**SOQUEL/APTOS GROUNDWATER MANAGEMENT PLAN**
**BASIN IMPLEMENTATION GROUP (BIG) MEETING**

**Tuesday, June 24, 2014, 7:00 p.m.**
**Soquel Creek Water District Board Room**
**5180 Soquel Dr., Soquel, CA**

1. **CALL TO ORDER**

2. **ROLL CALL**
Bruce Jaffe, Soquel Creek Water District
Don Hoernschemeyer, Soquel Creek Water District
Carol Monkerud, Central Water District
Bob Postle, Central Water District
Bill Wigginton, Seascape Greens HOA Well

3. **APPROVAL OF MINUTES**
3.1.1 November 12, 2013 Regular Meeting
3.1.2 February 10, 2014 Special Meeting

4. **ORAL COMMUNICATIONS**

5. **ADMINISTRATIVE BUSINESS**
5.1 Accept the Soquel-Aptos Area Groundwater Management Annual Review and Report for Water Year 2013

5.2 Review and Approve Partnership with RCD for Private Well User Water Conservation Pilot Program

5.3 Direction to Staff Regarding 2014 Grand Jury report, *Desalination and Alternatives – Water for a Thirsty County*

5.4 Consider Changing the Name of the Basin Implementation Group

5.5 Direction to Staff Regarding the Joint Exercise of Powers Agreement (JPA) Between Central Water District (CWD) and Soquel Creek Water District (SqCWD) Regarding the Addition of Pajaro Valley Water Management Agency

5.6 Tentatively Set the Schedule and Agenda for the Next Basin Implementation Group Meeting (no staff report)

5.7 Election of Chair and Vice Chair (no staff report)

6. **INFORMATION ITEMS**
6.1 Declaration of Groundwater Emergency and Stage 3 Water Shortage Emergency by Soquel Creek Water District

6.2 Oral staff reports

7. **ADJOURNMENT**

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**SOQUEL/APTOS GROUNDWATER MANAGEMENT PLAN**
**BASIN IMPLEMENTATION GROUP (BIG)**
**MEETING MINUTES**
**November 12, 2013**

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**1. CALL TO ORDER**

Tom LaHue, Soquel Creek Water District called the meeting to order at 7:00 p.m.

**2. ROLL CALL**

**Committee Members Present**:
Tom LaHue, Soquel Creek Water District Board President
Don Hoernschemeyer, Soquel Creek Water District Board Member
Carol Monkerud, Central Water District Board Member
Bill Wigginton, Seascape Greens Homeowners Association

**Committee Members Absent**:
Bruce Jaffe, Soquel Creek Water District
Christy Leach Marani, Central Water District

**Others Present:**
Kim Adamson, General Manager, Soquel Creek Water District
Taj Dufour, Engineering Manager/Chief Engineer, Soquel Creek Water District
John Benich, Central Water District Board Member
Ralph Bracamonte, General Manager, Central Water District
Cameron Tana, HydroMetrics, WRI
John Ricker, Santa Cruz County Water Resources Division Director
Martin Mills, PureSource Water (Private Well Representative)
Melanie Schumacher, Special Projects Engineer, Soquel Creek Water District
Karen Reese, Executive Assistant/Board Clerk, Soquel Creek Water District

3 members of the public

**3. APPROVAL OF MINUTES**

3.1 Approve minutes of May 14, 20013

Bill Wigginton made a correction on Page 3 of 5, second paragraph. It should read ***"Committee member Bill Wigginton reported the production from the Seascape Greens irrigation well has recently decreased and he agreed to look into getting this data."***

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| MOTION: Don Hoernschemeyer; Second: Bill Wigginton: To approve the minutes of May 14, 2013 with the correction noted above. The motion was unanimously approved. |

**4. ORAL COMMUNICATIONS – None**

**5. ADMINISTRATIVE BUSINESS**

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5.1 Review Updates to Groundwater Management Plan from HydroMetrics, WRI
Cameron Tana, HydroMetrics, WRI was present and reviewed the changes to the Groundwater Management Plan which was last updated in 2007 from the 1996 plan. The recommendation in the plan is to review it every 5 years and update it as necessary every 5 years. Changes were recommended related to the groundwater condition section and the basin management objectives section.

Summary of changes discussed:

- Title page: Remove year in name of the document. Updates will be indicated in the date approved or date updated area of the document.
- The Board of Director names were updated for Soquel Creek Water District and Central Water District. The Board Clerk's name was updated for Soquel Creek Water District.
- The committee membership for the Basin Implementation Group was updated.
- Service Area and Topography
  - Population and service connections were updated
- Climate and Rainfall
  - The water year is October 1 – September 30 (winter water)
  - Estimated recharge for the whole area has been translated related to rainfall at specific stations to make it easier for the districts to evaluate.
  - New graphics have replaced old graphics to be consistent with time spans covered.
- Clarification was made that Greenbelt Water should be PureSource Water
- Soquel-Aptos Area Groundwater Basin Management Area Boundaries were updated
  - Mr. Tana explained that the hatched areas west of SC-1 in Figure 3-7b represents an area of the Purisima area where recharge from this area is not included in the water balance calculations.
- Local Recharge Areas added to meet AB 359 requirements
  - Mr. Ricker noted that Rodeo Gulch was not shown in Figure 3-12b.
- Discussion related to pumping by water agencies and how they relate to new estimates for sustainable yield focusing on the fact that groundwater levels are below protective elevations and for the basin to recover to protective elevations pumping needs to be decreased. Once recovery occurs the Groundwater Management Plan should be updated again.

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- On Page 6, 3rd paragraph change the pumping season for City of Santa Cruz to read April through November.
- Groundwater quality was updated to include new standards. The MCL for chromium 6 will possibly be coming out in January and at this time there is no adjustment time for districts.
- Seawater intrusion was addressed with a new figure comparing current to previous protective levels.
- Update on anthropogenic contamination in the basin is included

Basin management goals and objectives were reviewed

- Goal 1 - Ensure Water Supply Reliability
  - Pumping Within the Sustainable Yield
  - Developing Alternative Water Supplies
    - Page 81, last sentence should be ***"groundwater pumping"*** not groundwater supplies
    - In discussion of additional supplemental supply options, add ***"include but are not limited to"*** before the bulleted list on page 83
  - Manage Groundwater Storage For Future Beneficial Uses And Drought Reserve
    - Page 84, 2nd paragraph needs to be clarified as to SqCWD not raising groundwater levels above protective elevations. It should indicate they don't want the seawater intrusion to get worse, but they are not trying to get enough water to push it further offshore.
    - Ms. Adamson talked with the group about a Stanford University project measuring the seawater/freshwater interface with electrical resistivity. The measurements have been done and the data should be available in early 2014. Ms. Adamson talked about the possibility of having this done a couple of years in a row to get a rate of change which would be valuable.

- Goal 2 – Maintain Adequate Water Quality
  - Meet Existing Water Quality Standards Such As Drinking Water Standards
  - Maintain Groundwater Levels to Prevent Seawater Intrusion
    - Add some narrative to discuss protective elevations will be managed adaptively depending on what happens in the future.
  - Prevent and Monitor Contaminant Pathways

- Goal 3 – Prevent Environmental Impacts

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- Maintaining or Enhance the Quality of Groundwater Recharge by Participating in Land Use Planning Processes.
  - Updated with current County policy
  - Continuation of discussion of the recharge map and clarification of about how additional evaluation would be needed before recharge projects are sited.
  - Discussion of Page 91, 2nd paragraph, 2nd bulleted item regarding vegetation. Just because an area is open space does not mean it's a good recharge area. Add the primary groundwater recharge map that has been adopted by the County Board of Supervisors (Page 25 of the 2007 adopted GMP) in the Objectives Section since this map is used for land use planning. Change the title of the map to ***Primary Groundwater Recharge Area***.
- Avoiding Alteration of Stream Flows That Would Adversely Impact the Survival of Populations of Aquatic and Riparian Organisms
  - So far there have been no impacts seen from District pumping on Soquel Creek; however nearby shallow wells continue to show groundwater levels below the stream bottom.
- Protect The Structure and Hydraulic Characteristics of the Basin by Avoiding Withdrawals That Cause Subsidence
  - There were no updates to this section

In conclusion, Mr. Tana noted these are the updates proposed for the Groundwater Management Plan.

**Recommendation:** Forward the final draft of the Groundwater Management Plan to the individual boards for approval with the recommended changes

**Public Comments:**
Jerry Paul asked about moving water between Santa Cruz and Soquel in a drought situation. President LaHue noted this is not related to the Groundwater Management Plan and not appropriate for discussion at this time.

Adele Gardner asked about seawater intrusion and if a timeline of when the water would be ruined has been determined that can be shared with the public.

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President LaHue noted that the studies being done by Stanford may help to determine where the interface is between fresh water and seawater. Mr. Tana noted it is known that the water levels in the Purisima have been too low for a long time and that would bring in the seawater over time. It is not known how fast it is coming in. Seawater intrusion has been identified in 2 of the Beltz monitoring wells. Mr. Tana noted it's been estimated to be a number of years once the seawater is found in the monitoring wells to reach the production wells.

Mr. Paul asked if water were provided from Santa Cruz to Soquel, exactly 1 year later how much would be left in the Purisima. For example, if you have 100 gallons, how much could you expect to have available to return in 1 year.

Mr. Tana replied that groundwater is very slow, so after 1 year he thinks it would basically all still be there. They haven't looked at this specific question; the tools aren't there to measure this. Generally with the slow rate of flow it should be all there. Even if it's not all there it's doing something to raise protective levels against seawater intrusion. Even if it flows offshore, it's still beneficial to the basin as its pushing back seawater.

5.2 Soquel-Aptos Area Groundwater Management Annual Review and Report Water Year 2013– Approve Scope of Work and Budget

Ms. Adamson reviewed that the cost of the work is split between Soquel Creek Water District (89%) and Central Water District (11%) for a total of $55,000.00.

Mr. Tana noted they would be revising previous years' contour maps because the districts wells have been re-surveyed in the last year. Maps from 2012 to present would be updated.

MOTION: Tom LaHue; Second: Don Hoernschemeyer: To approve the Scope of Work and Budget for the 2013 Annual Review and Report to be prepared by Hydrometrics, WRI. Motion was unanimously approved.

5.3 Proposed Draft Second Amendment to the Joint Exercise of Powers Agreement (JPA) Between Central Water District and Soquel Creek Water District Regarding the Term for the 5th Committee Member Serving on the Basin Implementation Group

Mr. Dufour noted this item has been reviewed in the past and is now being brought forward with the final wording that the 5th committee member would

serve a 2 year term and a change in the resolution for the board clerk of Central Water District.

MOTION: Carol Monkerud; Second: Tom LaHue: To approve Proposed Draft Second Amendment to the JPA with regard to the 5th Committee Member Serving on the BIG and take the resolution to the individual boards. Motion was unanimously approved.

5.4 Continued Discussion Re: Forming a Groundwater Replenishment District

Ms. Adamson spoke about forming a groundwater replenishment district through a Joint Powers Authority. A groundwater replenishment district has powers to be able to do a lot of different things to try and recharge the basin and also allows the replenishment district to spread the cost of doing that to everybody who is pumping out of the basin. There has been discussion of boundaries, who should be included, who shouldn't be included. There have been some private citizens who have been talking about forming a replenishment district by petition. This would be a stand- alone entity, not tied to any district. It would have its own independently elected board within the boundaries of that replenishment district. The comments that SqCWD have been hearing from their customers is that the costs are not being shared fairly within the basin. There are customers who say they have enough voters within their district that they can start a petition to form their own replenishment district and everyone else will be forced into it.

Ms. Adamson, Mr. Bracamonte and Mr. Ricker have been talking about forming a private well owners stakeholder's group to bring people together to try to work on establishing a shared problem, and look at multiple options one of them would be establishing a replenishment district. This could be done through a JPA, still have some say over how it's set up, it would still be under the control of the County and the two districts. It's important to have the customers be part of a cooperative effort. This could be a 12-18 month process to get through the stakeholder group; there is a fairly large group of private well owners (20-25).

Mr. LaHue pointed out that educating the customers is an important factor.

Ms. Adamson noted it's important that the group is aware that there is a strong push right now from private citizens to see the districts to do something or they will do it themselves.

Mr. Bracamonte noted it's important that there is complete transparency and have customers be part of the solution. Central Water District in the past

has not been in favor of a replenishment district but losing complete control is not an option. He is in favor of the formation of a stakeholder's group and thanked Mr. Ricker for being willing to help out with this group.

Mr. Ricker asked what areas this would encompass. In the original discussion it was within the district's service areas. If you are going to be levying service charges there needs to be an engineering report on how the pumpers would benefit from the district or how they impact the problem. It would be more management to use the service area. If you go anywhere outside the service area, the County has to be a part of it per the water code. This would involve the County Flood Control District. 85% of the pumping in the Purisima is by the District and the City of Santa Cruz. The whole Purisima is 38% non-district pumping. The City of Santa Cruz would need to be brought in to pick up the Beltz wells areas. There are some gaps on the coast where agriculture pumping occurs. The County could also go up Cherryvale Area.

Mr. Wigginton said this process sounds very complicated. He noted he's the manager of a geologic hazard abatement district which is a state agency. He explained it needs a forming body such as the County that could prevent, control and mitigate a geologic hazard such as seawater intrusion. It requires that a map be prepared, and then the forming body has to get a petition that is based on assessed values of land. Once it's formed there is a levy of an assessment and goes on the tax rolls. There is no EIR or LAFCO needed. He offered this idea as a possible option. This would not be a local district but a state agency.

