Santa Maria Basin Fringe Areas
Presentation on Results of Basin Characterization and Boundary Modification Options Study
February 28, 2018
Arroyo Grande, CA

Dick Tzou, Water Resources Engineer
Courtney Howard, Water Resources Division Manager

www.slocounty.ca.gov
Agenda

Purpose

Presentation on the Results of the Santa Maria Basin Fringe Area Study

Timeline/Schedule

Future Items

Q&A
Santa Maria Basin Fringe Areas and GSAs
Basin Characterization and Boundary Modification for the Fringe Area of the Santa Maria Groundwater Basin

San Luis Obispo County Flood Control and Water Conservation District

Paul Sorensen
Principal Hydrogeologist
GSI Water Solutions, Inc.
February 27-28, 2018
Santa Maria River Valley Groundwater Basin (SMRVGB)
What is SGMA?

• Sustainable Groundwater Management Act
  • Groundwater Sustainability Agencies by 2017
  • Groundwater Sustainability Plans in 2022
  • Annual reporting requirements
  • Sustainability by 2042
What is Adjudication?

• A formal court judgment on a disputed matter over legal rights to the water supply.
  • Court defines the area
  • Results in a legally binding set of required groundwater management actions

• SMRVGB adjudication.
  • Judgment finalized in 2008
  • Three management areas (NCMA, NMMA, SMVMA)
SMRVGB Adjudicated Boundary
What is a Fringe Area?
What is BBMR?

- **Basin Boundary Modification Request**
  - A State-defined administrative process to amend established Basin Boundaries
  - Based on scientific and technical characterization
  - Must be submitted to DWR by June 30, 2018.
Why Request BBMR?

• Why pursue BBMR?
  • Reconcile scientific basis of boundary
  • Focus resources where needed

• Options in SMRVGB Fringe Areas
  • Request concurrence that a fringe area is a non-basin (scientifically exclude from SMRVGB)
  • Scientifically re-define fringe area as hydrologically distinct subbasin of SMRVGB
Definitions

• Basin – Aquifer or stacked aquifers with defined lateral boundaries and a definable bottom

• Subbasin – Subdivision of a basin based on geologic or hydrogeologic barriers

• Non-basin – Alluvial stream aquifer that flows into a basin but is otherwise not connected to the basin
Overview of Fringe Areas

- Pismo Creek Valley
- Arroyo Grande Creek Valley
- Nipomo Valley
- Southern Bluffs
- Ziegler Canyon
- SLO/SB County Line
Approach to Basin Characterization

• Physical Setting – Air photos, topographic maps, land use, water use, hydrology

• Geologic Setting – Geologic maps, cross sections

• Hydrogeologic Setting – Hydraulic parameters, hydrographs, water level maps, SW/GW interaction, underflow calculations
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWR Bulletin 118 Area (acres)</td>
<td>1,120</td>
</tr>
<tr>
<td>Extent of Alluvium Area (acres)</td>
<td>530</td>
</tr>
<tr>
<td>Irrigated Area (acres)</td>
<td>95</td>
</tr>
<tr>
<td>Crop Demand (ac-ft/yr)</td>
<td>102</td>
</tr>
<tr>
<td>Hydraulic Conductivity (ft/day)</td>
<td>50</td>
</tr>
<tr>
<td>Saturated Thickness (ft)</td>
<td>50</td>
</tr>
<tr>
<td>Underflow Out (ac-ft/yr)</td>
<td>63</td>
</tr>
<tr>
<td>Percent of Total Inflow to SMRVGB</td>
<td>&lt; 0.22%</td>
</tr>
</tbody>
</table>

**Pismo Creek Valley**

- **DWR Boundary**
- **Mapped Alluvium**
Pismo Creek Valley Cross Section A-A’

SSW Adjudicated Area

Fringe Area

Distance (feet)

Elevation (feet)

GSI Water Solutions, Inc.
Pismo Creek Fringe Area Summary

• Minor alluvial groundwater use

• Underflow to SMRVGB estimated at 63 acre-feet/year, or 0.22% total recharge to Basin. Not significant.

• Wilmar Avenue Fault places Basin sediments against bedrock

• Actions in the Basin do not affect groundwater conditions in Pismo Creek Valley
Pismo Creek Valley Fringe Area

• BBMR Alternatives
  • Request to be designated a separate subbasin of SMRVGB, with refined alluvial boundary
  • Request to exclude area from SMRVGB, designate area as “non-basin”
## Arroyo Grande Creek Valley

### Parameter Table

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Arroyo Grande Creek Valley</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWR Bulletin 118 Area (acres)</td>
<td>3,750</td>
</tr>
<tr>
<td>Extent of Alluvium Area (acres)</td>
<td>3,030</td>
</tr>
<tr>
<td>Irrigated Area (acres)</td>
<td>1,790</td>
</tr>
<tr>
<td>Crop Demand (ac-ft/yr)</td>
<td>3,787</td>
</tr>
<tr>
<td>Hydraulic Conductivity (ft/day)</td>
<td>136</td>
</tr>
<tr>
<td>Saturated Thickness (ft)</td>
<td>65</td>
</tr>
<tr>
<td>Underflow Out (ac-ft/yr)</td>
<td>2,000</td>
</tr>
<tr>
<td>Percent of Total Inflow to SMRVGB</td>
<td>6.80%</td>
</tr>
</tbody>
</table>
• Significant use of groundwater for irrigation.
• Groundwater levels are stable, due to regular recharge of alluvium from Lake Lopez releases.
• Underflow to SMRVGB estimated at 2,000 AFY, or 7% total recharge of Basin.
• Wilmar Avenue Fault places Basin sediments against bedrock.
Arroyo Grande Creek

