

**SOQUEL/APTOS GROUNDWATER MANAGEMENT PLAN  
BASIN IMPLEMENTATION GROUP (BIG)  
MEETING MINUTES  
January 29, 2015**

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**1. CALL TO ORDER**

Bruce Jaffe called the meeting to order at 7:00 p.m.

**2. ROLL CALL**

**Committee Members Present:**

Bruce Jaffe, Soquel Creek Water District  
Tom LaHue, Soquel Creek Water District  
John Benich, Central Water District  
Bob Postle, Central Water District  
Bill Wigginton, Seascope Greens Homeowners Association  
Amy Newell, Pajaro Valley Water Management Agency  
Zach Friend, County of Santa Cruz  
Cynthia Matthews, City of Santa Cruz  
Micah Posner, City of Santa Cruz

**Committee Members Absent:**

None

**Others Present:**

Kim Adamson, General Manager, Soquel Creek Water District  
Ralph Bracamonte, Manager, Central Water District  
John Ricker, Santa Cruz County Water Resources Division Director  
Martin Mills, PureSource Water (Private Well Representative)  
Rosemary Menard, City of Santa Cruz  
Mary Bannister, Pajaro Valley Water Management Agency  
Melanie Schumacher, Soquel Creek Water District  
Ron Duncan, Soquel Creek Water District  
Karen Reese, Executive Assistant/Board Clerk, Soquel Creek Water District

**Others Present:**

Derrik Williams, HydroMetrics, WRI  
Cameron Tana, HydroMetrics, WRI participated via conference call  
Jon Kennedy  
Marci DuPraw  
Robert Schultz  
Doug Deitch  
Bruce Daniels, attending as a member of the public  
Carla Christensen, attending as a member of the public

**3. APPROVAL OF MINUTES**

**3.1 Minutes of 9/23/14**

MOTION: John Benich; Second; Bill Wigginton: To approve the minutes with one minor change. Motion passed unanimously.
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4. **ORAL COMMUNICATIONS**

Doug Deitch distributed material on sustainable groundwater use, the county well ordinance and the local coastal plan. He would like to come back and make a formal presentation. Director Jaffe asked that Mr. Deitch contact Ms. Adamson or Mr. Bracamonte to schedule time at an upcoming meeting of the BIG.

5. **ADMINISTRATIVE BUSINESS**

5.1 Welcome New Members

At the beginning of the meeting everyone present introduced themselves. The new members were welcomed.

5.2 Discussion of Draft Third Amendment to Joint Powers Agreement

Discussion was held. This agreement could act as the bridge to get to the point of a groundwater sustainability agency (GSA).

Ms. Adamson reviewed the Draft Third Amendment to the Joint Powers Agreement. A new name for the group was discussed as well as what part the BIG would play in forming the GSA and what the makeup of the new group. Discussion also was held on who would be a voting member versus a non-voting member and what the percentage of financial split would be.

Suggested changes to the Draft Third Amendment to Joint Powers Agreement were given. Staff will bring the updated amendment to the next meeting for approval. Once approved at the BIG, it will then need to go to each individual agency for approval before it becomes effective.

5.3 Groundwater Model Update

Derrik Williams, HydroMetrics, WRI gave a presentation (**Attached as Exhibit A**) and answered questions. Cameron Tana with HydroMetrics was also available via teleconference.

5.4 Scope of Work for Cross Sectional Model Modifications

Ms. Adamson reviewed the proposed scope of work included in the BIG packet. Lengthy discussion was held. Mr. Williams gave a presentation (**Attached as Exhibit B**) and Mr. Tana was available via conference call to answer questions.

MOTION: Director Jaffe; Second; Director LaHue: To approve proposal of the Scope of Work for Modifying the Cross Sectional Model at the cost share agreed upon for the Third Amendment to the Joint Powers Agreement and recommend approval to the member agency Boards. Motion passed unanimously.
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5.5 Update on Groundwater Sustainability Agency (GSA) Implementation – Oral Presentation

Ms. Adamson presented an overview of the process for creating a GSA. The BIG is functioning as an interim group while the process of forming a GSA is undertaken. The next step will include a stakeholder process, bringing the various groups together and will include public outreach, open meetings for stakeholders, public input and interaction. This process will include discussion of what roles the agencies and the public would play.

5.6 Groundwater Stakeholder Meetings Update

Ms. Schumacher briefly reviewed the information included in the BIG packet. The public stakeholder meeting series has concluded. There was good participation from the public with 40-100 attending the stakeholder meetings. The interaction was very good. Staff has extended the survey seeking more private well input. The results are showing that survey respondents want the community be involved in a more collaborate process with facilitation by an unbiased 3<sup>rd</sup> party. An online survey is available on the District's website. Ms. Schumacher encouraged everyone to complete the survey.

Director Jaffe asked that Ms. Schumacher distribute a summary of this oral report with survey results to the BIG members. **(Attached as Exhibit C)**

6. **INFORMATION ITEMS**

Staff Reports – Oral

No reports were given.

7. **ADJOURNMENT**

Being no further business, the meeting was adjourned at 9:30 p.m.

SUBMITTED BY:

APPROVED BY:

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Karen Reese, Board Clerk  
Soquel Creek Water District

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Ron Duncan, Interim General Manager  
Soquel Creek Water District

# Soquel-Aptos Basin Groundwater Model Update and Work Plan

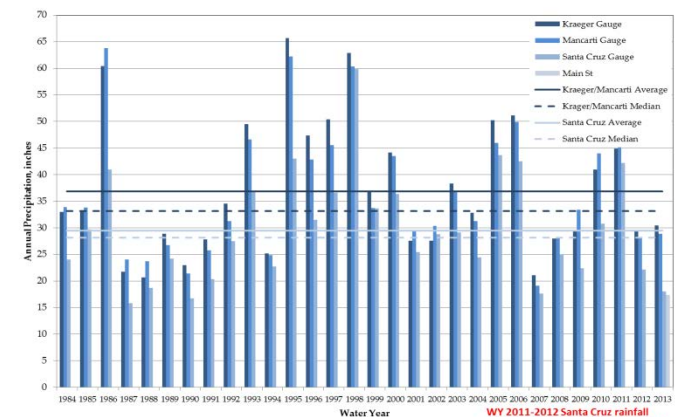
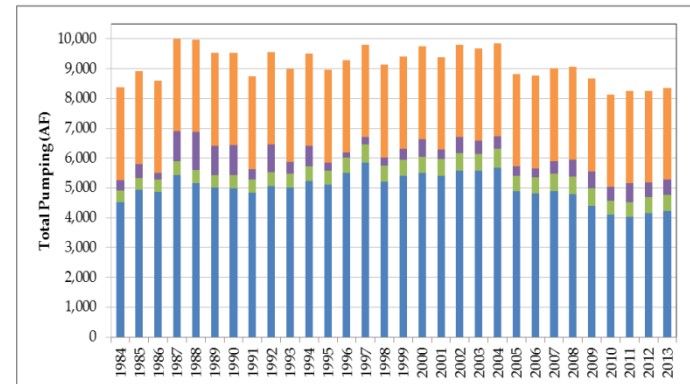
Soquel-Aptos Basin Implementation Group  
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# Model Use Priorities

- Consensus developed in scoping meetings
  - SqCWD, CWD, City of Santa Cruz, County, PVWMA, USGS, HydroMetrics WRI
- Model to be used to evaluate future condition of groundwater basin
  - Prioritize model inputs to change
  - Prioritize model outputs to evaluate

# Priorities for Future Model Inputs

- Pumping
  - Overall quantities
  - Locations
  - Non-agency estimates
- Supplemental Supplies
  - Recharge or Injection
- Hydrologic Conditions
  - Climate Change

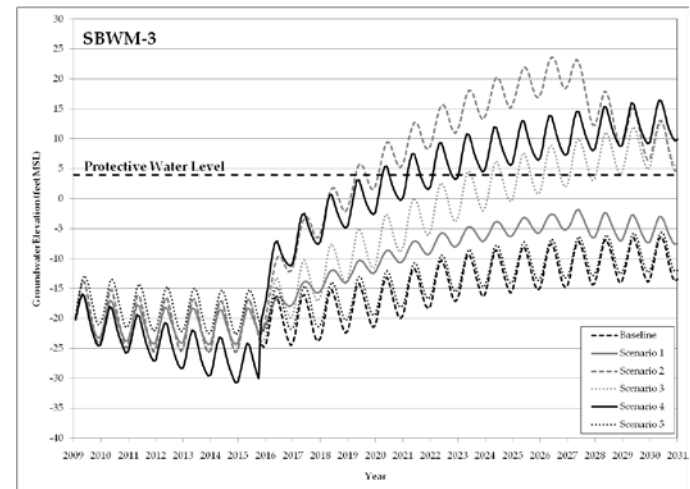


WV 2011-2012 Santa Cruz rainfall  
estimated based on De Laveaga Stn

# Priorities for Evaluating Model Outputs

- Comparing groundwater levels to protective elevations to prevent seawater intrusion
  - Time for basin recovery
- Effects on stream flow
- Movement of seawater interface

