Monterey Subbasin Groundwater Sustainability Plan Development Comment Letters Received

Heather Lukacs, Community Water Center. 7-10-2020

Robert Jaques, Seaside Basin Watermaster. 11-17-2020

Robert Jaques, Seaside Basin Watermaster. 1-8-2021

George Fontes, Salinas Basin Water Alliance. 3-10-2021

Robert Jaques, Seaside Basin Watermaster. 3-22-2021

Hydrogeologic Working Group. 4-5-2021

George Fontes, Salinas Basin Water Alliance. 4-21-2021

Robert Jaques, Seaside Basin Watermaster. 4-22-2021

Heather Lukacs, Community Water Center & Horacio Amezquita, San Jerardo Cooperative. 4-23-2021

Margaret-Anne Coppernoll. 4-27-2021

Community Water Center. 4-28-2021

Robert Jaques, Seaside Basin Watermaster. 5-10-2021

Fred Nolan. 5-11-2021

Norman Groot, Salinas Basin Agricultural Water Association. 5-12-2021

John Farrow, M. R. Wolfe & Associates, P.C. on behalf of LandWatch Monterey County. 7-12-2021

Robert Jaques, Seaside Basin Watermaster. 7-13-2021

James Sang. 7-20-2021

Robert Jaques, Seaside Basin Watermaster. 7-30-2021

Salinas Valley Water Coalition. 8-12-2021

Stephanie Hastings, Salinas Basin Water Alliance. 8-12-2021

Robert Jaques, Seaside Basin Watermaster. 8-23-2021

Robert Jaques, Seaside Basin Watermaster (Chapter 6). 9-6-2021

Robert Jaques, Seaside Basin Watermaster (Chapter 10). 9-6-2021

Norman Groot, Monterey County Farm Bereau. 10-08-2021

John Farrow, M. R. WOLFE & ASSOCIATES, P.C. (Landwatch). 10-14-2021

California Coastkeeper Alliance. 10-15-2021

Community Water Center. 10-15-2021

Douglas Deitch, Monterey Bay Conservancy. 10-15-2021

Elizabeth Krafft, Monterey County Water Resources Agency. 10-15-2021

Stephanie Hastings, Salinas Basin Water Alliance. 10-15-2021

Gmail

Emily Gardner <gardnere@svbgsa.org>

Recommendations for Langley and other subbasin GSPs related to drinking water users

6 messages

Heather Lukacs Fri, Jul 10, 2020 at 2:06 PM
To: gardnere@svbgsa.org
Cc: Donna Meyers <meyersd@svbgsa.org>, Gary Petersen <peterseng@svbgsa.org>, Horacio Amezqutia
Thomas R Adcock Justine Massey

Hi Emily, Gary, and Donna,

I appreciate the process allowing for comment on the early drafts of the subbasin GSPs.

Tom, I have included you so that you can see Figure 3-5 that I referenced during my comments at today's meeting - in order to help make sure Alco and Pajaro Sunny Mesa CSD boundaries are accurately represented (see attached), and also because you indicated interest in helping support outreach to water systems.

We at CWC are happy to support in identifying, ground-truthing, and outreach to drinking water users in the Langley Subbasin and other subbasins in the Salinas Valley.

The first step we recommend is to generate a list of the following to support outreach and also to include in Chapter 3 of the draft subbasin GSPs:

- Public water systems - which serve over 15 connections
- State and local small water systems - which serve between 2-14 connections

We at CWC currently have lists for both types of systems from Monterey County Environmental Health (along with contact information for each water system). This information was also used by the GSP consultants in the 180/400 GSP so they should also have these lists with location and water quality information for all water systems in the subbasins.

Next, we recommend creating maps of the location, water quality, and other information of all drinking water supply wells - which came up during today's meeting. For the 180/400 Foot Aquifer GSP, Figure 7-9 Public Water Supply Wells was included together with Appendix 7E (see attached) which has water system names, well construction information, coordinates, and monitoring data range. (see more on this below).

Lastly, these maps and lists can then be shared with local drinking water users who can provide feedback and help groundtruth the information. This could be part of a drinking water workshop - is the information we have accurate? Given this information, is the monitoring network accurate? Are drinking water users collecting other information that could be added to this plan?

I look forward to discussing this and also more specific recommendations (see below) for Chapter 3 of the Subbasin GSPs.

Thank-you,
Heather

Recommendations for Chapter 3 of Subbasin GSPs

- **Revise the description of the plan area to include the type and location of all water systems and private domestic wells that serve drinking water users, their current groundwater quality conditions, and the number of people served.** All public water system service areas and state and local small service areas should be included in this chapter as well as a list of all these system names, water system ID numbers, and number of service connections (or population served). Private wells should also be identified as being groundwater-dependent drinking water supplies. All public water systems and state/local small water systems are important to identify and include in this chapter because all are reliant on groundwater, many are highly vulnerable to water level and water quality changes, and all will be impacted by the way groundwater is managed in the basin. Adequately characterizing the public water systems, state and local small water systems, and domestic wells in the GSP is important to set the stage to: (1) better identify areas that are vulnerable to groundwater level, groundwater quality, or seawater intrusion challenges, (2) quantify drinking water demand in the subbasin for both the current and projected water budget, (3) provide a basis for the monitoring network of drinking water supplies, and (4) ensure inclusive and representative engagement of drinking water users in the planning process.

- **Revise Chapter 3 to include a map of the service areas of all of the state and local small water systems in the 180/400 foot aquifer subbasin.** The 180/400 Foot Aquifer GSP mentions 136 small water systems in Chapter 7, page 7-20 of the 180/400-Foot Aquifer GSP (January 3, 2020) which indicates that the consultants have this data. We recommend that this data for all Salinas Valley subbasins be included in a map in Chapter 3 of each GSP, be clearly labelled, and have an associated table with key information. The Monterey County Environmental Health Bureau (EHB) maintains publically available data which includes shape files of state and local small water system service areas (e.g. polygons of all parcels served by each state or local small water system) to water system IDs. Lists of state and local small service areas and out-of-compliance water systems are available online on their state and local small water system webpage. Monterey County EHB also maintains individual files for each SSWS and LSWS in the County, which often contain well completion reports for each system. All water quality data, location data, and well completion reports are publically available upon request from the Monterey County EHB.
- **Update water system boundaries in Figure 3-5** (Langley, 6/28/2020 GSP) to reflect that Alco no longer operates wells in this area, and update Pajaro Sunny Mesa CSD water system boundaries.
- **List domestic water use and/or rural residential water use under the Water Use Section (Section 3.2.2).** This section indicates that, "Domestic use outside of census-designated places is not considered urban use." Even if the Monterey County Water Resource Agency (MCWRA) does not report rural residential use, it is an important beneficial use and should be listed as a "water use sector." Water use estimates for state and local small water systems could be based on the number of connections served by each water system (which Monterey County has on file).
- **Revise Chapter 3 to include a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have exceeded drinking water standards and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** In the 180/400 Foot Aquifer GSP, Tables 8-6 through 8-9 for all public drinking water wells (including those listed in Appendix 7E), state and local small water system wells, and private domestic wells were included which indicate that the consultant has this data available. It is important to include all water quality data (both in map and tabular form) for all constituents that will have minimum thresholds later. Water quality is an important part of the basin setting. See map viewer from Greater Monterey County RWMG of all available water quality data for state and local small water systems in Monterey County: http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/.

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Heather Lukacs, PhD
Pronouns: She/Her/Hers
Director of Community Solutions
Community Water Center

[redacted] CA 95076
[redacted] CA 95814
[redacted]

All CWC staff are currently working remotely. Please reach all staff via email and cell phone.

2 attachments

From:	bobj83@comcast.net
To:	Patrick Breen
Cc:	Bob Jaques; Georgina King; Tina Wang
Subject:	FW: Wells within MCWD northeast of the Seaside Basin
Date:	Tuesday, November 17, 2020 1:21:40 PM
Attachments:	Salinas_GWL_SWI_2017.pdf Data north of Seaside Basin.docx

Patrick,

Below is an email from Georgina King of Montgomery & Associates, the Watermaster's hydrogeologic consultant. In it she provides her comments after reviewing the water quality and water level data that Tina Wang sent her last year.

There are a couple of recommendations in her email that I would like to have discussed and addressed at an appropriate point in time as you develop the GSP for the MCWD portion of the Monterey Basin. I have highlighted them in yellow.

Thanks,

Robert S. Jaques, PE
Technical Program Manager
Seaside Basin Watermaster
83 Via Encanto
Monterey, CA 93940
Office: (831) 375-0517
Cell: (831) 402-7673

From: Georgina King <gking@elmontgomery.com>
Sent: Tuesday, December 17, 2019 11:47 AM
To: bobj83@comcast.net
Cc: Luis Mendez <lmendez@elmontgomery.com>
Subject: RE: Wells within MCWD northeast of the Seaside Basin

Bob,

I have reviewed and plotted up the water quality data and parts of reports EKI provided. I also looked at MCWRA's recent maps of seawater intrusion (2017).
I have pasted some maps and charts into a Word document Essentially, what we see is that:

1. There is Salinas Valley seawater intrusion quite far south and into the Seaside Basin in the 180 ft aquifer equivalent to formations shallower than the Shallow Aquifer (Paso Robles) in the Seaside Basin. But we know this from the induction logs in the northern Sentinel Wells. The data available and included on our map is from Fort Ord monitoring – all of which is very shallow (180-ft aquifer) and not in our Shallow (Paso Robles) aquifer. As reference for depth,

the FO-9 shallow aquifer in the Paso Robles is screened from 610-650 ft below ground.

2. The 400 ft aquifer which is equivalent to the Shallow Aquifer (Paso Robles) in the Seaside Basin has a similar southern extent to what we have included in the SIAR mostly because there is no data/wells available to update the extent. There has been considerable inland advancement. There are no 400-foot Fort Ord monitoring wells that have data more recent than 2008. Perhaps we should find out if some of these wells can start being sampled by the GSA in that area?

3. FO-10 shallow and deep have had almost 15 feet of groundwater level drop over the past 11 years, most of which has been since the start of the drought in 2012. There must be some pumping in this area that is causing this. I do not have the data to help me figure this out. The GSA is going to have to address this.

4. To conclude, the lack of data available for the 400-ft aquifer (equivalent to Paso Robles aquifer) means we still have a large data gap between the 400-ft aquifer seawater intrusion and the Seaside Basin.

Please call me if you want to discuss this further.

I am also attaching the MCWRA presentation on Groundwater Level and Seawater Intrusion maps as there is some interesting info in there.

Georgina

Georgina King, P.G., C.Hg.

MONTGOMERY & ASSOCIATES
www.elmontgomery.com

MONTEREY COUNTY WATER RESOURCES AGENCY

1947

2017 Salinas Valley

Groundwater Level Contours
&
Seawater Intrusion Maps

TODAY'S ACTION

Consider Receiving the
2017 Groundwater Level Contours and
Coastal Salinas Valley
Seawater Intrusion Maps

Committee Action/Financial Impact

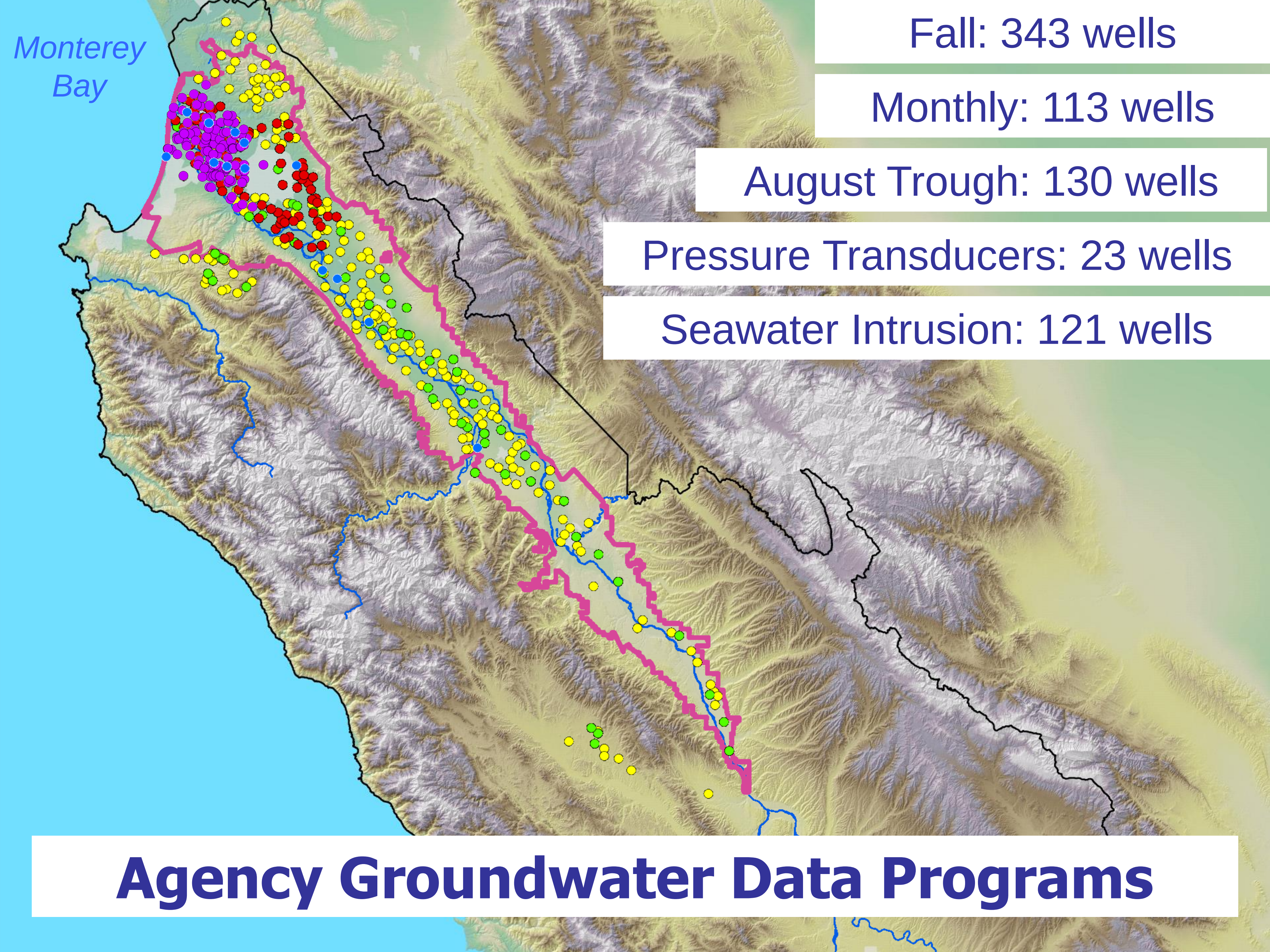
- No previous committee action
- No financial impact from receiving this report