Ms. Adamson said she would check into how this would function and the legalities of this process and had questions of if this was tied to water use. Ms. Adamson thinks it's important from the district's point of view that the private well owners be part of an inclusive stakeholders group in a cooperative way rather than being forced into a tax or fee for their pumping. It's important not to set up the process for failure. Ms. Adamson asked if legislation would be required for this type of agency.

Mr. Wigginton stated it does not.

Ms. Adamson spoke to what might be a part of the stakeholder's group which would include some of the larger pumpers and there was also a conversation about trying to bring in the farm bureau and winegrower's associations. Not that they may even be part of any future replenishment district, but they are a large group and having them have a place at the table could be very important because they could be included in the future.

Mr. Ricker noted the next step would be for him to present the concept to the Board of Supervisors in January. The process of being open, transparent and incremental has everything going for it.

Ms. Adamson thanked Mr. Ricker for assisting in this effort.

5.5 Tentatively Set the Schedule and Agenda for the Next Basin Implementation Group Meeting (no staff report)

The next Basin Implementation Group meeting was set for Tuesday, May 13, 2014 at 7:00 p.m.

## 6. INFORMATION ITEMS

6.1 Oral Reports from the Soquel Creek and Central Water District General Managers on Items of Interest to the BIG

Mr. Bracamonte reported that Hydrometrics is finishing up their technical report. Central Water District is looking at moving their production from Aromas to the Purisima due to iron and manganese issues so they are looking at building a treatment plant. Due to the chromium 6 level in wells 4 and 10 it's critical that they have a secondary source of water.

Ms. Adamson reported that SqCWD is in a process of evaluating back up plans should the supplemental supply project with Santa Cruz not go forward or take too long. Water transfer, recycled water, district only desal, replenishment districts, and mandatory rationing/moratorium are being explored. Chromium 6 treatment options are being looked at. A proposal for using a skid treatment plant was reviewed. The District is in the process of selecting consultants to do a peer review of the Hydrometrics reports, and will be followed by a technical advisory group looking at both the peer review and the original reports.

Mr. Dufour reported the District is out to bid on the 2nd of 5 well master plan wells (O'Neill Ranch Well and Treatment Center) and hopes to begin construction early 2014.

## 7. ADJOURNMENT

Being no further business, the meeting was adjourned at 8:50 p.m.

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Submitted by,

_____

Karen Reese, Executive Assistant/Board Clerk
Soquel Creek Water District

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# SOQUEL/APTOS GROUNDWATER MANAGEMENT PLAN
# BASIN IMPLEMENTATION GROUP (BIG)
# SPECIAL MEETING
# MINUTES
# February 10, 2014

1. **CALL TO ORDER**

Bruce Jaffe, Soquel Creek Water District called the special meeting of the Basin Implementation Group to order at 5:30 p.m.

2. **ROLL CALL**

**Committee Members Present**:
Bruce Jaffe, Soquel Creek Water District Board President
Don Hoernschemeyer, Soquel Creek Water District Board Member
Carol Monkerud, Central Water District Board Member
Bill Wigginton, Seascape Greens Homeowners Association
Bob Postle, Central Water District Board Member

**Others Present:**
Kim Adamson, General Manager, Soquel Creek Water District
Ralph Bracamonte, General Manager, Central Water District
John Ricker, Santa Cruz County Water Resources Division Director
Martin Mills, PureSource Water (Private Well Representative)
Melanie Schumacher, Special Projects Engineer, Soquel Creek Water District
Karen Reese, Executive Assistant/Board Clerk, Soquel Creek Water District

3. **APPROVAL OF MINUTES** - None

4. **ORAL COMMUNICATIONS** - None

5. **ADMINISTRATIVE BUSINESS**

5.1 Review and approve the Mid-County Groundwater Advisory Committee draft framework and budget

Kim Adamson proposed funding activities for the private well stakeholder group through the Basin Implementation Group (BIG). The intention of a private well stakeholder group is to facilitate an understanding of the shared problems with the basin. The implementation of activities similar to a replenishment district is one possible outcome. The BIG would legally be able to undertake those activities under the powers granted by AB3030. SqCWD customers have indicated that, if the BIG does not take this action, they would go through the petition process to form an independent

Replenishment District. Due to the high voter population inside SqCWD compared to the rest of the basin, the likelihood of success is high. Ms. Adamson noted that statute identifies only those within the proposed boundaries could participate in a petition, not the entire county.

Discussion was held and included the size of a replenishment district and where the boundaries would be. This would be determined by data obtained from a water model indicating in which areas pumping influences seawater intrusion. Melanie Schumacher indicated that District staff would coordinate the formation of a stakeholders group, Ms. Adamson and Mr. Bracamonte would manage the group and John Ricker would be the facilitator. The plan is to inform the public of the formation of this group through outreach. Key users have been identified and will be invited. Having Santa Cruz County involved provides regional support. Once direction is given, the goal is to have notification out by March with a first meeting in April.

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| MOTION: Don Hoernschemeyer; Second; Bill Wigginton: To approve the framework for the Mid-County Groundwater Stakeholder Advisory Committee and budget. Motion passed by unanimous vote. |

5.2 Direction to Staff Regarding the Joint Exercise of Powers Agreement (JPA) Between Central Water District (CWD) and Soquel Creek Water District (SqCWD) Regarding the Addition of Santa Cruz County

Ms. Adamson outlined a possible amendment to the JPA between CWD and SqCWD to bring in the county as a partner of the JPA with the goal of enlarging the boundaries of the service area if groundwater replenishment powers are enacted. She asked for direction to staff whether a Third Amendment to the Joint Exercise of Powers Agreement should be prepared for consideration at the regular May meeting of the Basin Implementation Group providing for membership of Santa Cruz County as a member, with or without a cost share provision. If there is no cost sharing, the County would not have voting rights on financial matters.

Discussion was held about adding the City of Santa Cruz as well as the County
Direction was given to staff to invite Santa Cruz County and the City of Santa Cruz to represent those portions of the basin within their jurisdiction and become additional parties within the JPA and to prepare a Third Amendment to the JPA to bring back to a subsequent BIG meeting.

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**6. INFORMATION ITEMS**

Ms. Adamson announced that at the March 4, 2014 Board meeting at the Capitola City Council Chambers there will be discussion on California water law as it pertains to the ability to restore the basin. There will also be discussion on enacting replenishment powers or creating a replenishment district.

Mr. Wigginton asked what authority there is at the county or city level for condemnation to obtain land for reservoirs.

Ms. Adamson addressed the reservoir question by stating that there is a large natural reservoir underground. Land would only be needed for an injections well in order to use it.

**7. ADJOURNMENT**

Being no further business, the meeting was adjourned at 6:19 p.m.

Submitted by,

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Karen Reese, Executive Assistant/Board Clerk
Soquel Creek Water District

June 24, 2014

**MEMO TO THE BASIN IMPLEMENTATION GROUP**

Subject: Agenda Item No. 5.1 Accept the Soquel-Aptos Area Groundwater Management Annual Review and Report for Water Year 2013

The Groundwater Management Plan for the Soquel-Aptos Area calls for an Annual Review and Report (ARR) on the state of the basin prepared by the consulting hydrologist with assistance from Soquel Creek and Central Water District staff.

The administrative draft 2013 ARR was first presented to the Basin Advisory Group (BAG) for review and comment. The BAG provides technical expertise necessary to guide and implement the groundwater management activities as well as provide interagency coordination. The BAG is comprised of staff representatives from Soquel Creek Water District, Central Water District, City of Santa Cruz Water Department, Santa Cruz County Water Resources Division and the Pajaro Valley Water Management Agency. This group reviewed the administrative draft of the 2013 ARR and met on June 4, 2014 to discuss the report. Revisions were made based on the BAG's comments.

The revised Draft 2013 ARR has been provided to the Boards of Directors of Soquel Creek and Central Water Districts and the private well representative for review. The Draft 2013 ARR is available on the District's website at www.soquelcreekwater.org under the About Us tab, under District Reports (Annual State of the Basin Report, Water Year 2013-Draft).

Cameron Tana with HydroMetrics WRI will be at the June 24 BIG meeting to make a presentation about the report and respond to questions.

**RECOMMENDED ACTION**

By MOTION, accept the Soquel-Aptos Area Groundwater Management Annual Review and Report Water Year 2013.

By _____

Kim Adamson
General Manager
Soquel Creek Water District

June 24, 2014

**MEMO TO THE BASIN IMPLEMENTATION GROUP**

Subject: Agenda Item No. 5.2 Review and Approve Partnership with RCD for Private Well User Water Conservation Pilot Program

Attachment: Outline of RCD Private Well User Water Conservation Pilot Program

The Resource Conservation District (RCD) is seeking co-sponsors and partners in a Private Well User Water Conservation Pilot Program to be launched this summer. With grant funding through Prop 84, the RCD will be initiating this small-scale program to look closer at private wells in the Mid-County area, help refine the estimated extraction quantities for private pumping that typically been used in planning documents based on land use code designations. Additionally, the RCD recognizes that private well users typically have limited incentives for water conservation. The goals of this program are two-fold:

1) Establish base line usage, and characterize use based on agreed-upon characteristics (i.e. parcel size, size of household, land use, etc.)
2) Reduce water use by 20% in line with the Statewide's goal and achieved water savings that Soquel Creek Water District (SqCWD) is recognizing over the past few months.

Attached is the scope and budget by the Resource Conservation District that includes the tasks, estimated costs, requested contributions by Soquel Creek Water District and Central Water District (CWD), and the tentative schedule.

This study is ideal to be conducted through the Basin Implementation Group (BIG) since one of the key points coming out to the first kick-off Mid-County Groundwater Stakeholder Advisory Group was the lack of data and information on private wells. Several attendees at this meeting offered to voluntarily meter their private well to aid in data collection.

Staff recommends that this project be co-sponsored by Soquel Creek Water District and Central Water District through the Basin Implementation Group. It is estimated that SqCWD and CWD would need to contribute the following:

- SqCWD: 8 used meter (in-stock, no additional cost)
- SqCWD: Training on how to read a water meter (in-kind)
- SqCWD: water conservation and efficiency devices (in-stock, no additional cost)
- SqCWD: training on how to perform indoor efficiency and outdoor irrigation evaluations
- BIG: RCD Staff time ($1,120) to establish data collection criteria and prepare a semi-annual summary report for two years

All payments to the RCD for services shall be as prescribed in the First Amendment to the Joint Powers Agreement. The cost would be split using the 89% for SqCWD and 11% for CWD. Thus, the estimated cost for SqCWD is $1,058 and $62 for CWD.

RECOMMENDED ACTION

By MOTION, approve that the Basin Implementation Group (BIG) co-sponsor and partner with the Resource Conservation District in the Private Well User Water Conservation Pilot Program and fund the requested BIG contributions.

By Melanie Mow S

Melanie Mow Schumacher
Soquel Creek Water District
Special Projects Engineer

## RCD Private Well User Water Conservation Pilot Program

**Total Budget**: $9,360

**Timeline**: July 15, 2014 – December 30, 2014 (with data collection and reporting through September 2016)

The Resource Conservation District of Santa Cruz County (RCD) is proposing to partner with the Soquel-Aptos Basin Implementation Group (BIG) ,a joint exercise of powers between Soquel Creek Water District and Central Water District, on a pilot program to reduce water use from private well users in the Soquel-Aptos Groundwater Management basin. Over a thousand private wells in the basin extract groundwater for domestic and agricultural uses, and it is generally believed that this use represents a fairly significant percentage of the overall use in the basin. However, while several studies over the years have estimated extraction quantities by these private pumpers, accurate records do not exist since most of the private wells are unmetered. Further, lacking information about use, private well users generally have limited incentives for conservation beyond the cost to pump water.

This pilot project seeks to address this gap in knowledge by working with private well owners to voluntarily install meters on private wells and to track usage over time.

This pilot project will build upon the RCD's existing efforts in promoting voluntary conservation on private lands. The RCD is a non-regulatory special district that currently offers services to landowners in the unincorporated areas of Santa Cruz County including the City of Capitola as part of our general service. These efforts have traditionally focused on erosion and drainage issues, wildfire protection, rural roads, stormwater management, and habitat restoration. The RCD's long history of working with private landowners on a voluntary basis gives us the skills and ability to build trust among this community and successfully implement the project.

The goals of this program include:

1) Establish base line usage, and characterize use based on agreed-upon characteristics (i.e. parcel size, size of household, land use, etc.)
2) Reduce water use by 20% in line with the statewide's goal and achieved water savings that the Soquel Creek Water District (SqCWD) is recognizing over the past few months.

**Scope of Work**

Project tasks include: (1) installing meters on eight (8) private wells, (2) performing conservation evaluations to assist landowners with identifying conservation measures and (3) managing data.