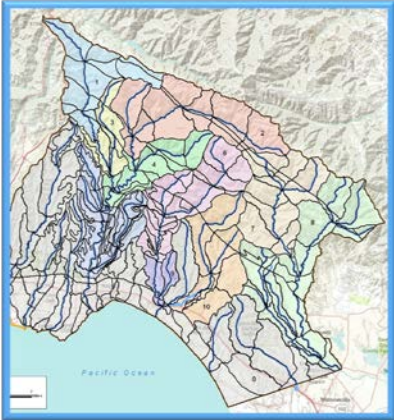
Seaside Model Example



# Model Capabilities

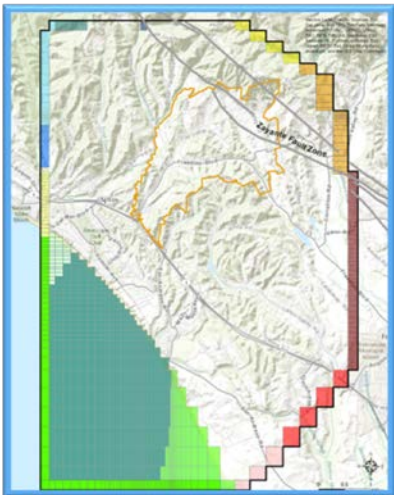
- **GSFLOW**
  - USGS code integrating watershed and groundwater
  - PRMS for watershed surface flows
  - MODFLOW for groundwater flows
- **Streamflow Routing (SFR2)**
- **Sharp Seawater Interface (SWI2)**
- **Multi-Node Well (MNW2)**
  - Production wells screened across multiple units



*Existing PRMS***Task 2****Grid-Based  
PRMS**

Surface

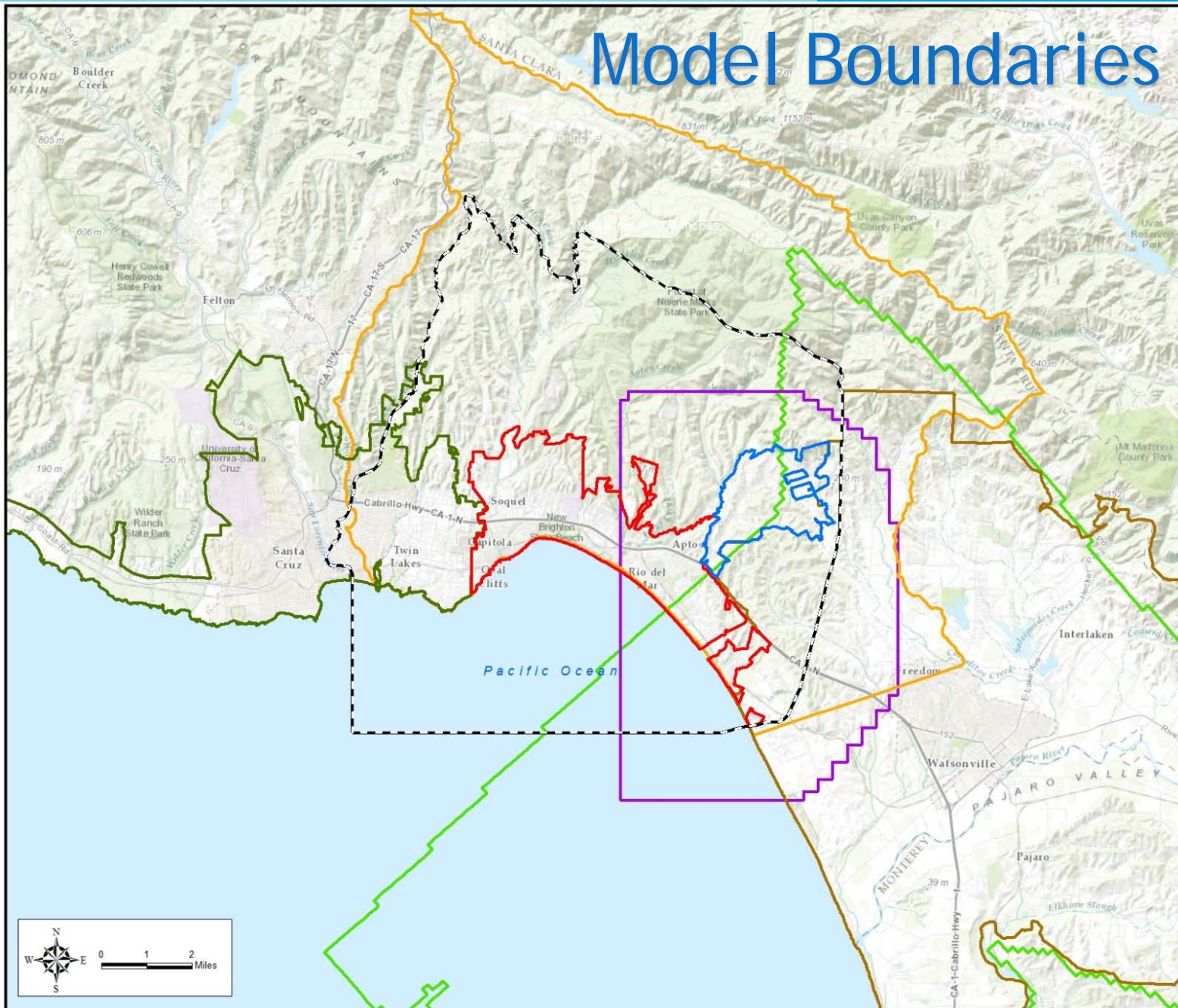
Sub-Surface

**Task 3****MODFLOW**

# Work Plan Process

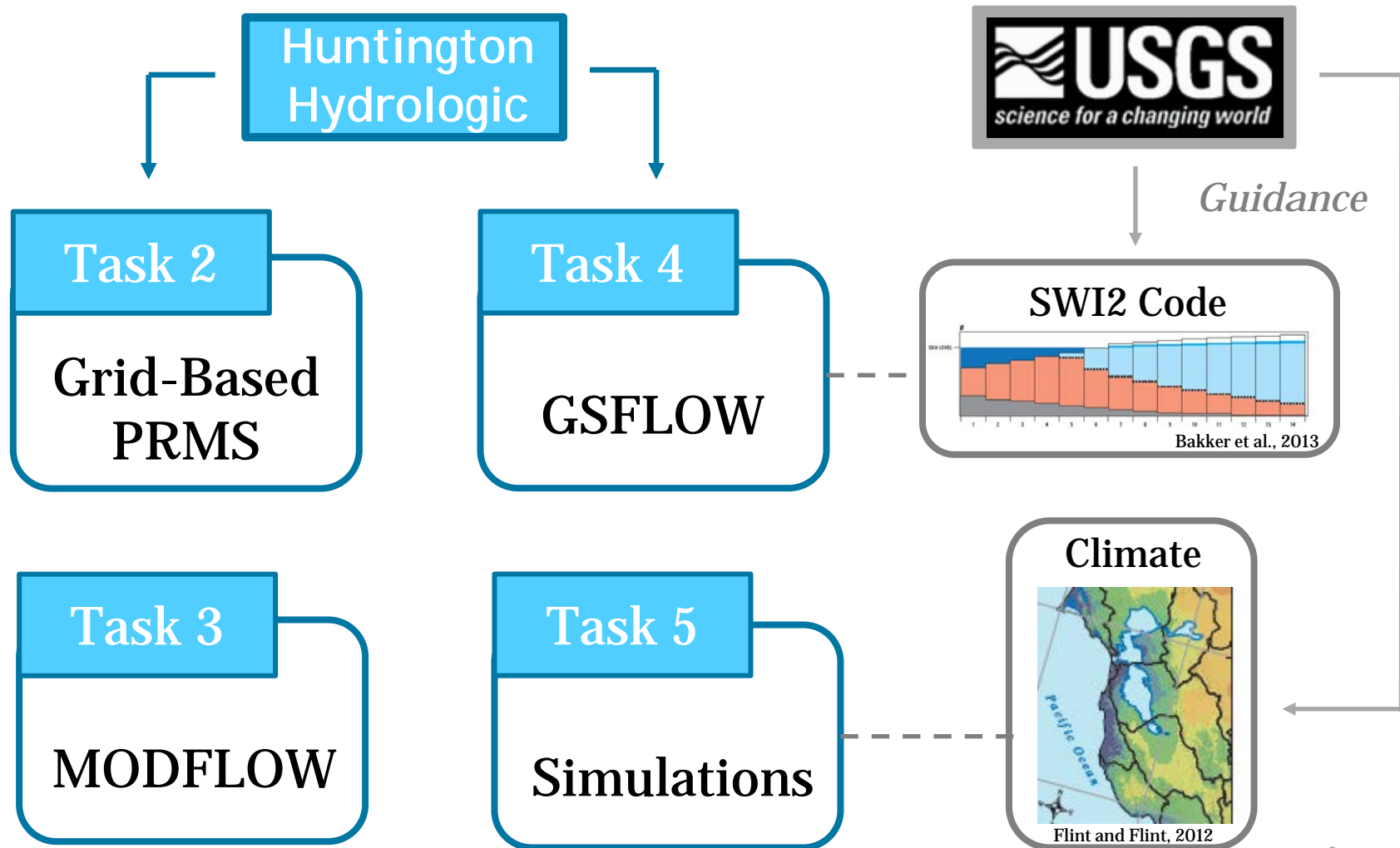
**Task 4****GSFLOW****Task 5****Simulations***CWD Model*