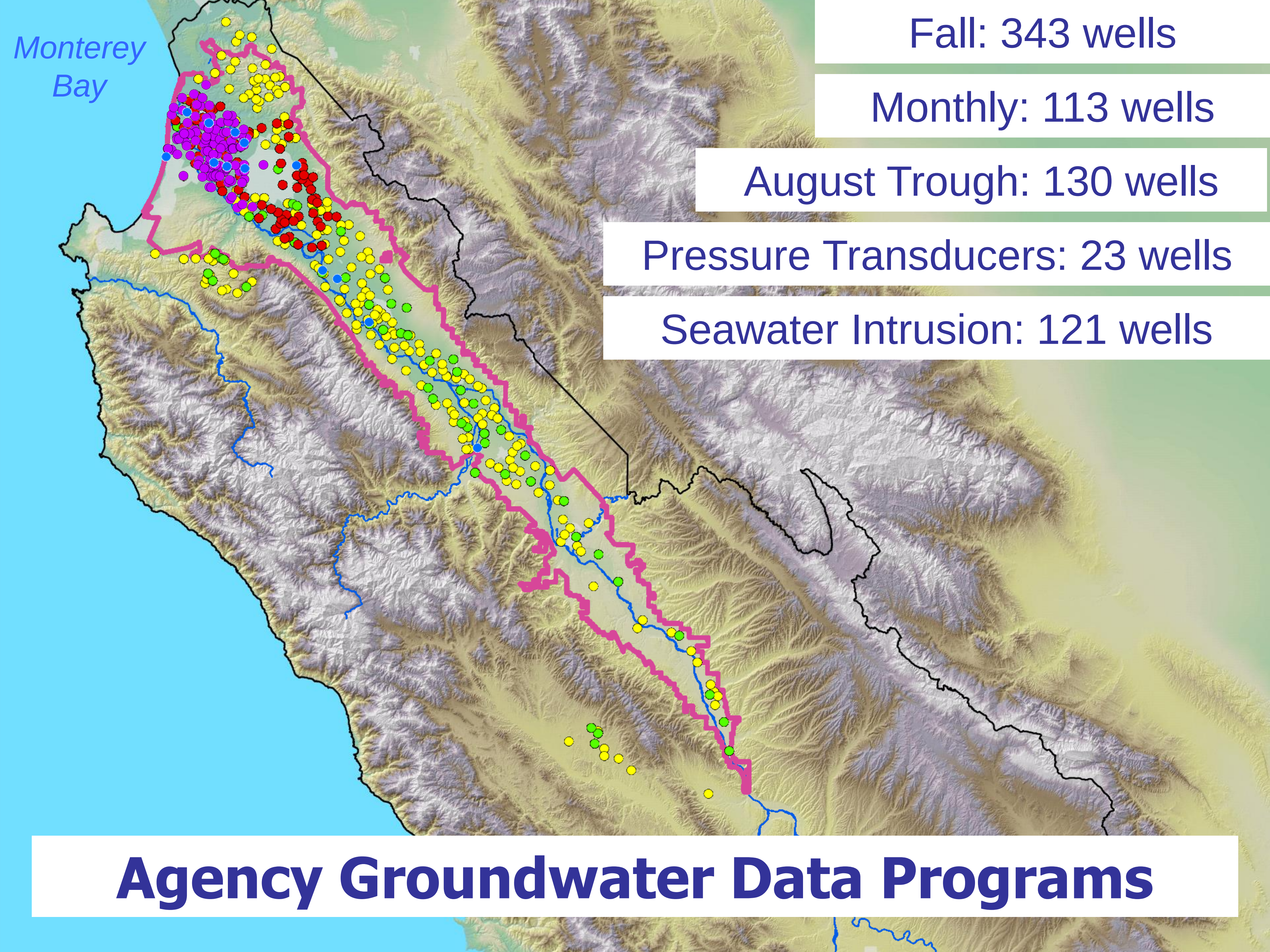
Agency Groundwater Monitoring Programs

- GWL & WQ data collected & analyzed since 1947

- Purposes:
  - ➢ Monitor health of basin
  - ➢ Evaluate Agency projects
  - ➢ Develop basin management strategies

Agency Groundwater Data Programs





Fall: 343 wells

Monthly: 113 wells

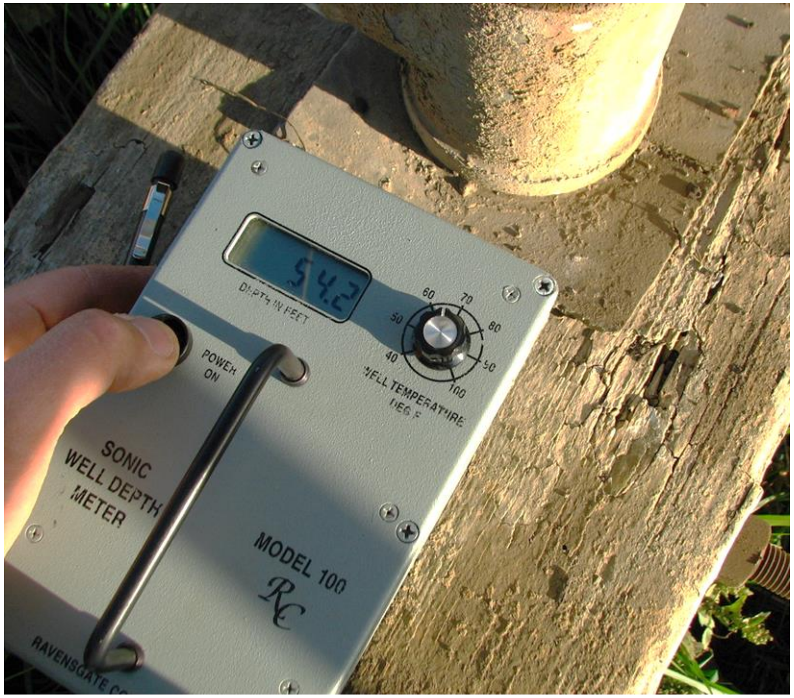
August Trough: 130 wells

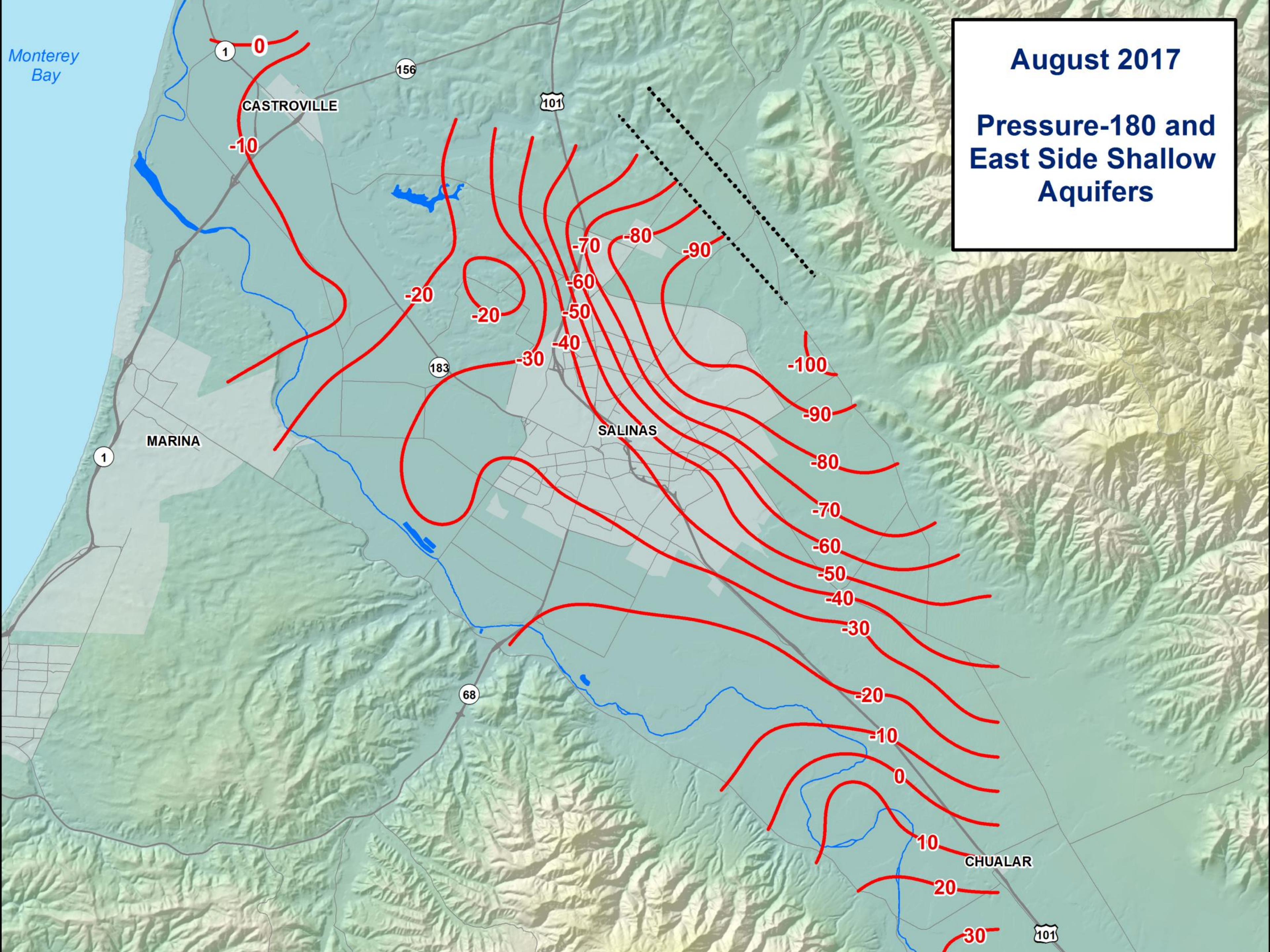
Pressure Transducers: 23 wells

Seawater Intrusion: 121 wells

Agency Groundwater Data Programs

2017 Groundwater Level Contours





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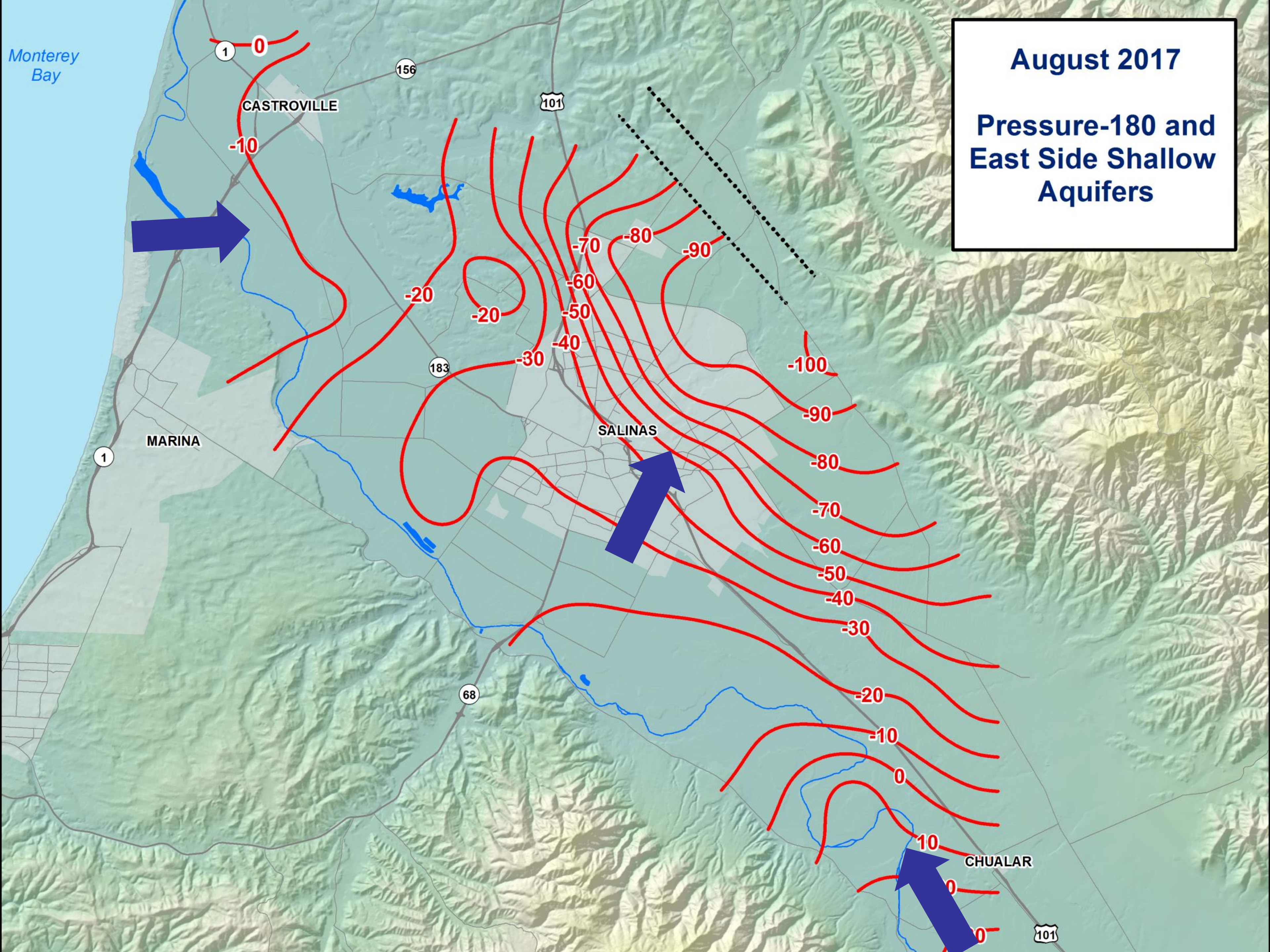

