discussion
Sustainable Groundwater Management Act (SGMA)

Became law on January 1, 2015

Applies statewide to medium and high priority basins

In Sonoma County, affects Santa Rosa Plain Subbasin, Sonoma Valley Subbasin, Petaluma Valley Basin
Required Steps to Groundwater Sustainability

Step one
Form Groundwater Sustainability Agency
June 30, 2017 - Complete

Step two
Develop Groundwater Sustainability Plan
January 31, 2022

Step three
Achieve Sustainability 20 years after adoption of plan*

* DWR may grant up to two, five-year extensions on implementation upon showing of good cause and progress

Failure to meet any of these deadlines triggers intervention by the State Water Resources Control Board
Groundwater Sustainability Agency (GSA) Framework Structure

- Petaluma Valley
  - GSA & GSP

- Santa Rosa Plain
  - GSA & GSP

- Sonoma Valley
  - GSA & GSP

1 GSA & 1 GSP per basin with formal coordination between basins
## Local Implementation: GSA Member Agencies

<table>
<thead>
<tr>
<th>PETALUMA VALLEY</th>
<th>SANTA ROSA PLAIN</th>
<th>SONOMA VALLEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Petaluma</td>
<td>City of Cotati</td>
<td>City of Sonoma</td>
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<tr>
<td>North Bay Water District</td>
<td>City of Rohnert Park</td>
<td>Valley of the Moon Water District</td>
</tr>
<tr>
<td>County of Sonoma</td>
<td>City of Santa Rosa</td>
<td>North Bay Water District</td>
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<tr>
<td>Sonoma County Water Agency</td>
<td>Town of Windsor</td>
<td>County of Sonoma</td>
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<tr>
<td>Sonoma Resource Conservation District</td>
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<td>Gold Ridge Resource Conservation District</td>
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<tr>
<td>Independent Water Suppliers</td>
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</tbody>
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Advisory Committees

Advise GSA Board on:

- Development and implementation of Groundwater Sustainability plan
  - Sustainability goals, measurable thresholds and objectives
  - Technical and reporting standards
  - Monitoring programs
  - Modeling activities
  - Project and management actions
  - Annual work plans and reports
- Community Outreach
- Fee proposals
- Local Regulations to implement SGMA
- Inter-basin coordination
- General advisory
Groundwater Sustainability Plan Requirements

- DWR developed requirements and regulations – 2016
  - Describe **who you are** and the basin’s geology and hydrogeology
  - Describe how you will define and **measure** sustainability
  - Identify **programs and projects** that get you to sustainability
  - Implementation information

- Ongoing development of Best Management Practices and Guidance Documents by DWR

  [http://www.water.ca.gov/groundwater/sgm/gsp.cfm](http://www.water.ca.gov/groundwater/sgm/gsp.cfm)
## Plan Area and Basin Setting

### Plan Area
Largely organizational information
- Maps of cities and towns
- Land use
- Well density
- Existing groundwater management activities
- Existing general plans

### Basin Setting
Largely technical section
- Geology
  - At least 2 geologic cross-sections per basin
- Historical and current groundwater conditions and budgets
  - Groundwater recharge
  - Groundwater pumping
  - Change in storage
  - Estimate of Sustainable Yield
- Future groundwater budget
  - Include effects of climate change
- Existing monitoring programs
Conceptual Model

- Precipitation and streambed infiltration primary source of recharge
- Primary discharge:
  - Pumping
  - Evapotranspiration
  - Baseflow
- Dominantly flows east to west
- Imbalance in the amount of inflows and outflows to the basin - could be exacerbated by future climate change.
- Historical areas of groundwater-level decline largely recovered due to replacing some groundwater use with surface water and recycled water supplies and conservation.
## New Requirements vs Existing Information: Plan Area and Basin Setting Example - Groundwater Conditions

<table>
<thead>
<tr>
<th>Example of Required GSP Component*</th>
<th>Information available from existing GMP or studies</th>
<th>Additional GSP Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater Conditions</td>
<td>Description of groundwater elevation trends over time, groundwater elevation hydrographs and contour maps, groundwater quality data.</td>
<td>Annual and cumulative change in groundwater storage based on groundwater-level changes, description and map of known groundwater contamination sites and plumes, rates and map of land subsidence (as applicable) identification of interconnected surface waters and groundwater dependent ecosystems and estimates on timing and quantity of stream depletions.</td>
</tr>
</tbody>
</table>

*Represents one of many required GSP components
Sustainable Management Criteria

Avoid “significant and unreasonable” undesirable results for the following six sustainability indicators:

- Define basin-wide undesirable results for each applicable sustainability indicator (e.g., groundwater-levels will not fall below x% of well screens)
- Set measurable thresholds and measurable objectives for each sustainability indicator
- Iterative process that will require significant stakeholder and community input
• Evaluate and select projects and actions that will achieve sustainability in 20 years (e.g., recycled water, stormwater recharge, groundwater banking, demand management, etc.)

• Demonstrate sustainability will be maintained

• Agree on how to fund these programs

• Backup or supplemental plans may be needed if preferred projects and programs are not adequate
GSP Work Plan Objectives

- **Meet SGMA requirements** - establish criteria and management actions to achieve and maintain sustainable groundwater.

- **Build on strong technical foundation** established through previous technical studies and voluntary groundwater management activities.

- **Provide opportunity for significant public and community engagement** and integrate the perspectives and address the needs of the many diverse users and uses of groundwater resources within the basin.