# Model Boundaries



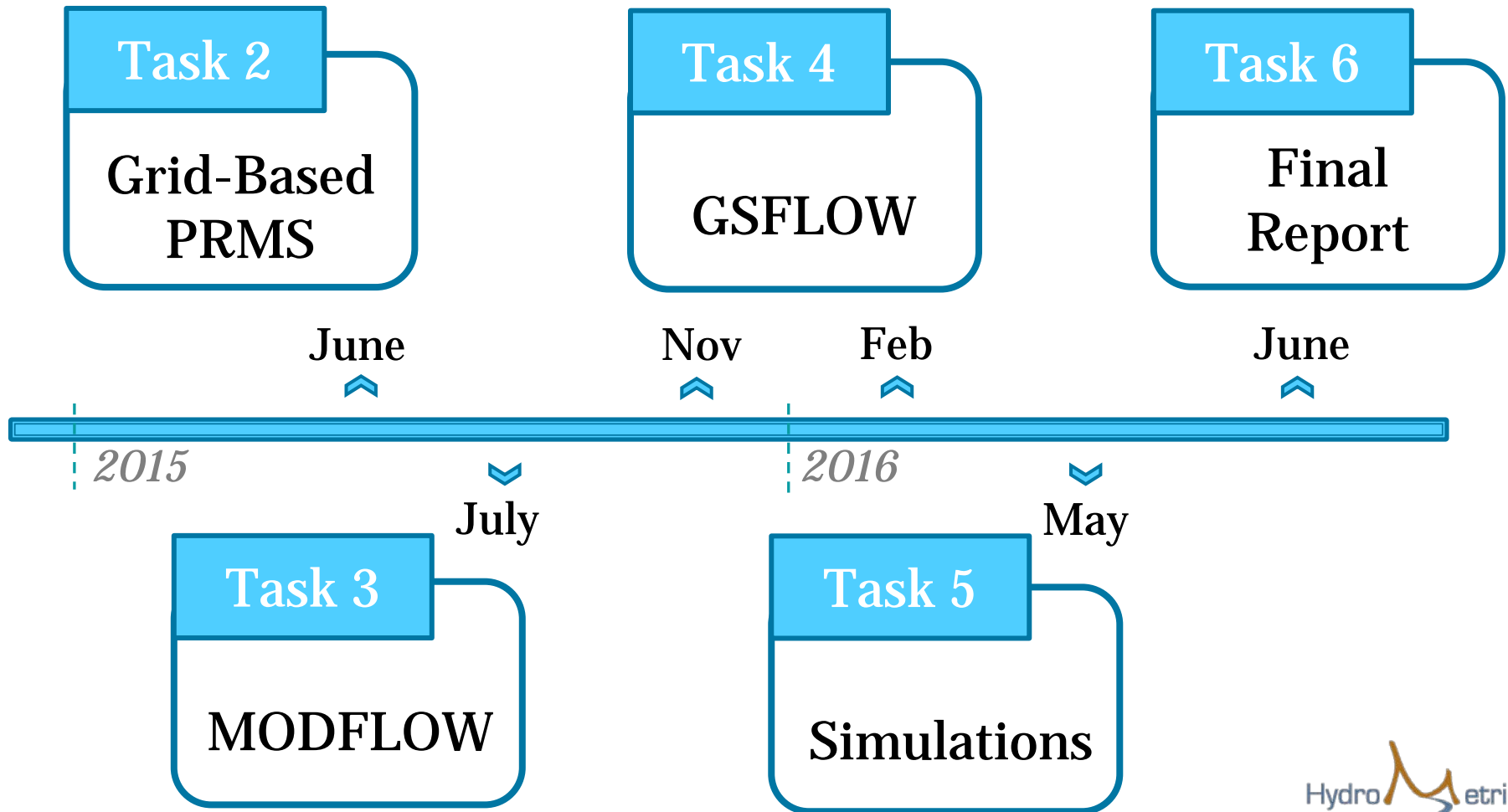
- PRMS Recharge Model Area
- City of Santa Cruz Water Department
- Soquel Creek Water District
- Central Water District
- PVWMA
- Central WD Model
- Pajaro Valley Hydrologic Model
- - - Soquel-Aptos Groundwater Management Plan Area