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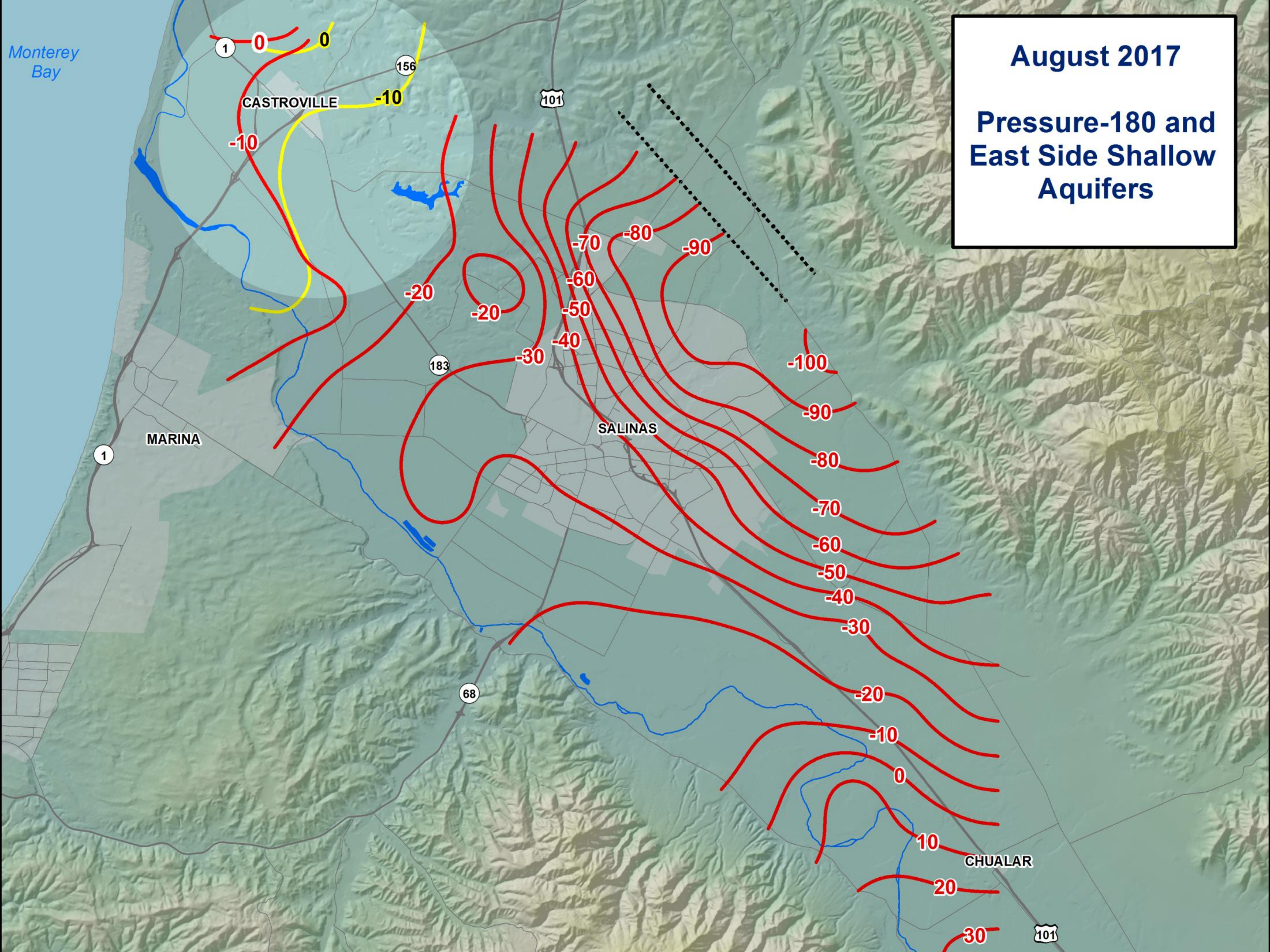
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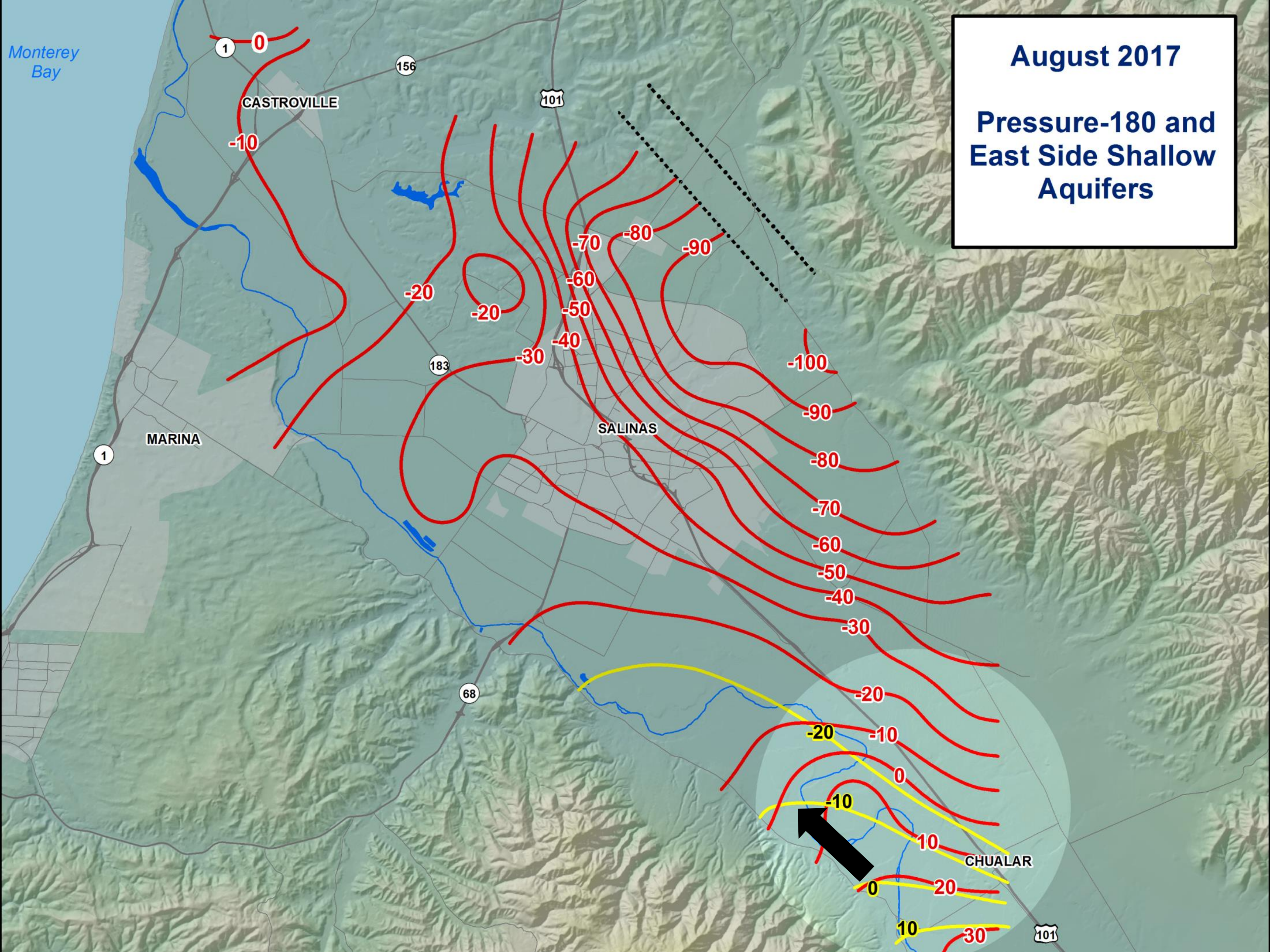
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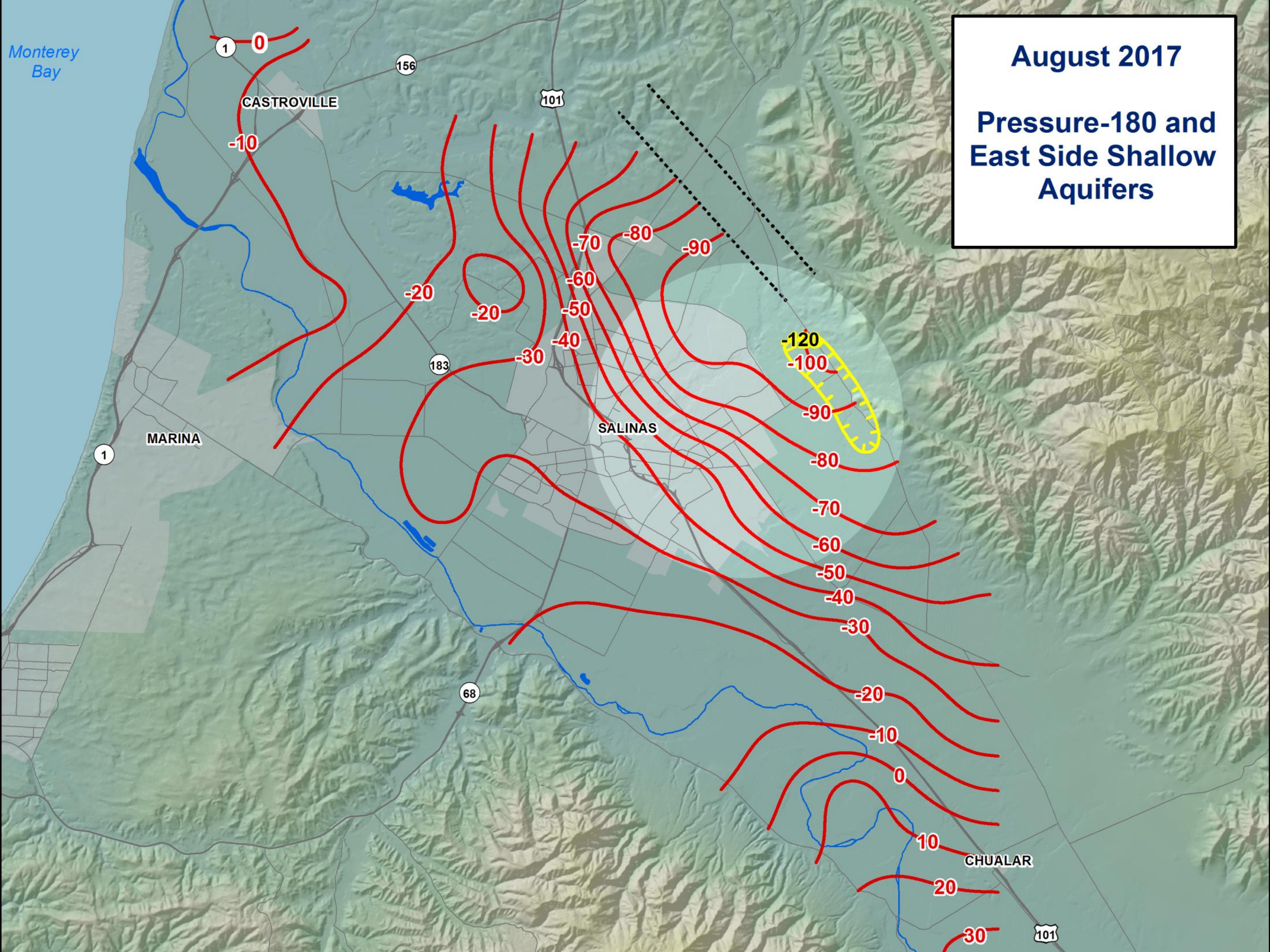