**Task 1 – Install up to eight (8) meters on private wells**

| Item | Due Date |
|---|---|

[1]

| | |
|---|---|
| a) Obtain a list of prequalified landowners from SqCWD or Central Water District (CWD) who are interested in installing meters | 18-Jul-14 |
| b) Contact all landowners and develop and obtain a signed agreement for those who will have meters installed | 25-Jul-14 |
| c) Contract with a qualified licensed professional to install up to eight meters. Landowners may also install their own at the discretion of the RCD. | 1-Aug-14 |
| d) Obtain meters to be installed as in-kind donations from SqCWD | 25-Jul-14 |
| e) Receive training from SqCWD on reading the meters to be installed. | 1-Aug-14 |
| f) RCD/Contractor will train landowners how to read the meters | 15-Aug-14 |
| g) Contractor will schedule and install meters | 15-Aug-14 |

| Item | Total | Funding Source |
|---|---|---|
| **Task 1 (b) - RCD Staff Time** | $1,280.00 | CFSCC |
| **Task 1 (c) - RCD Staff Time** | $240.00 | CFSCC |
| **Task 1 (c) - Contractor** | $1,200.00 | CFSCC |
| **Task 1 (d) - SqCWD (Meter donations)** | $80.00 | SqCWD |
| **Task 1 (e) - RCD Staff time** | $320.00 | CFSCC |
| **Task 1 (e) - SqCWD Staff time** | (in kind) | SqCWD |
| **Task 1 (f) - RCD Staff Time** | $320.00 | CFSCC |
| **TOTAL Task 1** | **$3,440.00** | |

## Task 2 – Provide Conservation Evaluations to Landowners

| Item | Due Date |
|---|---|
| a) Receive training from SqCWD to perform indoor efficiency and irrigation evaluations | 1-Aug-14 |
| b) Complete both indoor and outdoor conservation evaluations on all properties that receive meter installations | 15-Aug-14 |
| c) Provide (and install where applicable) indoor efficiency devices provided by SqCWD | 15-Sep-14 |
| d) Work with eligible landowners to complete conservation projects with RCD incentive program rebates | 30-Sep-14 |

| Item | Total | Funding Source |
|---|---|---|
| **Task 2 (a) - RCD Staff Time** | $320.00 | CFSCC |
| **Task 2 (a) - SqCWD Staff Time** | (in kind) | CFSCC |

| | | |
|---|---|---|
| **Task 2 (b) - RCD Staff Time** | $2,400.00 | CFSCC |
| **Task 2 (c) - RCD Staff time** | $800.00 | CFSCC |
| **Task 2 (c) - Water saving devices (SqCWD)** | (existing supplies) | SqCWD |
| **Task 2 (d) - RCD Staff time** | $640.00 | CFSCC |
| **TOTAL Task 2** | **$4,160.00** | |

**Task 3 – Data Collection, Evaluation and Reporting**

| Item | Due Date |
|---|---|
| a) RCD to collect data from landowners (bi-monthly) | 15-Sep-14, ongoing |
| b) RCD to work with SqCWD and CWD to determine evaluation criteria and set conservation goals based on property types/usage for pilot | 1-Sep-14 |
| c) RCD to prepare summary report semi-annually (for two years) | 15-Sep-14 |

| Item | Total | Fund Source |
|---|---|---|
| **Task 3 (a) - RCD Staff Time** | $640.00 | CFSCC |
| **Task 3 (b) - RCD Staff Time** | $480.00 | BIG |
| **Task 3 (b) - SqCWD Staff Time** | (in kind) | SqCWD |
| **Task 3 (c) - RCD Staff time** | $640.00 | BIG |
| **TOTAL Task 3** | **$1,760.00** | |

Acronyms:
BIG: Basin Implementation Group , a joint exercise of powers between Soquel Creek Water District and Central Water District
CWD: Central Water District
CFSCC: Community Foundation of Santa Cruz Coun3440ty (Grant funding)
RCD: Resource Conservation District of Santa Cruz County
SqCWD: Soquel Creek Water District

June 24, 2014

**MEMO TO THE BASIN IMPLEMENTATION GROUP**

Subject: Agenda Item No. 5.3 Direction to Staff Regarding 2014 Grand Jury report, *Desalination and Alternatives – Water for a Thirsty County*

Attachment: Desalination and Alternatives – Water for a Thirsty County

On June 13, 2014, the Santa Cruz County Grand Jury sent pre-release copies of the report *Desalination and Alternatives – Water for a Thirsty County* to the Basin Implementation Group (BIG) Board.

The report discusses the status of the joint project with the City of Santa Cruz and Soquel Creek Water District (SqCWD) to build a desalination plant for a shared supplemental supply.

While the majority of the report focuses on the actions of the City and the District surrounding public outreach and the Draft Environmental Impact Statement, it also includes a section that addresses the challenge of our shared basin. The made a formal finding that "private pumpers have unregulated access to water and do not contribute financially to aquifer protection efforts".

In the report's recommendations, the Grand Jury made two formal recommendations for the BIG. The first is that we should complete work on a groundwater model of the Purisima as soon as possible. Central Water District (CWD) has already undertaken a modeling effort of their portion of the Purisima. SqCWD will consider funding a model of the rest of the basin as well as work to identify the location of the seawater interface in upcoming meetings. The Grand Jury is recommending the cost of this work be shared through the BIG since it benefits all pumpers in the basin. If the BIG agrees, staff can look at the total cost of the modeling and interface efforts, including those completed and paid for by CWD, and determine what the split should be. CWD would be given credit for what they have already spent on their modeling efforts. In addition, the City has also agreed to cost share in the modeling efforts. Since they are currently considering the invitation to join the BIG, this calculation could be done after they become official members and the cost for the model of the entire basin and location of seawater interface could be split by the members based on their official funding levels which are calculated based on total pumping.

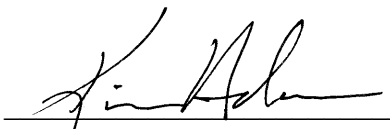
The second recommendation from the Grand Jury is for the BIG to establish a Replenishment District for the Purisima aquifer. At the February 10, 2014 meeting we discussed the fact that the JPA already has the statutory power to implement the powers of a replenishment district. Inviting the County to join the Big and

moving forward with the Private Well Stakeholder Group are efforts that may lead to the implementation of those powers in the future.

The BIG was not asked to respond to the Grand Jury Report, so no official response is being prepared. But the Board should consider the recommendations and provide staff direction on any future actions that should be taken. These may include initiating the groundwater model and seawater interface location projects through the BIG as well as continuation of discussions about replenishment powers in addition to any other efforts to make management of our shared basin a true shared effort with all users taking part.

**INFORMATIONAL ITEM**

1. Please provide direction to staff on any future agenda items related to the Grand Jury report recommendations affecting the Basin Implementation Group.

By 
Kim Adamson, General Manager
Soquel Creek Water District

# Desalination and Alternatives

## Water for a Thirsty County

2013-2014 Santa Cruz County Grand Jury

June 2014

## Summary

Water is one of the most important resources for life. Much of Santa Cruz County receives its drinking water from groundwater sources (underground aquifers). Wells pump water from the aquifers to be treated and sent to our homes and businesses. In the coastal areas from Live Oak to the Pajaro Valley, many of the aquifers are already contaminated or in danger of contamination due to saltwater intrusion caused by over-pumping. There are many different ways to protect our aquifers from this environmental disaster. One way is to work with local agencies to come up with a regional plan to halt the intrusion where it has already occurred and to protect those aquifers yet to be tainted.

The City of Santa Cruz Water Department (SCWD) and Soquel Creek Water District (SqCWD) entered into a plan to do this through the construction of a regional seawater desalination plant. However, after several years of planning and studies, the Santa Cruz City Council put a halt to the project just a year before public vote due to strong and vocal opposition from a number of residents. This decision left SqCWD without a supplemental water supply and the City of Santa Cruz more vulnerable to future droughts. Additionally, the tabling of the desalination plant forces a restart of the process, since both agencies must now spend more than a year reevaluating projects either related to the desalination or that were originally eliminated from consideration seven years ago.

SqCWD is currently finishing work on its preliminary study of alternatives, while the City of Santa Cruz is only beginning the process of re-examining its alternatives. When time for project planning, environmental studies, and construction are factored in, there could be three to ten years or more of damage to the aquifer before a supplemental supply is in place. This leaves residents of the county both vulnerable to drought and in danger of having their underground water sources contaminated by seawater. It could take three to ten years to work out a reliable water source plan and get it up and running.

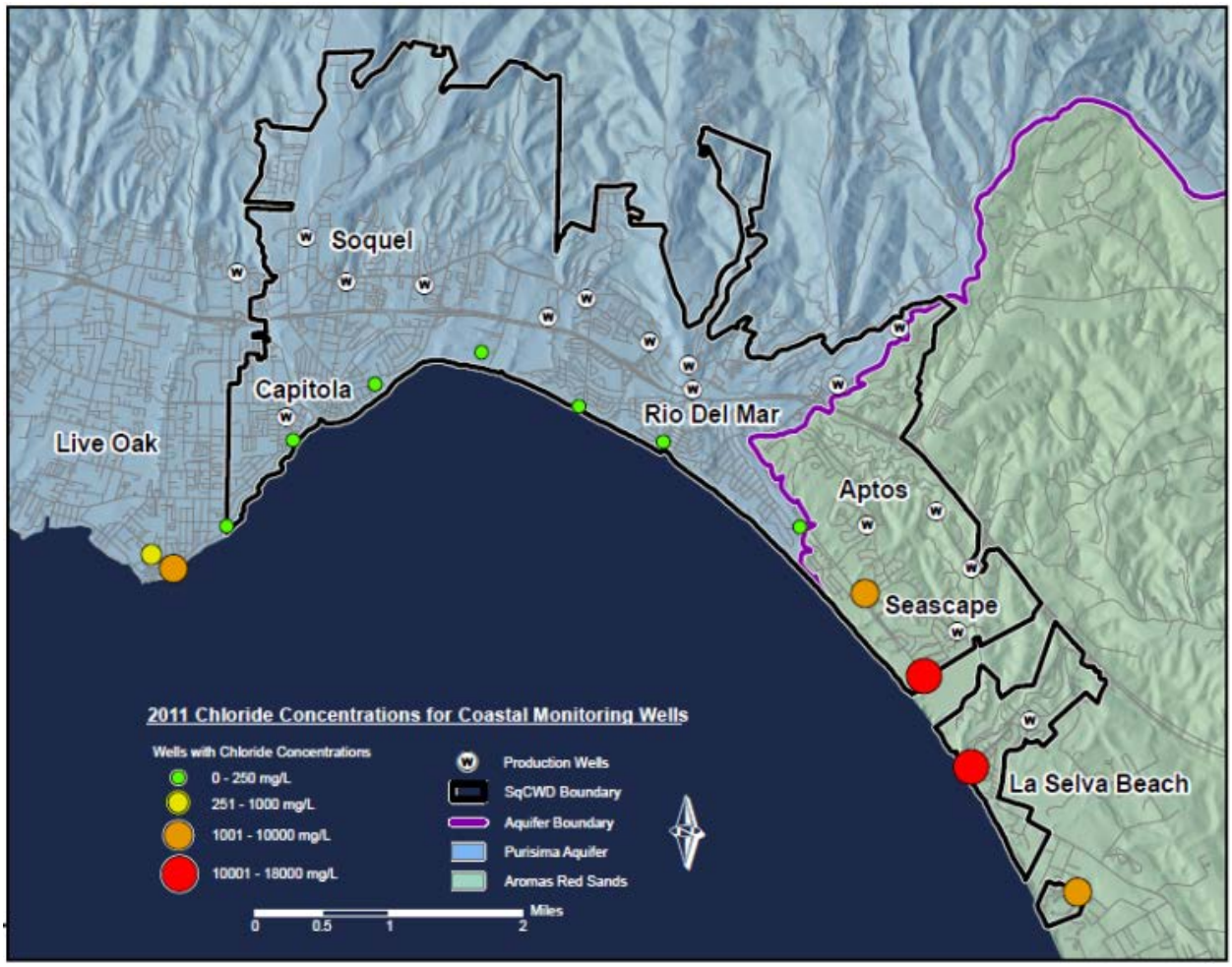
The Grand Jury examined the issues facing both SCWD and SqCWD as they attempt to manage their local water supply problems. Additionally, we examined the prospective plans for the regional desalination project as well as other alternatives being considered.

## Background

### Soquel Creek Water District

Soquel Creek Water District supplies water to the City of Capitola and the unincorporated areas of Aptos, Soquel, Rio del Mar, Opal Cliffs, Seascape, La Selva Beach, and portions of Live Oak. SqCWD obtains all of its water from groundwater sources in the Purisima and Aromas Red Sands aquifers. Portions of the Aromas Red Sands aquifer have been experiencing active saltwater intrusion for decades.