# Team Partner Roles



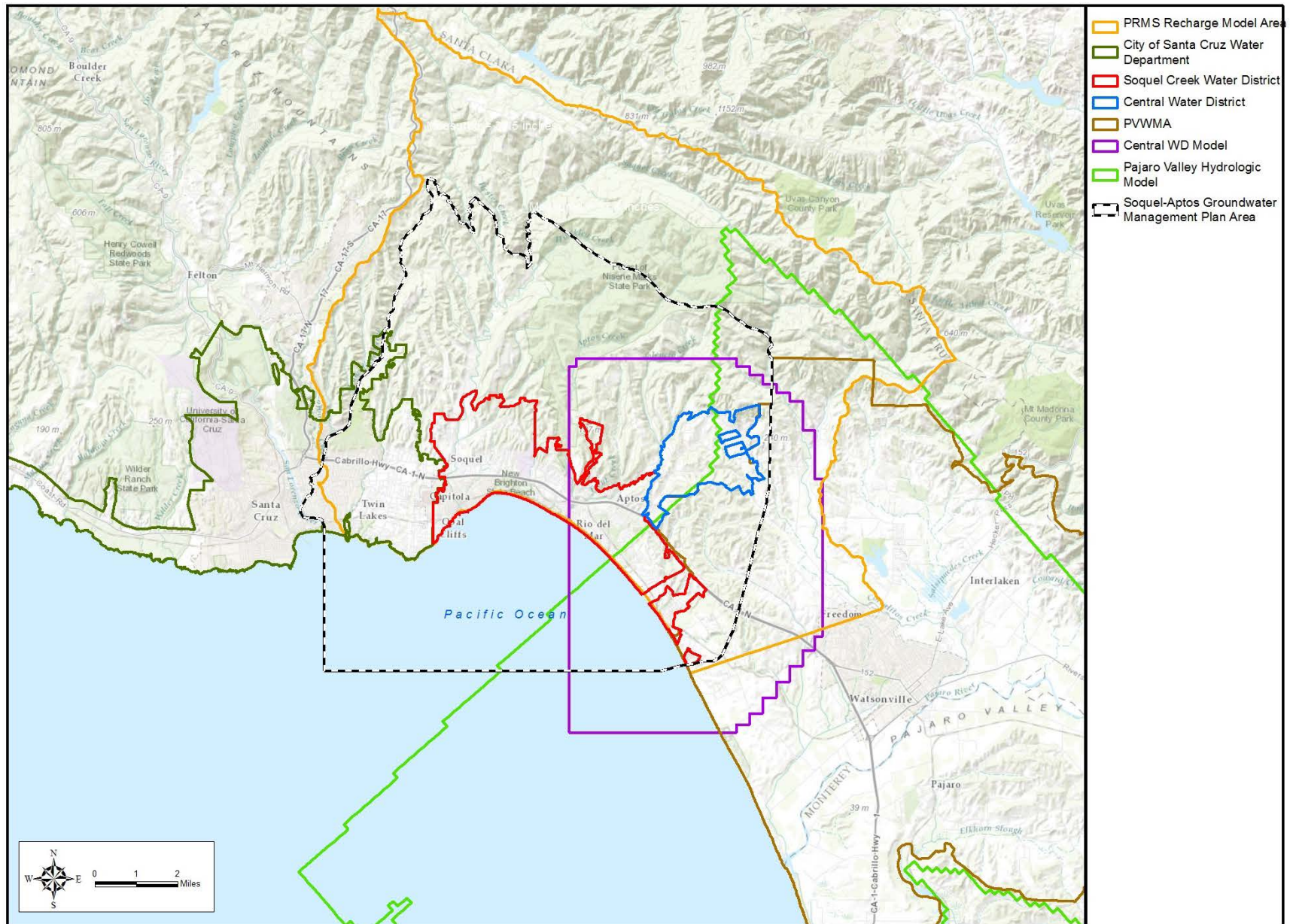
# Milestones

*Interim draft tech memos for review by staff and Technical Review Committee*



# Questions



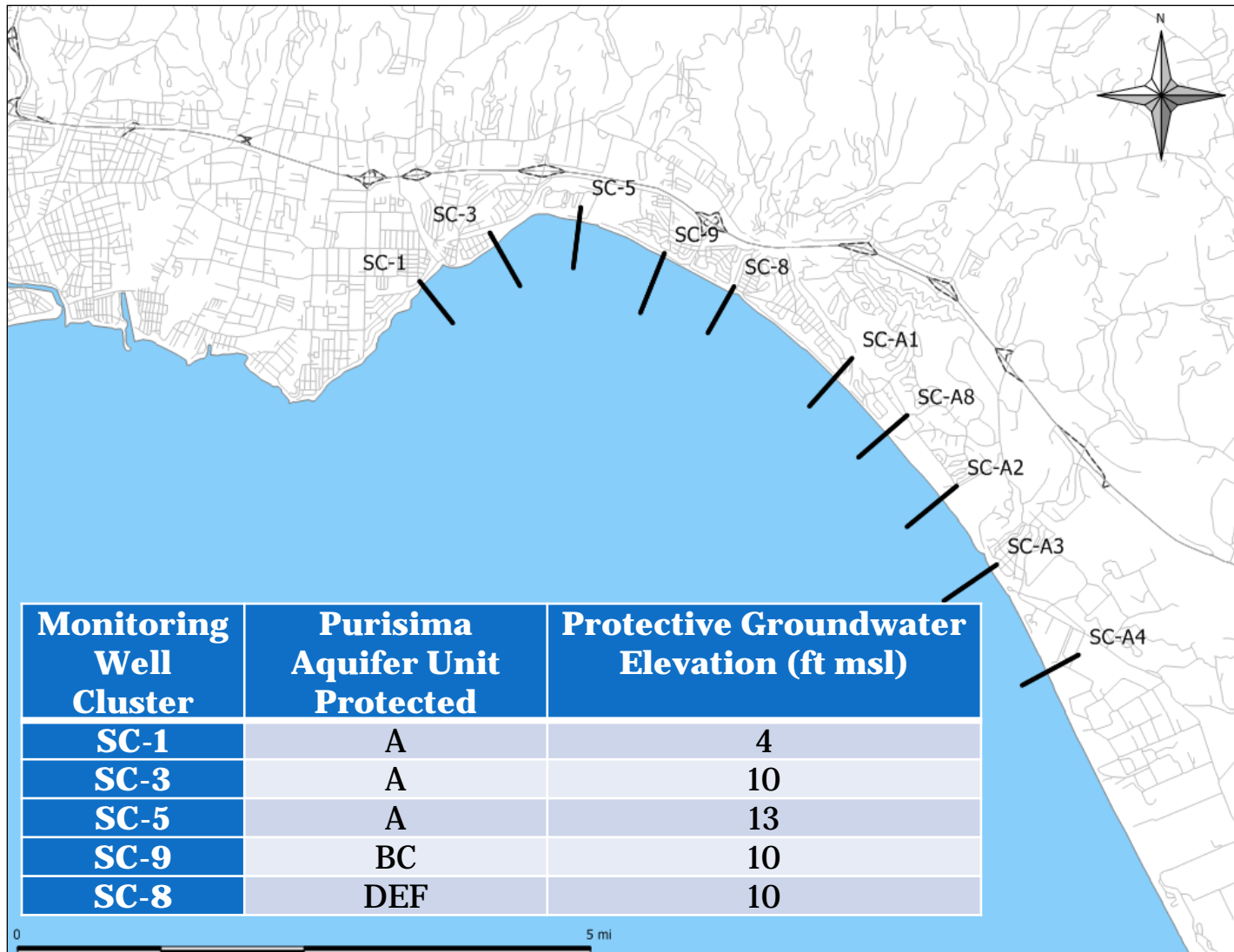


# Protective Groundwater Elevations for Seawater Intrusion

## Modifications to Cross-Sectional Models

Soquel-Aptos Basin Implementation Group  
January 29, 2015

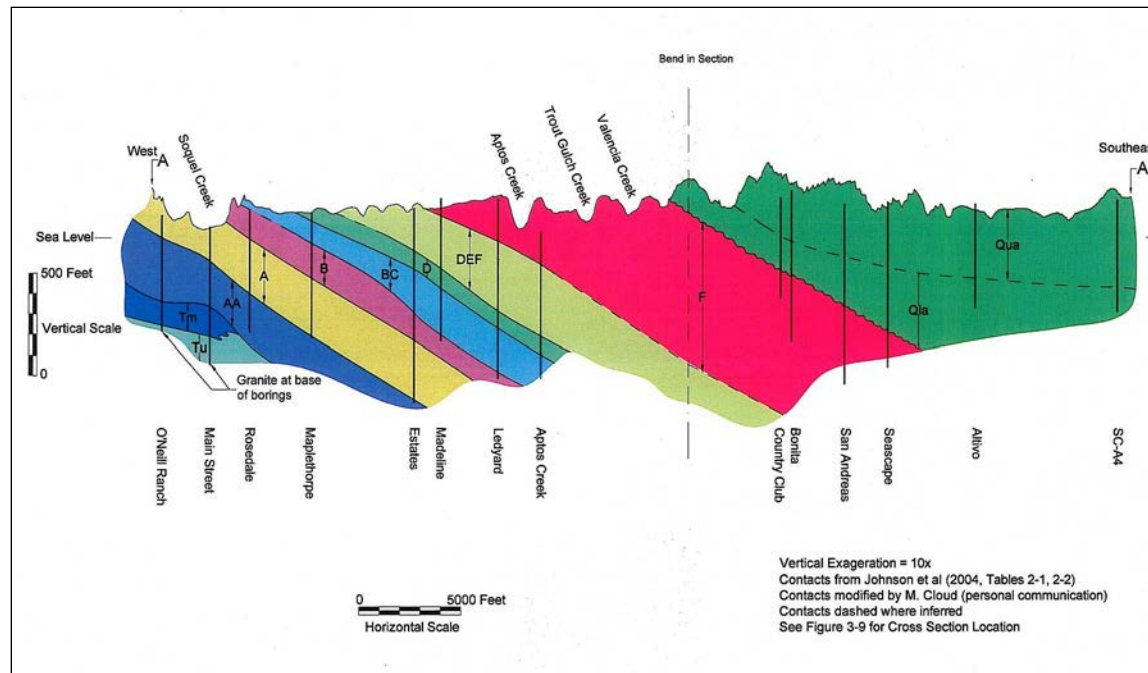
# Coastal Wells and Cross-Sections



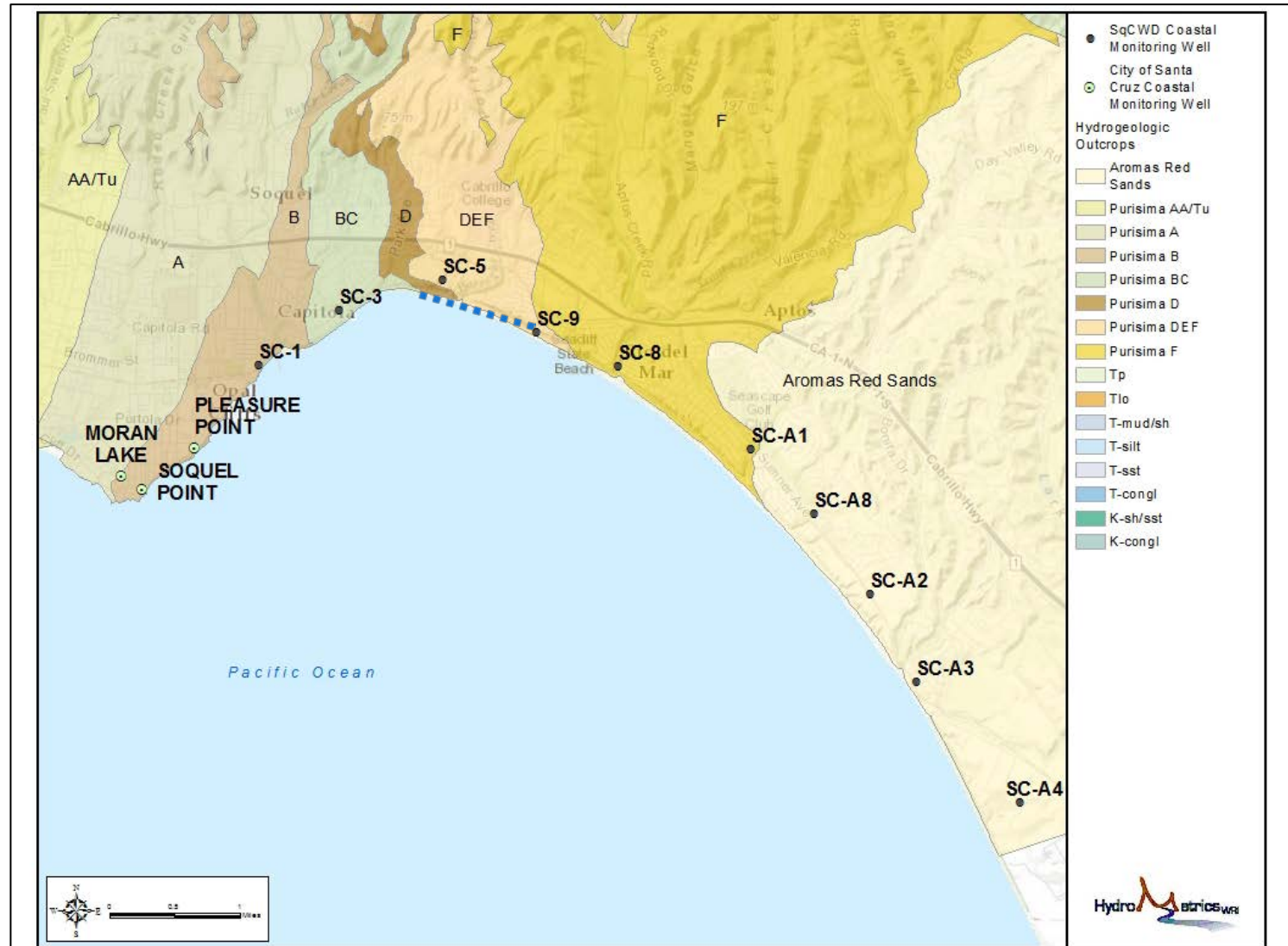


# Peer Review

- Todd Groundwater: Approach “is more sophisticated and more accurate for layered systems than the more common approaches...”
- However, models do not simulate possible path of seawater interface from offshore outcrop