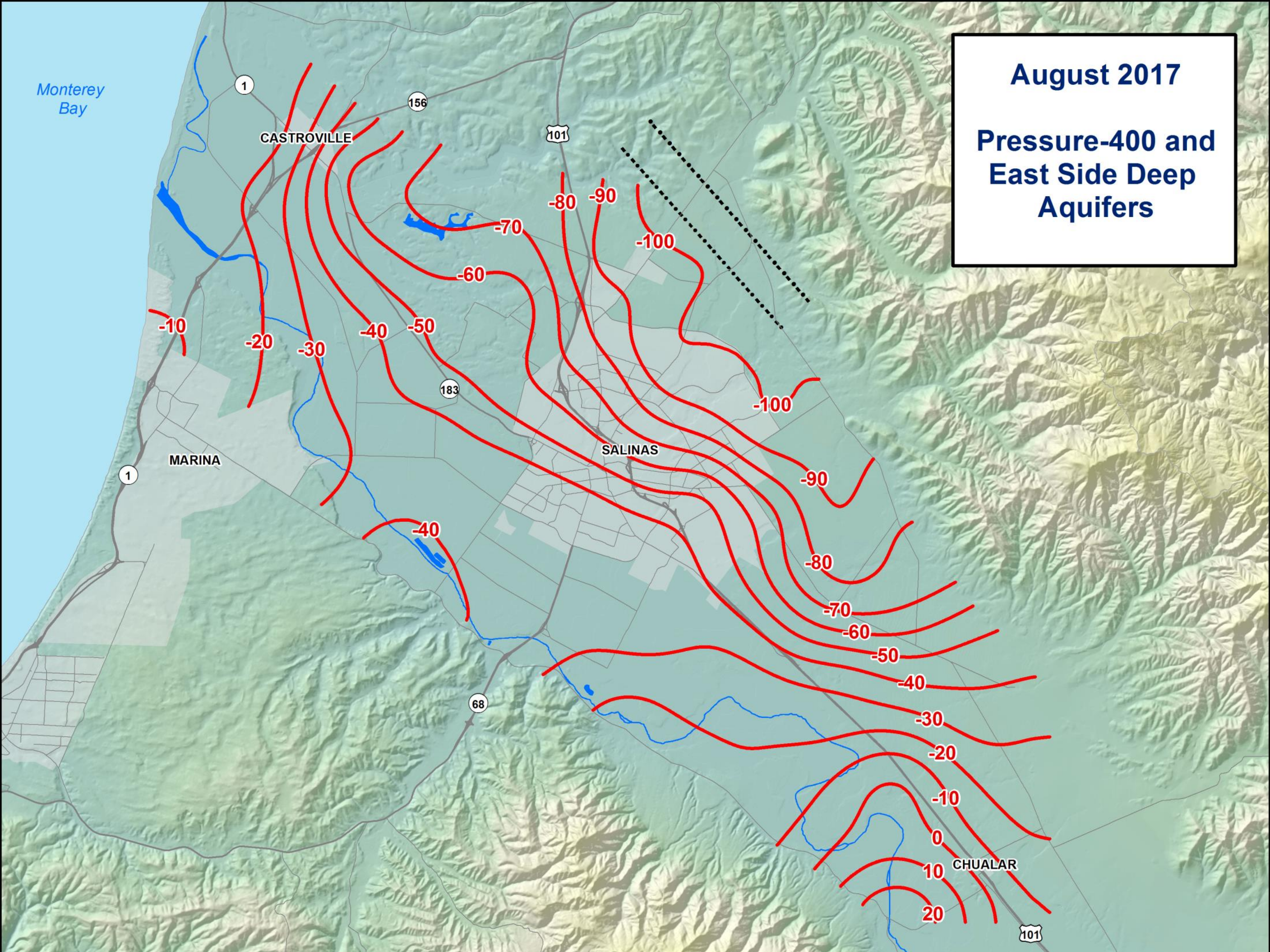
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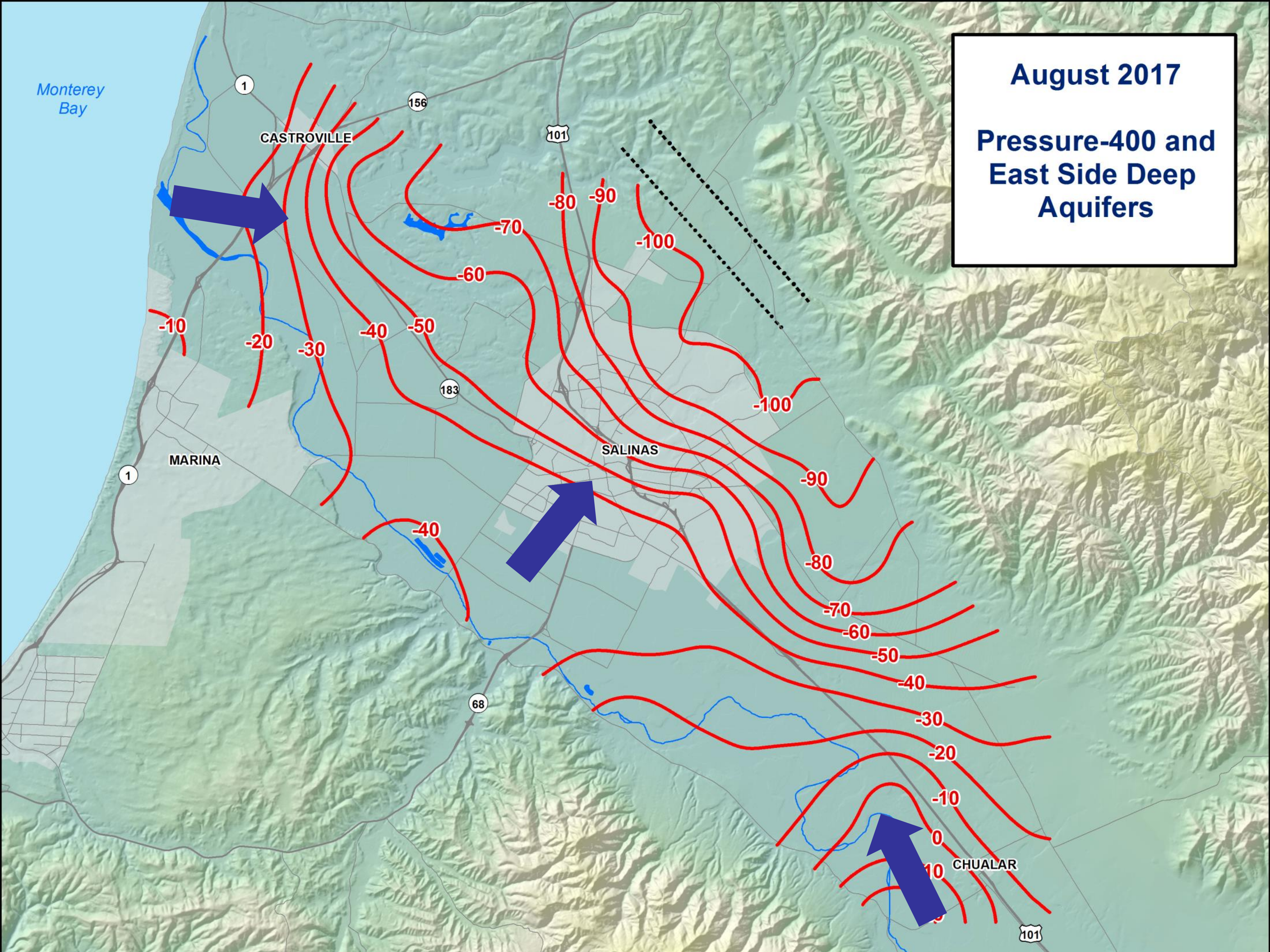
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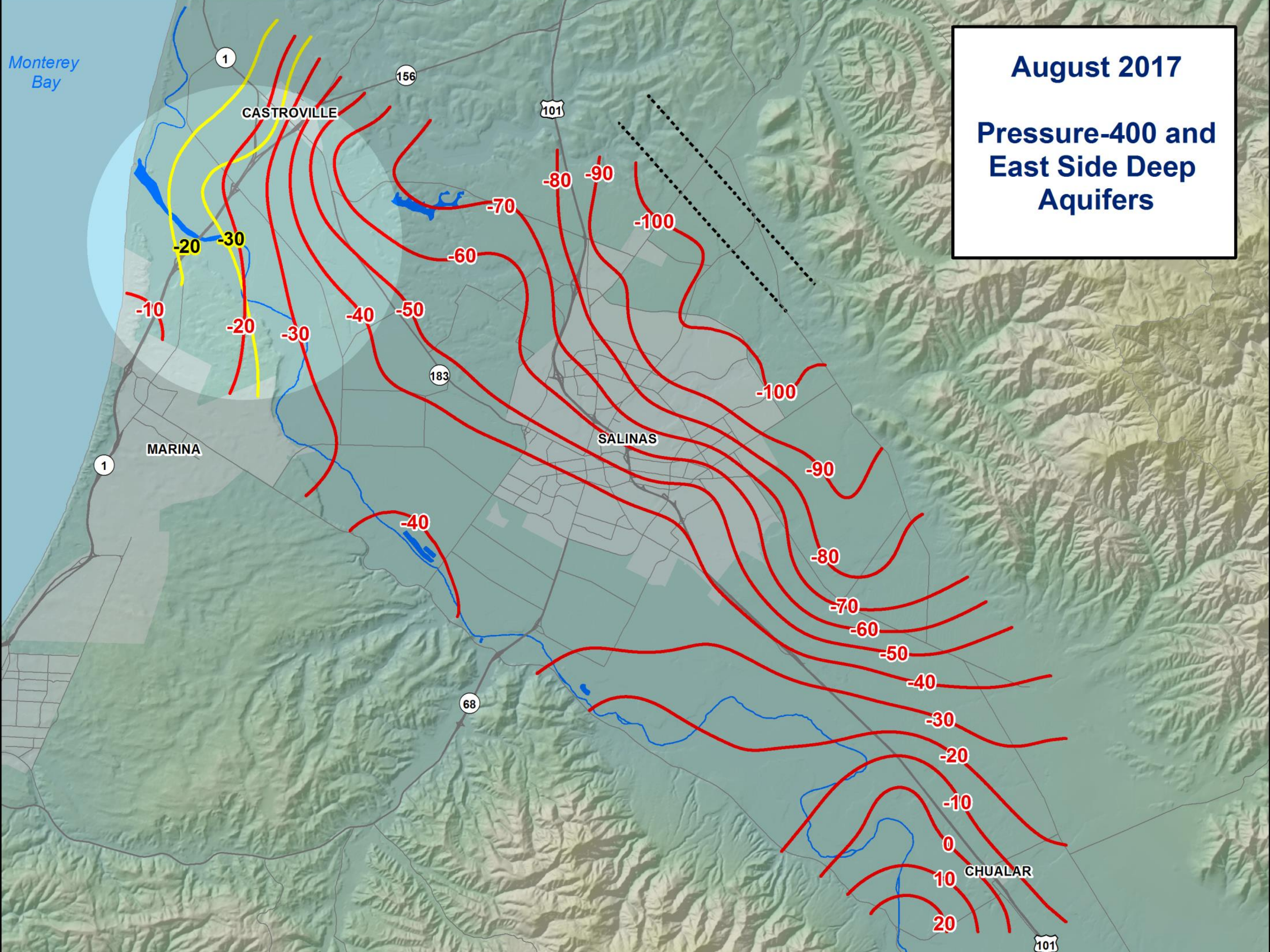

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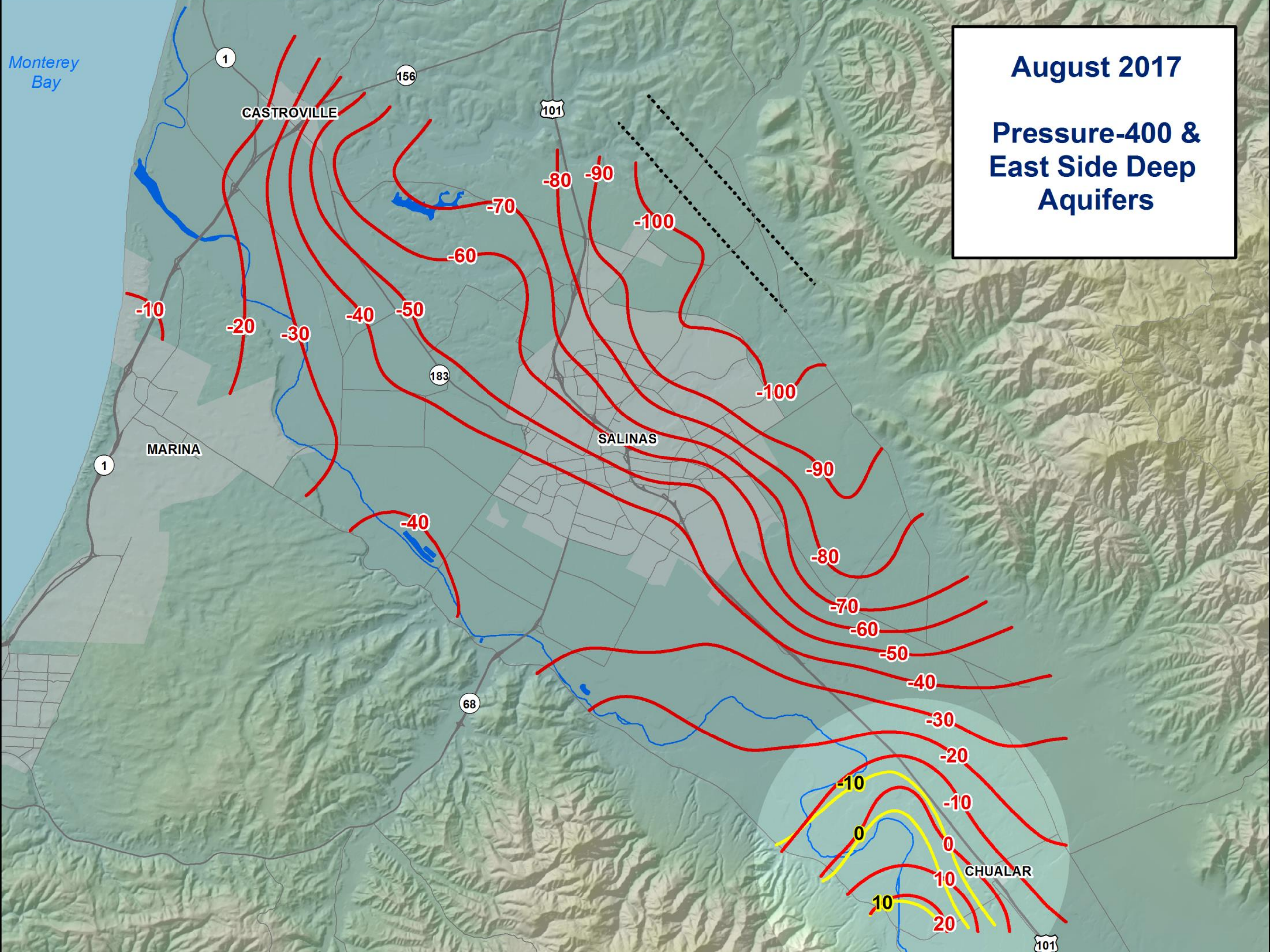
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August 2017

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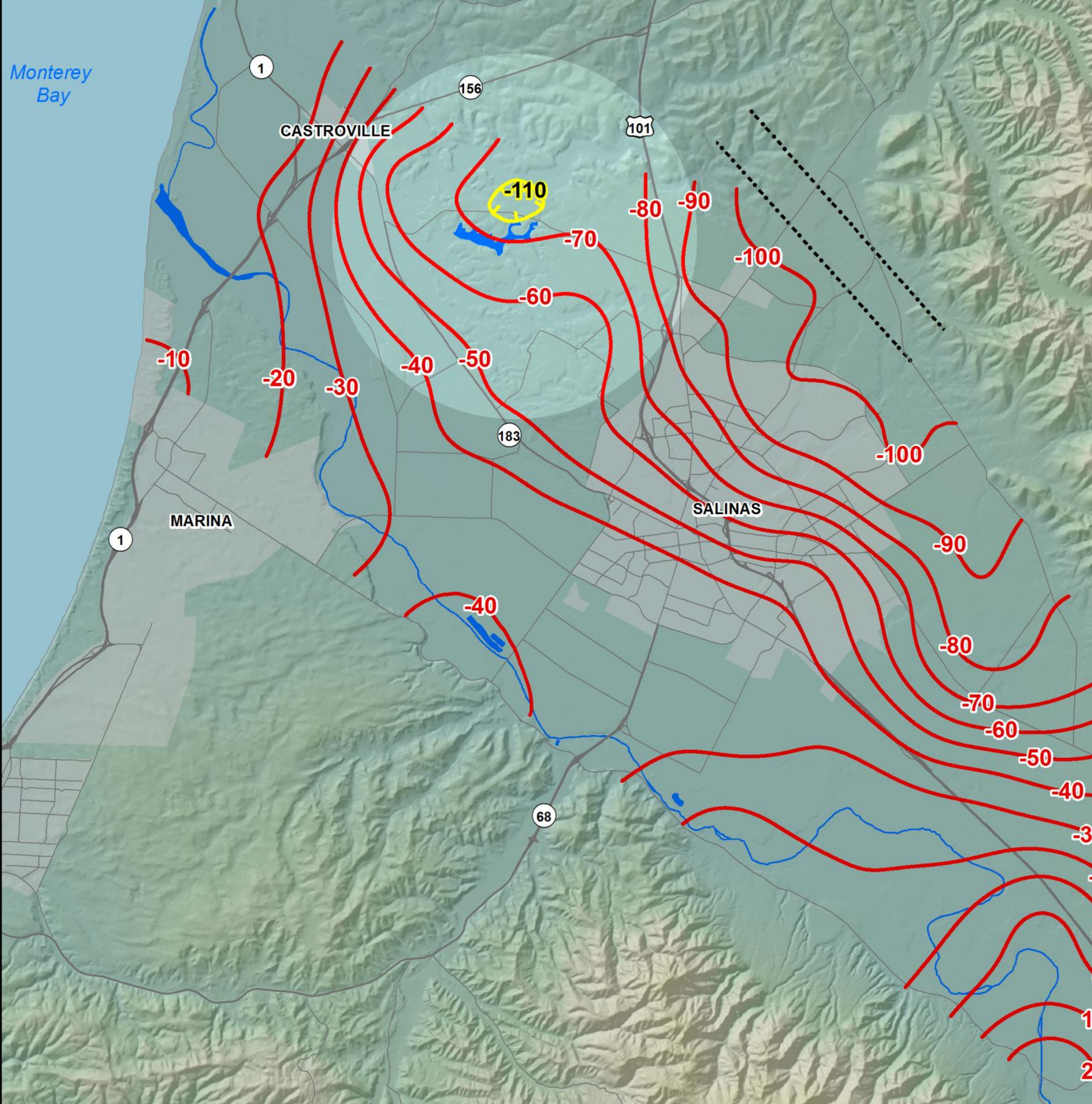