**Soquel Creek Water District service area**[1]

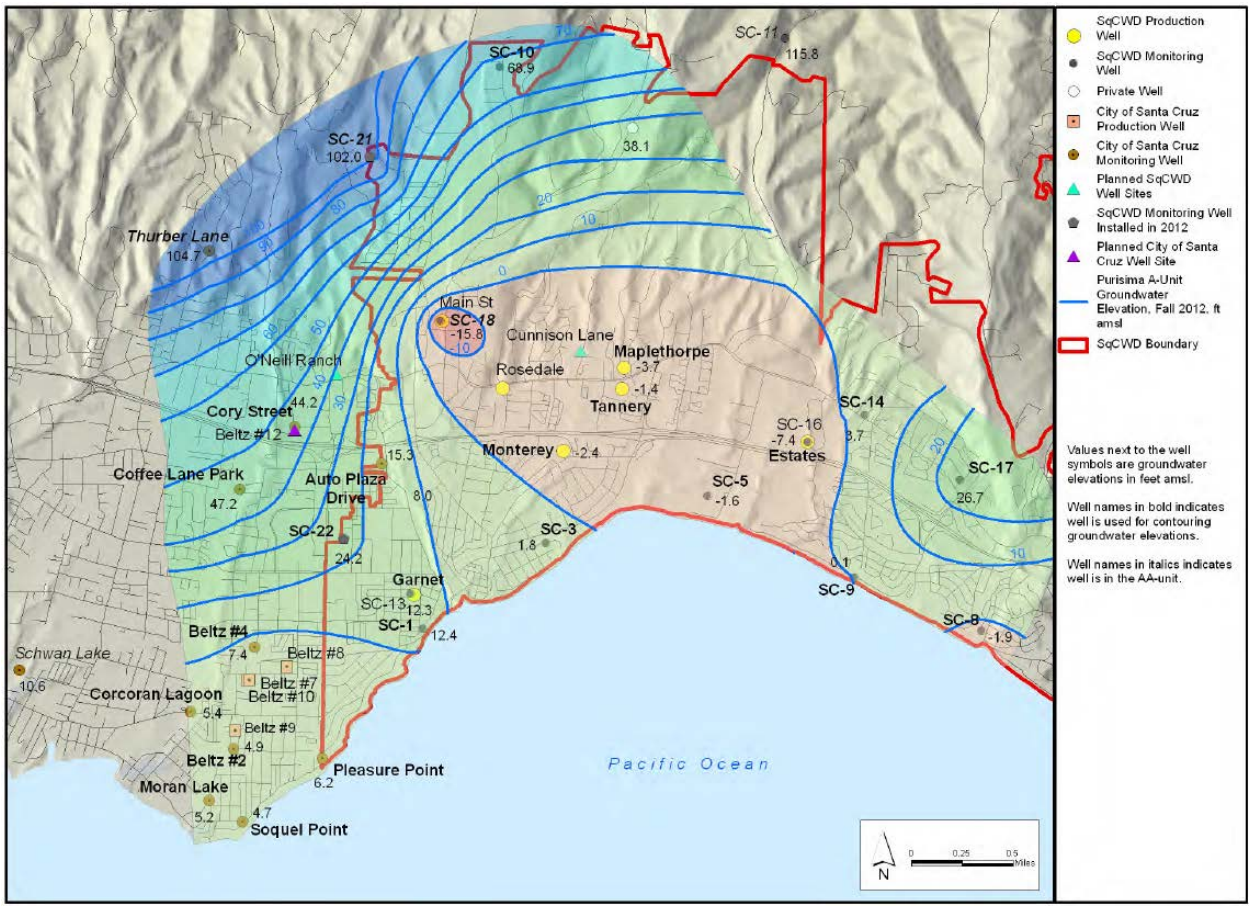



Due to overuse, the aquifers that supply water to the Soquel Creek Water District (SqCWD) are in imminent danger of saltwater intrusion. Maps from Basin Implementation Group (BIG) reports between 2007 and 2012 show wide fluctuations in aquifer levels in the Purisima basin. Purisima is one of the two aquifers from which SqCWD draws water. These fluctuations show low groundwater levels near major production wells, and especially near the coastline. These coastal groundwater levels need to be above sea level to prevent the seawater from pushing into the aquifer. In the fall of 2007, SqCWD production wells located less than half a mile north of Highway 1 reported water levels of 20 feet below sea level, with one portion in the 30 feet below sea level range. Water levels along the majority of the Purisima's coastline were also reported as being below sea level. Currently, the majority of SqCWD's portion of the Purisima aquifer is below the level needed to protect against saltwater intrusion.

SqCWD has moved its pumping further inland and is using the wells near the coast mainly for monitoring salinity. However, this relocation alone is not enough. Because the low groundwater levels are so close to our shoreline, once saltwater breaches the coastline it

will flood a major portion of the aquifer. And once saltwater has contaminated a well, it can no longer be used to produce drinking water. This issue is further compounded by climate change and the prediction of rising sea levels, which will require even higher groundwater levels to maintain adequate protection.

**Groundwater Elevation Contours, Purisima Aquifer, Fall 2012**[1]




*Note: Areas in red represent groundwater levels below sea level.*

## Santa Cruz

The City of Santa Cruz Water Department's (SCWD) service area covers the coastline from 41st Avenue to Davenport. The majority of the water supplied by the City of Santa Cruz Water Department (SCWD) comes from surface water (streams and rivers), with a small number of wells servicing customers in portions of Live Oak. The City of Santa Cruz also stores water in Loch Lomond Reservoir. During drought years the City's water supply is at risk due to high dependency upon flowing sources which dry up. The City's monitoring wells near Pleasure Point have already begun to show signs of saltwater intrusion.

In 2007 SCWD and SqCWD entered into negotiations to form the Santa Cruz Water Department and Soquel Creek Water District Regional Seawater Desalination Project (scwd$^2$). Its goal was to plan, construct, and operate a regional desalination plant located

within the City of Santa Cruz. This was done in an effort to decrease the amount of water drawn from wells, and to provide water to the City during drought years,

During the summer of 2013, the City of Santa Cruz tabled plans for building the desalination plant and finalizing the project's Environmental Impact Report (EIR), as a result of public outcry from a number of citizens. Without an added water source SCWD will be in jeopardy during drought years, and both SCWD and SqCWD risk contaminating their shared aquifer with saltwater.

The Grand Jury examined supplemental water sources for residents and businesses in SqCWD. It also examined options to supply water to the City of Santa Cruz during droughts.

## Scope

In evaluating the issues facing SCWD and SqCWD, the Grand Jury gathered data on alternatives. We met with staff and representatives of SCWD, SqCWD, and the County of Santa Cruz. We also spoke with field experts and local opposition groups to hear what is currently being done to address the water issues. In addition, we sought to find relative time frames for solutions to be implemented, and when possible, the ability of proposed solutions to remedy the overall problem.

Our main questions were:

- What are the main threats to our water supplies?
- What are the options to protect and preserve our local water supply?
- What options are currently being pursued?
- When can the relevant parties begin work on these options?
- When will the solutions be in place?

## Investigation

### Soquel Creek Water District

Although the word "creek" appears in the name of the water district, SqCWD is entirely reliant upon groundwater sources from the Purisima and Aromas Red Sands aquifers. There is no surface water source supplying water to the District, and it does not have water rights to any streams, rivers, or lakes within its service area. SqCWD shares the Aromas Red Sands aquifer with the Pajaro Valley Water Management Agency (PVWMA), Central Water District, and with private pumpers throughout the district's boundaries. SqCWD shares the Purisima aquifer with Central Water District, SCWD, and private pumpers. SqCWD is responsible for roughly 50% of the well pumping that occurs within its boundaries. The rest of the pumping is beyond SqCWD's control.

For the past 30 years more water has been pumped from the aquifers supplying SqCWD than has been recharged back into the aquifer. As a consequence, water levels in portions of the Purisima aquifer are approaching 16 ft below sea level.[1] Additionally, as of October 2013, SCWD monitoring wells on the coast have begun to show increased levels of chlorides, which indicates the start of saltwater intrusion.

SqCWD contracts with an outside firm, Hydrometrics Water Resources Inc. (Hydrometrics), to analyze and assess SqCWD's aquifers. Hydrometrics estimates that the total sustainable yield from SqCWD's portion of the aquifers is 4,200 acre feet per year. Prior to 2009, the district had exceeded this number, pumping between 4,800 and 6,000 acre feet per year, resulting in a substantial deficit in the aquifer. Currently SqCWD is pumping water from its aquifers at 4,000-4,400 acre feet per year. At current pumping rates it is impossible for groundwater to rise to a level that would prevent seawater intrusion. Hydrometrics estimates that SqCWD would need to reduce pumping to 2,900 acre feet per year (a decrease of 28-35%) for a period of 20 years to replenish the aquifer.

When the district became aware of the severity of the problem, it began to look for and evaluate supplemental water supplies. In an effort to mitigate impact from development, until a secondary water source was secured, SqCWD instituted a Water Demand Offset (WDO) program. This program required conservation measures to offset 120% of projected water use for new developments. In many cases, developers achieved the offset by funding the replacement of inefficient fixtures with high efficiency ones, or by replacing lawns with artificial turf. These offsets could be done anywhere within SqCWD's service area and were not limited to the projects being developed. In 2013, SqCWD increased the offset to 200%. During the last 10 years, 33,000 toilets have been replaced within the boundaries of SqCWD. Now, less than 10% of toilets in SqCWD are high flow. SqCWD ratepayers are in one of the top tiers of conservation in the state (9%), using 118 gallons per capita per day (0.132 acre feet per capita per year).

The purpose of the WDO program and conservation measures is to allow time to develop an adequate supplemental water supply. Due to the Santa Cruz City Council tabling the scwd$^2$ desalination plant, which had been projected to start service around 2016, the WDO program is under pressure. With no supplemental supply on the horizon there are questions about how long new development can be allowed to continue. This has led to portions of the community pressuring the Board of Directors to issue a moratorium on new hook-ups until there is a plan to replenish the aquifer.

Unfortunately, any reductions in use mandated by SqCWD do not apply to the private pumpers or other water agencies that share the aquifer. Additionally, private pumpers within the SqCWD's boundaries do not assist in the costs of research or development of a secondary supply. There are also no limits to how much water private pumpers can take from the aquifer.

In drought years, the rate at which the aquifer is recharged is reduced. Yet even during periods of intense storms much of the rainwater is not able to be absorbed into the ground and is lost as it flows to the ocean. Since current predictions are that climate change will increase the frequency of droughts and the intensity of winter storms groundwater recharge could be reduced even further over the next 50 to 100 years. SqCWD staff stated that climate change could slow recharge by as much as 30%.

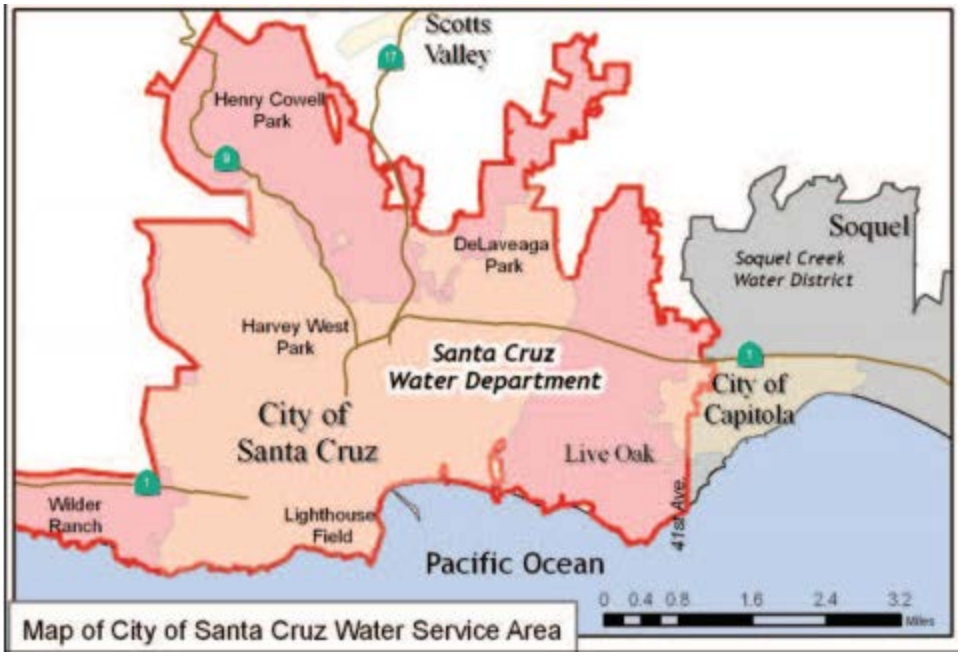
SqCWD is preparing to spend upwards of $115 million on projects to prevent saltwater intrusion into its aquifers. These projects include the scwd$^2$ desalination plant, DeepWater Desalination (DWD), Waste Water Recycling (Recycling), District-only desalination,

Regional Water Transfers, forming a Replenishment District, and Mandatory Rationing.

During our investigation, SqCWD began to re-evaluate the various supplemental sources available. In an effort to increase public awareness of its dire situation, a series of Board meetings were recorded and broadcast on local television and the Internet. The results of the re-examination process were expected for the June 2014 Board meeting.

**City of Santa Cruz Water Department**

The City of Santa Cruz receives 95% of its water from flowing sources, such as the San Lorenzo River and north coast streams. An additional 5% comes from wells located largely in the western portion of Live Oak serviced by SCWD. Additionally, the City has up to 8,991 acre feet[2] of water storage in Loch Lomond Reservoir to supplement supply when water cannot be drawn from the rivers.