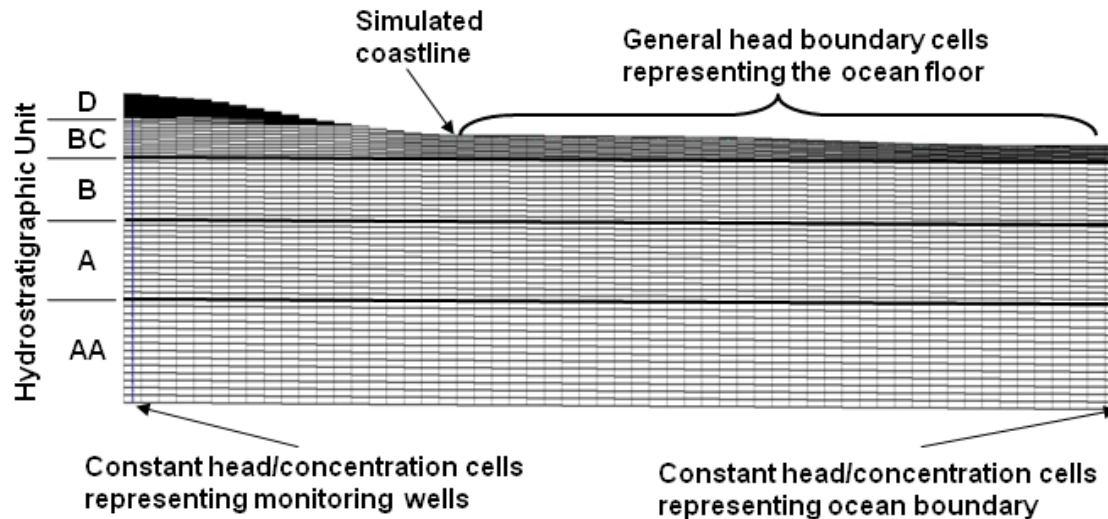
# Modified Model for SC-9 (BC Unit)