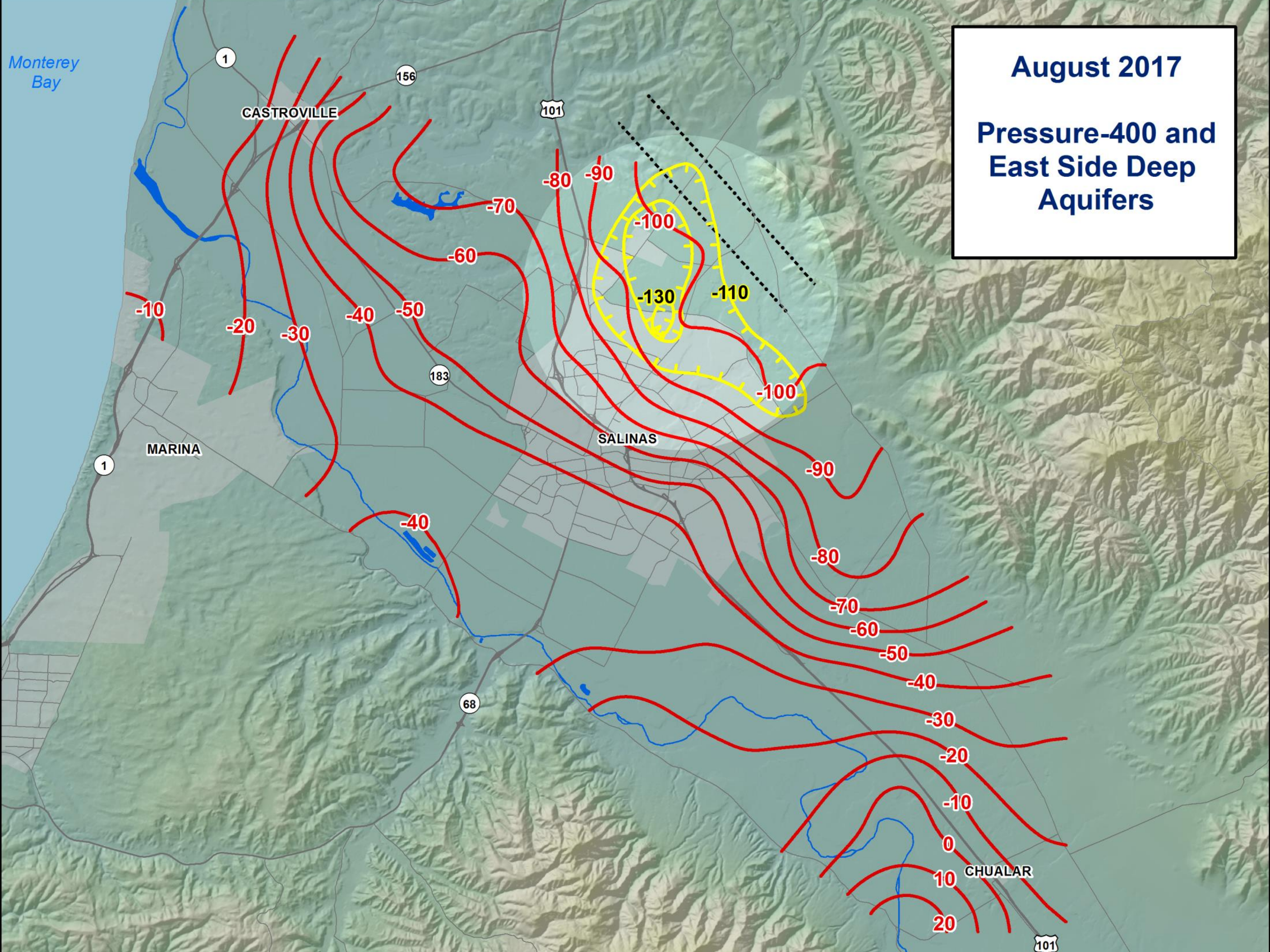
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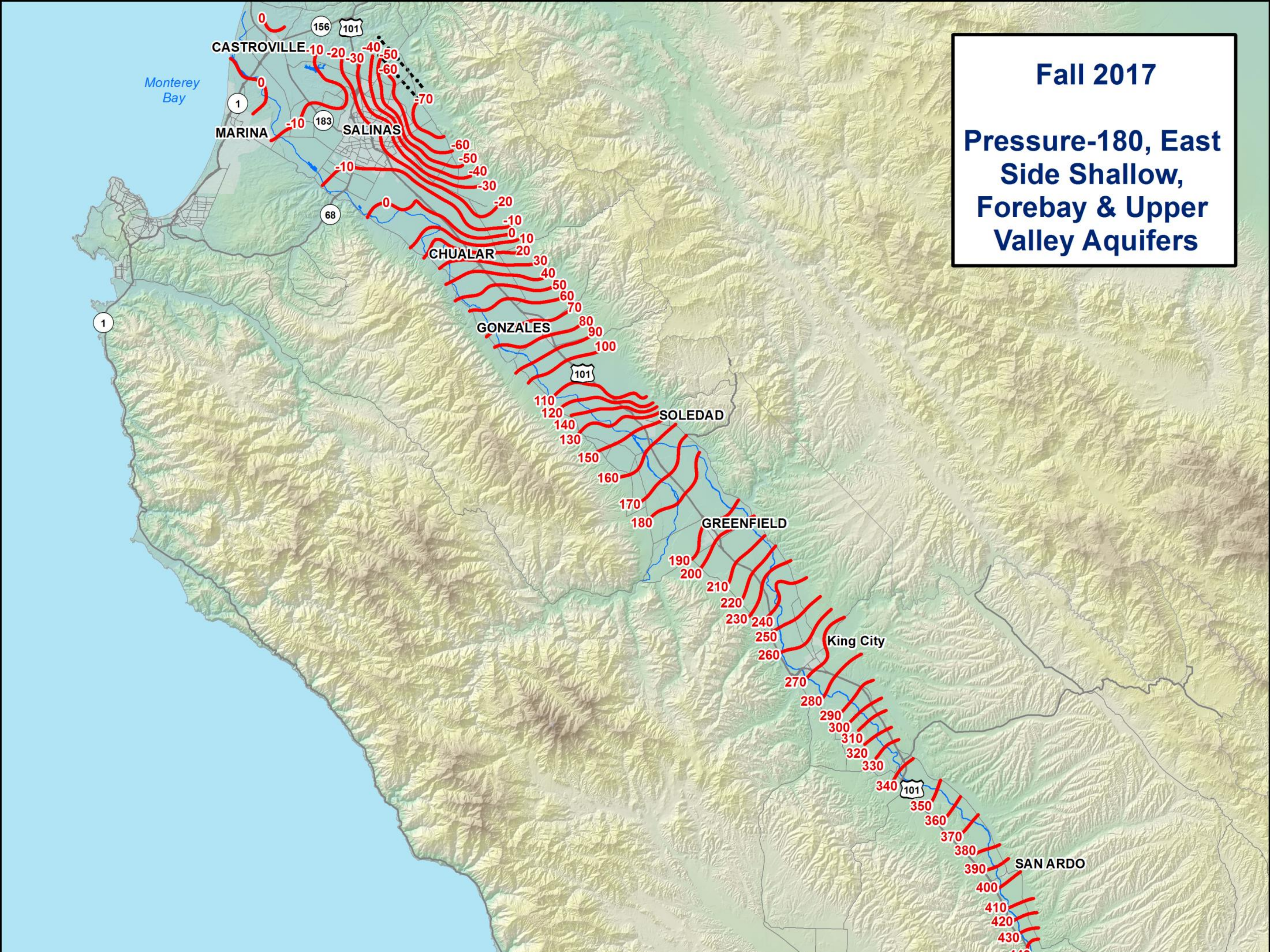
Summary: 2017 August GWL Changes Since 2015

- P180
  - Coastal GWLs remain below sea level
  - East Side GWLs have risen 20 feet
  - Zero line moved two miles down valley
- P400
  - GWLs are recovering nearly everywhere
  - Coastal GWLs remain below sea level
  - "Espinosa Trough" has disappeared
  - East Side Trough has shrunken; GWLs up 10-30ft
  - Zero line has not moved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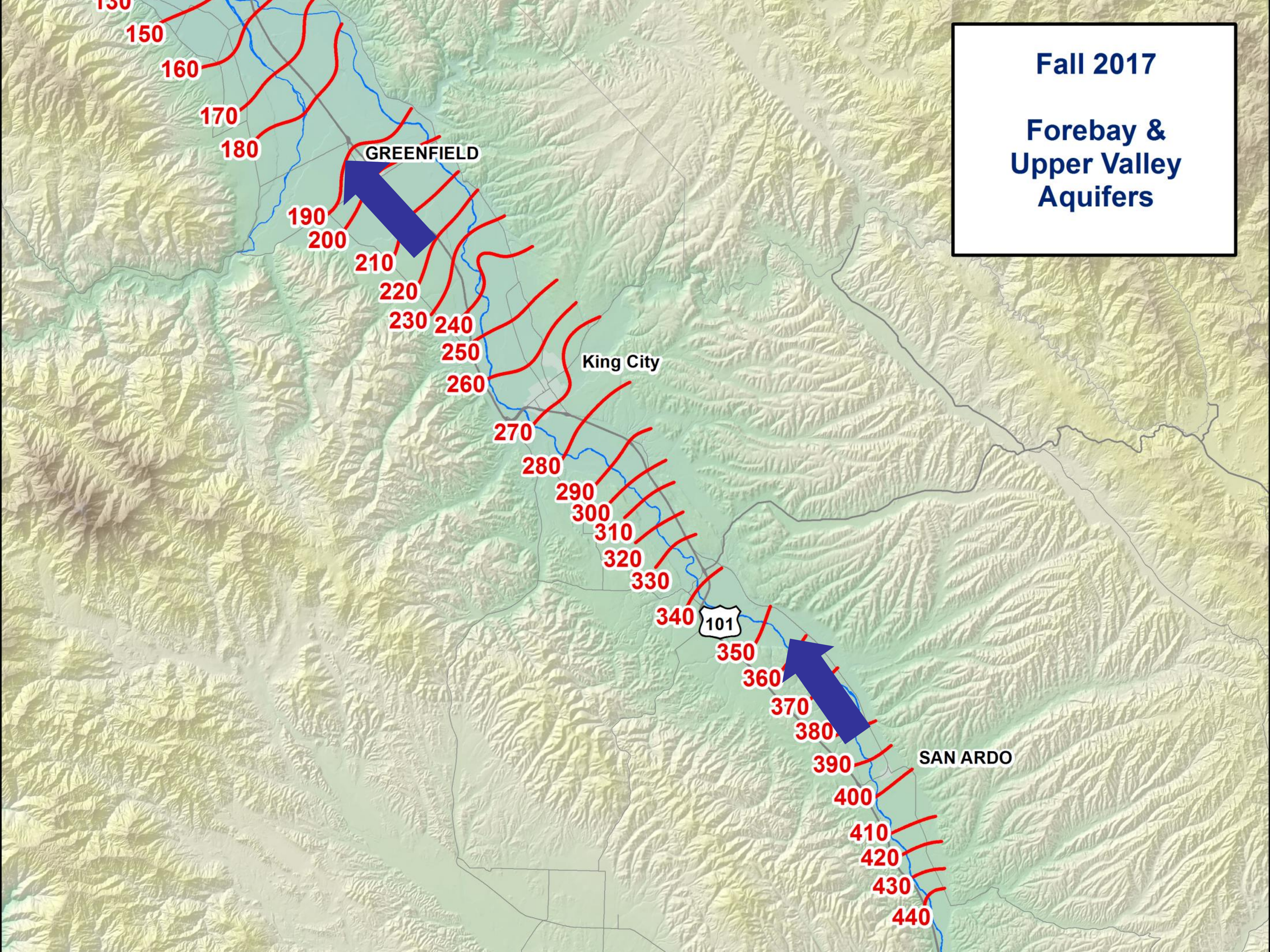

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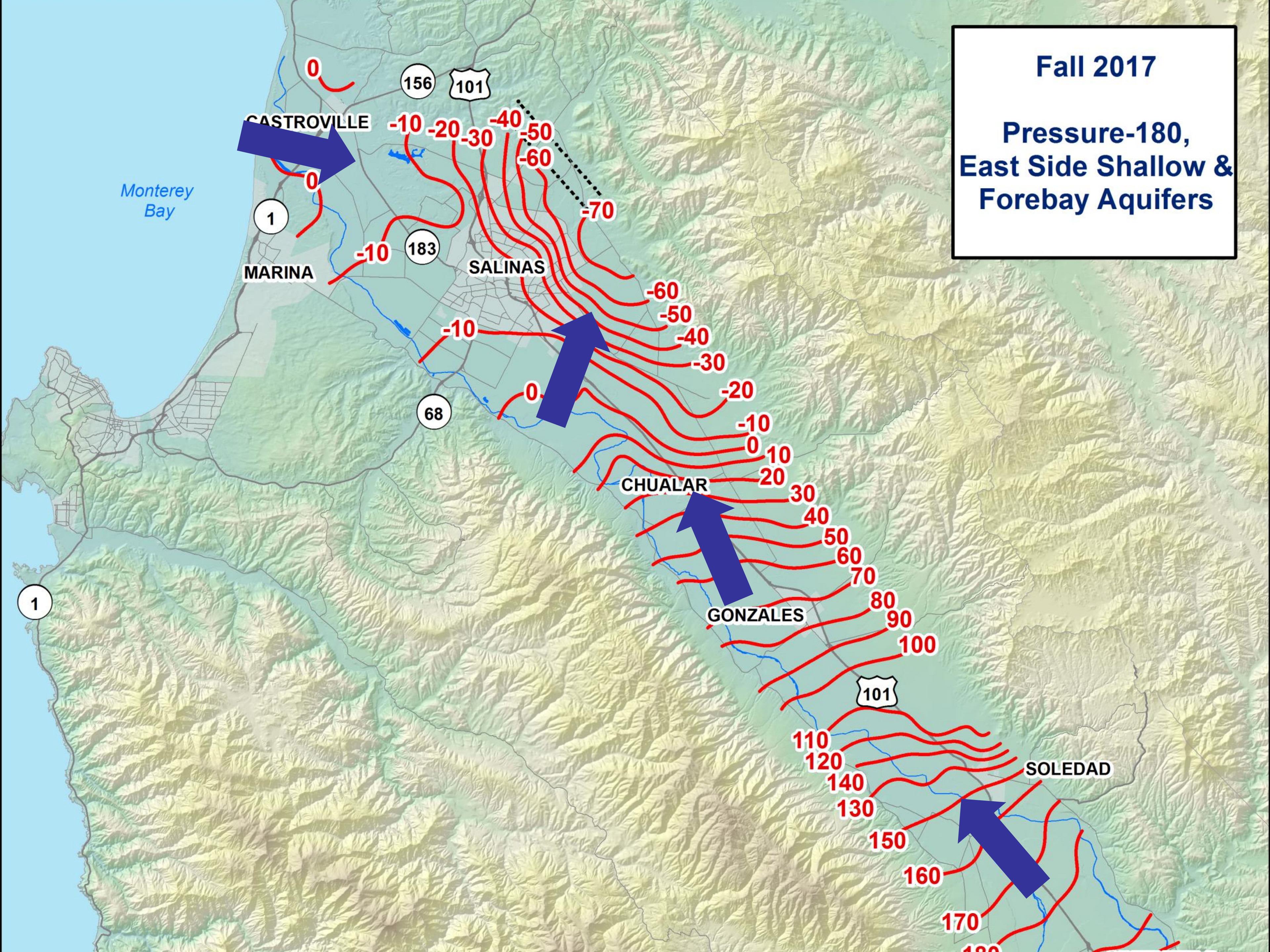