- **Leverage local resources** through continued regional coordination and information sharing.
Process for Santa Rosa Plain GSP Development

- Initiate Plan & Describe Basin Conditions
  - Initial Notification
  - Plan Area and Basin Setting

- Define Sustainability & How to Measure
  - Sustainable Management Criteria
  - Monitoring Program

- Evaluate & Scope Projects/Actions
  - Projects and Management Actions
  - Implementation Plan

- Adopt Plan for Implementation
  - Complete Plan and Adopt
  - Submit to DWR

Timeline:
- 2018: GSP Initiation
- 2019
- 2020
- 2021
- 2022: Sustainable by 2042
Process for Santa Rosa Plain
GSP Development

2018
Initiate Plan & Describe Basin Conditions
  - Initial Notification
  - Plan Area and Basin Setting
    - Describe Plan Area
    - Evaluate and Describe Basin Setting
      - Hydrogeologic Conceptual Model
      - Groundwater conditions
      - Water budget
      - Management areas
    - Update Computer Model
    - Complete development of Data Management System and Public Data Portal

2019
Define Sustainability & How to Measure
  - Sustainable Management Criteria
    - Sustainability goal
    - Undesirable results
    - Minimum threshold
    - Measurable objective
    - Interim milestones
  - Data analysis and modeling
    - Assessment of data gaps and improvement of monitoring network
  - Establish Monitoring Program with protocols to measure criteria

2020
Evaluate & Scope Projects/Actions
  - Projects and Management Actions
    - Identify, Evaluate, and Select Proposed Projects and Management Actions
      - Computer model simulations
      - Feasibility analyses
      - Screening & prioritization
      - Uncertainty analyses
      - Contingency planning
    - Develop GSP Implementation Plan including:
      - Funding plan
      - Detailed schedule
      - Reporting system

2021
Adopt Plan for Implementation
  - Complete Plan and Adopt
  - Submit to DWR
    - Compile and Complete GSP
      - Prepare Administrative and Jurisdictional information
      - Executive Summary
      - Address Community Input
    - Present GSP to GSA Board for adoption
    - Submit GSP to DWR

2022
Sustainable by 2042
Process for Santa Rosa Plain GSP Development

Initiate Plan & Describe Basin Conditions
- Initial Notification
- Plan Area and Basin Setting
  - Describe Plan Area
  - Evaluate and Describe Basin Setting
    - Hydrogeologic Conceptual Model
    - Groundwater conditions
    - Water budget
    - Management areas
  - Update Computer Model
  - Complete development of Data Management System and Public Data Portal
- Submit Initial Notification to Prepare GSP to DWR
- Community Engagement Plan
- Fact Sheet on Basin Status
- Public workshop on Plan Area and Basin Setting

Define Sustainability & How to Measure
- Sustainable Management Criteria
- Monitoring Program
  - Develop Sustainable Management Criteria
    - Sustainability goal
    - Undesirable results
    - Minimum threshold
    - Measurable objective
    - Interim milestones
  - Data analysis and modeling
    - Assessment of data gaps and improvement of monitoring network
    - Establish Monitoring Program with protocols to measure criteria
  - Fact Sheets/FAQs on Sustainable Management Criteria and Monitoring
    - Public workshops at key milestones associated with technical work

Evaluate & Scope Projects/Actions
- Projects and Management Actions
- Implementation Plan
  - Identify, Evaluate, and Select Proposed Projects and Management Actions
    - Computer model simulations
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  - Develop GSP Implementation Plan including:
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Adopt Plan for Implementation
- Complete Plan and Adopt GSP
- Submit to DWR
  - Compile and Complete GSP
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Community Engagement
- Ongoing Website & Email Updates and Media Outreach
- GSA Board & Advisory Committee Public Meetings

Statutory Elements
- Initial Notification
- Plan Area and Basin Setting

Technical Work Activities
- Ongoing Website & Email Updates and Media Outreach
- GSA Board & Advisory Committee Public Meetings

Sustainable by 2042

GSP Initiation March 2018
GSP submittal January 2022
Key Data Needs and Challenges

• **Improved water use estimates** for rural groundwater users (rural domestic and agriculture), which comprise an estimated 80% of the total groundwater use.

• **Depth-dependent water level and water quality data** to improve understanding of the hydrogeology and better define relationships between the shallow and deeper aquifer systems.

• **Improved information is needed about well location, lithology and construction** to better understand Basin hydrogeology and improve the groundwater model.

• **Additional modeling of future projected conditions** that simulate the impacts of climate change, land use changes, hydrology, and changes in demands.
Key Data Needs and Challenges

• More information to address potential depletion of interconnected surface water from groundwater pumping – unique challenge for Santa Rosa Plain due to strong interconnection between surface water and groundwater and the many related policies, regulatory programs and diverse interests.

• Identifying undesirable results as defined in SGMA and establishing quantifiable thresholds.

• Transitioning from a voluntary groundwater management plan to a new plan with regulatory authority will require extensive public outreach and community engagement.
Next Steps

**Summer 2018**

- Contracting with DWR for grant funding
- Plan Area Information
  - Land Use and Well Density Maps
  - Summary of local land use planning
- Review of Hydrogeologic Conceptual Model (HCM) requirements
- Input on HCM and Groundwater Conditions materials, including
  - Geologic cross sections
  - Groundwater level contour maps and hydrographs
  - Maps of interconnected surface water and groundwater-dependent ecosystems
  - Groundwater quality information

**Fall/Winter 2018**

- Hydrogeologic Conceptual Model and Groundwater Conditions
- Review of Water Budget components and discussion of uncertainty
- Input on Water Budget materials and assumptions
  - Water demands
  - Historical, baseline and projected water budget calculations/simulations
- Recommendations on Management Areas
Questions and Discussion

http://www.sonomacountygroundwater.org