## SoCWD Coastal

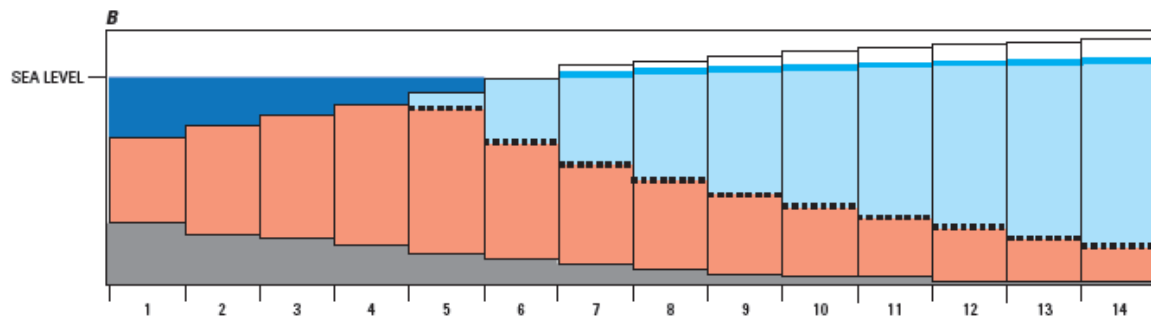


# Use Sharp Interface Package (SWI2)



## SEAWAT 2000

Need to subdivide layers  
Dispersion not needed for  
protective elevations



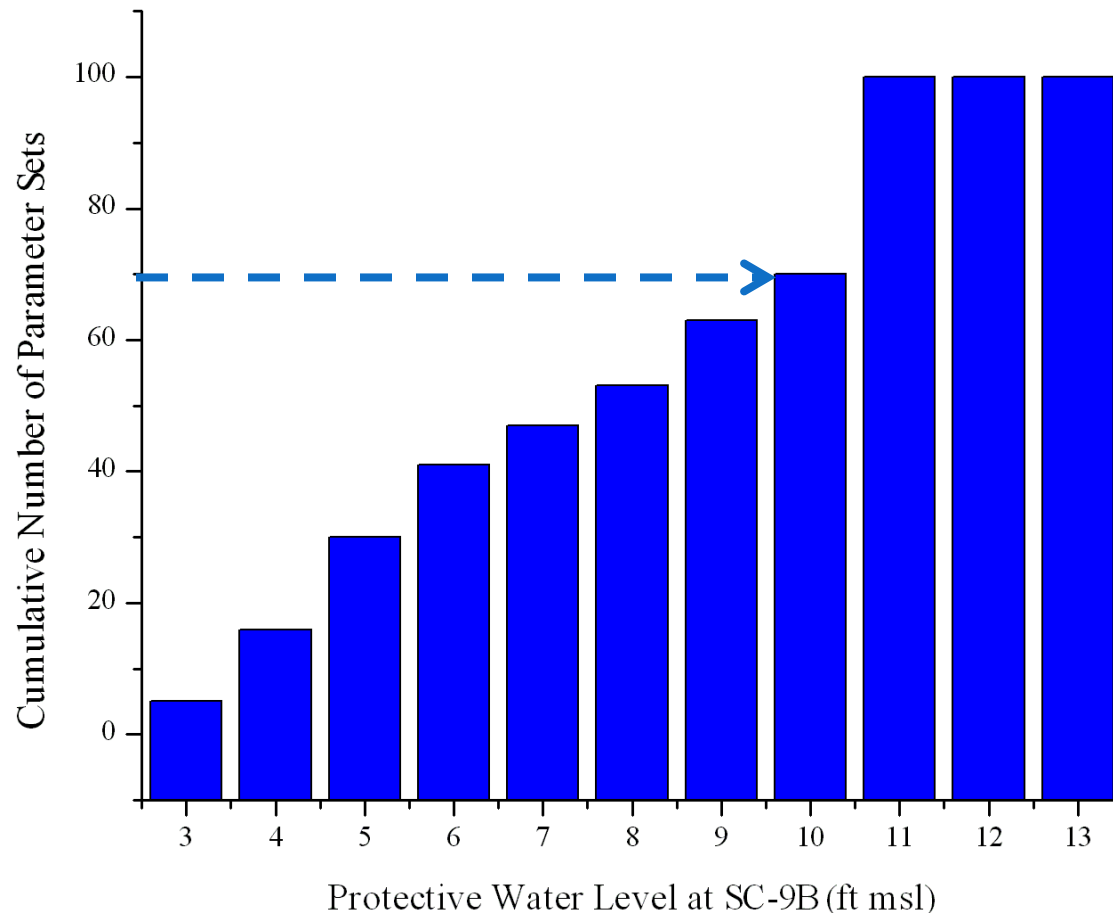
Bakker et al., 2013

## SWI2

Less computation  
Sharp interface appropriate  
for protective elevations

# Uncertainty Analysis

- 70<sup>th</sup> percentile used for proposed Basin Management Objective

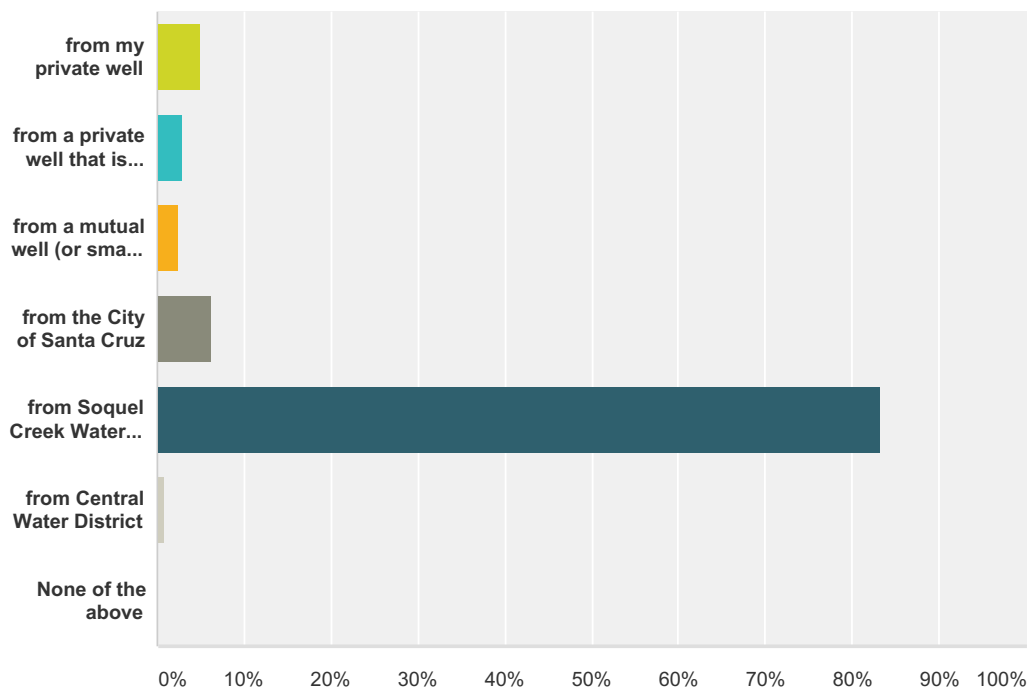


# Proposed Schedule Revision

Task Number	Task	Timeframe
1	Purisima Unit Elevations	February 2015
2	Test Sharp Interface Package on SC-9	March 2015
3	Develop Cross-sectional Models	March 2015
4	Uncertainty Analysis	April 2015
5	Report	May 2015

## Q1 I receive my water: (check all that apply)

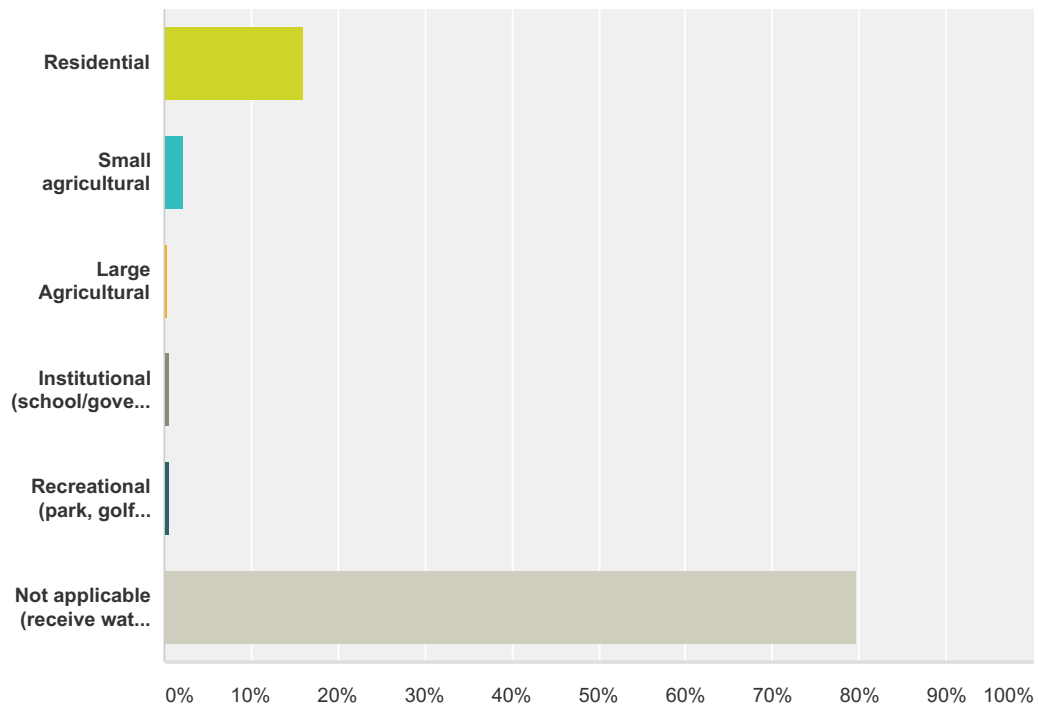
Answered: 433 Skipped: 4



Answer Choices	Responses	
from my private well	5.08%	22
from a private well that is shared amongst a few neighbors	3.00%	13
from a mutual well (or small water system) that is shared by a neighborhood	2.54%	11
from the City of Santa Cruz	6.24%	27
from Soquel Creek Water District	83.37%	361
from Central Water District	0.92%	4
None of the above	0.23%	1
Total Respondents: 433		

## Q2 If you have a private well, how would you classify the primary use:

Answered: 292 Skipped: 145

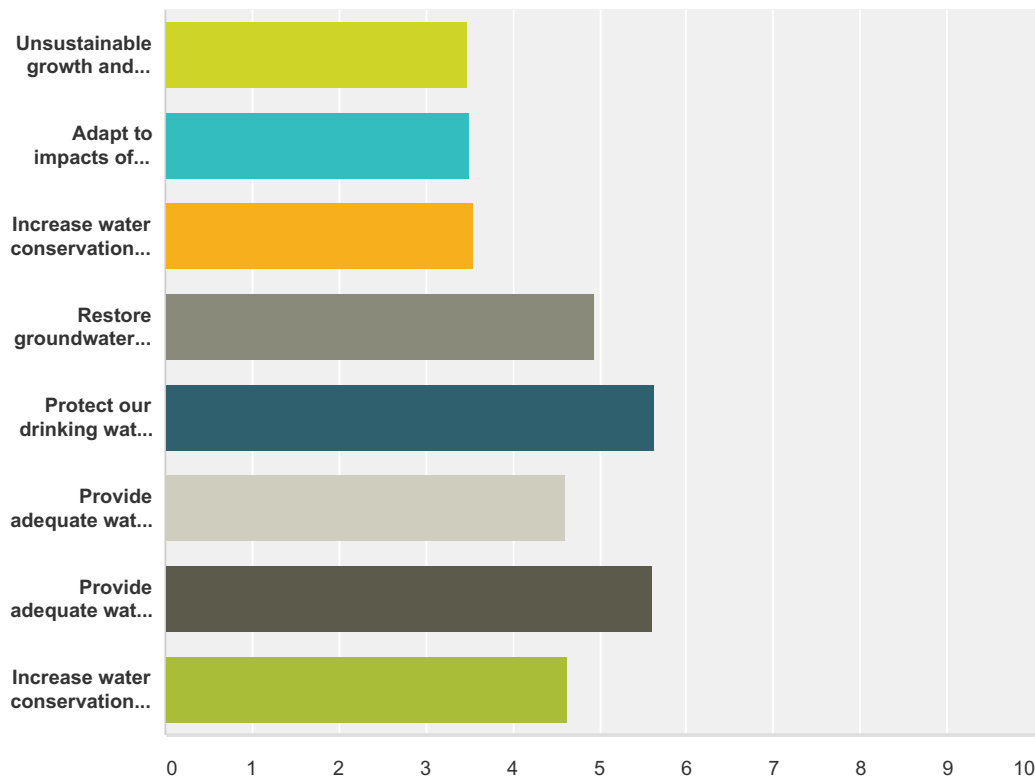


Answer Choices	Responses	
Residential	16.10%	47
Small agricultural	2.40%	7
Large Agricultural	0.34%	1
Institutional (school/government)	0.68%	2
Recreational (park, golf course)	0.68%	2
Not applicable (receive water from a municipal source)	79.79%	233
<b>Total</b>		<b>292</b>



**Q3 Please rank these key issues that affect our water supply in the order you feel are most important for our mid-county community to address. (1 would be the most important and 8 would be the least important. This list will dynamically order them as you rank).**