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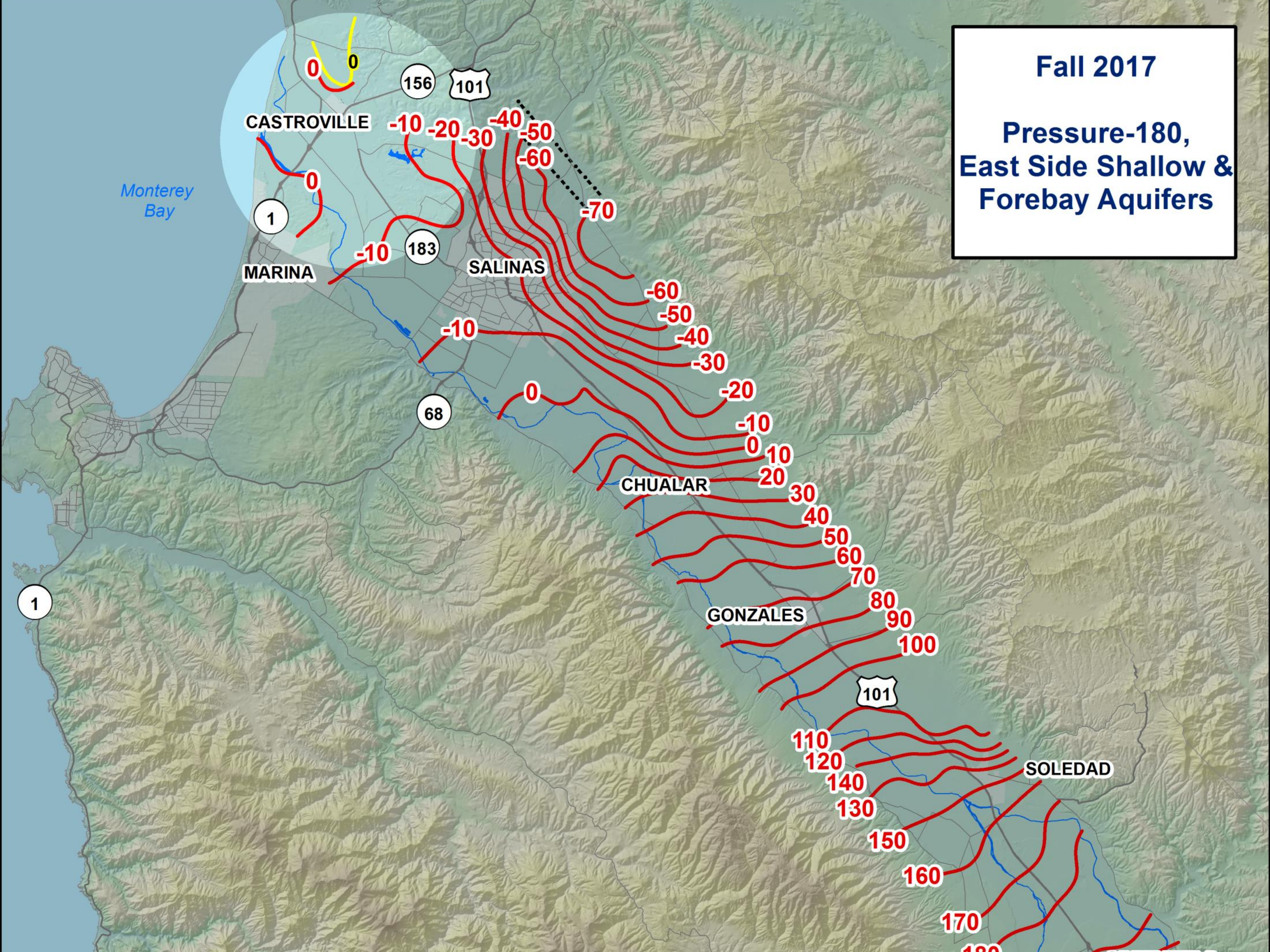
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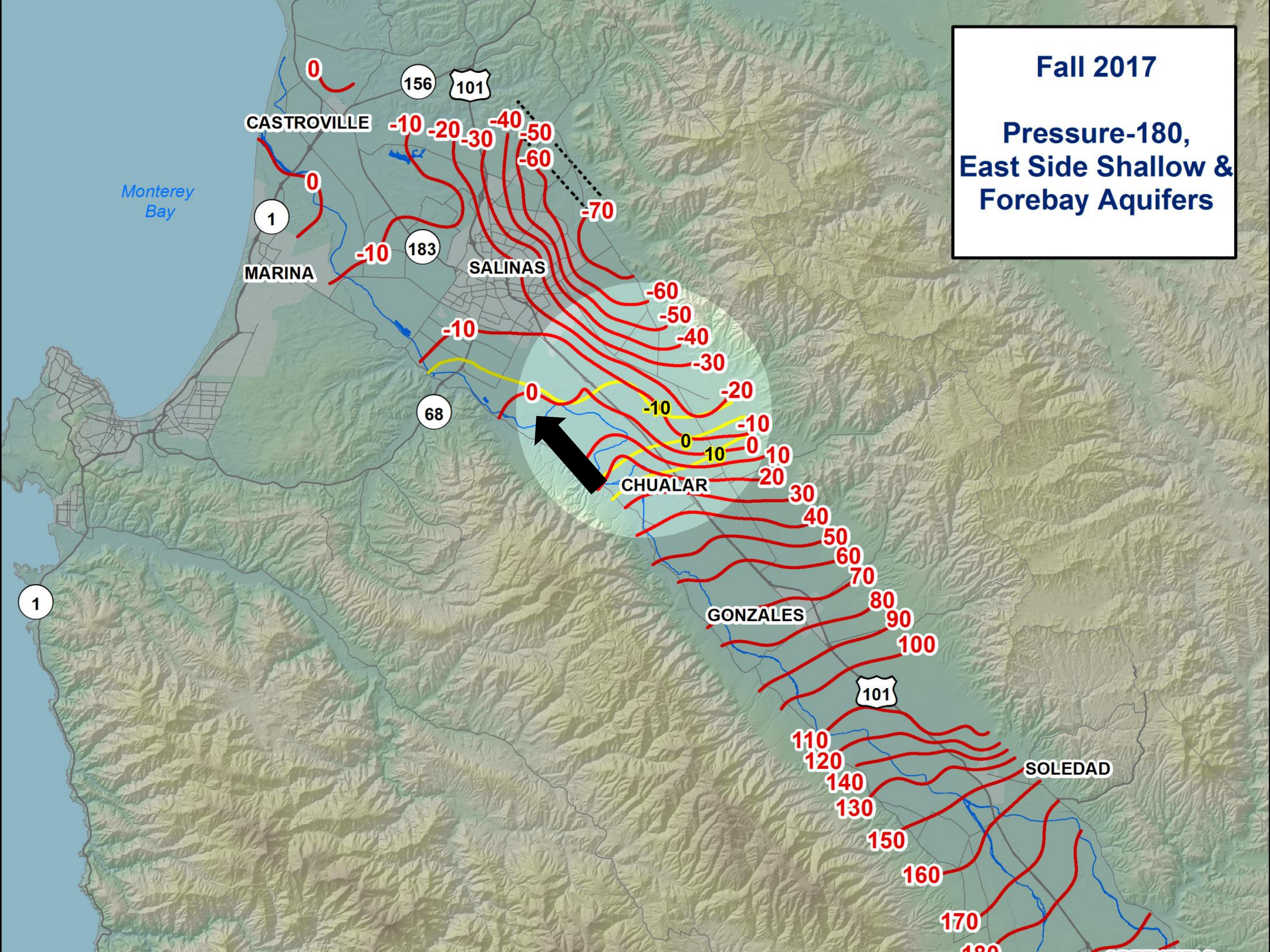

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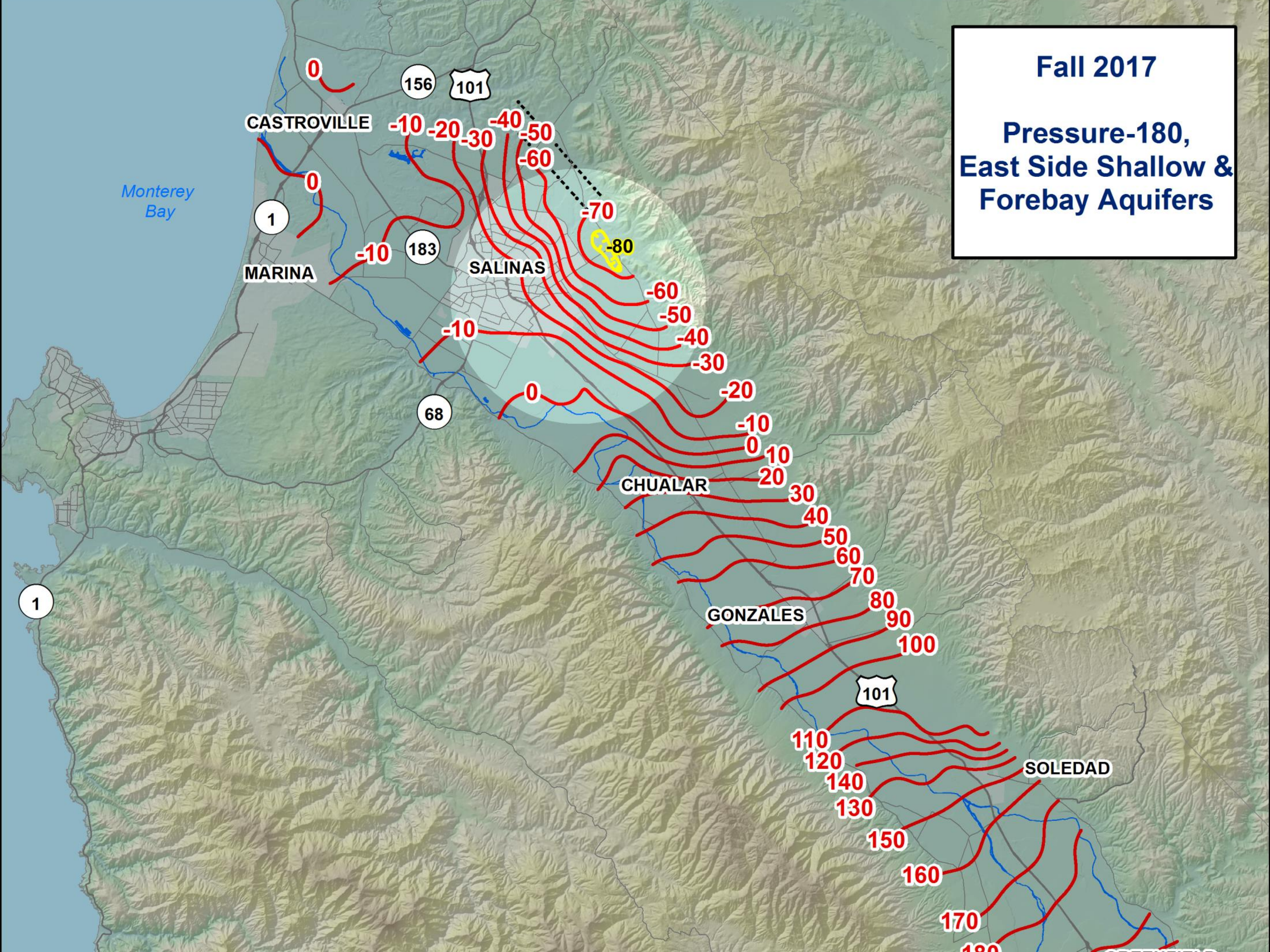
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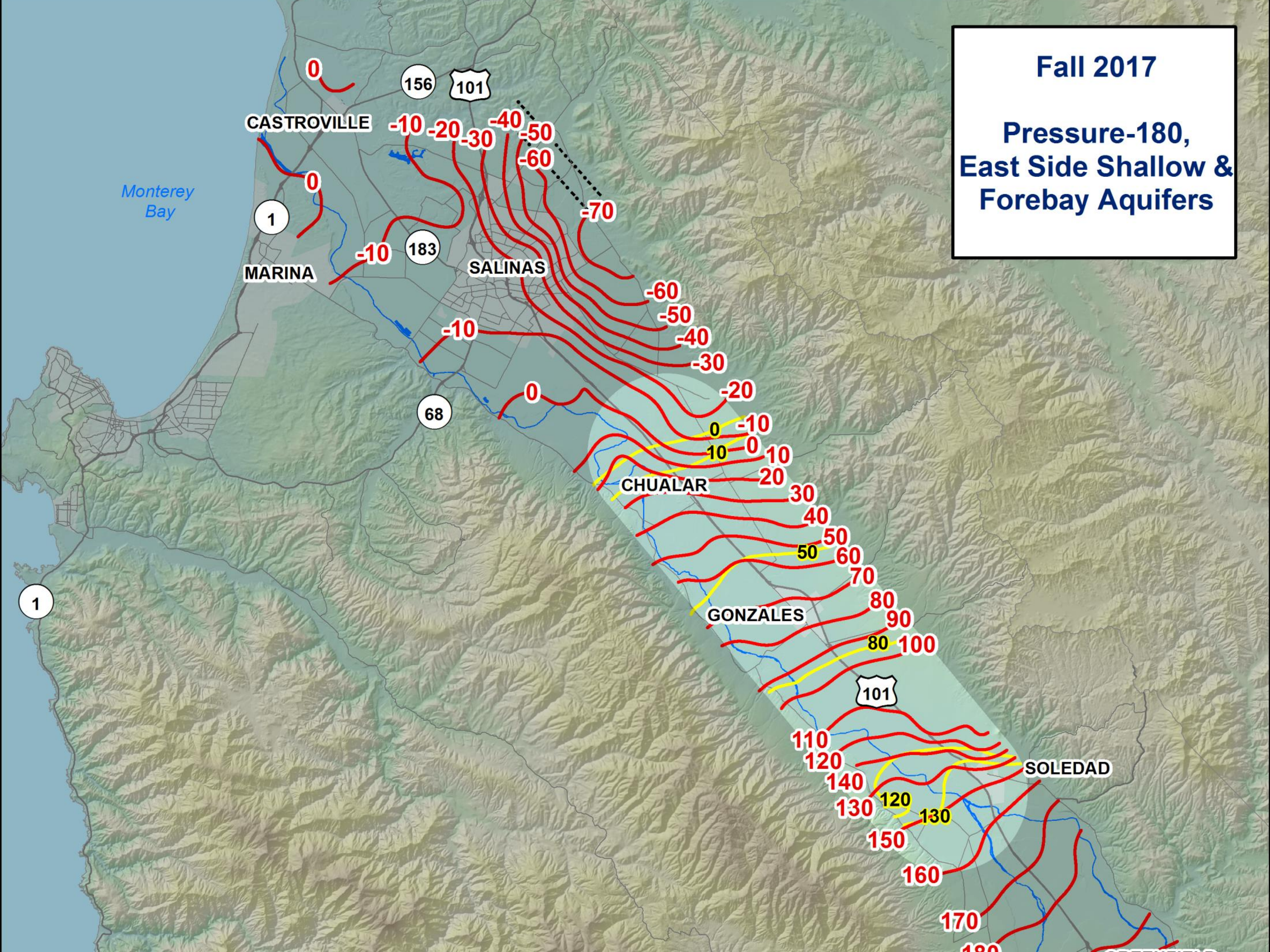
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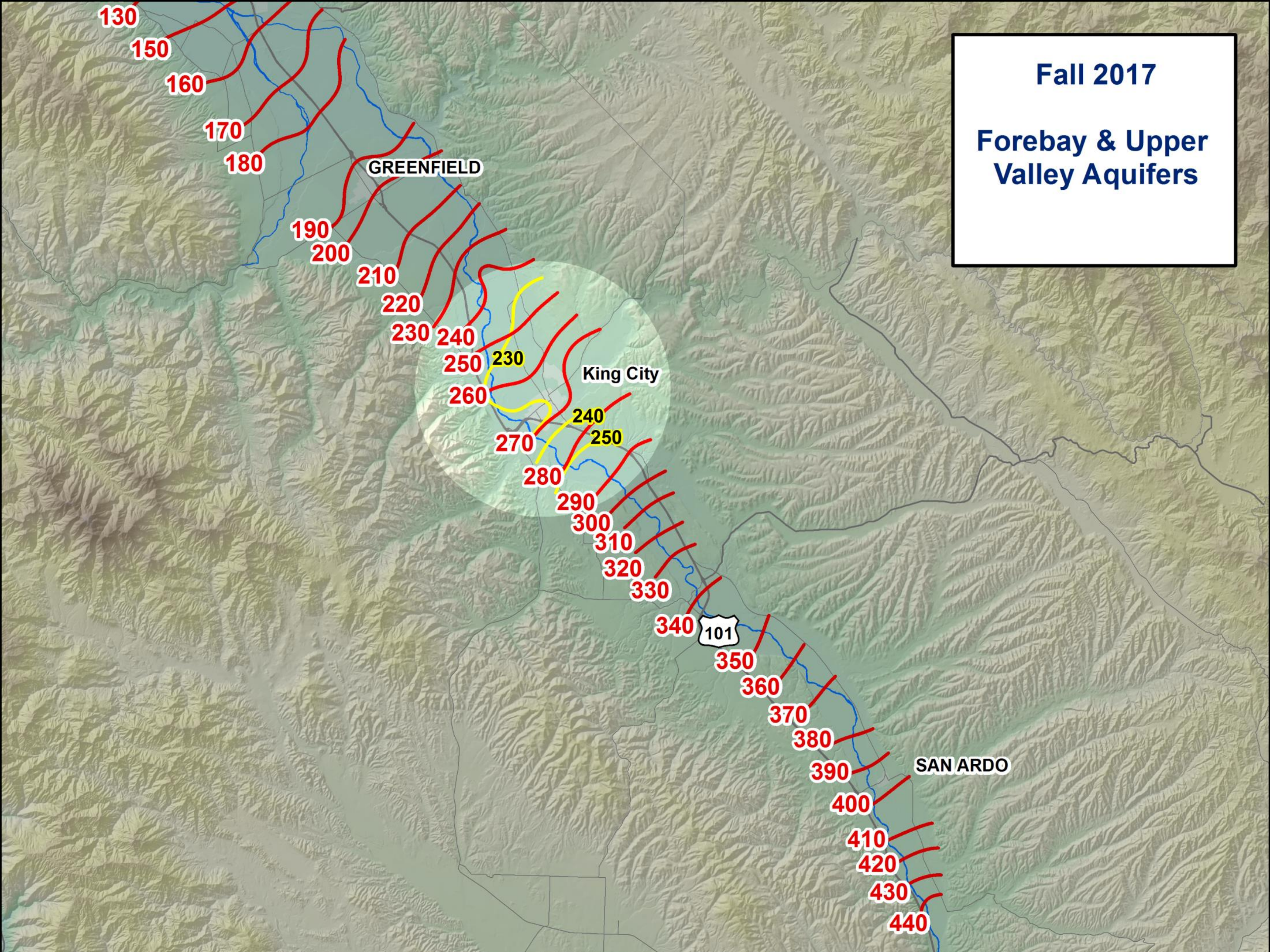