• BBMR Proposed Alternative
  • Request to be designated a separate subbasin of SMRVGB, with refined alluvial boundary
Nipomo Valley

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Nipomo Valley</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWR Bulletin 118 Area (acres)</td>
<td>5,450</td>
</tr>
<tr>
<td>Irrigated Area (acres)</td>
<td>2,370</td>
</tr>
<tr>
<td>Crop Demand (ac-ft/yr)</td>
<td>4,076</td>
</tr>
<tr>
<td>Hydraulic Conductivity (ft/day)</td>
<td>na</td>
</tr>
<tr>
<td>Saturated Thickness (ft)</td>
<td>na</td>
</tr>
<tr>
<td>Underflow Out (ac-ft/yr)</td>
<td>na</td>
</tr>
<tr>
<td>Percent of Total Inflow to SMRVGB</td>
<td>na</td>
</tr>
</tbody>
</table>
Nipomo Valley Cross Section F-F’
Nipomo Valley Fringe Area Summary

• Older Alluvium is not an aquifer
• Groundwater use is from bedrock formations
• Wilmar Avenue Fault places bedrock against the sediments of the SMRVGB
Nipomo Valley

• BBMR Proposed Alternative
  • Exclude area from SMRVGB, designate area as “non-basin”
Southern Bluffs Fringe Area Summary

- Orcutt Formation (like Older Alluvium in Nipomo Valley) is not an aquifer
- Groundwater use draws from bedrock formations
- Wilmar Avenue Fault/Santa Maria River Fault places bedrock against the sediments of the SMRVGB
Southern Bluffs

• Proposed BBMR Alternative
  • Exclude area from SMRVGB, designate area as “non-basin”
Ziegler Canyon

<table>
<thead>
<tr>
<th>Parameter</th>
<th>SLO County</th>
<th>Santa Barbara County</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWR Bulletin 118 Area (acres)</td>
<td>830</td>
<td>740</td>
<td>1,570</td>
</tr>
<tr>
<td>Extent of Alluvium Area (acres)</td>
<td>720</td>
<td>1,090</td>
<td>1,810</td>
</tr>
<tr>
<td>Irrigated Area (acres)</td>
<td>470</td>
<td>960</td>
<td>1,430</td>
</tr>
<tr>
<td>Crop Demand (ac-ft/yr)</td>
<td>610</td>
<td>1,059</td>
<td>1,669</td>
</tr>
<tr>
<td>Hydraulic Conductivity (ft/day)</td>
<td></td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Saturated Thickness (ft)</td>
<td></td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>Underflow Out (ac-ft/yr)</td>
<td></td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>Percent of Total Inflow to SMRVGB</td>
<td></td>
<td>0.50%</td>
<td></td>
</tr>
</tbody>
</table>
Ziegler Canyon Cross Section J-J’

Adjudicated Area

Fringe Area

Santa Maria River Fault

Paso Robles FM

CAREAGA FM

Alluvium

Bedrock (Ojai/Monterey)

Elevation (feet)

Distance (feet)

0 10000 20000 30000 40000

S  J  J'  N

GSI Water Solutions, Inc.
Ziegler Canyon Fringe Area Summary

• Significant irrigation use

• Fault places bedrock against SMRVGB sediments

• Groundwater levels return to pre-drought levels with Twitchell downstream releases

• Underflow to SMRVGB estimated at 0.5% total recharge

• Groundwater boundary isolates upper 75% of valley from SMRVGB
Ziegler Canyon (Cuyama River Valley)

- BBMR Alternatives
  - Request to be designated a separate subbasin of SMRVGB, with refined alluvial boundary
  - Request to exclude area from SMRVGB, designate area as “non-basin”
Preliminary Proposed BBMR Requests

- Nipomo Valley and Southern Bluffs
  - Exclude area from SMRVGB, designate area as “non-basin”

- Pismo Creek and Ziegler Canyon
  - Exclude area from SMRVGB, designate area as “non-basin”

- Arroyo Grande Creek
  - Separate subbasin of SMRVGB
  - Refine basin boundary consistent with mapped alluvium
Thank You
Key Dates (Santa Maria Basin)

3/6/2018: BOS authorizes BBMR* Initial Notification

6/05/2018: BOS authorizes BBMR* Submittal

6/30/2018: BBMR* Submittal due

Fall/Winter 2018: BBM released

Comments and letters of support accepted by BOS

Comments accepted by DWR within 30 days after request is posted

*BBMR = Basin Boundary Modification Request
Future Items

Public Comments

➢ Due date for all written comments to staff: **4/13/2018**
  ➢ Draft report for Santa Maria Basin Fringe Area Characterization Study (currently available online)
➢ Draft reports may be viewed online at:  [https://slocountywater.org/sgma/](https://slocountywater.org/sgma/)
➢ All comments may be submitted to dtzou@co.slo.ca.us
Questions and Feedback
Thank you!

For more information, join our email list: www.slocountywater.org/sgma