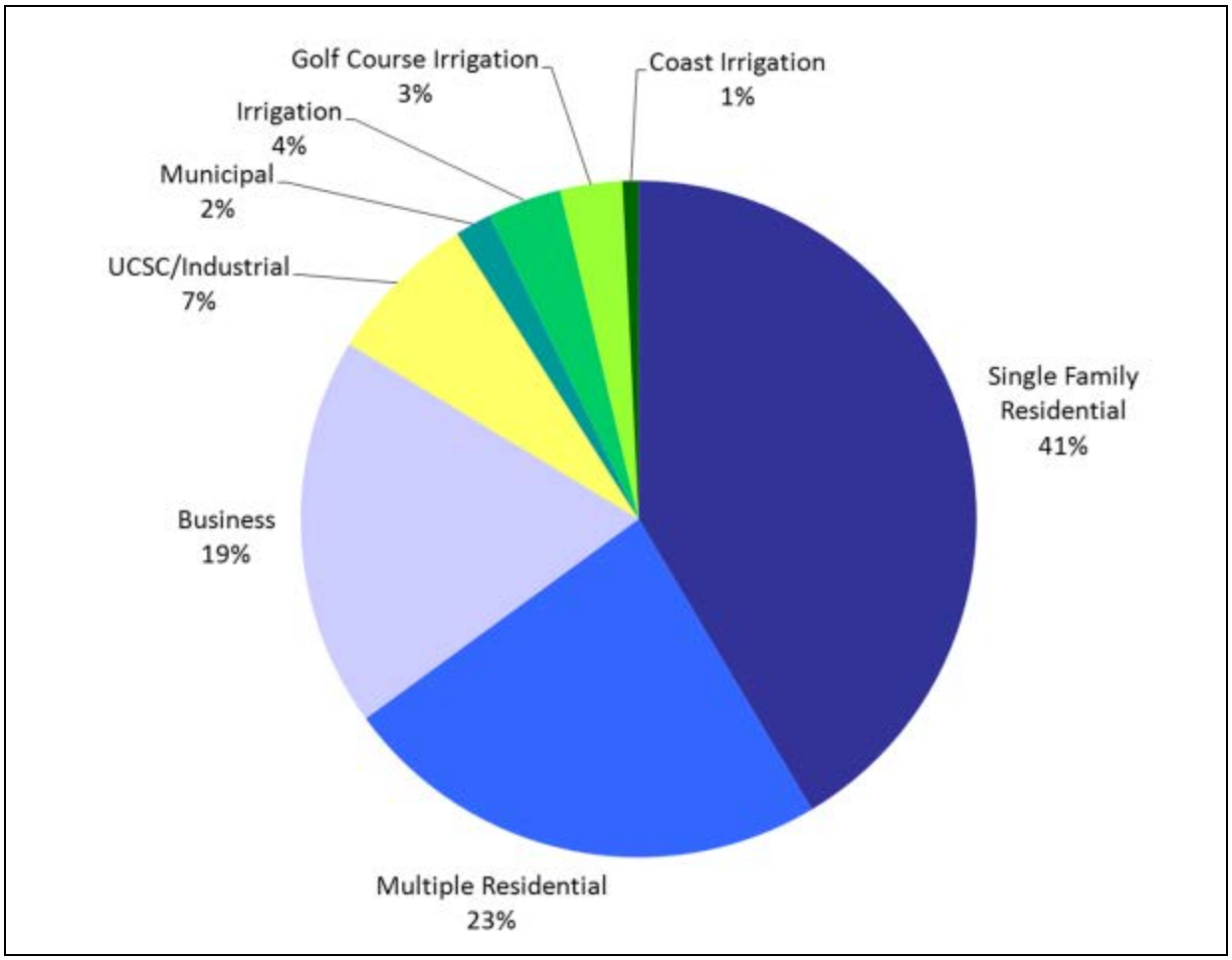


Map of City of Santa Cruz Water Service Area

During years with reduced rainfall, SCWD must pull water from Loch Lomond. When below average rainfall continues for multiple years, storage in Loch Lomond drops. At the end of 2013, Loch Lomond was only two-thirds full, its lowest point in 16 years.[3] During drought years, SCWD cannot both meet water demand and simultaneously replenish its water storage. This places its water supply and storage in jeopardy.

In March of 2013, SCWD began updating its Water Conservation Master Plan. SCWD is analyzing its current conservation achievements and evaluating future water conservation options. On 3/4/14, SCWD presented results of this analysis to the Santa Cruz City Water Commission, a body that advises the City Council on water issues. Water use in the City of Santa Cruz is 113 gallons per capita per day (0.126 acre feet per capita per year), placing it in the top 7% of conservation among California urban water agencies.

***SCWD Use by Customer Category***[4]




One of the concerns voiced by residents is the increase in enrollment at UCSC. The above chart lists University of California Santa Cruz (UCSC)/Industrial accounting for 7% of water use. Through interviews with officials, we were informed that after the company Texas Instruments left Santa Cruz, UCSC became the single largest water use customer in the city, using 5% of the City's water supply. While UCSC enrollment has doubled over the last 14 years, its daily average water use per student has decreased, going from 210 gallons (0.235 acre feet per student per year) in 1997 to 164 (0.183 acre feet per student per year) in 2012. Current plans for University growth include water negotiations with the City.

With the desalination project on hold, SCWD does not currently have a long term solution to address its water shortfall in drought years. To help look into long term options, the Santa Cruz City Council created a fourteen member Water Supply Advisory Committee in October 2013. The committee will be counseled by Public Policy Collaboration, which will be paid an estimated $280,000 from the money set aside for the scwd$^2$ desalination project.[5]

## Desalination

The process of converting seawater to drinking water is used successfully in many parts of the world, including California.[6][7][8] The desalination process examined by scwd$^2$ planned to use reverse osmosis technology for the creation of a local supplemental water supply. In the scwd$^2$ draft Environmental Impact Report (dEIR), alternatives to desalination were also studied. However, criteria used for the selection of supplemental water sources[9] led to community as well as State and Federal agency criticism that many alternatives were not recommended or not adequately addressed.

The dEIR looked at several potential desalination plant and pumping station locations on Santa Cruz's Westside near the present Waste Water Treatment Facility. This would allow for mixing of the brine from the desalination plant with the outflow from the Treatment Facility, making the water expelled into Monterey Bay closer to the salinity of seawater and saving the cost of building a separate outflow. Several different intake and pumping station location studies were also completed.The Grand Jury noted that while 18 of the 331 written comments on the dEIR were made by Federal, State, and local agencies, the majority came from residents in the vicinity of the proposed plant and pumping station locations.[10]

The desalination plant is designed to be modular, which gives it the ability to be expanded as needed due to population growth or increases in demand due to changes in climate, streamflow requirements, or groundwater needs. Since desalination and direct-to-potable (drinkable) treatment of waste water both use reverse osmosis, the dEIR discussed the potential for changing the desalination plant to a direct-to-potable recycling facility once it becomes feasible. The consultants on the dEIR even considered having a small demonstration of this recycling on the plant grounds to educate the public.

The proposed desalination plan calls for SqCWD to manage the plant for most of the year at less than full capacity. During this time the plant would send desalinated water into the SCWD distribution system, mainly going to the residents in the vicinity of the plant. SqCWD would receive an equal amount of treated surface water from SCWD via a proposed intertie at the boundary between the two agencies near 41st Avenue in Capitola. During summer months, or whenever a decreased stream flow necessitated a reduction in pumping from the river, SCWD would operate the desalination plant at mid to maximum capacity to meet its water need, and SqCWD would draw from its well system.

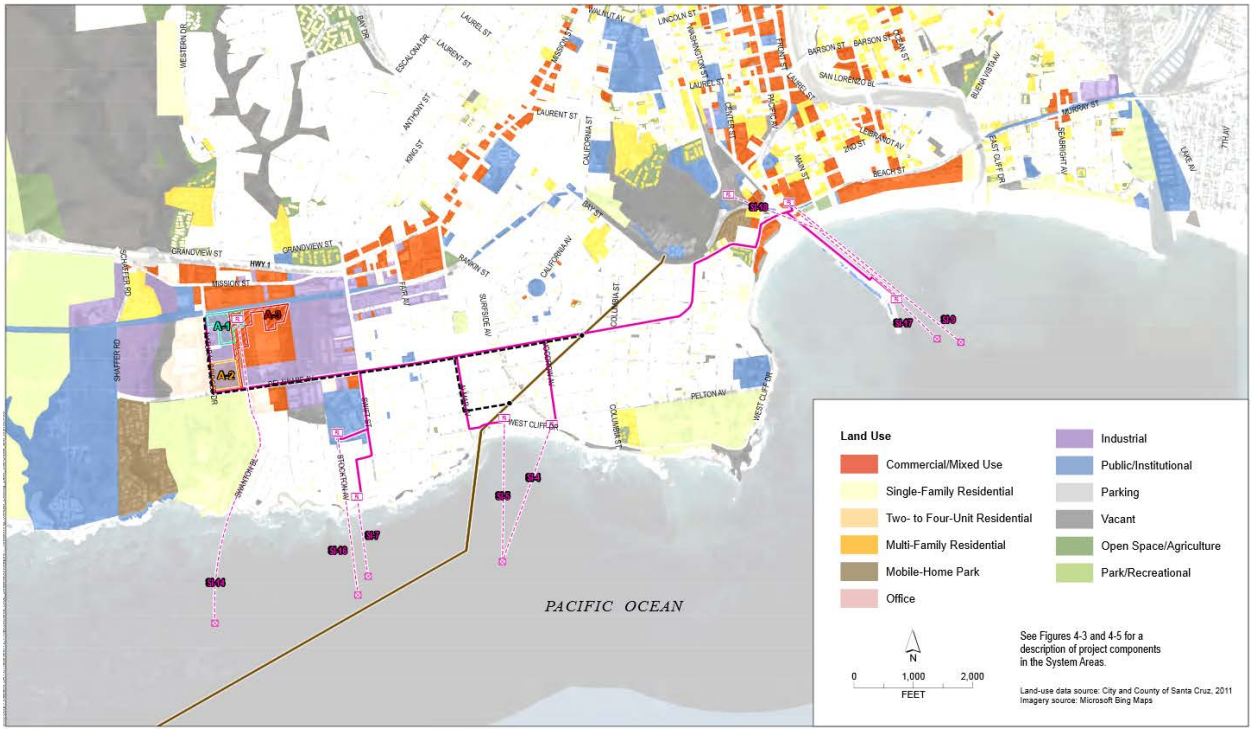
## Opposition to scwd$^2$ Desalination

Opponents to the desalination plan cited several concerns during the development of the project.[11] One of the major concerns brought up by the community dealt with the large amounts of electricity needed to push seawater through filters and the cost of that electricity, in both dollars and carbon emissions. There were also misgivings regarding the impact on the life of aquatic invertebrates and fish larvae since any intake, no matter how well it is designed, leads to impingement and entrapment to some degree. Some residents expressed apprehension about safety of the desalinated water for drinking if chemicals or pollutants were not completely removed from the ocean-sourced water.

Portions of the community also felt that the project was being pushed forward despite opposition primarily to support growth in the County and that little attention was given to

alternatives that do not yield a secondary supply of water, such as conservation. Additionally, there were concerns by local residents regarding the location of pumping stations in their neighborhoods. Each of the eight proposed intake locations included a different route through pumping stations. The inclusion of all the potential intake and pumping station locations in maps led to confusion since some residents thought that because a location was being studied the station would be built there. The Grand Jury was told by multiple officials that the large number of intake and pumping station locations that were presented led to opposition by neighbors of each location, multiplying opposition to the overall project.

***Map of Proposed Intake, Pumping Station and Desalination Plant Locations***[9]




Officials from Santa Cruz City, County, and SqCWD mentioned that the failure of the desalination plan was partly due to an inadequate public information outreach to residents. The City did not address the various concerns of the citizens most directly affected by the proposed system. Multiple officials told the Grand Jury that the need for the project was not properly conveyed to the public. Additionally, one official noted, “Public outreach has not been done well. We butt heads behind the scenes. We need to reach out and talk to people, but the City [of Santa Cruz] says we need to be quiet and let it pass.”

In November of 2012, Measure P was passed by the citizens of the City of Santa Cruz. Measure P requires voter approval prior to the construction of a desalination plant within City limits. Such approval must occur during a general election year and only residents of the City of Santa Cruz may vote. The measure passed with a yes vote of 72%. This, combined with the number of negative public comments on the dEIR, led the City Council to

table discussions on finalizing the dEIR and pull the desalination plant proposal from the 2014 ballot. This has left the dEIR in an unfinalized state and leaves SqCWD ratepayers powerless to continue the cooperative scwd$^2$ Desalination plan.

The dEIR is based on older versions of SCWD and SqCWD resource plans, which predated recent information on climate change. Because of this, the dEIR does not account for recent climate change data and the projected impact on streamflow and groundwater recharge. Since desalination pulls water from the ocean it is not affected by drought or climate change. All other secondary supply options are susceptible to drought and/or climate change.

Every official we talked with recommended finalizing the EIR. SCWD and SqCWD are not bound by the recommendations of the EIR; they can choose or reject any or all options of the projects listed. Also, some of the projects and studies in the dEIR cannot be implemented or used until the EIR is finalized and approved. If the EIR is finalized, portions of it can be used in the construction of an independent desalination plant. This would allow for some savings in the development and planning process.

Of all the options explored in the dEIR and presented to SCWD and SqCWD, the scwd$^2$ desalination plan is the only option that by itself can meet the criteria to provide water to SCWD during a drought as well as allow SqCWD to rest its wells to recharge the aquifers.

**DeepWater Desalination**

DeepWater Desalination (DWD) is a project to run a regional desalination plant in Moss Landing. The proposed intake would be located 1.5 miles offshore. This project relies on the success of the Central Coast Regional Water Project (CCRWP) in establishing multiple private business ventures to use its cold seawater in their commercial plans. The warmed seawater will then be sent to the desalination plant. CCRWP will own both the intake and outflow that will service the proposed desalination plant.

Positive aspects of an intake/outflow in deep water include the fact that fewer organisms live in the deeper water, leading to a smaller impact on aquatic life. Preliminary studies conducted by Tenera Environmental[12] suggest an insignificant impact on larval fish. Additional studies by Monterey Bay Aquarium Research Institute and Moss Landing Marine Laboratories show low turbidity in the water due to its depth and distance from shore. The depth of the outflow produces a positively buoyant plume, resulting in less impact on aquatic life at that depth.

While CCRWP will own the intake and outflow and operate a heat exchange unit in the vicinity of the desalination plant, the plant will not be run by CCWRP. Instead, a Joint Powers Authority (JPA) will be formed to operate the desalination plant. This JPA will be comprised of the agencies being supplied with water from the plant. One key criticism of DWD is that it relies on a business venture with the ownership of the intake/outflow in the hands of CCRWP. If CCRWP should become insolvent there are no measures currently in place to ensure that the JPA retains affordable access to the intake/outflow and gets electricity at an affordable rate. These concerns were brought up by SqCWD staff during a public board meeting on 10/15/13.

The largest cost of desalination is electricity. Through a deal with the City of Salinas, which

will establish a municipal electric utility, the JPA will get power at a reduced rate for the proposed desalination plant. The Salinas Municipal Utility will also work with CCRWP to supply power to a proposed data center that will be constructed near the DWD site. Parts of this plan are modeled on the City of Santa Clara's Municipal Utility agreement to supply power to Silicon Valley data centers. By pumping in very cold seawater from the deeper portions of the Monterey Bay, CCWRP can dramatically cut power costs for the data centers. Normal data centers use two to three times the power for cooling than a deep water cooled data center. As an example, in Finland Google uses deep water to cool its European data center. Salinas will buy power wholesale and sell it to both the desalination plant and the data center. Reduced power costs from Salinas and the use of a heat exchanger for cooling result in cheap energy and warmed seawater, lowering DWD's water production cost.