Fall 2017
Forebay & Upper Valley Aquifers
GREENFIELD
King City
SAN ARDO
101
130
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
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340
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360
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380
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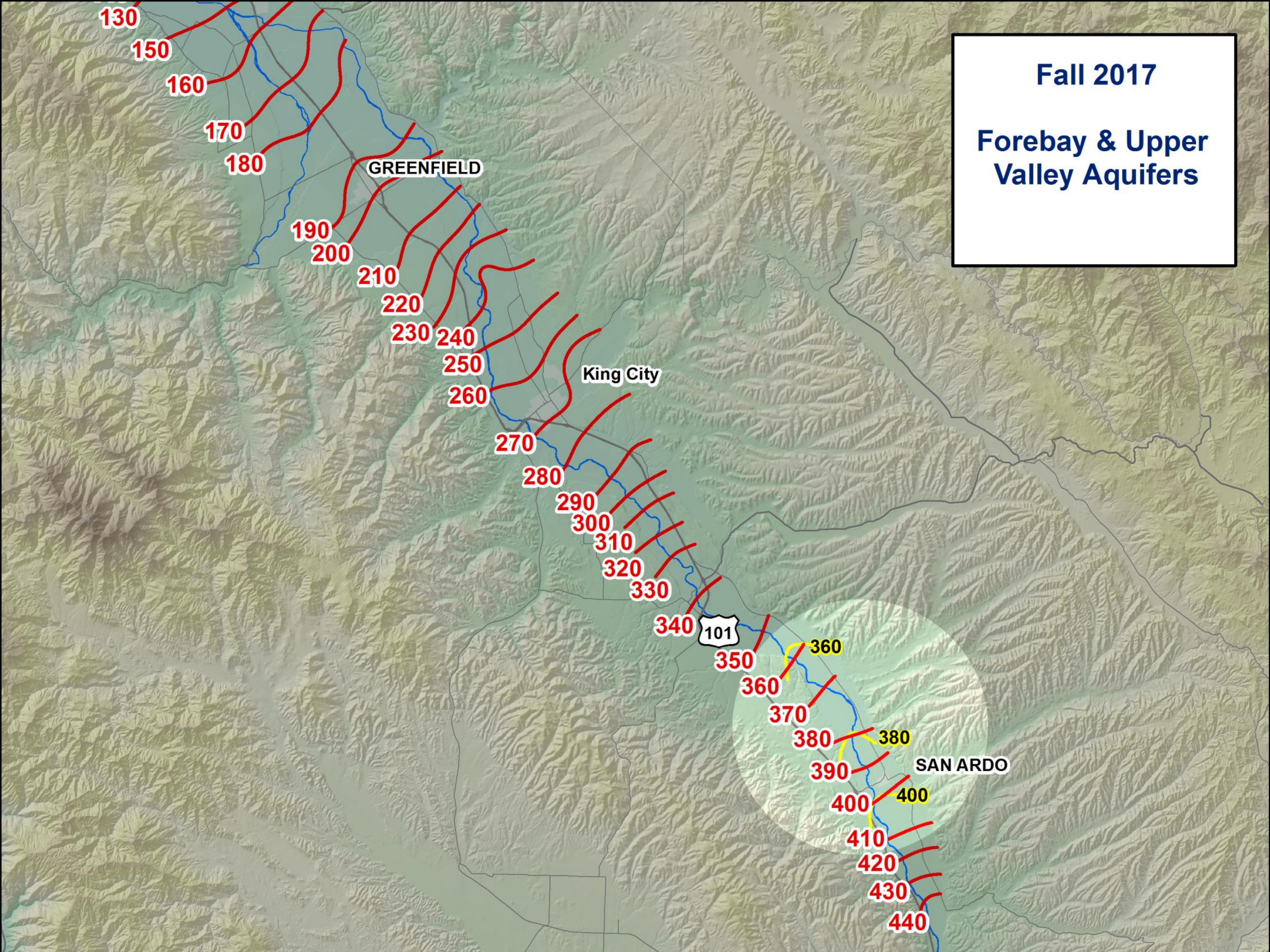
400
410
420
430
440
230
240
250