Answered: 420 Skipped: 17



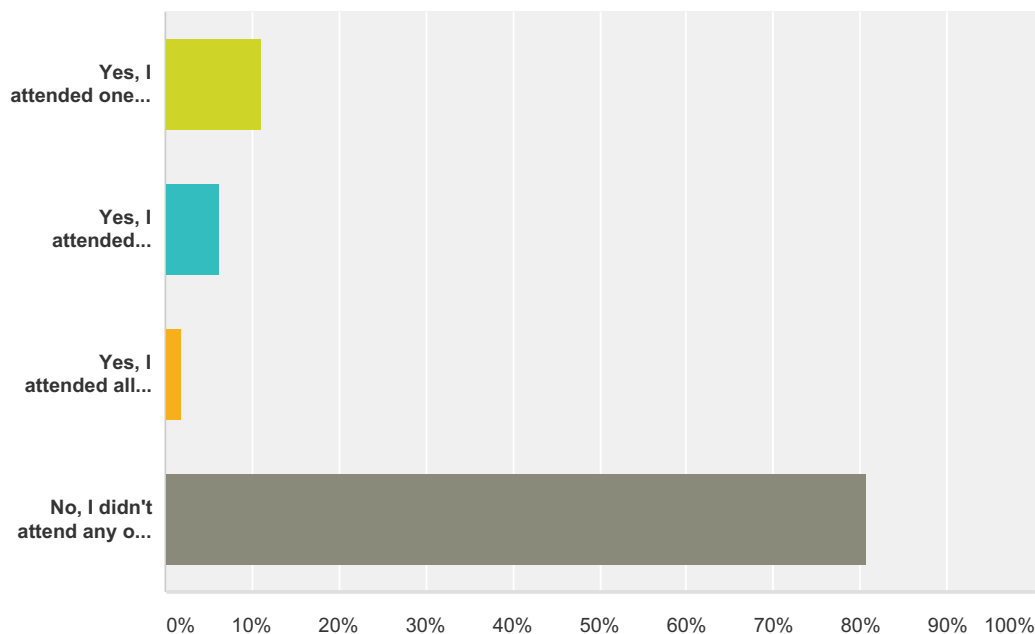
	1	2	3	4	5	6	7	8	Total	Score
Unsustainable growth and development	8.11% 34	9.07% 38	5.97% 25	10.98% 46	10.02% 42	11.46% 48	11.22% 47	33.17% 139	419	3.49
Adapt to impacts of climate change (reduced recharge potential, sea level rise, etc.)	5.00% 21	5.48% 23	6.90% 29	13.81% 58	13.33% 56	17.38% 73	18.57% 78	19.52% 82	420	3.51
Increase water conservation requirements for residences and businesses	3.33% 14	6.67% 28	9.76% 41	11.67% 49	12.14% 51	16.43% 69	26.43% 111	13.57% 57	420	3.55
Restore groundwater levels to support streamflow, replenish our groundwater basins, and meet other environmental needs	10.98% 46	14.80% 62	17.42% 73	15.99% 67	15.75% 66	11.93% 50	7.40% 31	5.73% 24	419	4.95
Protect our drinking water system from saltwater contamination	24.52% 103	16.67% 70	17.38% 73	11.90% 50	11.19% 47	8.81% 37	6.67% 28	2.86% 12	420	5.64

Groundwater Stakeholder Group Survey

Provide adequate water supplies for future needs	<b>10.24%</b> 43	<b>20.00%</b> 84	<b>13.33%</b> 56	<b>10.00%</b> 42	<b>11.19%</b> 47	<b>9.76%</b> 41	<b>10.71%</b> 45	<b>14.76%</b> 62	420	4.62
Provide adequate water supplies for current users	<b>30.00%</b> 126	<b>15.48%</b> 65	<b>11.67%</b> 49	<b>12.38%</b> 52	<b>8.81%</b> 37	<b>7.86%</b> 33	<b>9.52%</b> 40	<b>4.29%</b> 18	420	5.62
Increase water conservation and reduce use to sustainable levels	<b>7.86%</b> 33	<b>11.90%</b> 50	<b>17.62%</b> 74	<b>13.33%</b> 56	<b>17.62%</b> 74	<b>16.43%</b> 69	<b>9.52%</b> 40	<b>5.71%</b> 24	420	4.63

### Q4 Did you attend any of the Groundwater Stakeholder Meetings that were sponsored in 2014 by the local water agencies?

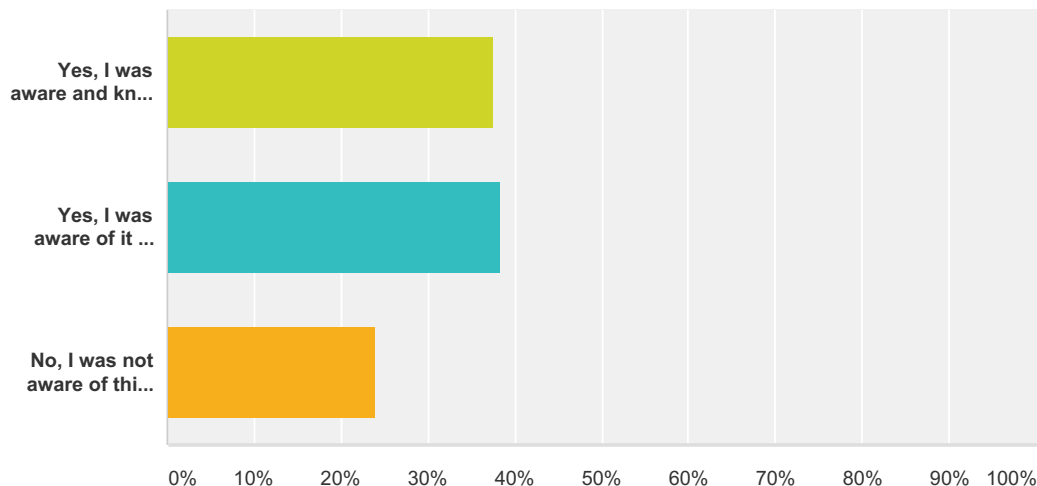
Answered: 425 Skipped: 12



Answer Choices	Responses	
Yes, I attended one meeting	11.06%	47
Yes, I attended between two and four meetings	6.35%	27
Yes, I attended all of the meetings (there were five)	1.88%	8
No, I didn't attend any of the meetings	80.71%	343
<b>Total</b>		<b>425</b>

**Q5 Prior to taking this questionnaire, were you aware that California passed new legislation in 2014 called the Sustainable Groundwater Management Act that mandates local agencies to create a plan to achieve groundwater sustainability in the next 20-25 years?**

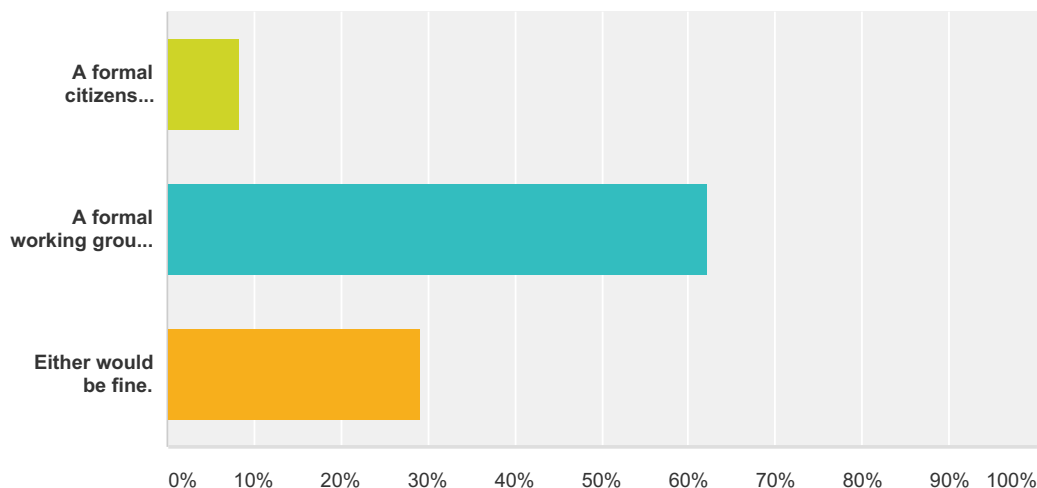
Answered: 421 Skipped: 16



Answer Choices	Responses	
Yes, I was aware and know about this new law.	37.53%	158
Yes, I was aware of it but don't know too much about it.	38.48%	162
No, I was not aware of this new law.	23.99%	101
<b>Total</b>		<b>421</b>