A major problem is that there is currently no pipeline between SqCWD and Moss Landing. One proposal would be to build the pipeline along existing rail lines at an estimated cost of $1 million per mile, not including easements. When discussing the pipeline, representatives of SqCWD mentioned that they could design the pipeline so it could be used by other agencies, such as SCWD and Scotts Valley Water Department (SVWD).

A second problem for the proposed DWD plan is as follows. Phase 1 of development would produce 10,000 acre feet of water per year, while phase 2 would produce 25,000 acre feet per year. DWD predicts that Salinas will need at least 10,000 acre feet per year in order to get a reasonable return for contributing the electricity to the project. This is the total amount of water produced in phase 1. It is unlikely that all of phase 1 output would be allocated to Salinas. With expansion to 25,000 acre feet per year in phase 2, if Salinas receives the full 10,000 they expect, only 15,000 acre feet per year would be available for the remaining agencies. There are several agencies from Monterey, Santa Cruz and San Benito Counties evaluating this water source.

Project developers believe they can start producing water by 2016. However, there is little evidence that this schedule can be reached, as the project's EIR has not yet been completed, nor has the Joint Powers Authority (JPA) been formed to run the desalination plant.

**Regional Water Transfers**

Santa Cruz County has been updating the Integrated Regional Water Management (IRWM) program, a framework for local stakeholders to manage the region's water-related resources. IRWM is evaluating regional water transfers. This plan would take excess water from the Tait Street diversion of the San Lorenzo River between November and April. The water would be treated and distributed to nearby groundwater agencies, allowing them to rest their wells for a portion of the year. In return, Scotts Valley Water District (SVWD) and SqCWD would increase pumping during drought periods and send the water to SCWD. The amount of water returned to SCWD would require negotiations between the agencies to insure that aquifers are properly recharged in order to hold off saltwater intrusion and other effects of overdraft.

Currently, during periods of high water flow from winter storms, turbidity in the water forces

SCWD to halt water production at Tait Street and pull water from other sources. To overcome this problem, the County has discussed upgrades to the intake and pre-treatment facilities at Tait Street, allowing the more turbid water to be used (Diversion). Additionally, the County has looked into upgrading the Graham Hill Water Treatment Plant (GHWTP). These improvements are expensive, but would increase the amount of water available to SVWD and SqCWD from SCWD during periods of high turbidity. The following information covers water delivery from SCWD to SqCWD and SVWD.

***Infrastructure Upgrades and Costs***[13]

- Intertie to SLVWD/SVWD (1-2 mgd ) $5.8 M
- Intertie to SqCWD (1.5-3.5 mgd) $18.5 M
- Tait Division Works Upgrades (7.8 mgd) $2.8 M
- Tait Expansion (to 14 mgd) $5.9 M
- Treatment Plant Upgrades (to 16 mgd) $55.7 M
- Diversion of Increased Turbidity Water $1.1 M
- Operating Costs: $147-715 K/yr

*Note: The cost of pump stations and additional wells to deliver water back to SCWD during drought years has yet to be presented. M = Million, K = Thousand, mgd = million gallons per day.*

13

***Regional Water Transfer Project Phases***[13]

| | ***Project (deliveries to SVWD and returns to SCWD not shown)*** | ***SqCWD Yield (af/y)*** | ***Total Potential Yield*** | ***Capital Cost*** |
|---|---|---|---|---|
| ***1*** | New Interties (Existing Rights) | 120 | 445 | $27 M |
| ***2*** | Increase GHWTP capacity from 10 mgd to 16 mgd | 292 | 623 | $78 M |
| ***3*** | Increase GHWTP capacity and Tait capacity from 7.8 to 14 mgd | 1,022 | 1,495 | $91 M |
| ***4*** | Increase GHWTP capacity and turbidity treatment from 15 to 200 NTU (7.8 mgd) | 417 | 798 | $86 M |
| ***5*** | Increase GHWTP capacity, increase Tait Street capacity, increase turbidity treatment | 1,178 | 1,712 | $92 M |

** Acre feet per year (af/y), Nephelometric Turbidity Units (NTU), million gallons per day (mgd).*

To complete one of these projects, both SVWD and SqCWD must request water rights on the San Lorenzo River. This is a complicated process involving the California Environmental Quality Act (CEQA), California Department of Fish and Wildlife (CDFW), and the National Oceanographic and Atmospheric Administration (NOAA). Depending on the environmental studies, and on satisfaction of the requirements of the agencies dealing with streamflow and fisheries, granting of new water rights can take upwards of 10-20 years. Some County officials hope that previous studies of the Tait Street diversion could expedite the approval process. The state will not approve new water rights without compliance with CEQA, and the consent of CDFW and NOAA. The outcome of the above water rights approval process is unknown at this time. In the meantime, SVWD and SqCWD could apply for short term or emergency water rights to allow for some access to the water. All this would have to be done without jeopardizing SCWD's existing water rights.

**Recycled Water**

The City of Santa Cruz Waste Water Treatment Facility (SCWT) discharges more than twice as much water as SqCWD uses each year. All sewage within SqCWD and SCWD service areas is handled by onsite septic systems or processed at the SCWT. SCWT treats the water to secondary levels (not safe for reuse), then discharges it into the ocean. The facility currently discharges 9,415 acre feet per year.[14]

In order to recycle water for use in agriculture, extra treatment is required. Currently state law does not allow for recycled water, regardless of treatment level, to be used as drinking water. Also, due to another state law, any application of recycled water requires separate pipes to transport the water to locations where it will be used. The cities of Scotts Valley

and Watsonville both use recycled water for irrigation.

SCWD uses over 8% of its drinking water for irrigation. SqCWD uses 11%-12% of its drinking water for irrigation. When the Grand Jury asked officials from SCWD and SqCWD about using recycled water exclusively for irrigation, they said they did not feel that the cost of building a plant to treat water to irrigation levels, and adding infrastructure to deliver the water for landscaping use, would be a wise fiscal choice. Additionally, since the largest irrigation users in SqCWD are private pumpers, there is no financial incentive for them to switch to recycled water for irrigation, only the incentive to do the right thing.

Construction of a reverse osmosis treatment facility would allow for expanded uses of recycled water. This more highly treated water can be used in natural recharge areas to form percolation ponds where the water filters into the aquifer. It can also be injected into the aquifer along the coast to help raise groundwater levels and create a barrier against saltwater intrusion. This would provide some direct recharge to the basin, but due to the close proximity to the ocean, only a portion of the injected water would be retained in the aquifer. Much of the injected water would diffuse toward the ocean. Another option is to inject the recycled water farther inland in an effort to recharge the aquifer.

Desalination typically uses twice as much electricity as recycled water uses for groundwater recharge because of the colder temperature of the seawater. This leads to production cost estimates of $1,500-$2,000 per acre foot for recycled water used in groundwater recharge versus $2,500 per acre foot for desalination.

There are potential problems with all groundwater injection methods. The Department of Public Health sets “travel time” for recycled water injected into the ground. This is the time it takes for the injected water to travel through the aquifer to the closest production well. This can vary from 2 to 6 months[15] and can only be done if there are no active or potential wells in the vicinity of the injection site. Given the large number of district and private wells currently in use, it is difficult to find a satisfactory location for injection. Since there is no current groundwater model of the Purisima basin there is no accurate way to project the impact of a given injection method.

Recycled water can also be used to augment streamflow or reservoir storage. However, due to high levels of nitrates from various sources present in the San Lorenzo watershed,[16] this is unlikely to be useful for the San Lorenzo River or Loch Lomond Reservoir.

Potential changes in state law over the next two to eight years could open up the possibility of recycling water directly into drinkable water by using tertiary or higher level treatment. This would allow the over 9,000 acre feet of wastewater from the SCWT to be treated and used to augment the current water supply. The greatest barrier to potable reuse is perception, not technology. Public perception of “drinking toilet water” is a factor that would need to be overcome to move forward with direct-to-potable reuse.

In February of 2014, Kennedy/Jenks, a water engineering firm, presented a study of recycled water uses to the SqCWD Board. This study included plans for piping treated water from the SCWT to a recycled water treatment plant in mid-County. From there, it would be piped to irrigation sites and to injection wells. The Board elected to have options

2 and 3 (see below) researched and presented in June 2014. Additionally, the Board elected to continue examining direct-to-potable reuse.

***Recycling Plans Presented to SqCWD Board on 2/4/14***[17]

| *Alt* | *Description* | *Average Annual Recycled Water (AFY)* | *Potential Supplemental Supply (AFY)* | *Conceptual Capital Cost (mil $)* | *Project Annualized Unit Cost ($/AF)* |
|---|---|---|---|---|---|
| ***1a*** | Centralized Recycled Water for Irrigation in SqCWD | 510 | 510 | $68 | $8,600 |
| ***1b*** | Decentralized Recycled Water for Irrigation in SqCWD | 315 | 315 | $30 | $6,500 |
| ***2*** | Recycled Water for Seawater Intrusion Barrier and Irrigation in SqCWD | 4,000 | 1,030 | $154 | $9,700 |
| ***3*** | Recycled Water for GW Replenishment and Irrigation in SqCWD | 2,800 | 2,230 | $134 | $4,000 |
| ***4*** | Recycled Water for GW Replenishment, Seawater Intrusion Barrier and Irrigation in SqCWD | 6,200 | 2,750 | $190 | $4,600 |

** AFY = Acre feet per year, AF = Acre feet, GW = Groundwater*

In the past, SqCWD studied the impact of a satellite recycling plant on Seascape Golf Course. In this scenario, the District could send recycled water to the golf course in exchange for Seascape reducing its pumping from the aquifer. However, since Seascape is not a part of SqCWD, there is no financial incentive for it to contribute to the cost of the project. Currently, SCWD, the Pasatiempo Golf Course, and the City of Scotts Valley are working on a deal to bring excess recycled water from Scotts Valley to the Pasatiempo course in exchange for SCWD sending drinking water to Scotts Valley.

With the SCWT being operated by the City of Santa Cruz, any plans that SqCWD might have for using recycled water depend on a partnership with the city. There is a limited amount of wastewater available, and if the city moves forward with recycling on its own, there could be little to no wastewater for SqCWD. During our investigation, no representatives from the City or SqCWD mentioned plans for a regional wastewater recycling plant.

### Individualized Desalination (District-only Desalination)

While SCWD cannot construct a desalination plant of its own without a “yes” vote from the citizens of Santa Cruz, SqCWD is able to construct its own desalination plant. This issue is addressed in the scwd$^2$ EIR.[18]

Due to the constraints of Measure P, a SqCWD desalination plant needs to be constructed on land outside the Santa Cruz City limits. Studies suggest that a District-only plant would require at least a two acre plot. Currently, SqCWD does not own a plot of land large enough to construct such a plant.

The scwd$^2$ intake studies had to contend with environmental issues from the sediments deposited by the San Lorenzo River. However, since SqCWD’s area of service is outside the sediment flow zone of the San Lorenzo River, it has several different options for intakes that were not possible with the scwd$^2$ plant. There are also potential amendments that could allow direct discharge of brine. Although legal in some situations, the direct discharge of brine can cause damage to aquatic life.

If secondary treated water is piped in from Santa Cruz there is the possibility for brine to be mixed with treated water and discharged at a normal salinity level. This would address some of the concerns regarding aquatic life. This would also allow the plant to be converted to a direct-to-potable recycling plant at a later date. Once again, SqCWD would depend on the availability of treated water from SCWT. If the City of Santa Cruz chose to create its own recycling or desalination plant this could limit the amount of treated water available to SqCWD.

The Integrated Resource Plan (IRP) projects that a district-only desalination plant is ten years from completion, if no studies carry over from the scwd$^2$ dEIR. Some issues from the scwd$^2$ dEIR require additional research, but consultants advise that no major faults exist. Finalization of the dEIR would require meeting with regulators, renegotiating the contract with URS Corporation (an engineering firm that was involved in the process), and addressing public comments to incorporate them into the EIR. The City’s original date to address public comments was 11/12/13, but due to the City Council’s decision to table the project and the EIR, it has been postponed indefinitely. Since the finalization process was placed on hold, there is nothing that SqCWD or SCWD can do to formally address the EIR. SqCWD is researching which portions of the dEIR can be applied to its District-only project.[19] The results of this research will have an impact on any cost projections and time table of the project. Current projections list the cost of the project between $86.2 million and $114 million. The low number is greater than SqCWD’s portion of the scwd$^2$ project; the high number is the full cost of the scwd$^2$ plant. These cost estimates are similar to SqCWD’s expenses for mandatory rationing.

### Mandatory Rationing

In the absence of a supplemental supply, SqCWD will be forced to enact its mandatory rationing plan. This entails mandating a drastic cut in water usage to all its ratepayers for over 20 years. Residential customers in the District use approximately 74 gallons per day per person (0.083 af/y per person). If mandatory rationing is in effect, water use would be reduced to 53 gallons per day per person (0.059 af/y per person), a reduction of 30%.

Currently, one third of the ratepayers in SqCWD use 53 gallons per day or less.

Mandatory rationing would be combined with a moratorium on new hookups. This would require SqCWD to cease granting “conditional will serve” letters for new development or remodels. This would hamper growth within the district’s boundaries and limit future County tax revenue.

