Management of Non-Municipal Groundwater Pumping in Santa Cruz County

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Overview

• Significance of non-municipal pumping
  – Private wells, small public water systems
• County Role in Groundwater Management
  – Well Ordinance
  – Small Water Systems Oversight
  – Water Conservation Measures
  – Groundwater Emergency
• Additional actions
Significance of Non-Municipal Pumping

• 85% of pumping in Pajaro Valley
• 30% of water use in rest of County
• 38% of pumping from Soquel-Aptos Purisima basin (1000 wells), 30% from Aromas
• 15% of coastal/urban Purisima Basin (200 wells)
• Local impacts and impacts on streamflow
• In rural areas, impact is mitigated by:
  – Septic System recharge
  – Shallow wells and complex geology
  – Low density
• Probably need a groundwater model
How do we know how much water is pumped?

- Numbers of developed parcels
- Average water use of rural residential properties:
  - 0.6 af/yr in Central Water Dist.
  - 0.2 af/yr for mountain wooded parcels
  - 1.1 af/yr Soquel horse property
  - Average of 0.44 af/yr in Purisima
- Typical water use factors for other uses
- Aerial photo analysis of agricultural usage
- Meters?
County Oversight

- Small Public Water Systems (5-199 connections, 130 in County)
- Permitting of new wells
- Water level monitoring
- Water supply requirements for new development, adequate service
- CEQA review of larger uses
- Prohibition of new non-ag wells in SqCWD service area (7.70.120)
- Enforcement of Soquel Creek Adjudication
- Water conservation requirements
Water Conservation Requirements

- Prohibition of Wasteful Water use (7.69.030)
- Fixture retrofit (7.69.040)
- Water Efficient Landscape (13.13)
- Runoff and Pollution Control (7.79)
- Water use efficiency for new wells serving more than 4 units or more than 2 af/yr (7.70.110 (D))
- CEQA mitigation for new projects
- Calgreen building code requirements for new building projects/remodels
Conditions for Declaring Groundwater Emergency

- Public Hearing by County Board of Supervisors to consider all relevant information, based on the following findings (7.70.130):
  1. Area experiencing overdraft
  2. New wells will significantly increase overdraft
  3. Continuing overdraft will lead to aquifer degradation
  4. Adequate measures are not being taken to alleviate overdraft

- County consideration would likely be in conjunction with a declaration by SqCWD
Possible Provisions of Groundwater Emergency

- Implement water conservation measures
- Limit construction of new wells
- Regulate pumping or expansion of existing wells
- Require metering and monitoring of all wells
- Restrict agricultural water use

- Actions would be limited by legality, practicality and effectiveness
- A GW emergency does not provide a solution
- How much demand comes from new growth?
  - Small increment of existing water use: 2-5% by 2030.
Other Potential County Actions

- Outreach, education, assistance
- Stakeholder Group
- Increased water level monitoring
- Additional water use restrictions
- Additional requirements for small water systems
- Joint Powers Authority
- Replenishment District
- Moratorium or impact fee
- Metering
- Some measures may be legally untested and/or lead to adjudication
**Impact of Private Well Usage in the Soquel-Aptos Groundwater Basin**  
(Updated by John Ricker, August, 2013)

In order to develop a more comprehensive management approach to the Soquel-Aptos groundwater Basin, it makes sense to consider all the entities pumping from the Basin. County staff have reviewed information related to private pumping from the basin in both the coastal, urban areas and in the inland rural areas. This distinction is based on the belief by hydrologists that coastal pumping has a disproportionately greater impact on groundwater levels along the coast. The objective is to manage groundwater pumping to allow groundwater levels along the coast to recover to higher levels that would minimize the threat of seawater intrusion.

In 1999, County staff used well records, land use information, and aerial photo analysis to estimate pumping on properties with private wells pumping from the Purisima formation. This information was reviewed and updated to reflect changes in land use for larger agricultural wells, and is compared to 2011 pumping records of the water agencies. Since 1999, several of the larger agricultural operations have been phased out entirely and some have been expanded slightly. The urban areas are defined as those areas within the boundaries of the Soquel Water District. This extends inland considerably beyond the County’s urban services line in a number of locations, including up the east side of Soquel creek into the Cherryvale area.

The following table presents a summary of information for the urban area and the entire basin:

<table>
<thead>
<tr>
<th>PURISIMA AQUIFER Groundwater Extraction</th>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Annual Pumpage (Acre-Feet/Year)</td>
<td>Percent of Total Urban Pumpage</td>
<td># of Wells</td>
</tr>
<tr>
<td><strong>Urban Areas</strong></td>
<td><strong>Rural Areas</strong></td>
<td><strong>Total Basin</strong></td>
<td></td>
</tr>
<tr>
<td>Agricultural Wells</td>
<td>88</td>
<td>2%</td>
<td>5</td>
</tr>
<tr>
<td>Seascape Golf Course</td>
<td>232</td>
<td>6%</td>
<td>2</td>
</tr>
<tr>
<td>Other Individual Private Wells: Residential &amp; Commercial</td>
<td>124</td>
<td>3%</td>
<td>184</td>
</tr>
<tr>
<td>Cabrillo College</td>
<td>95</td>
<td>3%</td>
<td>3</td>
</tr>
<tr>
<td>Other Small Water Systems:</td>
<td>30</td>
<td>1%</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL Non-Municipal Pumping</td>
<td>569</td>
<td>15%</td>
<td>198</td>
</tr>
<tr>
<td>CITY OF SANTA CRUZ</td>
<td>531</td>
<td>14%</td>
<td>3</td>
</tr>
<tr>
<td>SOQUEL CREEK WATER DISTRICT</td>
<td>2,634</td>
<td>71%</td>
<td>11</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>3,734</td>
<td>100%</td>
<td>3,133</td>
</tr>
</tbody>
</table>

The very large majority of private wells serve individual homes, with estimated water use of 0.44 acre-foot per parcel per year. The notable exceptions are Seascape golf course, Cabrillo College, 5 urban area nurseries (4-45 af/yr), a trailer park (20 af/yr), 10 rural agricultural uses (3-16 af/yr). Estimated water usage is based on an analysis of parcel size, numbers of units and typical water use factors for the type of use. Further analysis of specific parcels could provide more precise information, but it is believed that this analysis presents a good picture of the situation for general planning purposes.