### Q6 How would you prefer the community be engaged in developing the Groundwater Sustainability Agency?

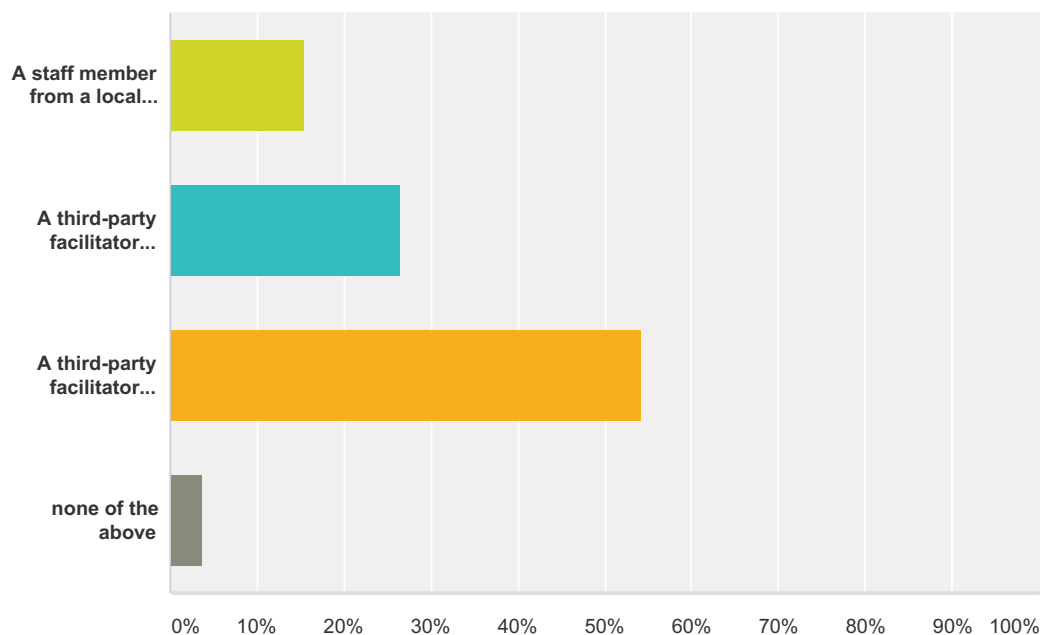
Answered: 382 Skipped: 55



Answer Choices	Responses
A formal citizens advisory committee be formed (comprised only of selected private well owners and special interest groups) to develop and propose recommendations for private well owner involvement in the GSA. These recommendations may be used by the local agencies who will be creating the proposed governance, goals, and geographical boundary of the GSA jurisdiction.	8.38% 32
A formal working group committee be formed (comprised of selected private well owners and special interest groups as well as representatives from the local agencies) to collaboratively develop stakeholder involvement (for private and municipal well owners) and collaboratively create the proposed governance, goals, and geographical boundary of the GSA jurisdiction.	62.30% 238
Either would be fine.	29.32% 112
<b>Total</b>	<b>382</b>

**Q7 Facilitation may be used to aid in effective, efficient, and productive meetings, to serve as the liaison on behalf of the citizen committee with water agency staff members and technical experts, and to work on issues and concerns that may need mediation should disputes arise. Which would be your preference for meeting facilitation:**

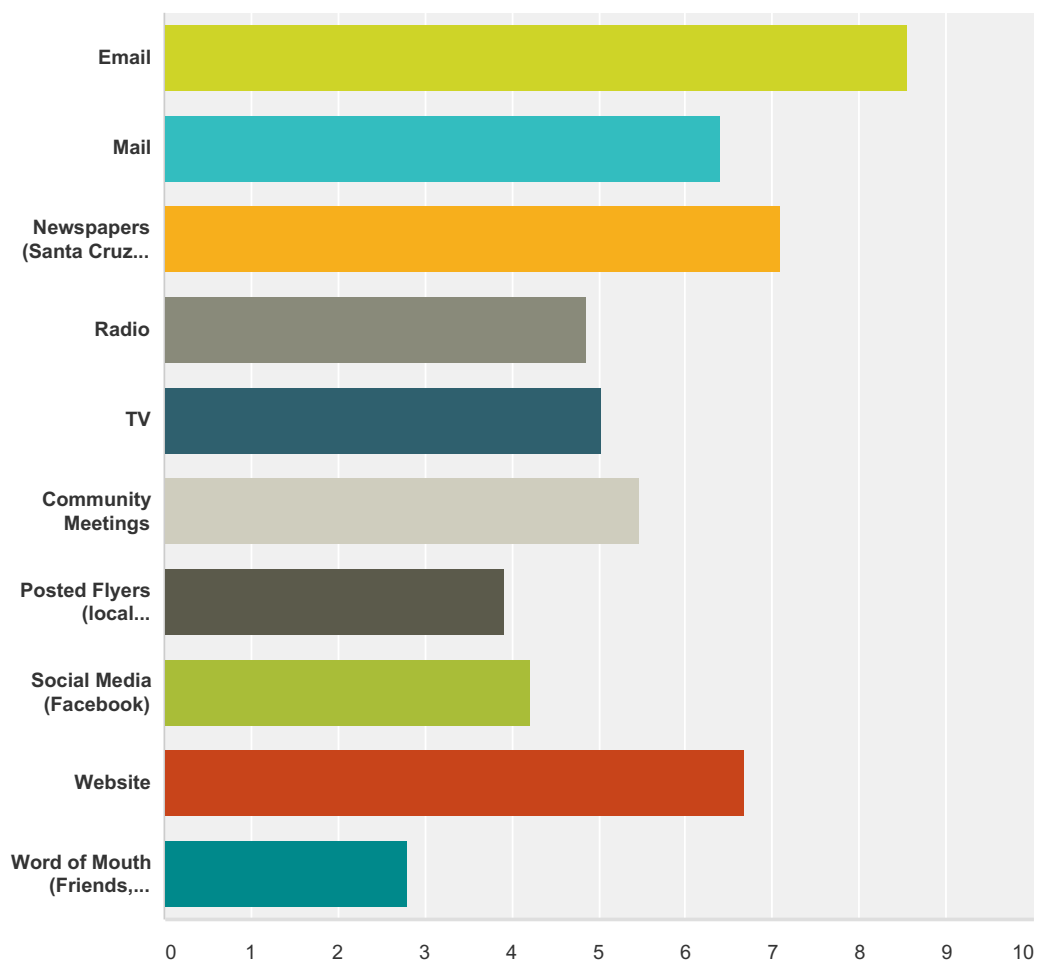
Answered: 395 Skipped: 42



Answer Choices	Responses	
A staff member from a local agency	15.44%	61
A third-party facilitator (outside of the area) who is not affiliated with a local water agency	26.58%	105
A third-party facilitator (resides in the local area) who is not affiliated with a local water agency	54.18%	214
none of the above	3.80%	15
<b>Total</b>		<b>395</b>

**Q8 The local water agencies want to ensure that the mid-county community is kept informed about the groundwater management activities moving forward and will be providing status updates, seeking input, and holding community meetings. Please rank the following methods that you would like to see be used in getting information out to you and the community:**

Answered: 384 Skipped: 53



	1	2	3	4	5	6	7	8	9	10	Total	Score
Email	54.05% 207	16.71% 64	7.31% 28	6.53% 25	4.44% 17	1.57% 6	2.61% 10	3.39% 13	2.09% 8	1.31% 5	383	8.56
Mail	10.68% 41	19.01% 73	16.15% 62	7.55% 29	11.46% 44	7.29% 28	9.11% 35	7.03% 27	5.73% 22	5.99% 23	384	6.40

## Groundwater Stakeholder Group Survey

Newspapers (Santa Cruz Sentinel and local weekly papers)	<b>14.10%</b> 54	<b>15.67%</b> 60	<b>18.80%</b> 72	<b>15.93%</b> 61	<b>11.49%</b> 44	<b>11.49%</b> 44	<b>5.22%</b> 20	<b>4.18%</b> 16	<b>2.35%</b> 9	<b>0.78%</b> 3	383	7.09
Radio	<b>1.31%</b> 5	<b>4.96%</b> 19	<b>8.09%</b> 31	<b>13.84%</b> 53	<b>12.79%</b> 49	<b>12.53%</b> 48	<b>12.27%</b> 47	<b>16.45%</b> 63	<b>11.23%</b> 43	<b>6.53%</b> 25	383	4.86
TV	<b>3.92%</b> 15	<b>7.57%</b> 29	<b>8.09%</b> 31	<b>10.44%</b> 40	<b>12.27%</b> 47	<b>12.53%</b> 48	<b>14.36%</b> 55	<b>12.01%</b> 46	<b>10.44%</b> 40	<b>8.36%</b> 32	383	5.04
Community Meetings	<b>4.44%</b> 17	<b>8.09%</b> 31	<b>9.40%</b> 36	<b>16.19%</b> 62	<b>12.01%</b> 46	<b>14.88%</b> 57	<b>9.14%</b> 35	<b>12.01%</b> 46	<b>9.40%</b> 36	<b>4.44%</b> 17	383	5.48
Posted Flyers (local libraries, coffee shops, etc.)	<b>0.00%</b> 0	<b>1.83%</b> 7	<b>4.70%</b> 18	<b>6.79%</b> 26	<b>10.70%</b> 41	<b>13.58%</b> 52	<b>16.19%</b> 62	<b>14.62%</b> 56	<b>17.75%</b> 68	<b>13.84%</b> 53	383	3.92
Social Media (Facebook)	<b>2.09%</b> 8	<b>4.96%</b> 19	<b>7.57%</b> 29	<b>7.31%</b> 28	<b>9.92%</b> 38	<b>9.92%</b> 38	<b>13.05%</b> 50	<b>9.66%</b> 37	<b>17.49%</b> 67	<b>18.02%</b> 69	383	4.21
Website	<b>8.59%</b> 33	<b>20.57%</b> 79	<b>17.19%</b> 66	<b>11.46%</b> 44	<b>11.20%</b> 43	<b>9.90%</b> 38	<b>7.81%</b> 30	<b>7.29%</b> 28	<b>3.39%</b> 13	<b>2.60%</b> 10	384	6.68
Word of Mouth (Friends, coworkers, neighbors, etc.)	<b>1.04%</b> 4	<b>0.78%</b> 3	<b>2.87%</b> 11	<b>3.92%</b> 15	<b>3.66%</b> 14	<b>6.27%</b> 24	<b>10.18%</b> 39	<b>13.32%</b> 51	<b>20.10%</b> 77	<b>37.86%</b> 145	383	2.80