Mandatory rationing will cost the district $110 million to implement, taking away funds needed for a supplemental supply. Much of the cost of mandatory rationing is due to increases in conservation measures that the district will have to fund and install for the businesses in their jurisdiction, such as replacing all toilets and commercial fixtures with lower flow models. Also, additional staff hours will be needed to deal with these installations and the enforcement of water budgets, as well as likely litigation secondary to the higher rates. Water sale reductions of 30% will reduce SqCWD’s income by as much or more. This will force the district to almost double water rates, with sharp penalties for those exceeding rationing guidelines. This increase will have drastic effects on small businesses within the district. Commercial use accounts for approximately 5% of the District’s use.[20] In addition, mandatory rationing in SqCWD will likely have a negative impact on tourism throughout the County due to the effect increased water rates will have on vacation rental prices in SqCWD.

**Replenishment District**

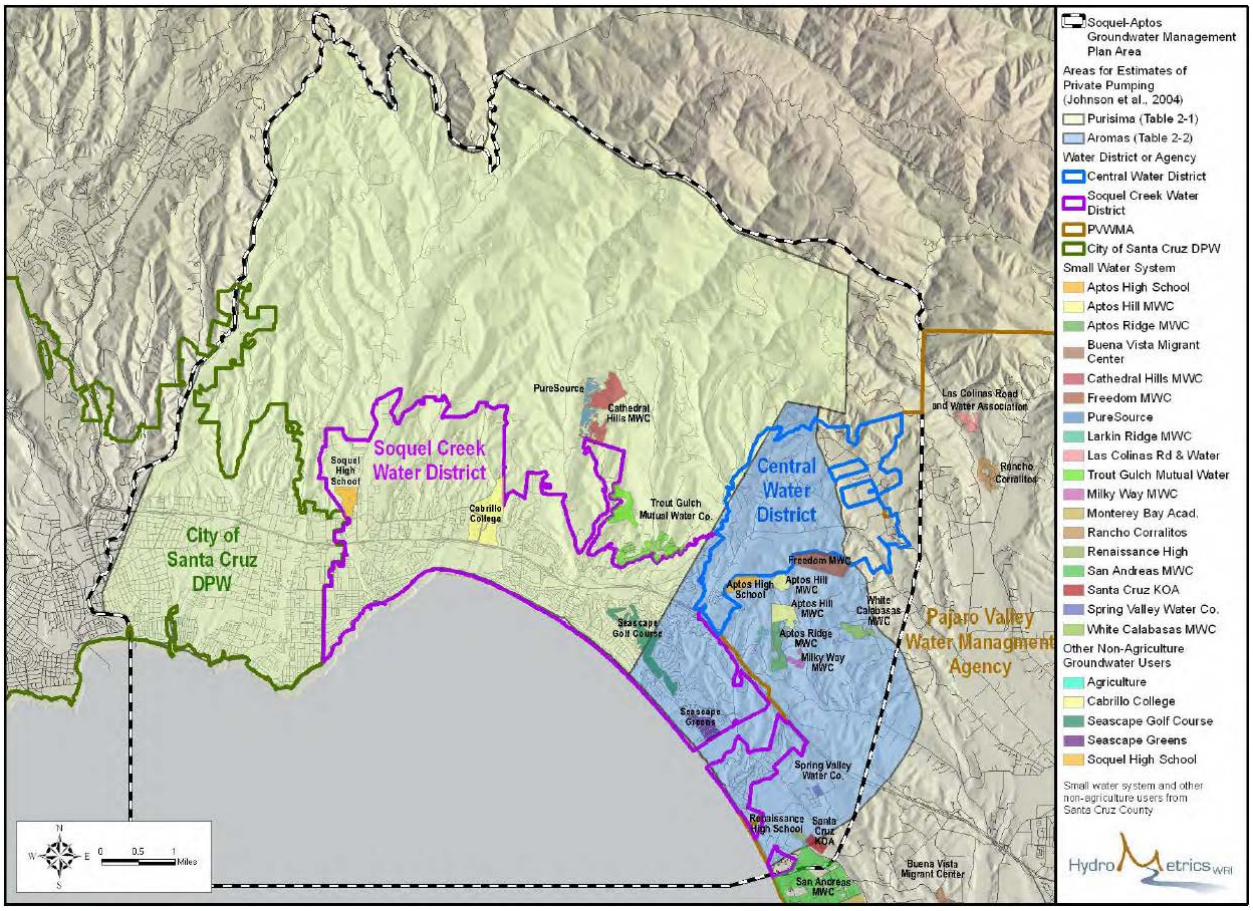
SqCWD is responsible for just over half of the water pumping in the Purisima basin, yet it is paying for more than half of the cost to research and develop methods to protect the aquifer from saltwater intrusion. Other County water districts and the City of Santa Cruz also assist in the research process designed to keep the shared groundwater source safe for all. Private pumpers and small water systems account for approximately 3,000 acre feet per year or 35% of the overall groundwater extractions within SqCWD’s boundaries. Private pumpers in the Purisima basin are not limited in the amount of water that they can pump, nor do they pay to assist in the development of any solution designed to protect the aquifer.

In 1996 SqCWD and Central Water District (CWD) formed the Basin Implementation Group (BIG) to manage the Purisima aquifer. This group is composed of representatives from the water agencies involved, and includes an at-large member who is typically associated with a smaller water system, such as a private pumper. During the course of the Grand Jury’s investigation, both CWD and SqCWD voted to invite SCWD and the County of Santa Cruz to join BIG.

A Replenishment District would allow for private pumpers to contribute to the protection of the aquifer. Under AB 3030[21] one of the powers provided to BIG with an approved and adopted groundwater management plan, is the establishment of a Replenishment District to raise revenue and pay for facilities to manage the basin. This could allow BIG to charge a groundwater management fee to private pumpers within its boundaries to help pay for the research and implementation of any plans to save the aquifer. Any fees assessed in this manner are obligated to go to basin-specific research and projects. Revenue obtained from the Replenishment District could be used on projects such as injecting recycled water

into the basin for a barrier or recharge.

***Map of Potential Groundwater Replenishment District Boundaries***[22]




Due to the inclusion of the County in BIG, any replenishment district established over the Purisima aquifer is able to extend to the full dimensions of the basin, not just the portions represented by SqCWD, CWD, and SCWD. Areas can only be included if the mapping of the groundwater basin demonstrates that the area contributes to the danger at hand and will be protected by actions taken. Currently there is no in-depth mapping of the Purisima basin.

## Findings

**F1.** Both SCWD and SqCWD urgently need a supplemental water source.

**F2.** The longer SqCWD and SCWD wait to secure a viable alternative to the overdraft problem, the greater the danger of degradation and possible permanent loss of aquifers.

**F3.** The decision by the City of Santa Cruz to suspend participation in the scwd$^2$ desalination project forced SqCWD to re-start the planning process without a regional partner.

**F4.** The City of Santa Cruz did not adequately communicate the urgent need for a

supplemental water source to its ratepayers.

**F5.** The scwd$^2$ desalination plant is the only available single alternative that can address in a timely manner all of the supplemental water needs of SCWD and SqCWD, while at the same time being immune to climate change.

**F6.** The draft EIR must be finalized before the environmental studies and alternative projects included in it can be implemented.

**F7.** DeepWater and District-only desalination projects will face many obstacles, including completion of EIRs and securing local approval.

**F8.** The private company Central Coast Regional Water Project will have inordinate control over the water rates of the DeepWater Desalination project since it will control the intake pipe.

**F9.** Agencies that wait to buy into the DeepWater plant may be excluded because the limited amount of water produced may already be allocated.

**F10.** State water rights evaluations will delay the prospective start date of the Regional Water Transfer Project.

**F11.** Without modification, the SCWD Tait Street treatment facility is not large enough to accommodate the needs of the Regional Water Transfer Project.

**F12.** Officials in SCWD and SqCWD have not given sufficient consideration to a regional recycling plant.

**F13.** A water recycling facility would allow for injection wells to either help recharge the aquifer or to build a barrier against seawater intrusion.

**F14.** Because there is no detailed groundwater model of the Purisima basin, it is difficult to do the studies and research needed to protect the aquifer.

**F15.** Private pumpers have unregulated access to water and do not contribute financially to aquifer protection efforts.

## Recommendations

**R1.** City of Santa Cruz Water Department should secure a supplemental water supply. (F1, F2)

**R2.** Soquel Creek Water District should secure a supplemental water supply. (F1, F2)

**R3.** The City of Santa Cruz should ensure that the scwd$^2$ draft EIR be finalized by the end of calendar year 2014. (F5-7)

**R4.** The City of Santa Cruz should immediately convey to its citizens the urgency of the long term regional water situation. (F1-4)

**R5.** The City of Santa Cruz should strongly consider reviving the scwd$^2$ desalination plan prior to the next available General Election. (F1-7)

**R6.** City of Santa Cruz Water Department and Soquel Creek Water District should continue to pursue a regional solution such as Desalination or Regional Water Transfers

with Recycling. (F7-13)

**R7.** Members of the Basin Implementation Group should complete work on a groundwater model of the Purisima basin as soon as possible. (F14)

**R8.** The Basin Implementation Group should establish a Replenishment District for the Purisima aquifer. (F15)

## Commendations

**C1.** We commend SqCWD for holding board meetings at Capitola City Hall to address supplemental supply and mandatory rationing. This allows for greater public participation and awareness of the discussions via local access television and the internet.

## Responses Required

| ***Respondent*** | ***Findings*** | ***Recommendations*** | ***Respond Within/ Respond By*** |
|---|---|---|---|
| Board of Directors, Soquel Creek Water District | F1-15 | R2, R3, R6 | 90 Days 9/15/14 |
| City of Santa Cruz Water Commission | F1-6, F10-15 | R1, R3, R6 | 90 Days 9/15/14 |
| Santa Cruz City Council | F1-6 | R1, R3-6 | 90 Days 9/15/14 |
| Basin Implementation Group, Purisima Groundwater Basin | F14, F15 | R7, R8 | 90 Days 9/15/14 |

## Definitions

- *Acre-foot*: Unit of volume often used in reference to groundwater sources and reservoirs. It is the volume of one acre of surface area with a depth of one foot, exactly 43,560 cubic feet. It contains 325,853 gallons.
- *af/y*: Acre feet per year.
- *BIG*: Basin Implementation Group
- *CDFW*: California Department of Fish and Wildlife
- *CCRWP*: Central Coast Regional Water Project
- *CEQA*: California Environmental Quality Act
- *CWD*: Central Water District
- *dEIR*: Draft Environmental Impact Report
- *DWD*: Deep Water Desalination
- *EIR*: Environmental Impact Report
- *HCP*: Habitat Conservation Plan
- *IRWMP*: Integrated Regional Water Management Plan

- *IWRP*: Integrated Water Resources Program
- *mgd*: Million gallons per day
- *NOAA*: National Oceanic and Atmospheric Administration
- *NTU*: Nephelometric Turbidity Units. A measure of particulates in water.
- *Public Policy Collaboration*: Agency hired to mediate the Santa Cruz Water Alternatives Advisory Committee.
- *SCWD*: City of Santa Cruz Water Department
- *scwd*$^2$: Santa Cruz Water Department and Soquel Creek Water District Regional Seawater Desalination Project
- *SqCWD*: Soquel Creek Water District
- *SVWD*: Scotts Valley Water District
- *Turbidity*: The measure of clarity in water. Particles carried in water make the water cloudy or opaque and can cause difficulty in treatment. In local streams and rivers this is often due to storm runoff carrying soil into the surface water sources.
- *UWMP*: Urban Water Management Plan
- *WDO*: Water Demand Offsets. A program to compensate for new demand by implementing conservation measures elsewhere.

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**Site Visits**

SqCWD Board of Directors Meetings
City of Santa Cruz Water Commission Meetings
Desalalternatives.org Meetings

**Web Sites**

http://soquelcreekwater.org

http://cityofsantacruz.com

http://www.co.santa-cruz.ca.us/

http://cityofwatsonville.org

http://www.pvwma.dst.ca.us/

http://www.svwd.org/

http://waterboards.ca.gov

http://cdph.ca.gov

http://scwd2desal.org

http://www.scwd2desal.org/Page-EIR_Docs.php

http://www.deepwaterdesal.com

http://desalalternatives.org

June 24, 2014

**MEMO TO THE BASIN IMPLEMENTATION GROUP**

Subject: Agenda Item No. 5.4 Consider Changing the Name of the Basin Implementation Group

In 1995 Soquel Creek Water District and Central Water District entered into a Joint Exercise of Powers Agreement (JPA) and established a Groundwater Management Plan Committee comprised of two board members from the Soquel Creek Water District, two board members from Central Water District and public member to draft a groundwater management plan for the mid-county area of Santa Cruz County. Under this JPA, the AB3030 Ground-Water Management Plan Soquel-Aptos Area was written and adopted in 1996 and in 2007 was replaced and superseded with the Groundwater Management Plan- 2007 for the Soquel-Aptos Area. The original JPA solely focused on creating a groundwater management plan and updating the plan to meet current conditions and comply with state requirements. With the establishment of the Groundwater Management Plan, the parties recognized the need to continue the JPA to provide governance to oversee the implementation of the Plan, the identification of mutually-beneficial projects, and provisions for the addition or withdrawal of parties from the JPA. No provision in the JPA covered implementing the groundwater management plan.

Thus, the First Amendment to the JPA was adopted in 2009 and established the Groundwater Management Plan Committee as permanent committee known as the Basin Implementation Group (BIG). The duties of the BIG include, but are not limited to:

a) Assuring the goals and objectives identified in the Groundwater Management Plan are pursued in a reasonable and timely manner;
b) Reviewing the annual report on the status of the basin and reviewing progress made to meet the Groundwater Management Plan's goals and objectives;
c) Modifying the Groundwater Management Plan as needed to address any new or escalated issues within the groundwater basin;
d) Directing future updates to the Groundwater Management Plan every five years or more frequently if need to reflect the changes in State law or in local conditions/programs;
e) Recommending joint projects to the respective governing bodies which are of regional benefit e.g. recharge within shared portions of the basin, etc.

At the February 10, 2014 BIG meeting, direction was given to staff to invite Santa Cruz County and City of Santa Cruz to become additional parties within the JPA. Both of these agencies are scheduled to present this invitation to their respective elected bodies. Additionally, Item 5.6 of tonight's BIG agenda requests direction on providing an invitation to Pajaro Valley Water Management Agency to join the BIG as this agency is also within the Soquel-Aptos Groundwater Management Area boundary.

With the increase in public awareness of mid-county water issues and more visible partnership efforts being conducted under the BIG (such as Groundwater Stakeholder Advisory Committee), staff proposes the BIG committee discuss changing the name of the Basin Implementation Group.

While the name "Basin Implementation Group" is self-explanatory in terms of the duties of the committee, it lacks a sense of collaboration and regional description of the area that it manages. In addition, like many names of committees, projects, and programs, it is more often referred to as the acronym "BIG" which is very nebulous and non-descript.

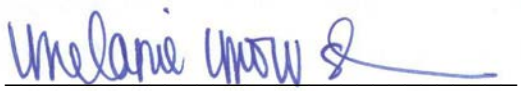
Potential new names for this committee could be:

- Mid-County Groundwater Sustainability Committee
- Soquel-Aptos Area Regional Groundwater Implementation Group
- Groundwater Sustainability Committee of the Soquel-Aptos Basin
- Soquel –Aptos Basin Implementation Group

Should the committee desire to change the name of the BIG, this could be formalized in the third amendment of the JPA that would be drafted if the County of Santa Cruz, City of Santa Cruz, or Pajaro Valley Water Management Agency accept invitations to join the committee.

RECOMMENDED ACTION

By MOTION, discuss, consider, and provide direction on changing the name of the Basin implementation Group.

By 

Melanie Mow Schumacher
Soquel Creek Water District
Special Projects Engineer

June 24, 2014

**MEMO TO THE BASIN IMPLEMENTATION GROUP**

Subject: Agenda Item No. 5.5 — Direction to Staff Regarding the Joint Exercise of Powers Agreement (JPA) Between Central Water District (CWD) and Soquel Creek Water District (SqCWD) Regarding the Addition of Pajaro Valley Water Management Agency

On July 28, 2009, the Basin Implementation Group (BIG) approved the First Amendment to the Joint Exercise of Powers Agreement (JPA) (Attachment 1). Subsequent to the BIG approval, a joint resolution (SqCWD 09-29 and CWD 04-09) was adopted by each board of directors, approving and executing the first amendment in August of 2009.

Annually, the Board of Directors for SqCWD and CWD each appoint two committee members to serve on the BIG. The 5th committee member is to be selected by the boards of both CWD and SqCWD and shall be a person served by, owning, or managing a private well or a person residing in either district who has broad experience in water supply. The 5th committee member now serves a two year term.

Every committee member has a single vote and all votes are decided by a majority with the exception of financial decisions which are decided only by representatives of Central and Soquel.

At the February 10, 2014 meeting, the BIG approved extending invitations to the City of Santa Cruz and Santa Cruz County for membership on the Board. The intent is to assure more complete representation of basin water users in groundwater management efforts. The County has oversight of all private wells in unincorporated areas, and the City has a well in the shared basin that supplies the Live Oak area. They pump approximately 525 acre-feet per year, similar to the annual impacts of Central Water District's pumping.

In reviewing whether all the major users are represented, we found that the Pajaro Valley Water Management Agency (PVWMA) jurisdiction extends into the lower portion of the basin's Aromas Red Sands formation where there are a couple existing agricultural users. Santa Cruz County well studies attribute 300 acre-feet per year to agriculture in the Aromas formation. In addition, we believe approximately 370 acre-feet flows out of the basin to the Pajaro Valley in this area each year. Currently the PVWMA is a member of the Basin Advisory Group, but they are not a member of the BIG.

Please consider whether inclusion of PVWMA to the Basin implementation Group will result in better representation of water users in the basin and whether they should also be invited to join the BIG as either a financial or non-financial member.

**INFORMATIONAL ITEM**

1. Please provide direction to staff whether to extend an invitation to Pajaro Valley Water Management Agency providing for membership to the Basin Implementation Group, with or without a cost share provision.

By _____
Kim Adamson, General Manager
Soquel Creek Water District

June 24, 2014

**MEMO TO THE BASIN IMPLEMENTATION GROUP**

Subject: Agenda Item No. 6.1 Declaration of Groundwater Emergency and Stage 3 Water Shortage Emergency by Soquel Creek Water District

Attachments:
1. Soquel Creek Water District Resolution 14-21 declaring a Stage 3 Water Shortage Emergency
2. Soquel Creek Water District Resolution 14-22 declaring a Groundwater Emergency

At the June 3, 2014 Soquel Creek Water District board meeting, a public hearing was held to receive comments and consider declaring a groundwater emergency and/or a water shortage emergency. Over four hundred people attended the meeting and several members of the public spoke and provided comments on these matters as well as during the separate public hearing to discuss a moratorium on new and expanded water connections.

Stage 3 Water Shortage Emergency: Approximately 40 people addressed the SqCWD Board to provide their input and comments on the matter of declaring a water shortage emergency. Written comments were also submitted and provided to the Board for consideration. Recognizing that the following three trigger conditions have been met: (1) rainfall for this year was less than 26.2" through March 31, 2014, (2) rainfall was below 68" over the last three years, and (3) a peer review panel confirmed the finding that the Soquel-Aptos groundwater basin is in a state of overdraft whereby more water is collectively being pumped out than can naturally be recharged with rainfall, the SqCWD Board of Directors unanimously voted to direct staff in preparing a resolution to declare a Stage 3 Water Shortage Emergency.

Attached is SqCWD's Resolution 14-21 that was adopted on June 17, 2014 declaring a Stage 3 water shortage emergency and enacting appropriate shortage measures.

Groundwater Emergency: Approximately 7 people addressed the SqCWD Board to provide their input and comments on the matter of declaring a groundwater emergency. Written comments were also submitted and provided to the SqCWD Board for consideration. There are three primary trigger conditions that needed to be met to declare a groundwater emergency: (1) a professional hydrologist has demonstrated that the groundwater basin is experiencing overdraft exceeding the sustainable yield and (2) degradation of the basin threatens the public health,

safety, and welfare of the community, and (3) SqCWD has consulted with neighboring water agencies to defray the need for a groundwater emergency declaration.

SqCWD Staff reported that there is concurrence from independent hydrologists that the groundwater basin is experiencing groundwater overdraft exceeding the sustainable yield and SqCWD has informally discussed with the City of Santa Cruz and Central Water District that little to no water is to transfer due to lack of available water or infrastructure needs. The trigger requirement that the basin is showing signs of degradation whereby public health, safety, and welfare of the community is much more interpretive as there are legal, regulatory, and jurisdictional considerations. While SqCWD isn't experiencing reduced pressures or fire flows or having to regularly haul water, there is active salt water intrusion caused by overdraft in the basin. On June 3rd the SqCWD Board of Directors determined that a threat to health and human safety exists and directed staff to prepare a resolution to declare a Groundwater Emergency.

Attached is SqCWD Resolution 14-22 that was adopted on June 17, 2014 declaring a groundwater emergency and outlining actions and measures to address said emergency.

RECOMMENDED ACTION

None. Informational only.

By Melanie Mow S

Melanie Mow Schumacher
Soquel Creek Water District
Special Projects Engineer

**RESOLUTION NO. 14-21**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOQUEL CREEK WATER DISTRICT DECLARING A WATER SHORTAGE EMERGENCY AND ENACTING APPROPRIATE SHORTAGE MEASURES**

**PURSUANT** to California Water Code Section 350 et seq., the Board of Directors has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared; and

**WHEREAS,** Santa Cruz County is experiencing the third consecutive year of below normal precipitation, with 2013 the driest year on record; and

**WHEREAS,** the local Soquel-Aptos area groundwater basin that provides water to the District is in a serious state of overdraft whereby more water is being annually extracted than can be naturally recharged by precipitation; and

**WHEREAS,** on January 17, 2014, Governor Brown declared a state of Emergency to exist in California due to prolonged drought conditions; and

**WHEREAS,** on January 28, 2014, the Board of Directors adopted Resolution 14-03 recognizing the State of California's drought declaration and adopting voluntary 20% curtailment; and

**WHEREAS, Soquel** Creek Water District has been increasing outreach and education efforts to encourage customers to reduce water demands; and

**WHEREAS,** on June 3, 2014, the Board of Directors determined that the triggers as outlined in the District's 2010 Urban Water Management Plan have been met to declare a Stage 3 Water Shortage Emergency and require additional measures, above and beyond voluntary actions, for water use reduction; and

**WHEREAS,** on June 3, 2014, the Board of Directors determined that the triggers as outlined in the District's 2010 Urban Water Management Plan have been met to declare a Stage 3 Water Shortage Emergency and require additional measures, above and beyond voluntary actions, for water use reduction; and

**NOW, THEREFORE BE IT RESOLVED** by the Board of Directors of Soquel Creek Water District that the District hereby declares that there is a Stage 3 water shortage emergency and implements the following actions and measures to manage the water shortage emergency:

1. Enforce the District's Water Waste Ordinance 14-01
2. Enact Stage 2 Emergency Water Rates
3. Reduce Discretionary Water Use by District Operations, unless necessary for special circumstances, such as:

a. Stop or minimize flushing of water mains

b. Stop or reduce irrigating at District facilities

c. Stop washing District trucks and vehicles with potable water

4. Increase education and outreach efforts to the community

5. Continue developing the District's new long-term water use reduction program, Conservation Plus, and aim to fully implement the program by January 2015.

**BE IT THEREFORE BE IT RESOLVED** by the Board of Directors that the General Manager or her designee of the Soquel Creek Water District is directed to determine additional appropriate actions and measures from District's Water Shortage Contingency Plan that may be necessary to address the water shortage emergency.

**BE IT FURTHER RESOLVED** that the water shortage emergency shall remain in effect until the District's Conservation Plus Program is fully implemented. At that time, the Board shall consider continuing or terminating this water shortage emergency declaration.

**PASSED AND ADOPTED** by the Board of Directors of the SOQUEL CREEK WATER DISTRICT this 17th day of June 2014, by the following vote:

AYES: Directors LaHue, Daniels, Jaffe, Hoernschemeyer, Meyer

NOES: None

ABSENT: None

ABSTAIN: None

APPROVE:

_____

Thomas R. LaHue, President

ATTEST:

_____

Karen Reese, Board Clerk

**RESOLUTION NO. 14-22**

**RESOLUTION OF THE BOARD OF DIRECTORS
OF THE SOQUEL CREEK WATER DISTRICT
DECLARING A GROUNDWATER EMERGENCY**

**WHEREAS,** groundwater located in the Soquel-Aptos area is currently the only source of water supply for the customers of Soquel Creek Water District; and

**WHEREAS,** other public and private water suppliers and many private wells also depend on local groundwater resources; and

**WHEREAS,** a peer review panel of qualified groundwater hydrologists have concurred with the District's groundwater hydrologist that the cumulative effects of pumping more groundwater than is annually replenished through rainfall has resulted in a serious state of overdraft of our local aquifers; and

**WHEREAS,** these overdrafted coastal aquifers are imminently threatened by contamination from seawater intrusion; and

**WHEREAS,** seawater intrusion has been detected in Pleasure Point, Aptos, and La Selva Beach by the coastal monitoring well network maintained within the Soquel-Aptos groundwater management area; and

**WHEREAS,** groundwater overdraft is a long-term shortage issue, dissimilar to drought conditions that are seasonal and typically short-term; and

**WHEREAS,** Soquel Creek Water District is committed to ensuring that our local groundwater resources are sustained and protected for current and future water supply reliability; and

**WHEREAS,** public awareness and education about groundwater is critical to succeeding in protecting this invaluable resource; and

**NOW, THEREFORE BE IT RESOLVED** by the Board of Directors of Soquel Creek Water District that the District hereby declares a groundwater emergency and directs the General Manager or her designee to address the emergency with the following actions and measures, some of which are recommended in the District's Water Shortage Contingency Plan for a Groundwater Emergency (Section 5 of the District's 2010 Urban Water Management Plan):

1. Declare a Stage 3 Water Shortage Emergency
2. Request actions and measures the County of Santa Cruz and other neighboring water agencies can undertake to address the overdrafted groundwater basin conditions within their respective jurisdictions
3. Continue to collaborate with all basin pumpers as part of the Groundwater Stakeholder Advisory Committee efforts that are underway

4. Continue to implement the Soquel-Aptos Groundwater Management Plan in collaboration with partner agencies under the Joint Exercise of Powers Agreement
5. Continue to pursue development of a Groundwater Model for the Soquel-Aptos area
6. Continue to pursue a better understanding of the freshwater-seawater interface
7. Continue to pursue alternative water sources to aid in restoring the groundwater basin with either direct or in-lieu recharge benefits

**PASSED AND ADOPTED** by the Board of Directors of the SOQUEL CREEK WATER DISTRICT this 17th day of June 2014, by the following vote:

AYES: Directors LaHue, Daniels, Jaffe, Hoernschemeyer, Meyer

NOES: None

ABSENT: None

ABSTAIN: None

APPROVE:

_____

Thomas R. LaHue, President

ATTEST:

_____

Karen Reese, Board Clerk