Fall 2017
Forebay & Upper Valley Aquifers
GREENFIELD
King City
SAN ARDO
101
130
150
160
170
180
190
200
210
220
230
240
250
260
270
280
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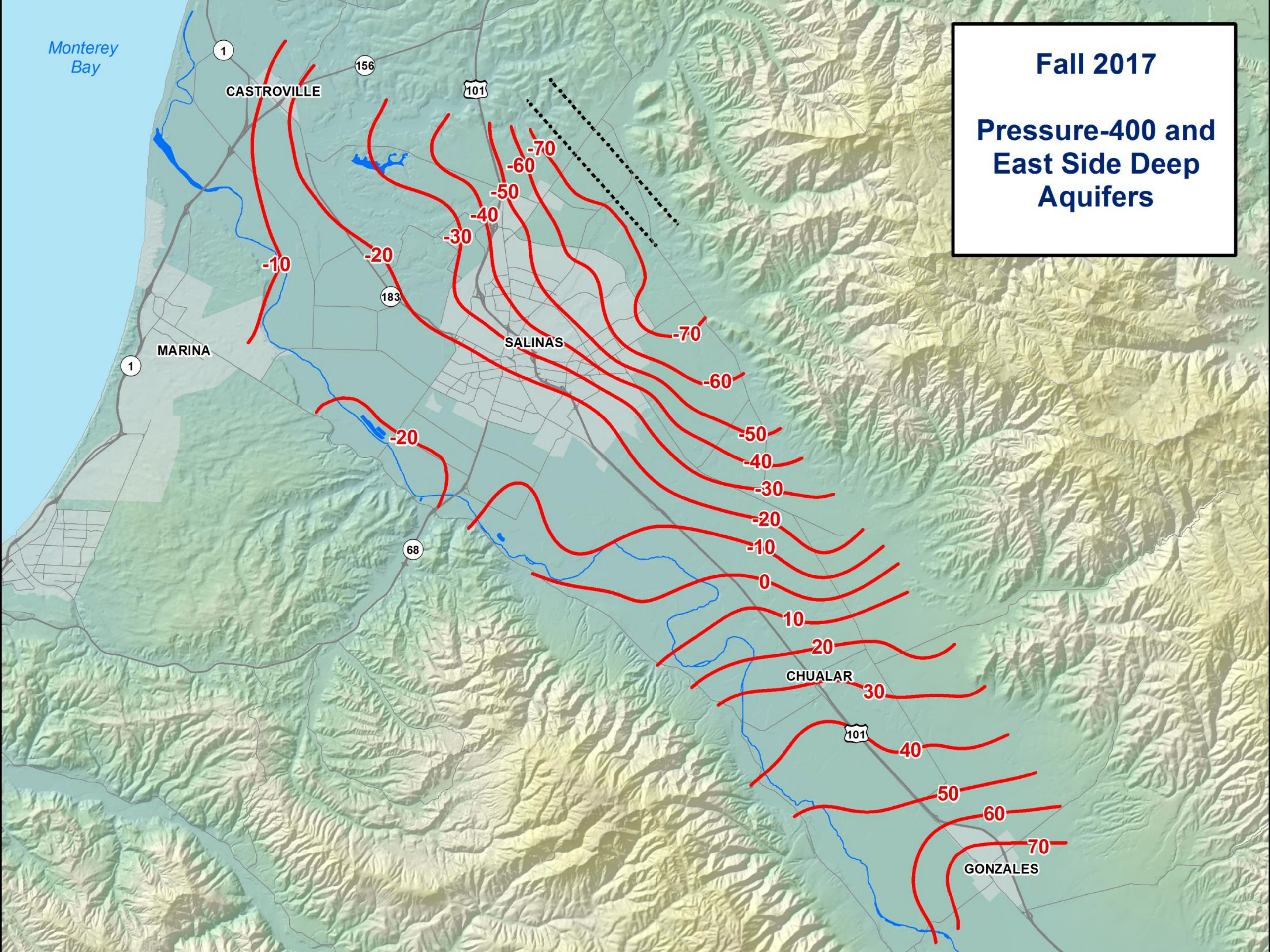
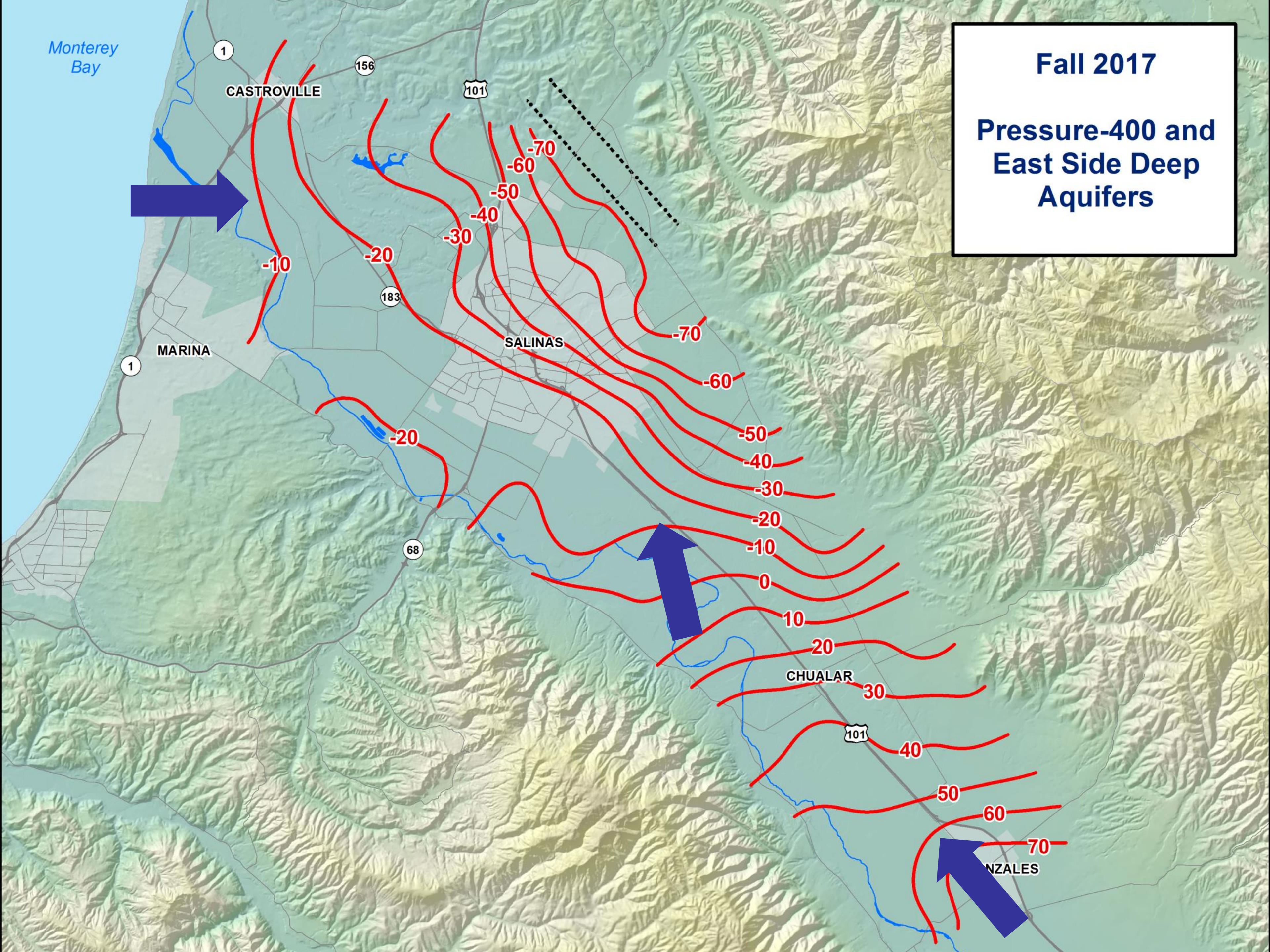
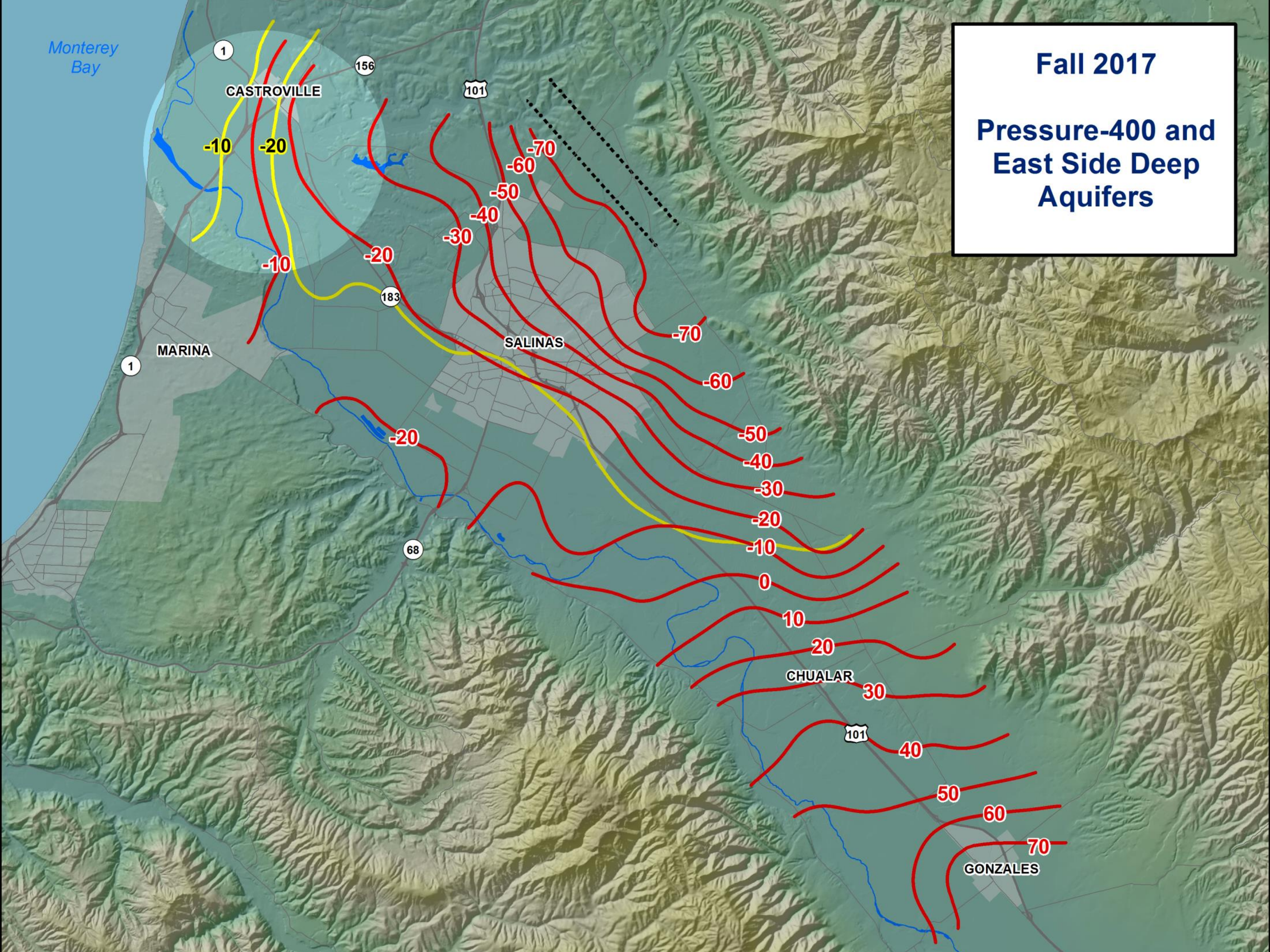

Fall 2017
Pressure-400 and East Side Deep Aquifers
Monterey Bay
1
156
101
CASTROVILLE
-70
-60
-50
-40
-30
-20
-10
183
SALINAS
-70
MARINA
1
-60
-20
-50
-40
-30
-20
-10
68
0
10
20
CHUALAR
30
101
40
50
60
70
GONZALES

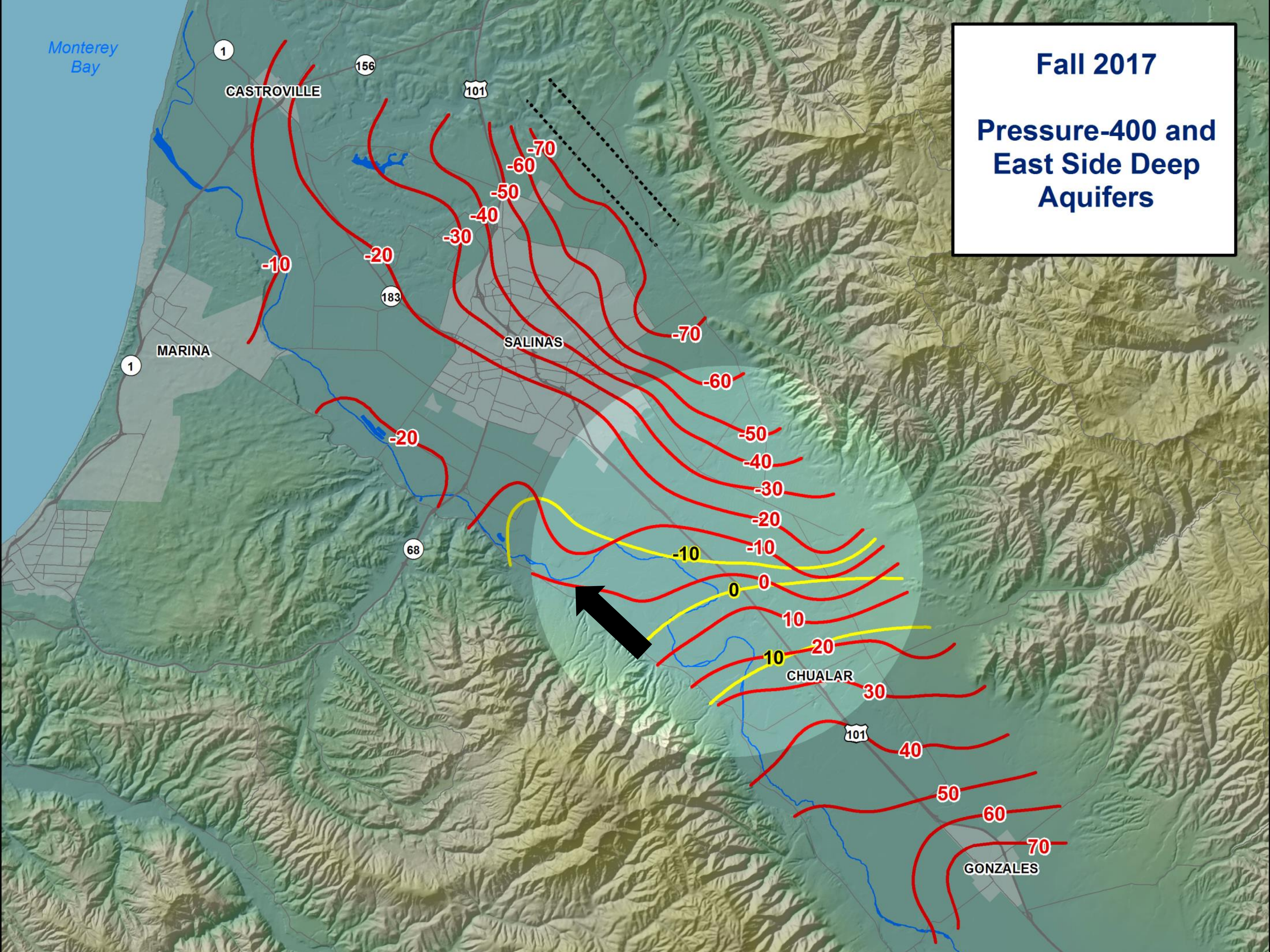


Fall 2017
Pressure-400 and East Side Deep Aquifers
Monterey Bay
CASTROVILLE
MARINA
SALINAS
CHUALAR
NZALES
1
156
101
183
68
-10
-20
-30
-40
-50
-60
-70
0
10
20
30
40
50
60
70

Fall 2017

Pressure-400 and East Side Deep Aquifers





Fall 2017
Pressure-400 and East Side Deep Aquifers
Monterey Bay
CASTROVILLE
MARINA
SALINAS
CHUALAR
GONZALES
1
156
101
183
68
-10
-20
-30
-40
-50
-60
-70
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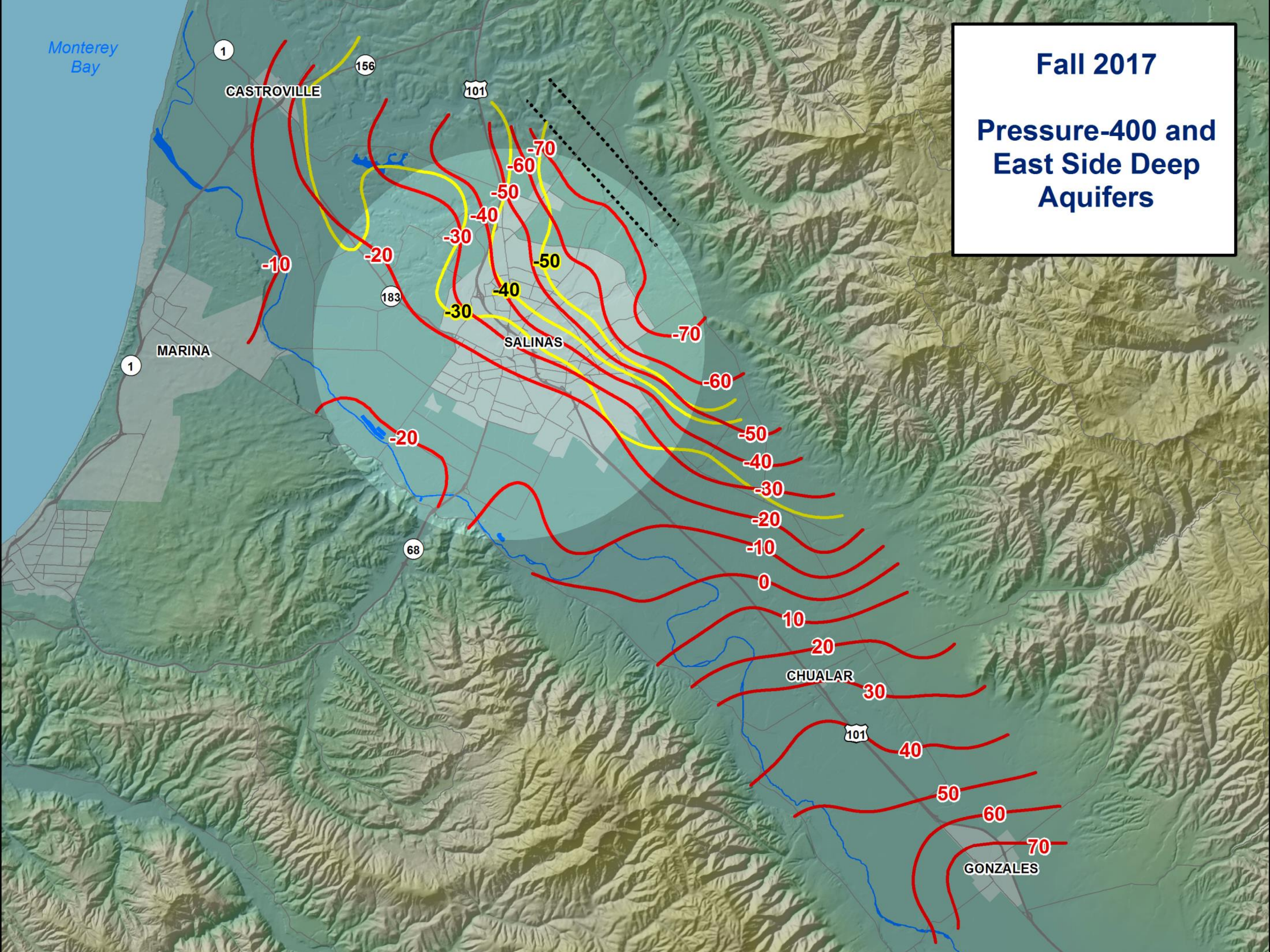
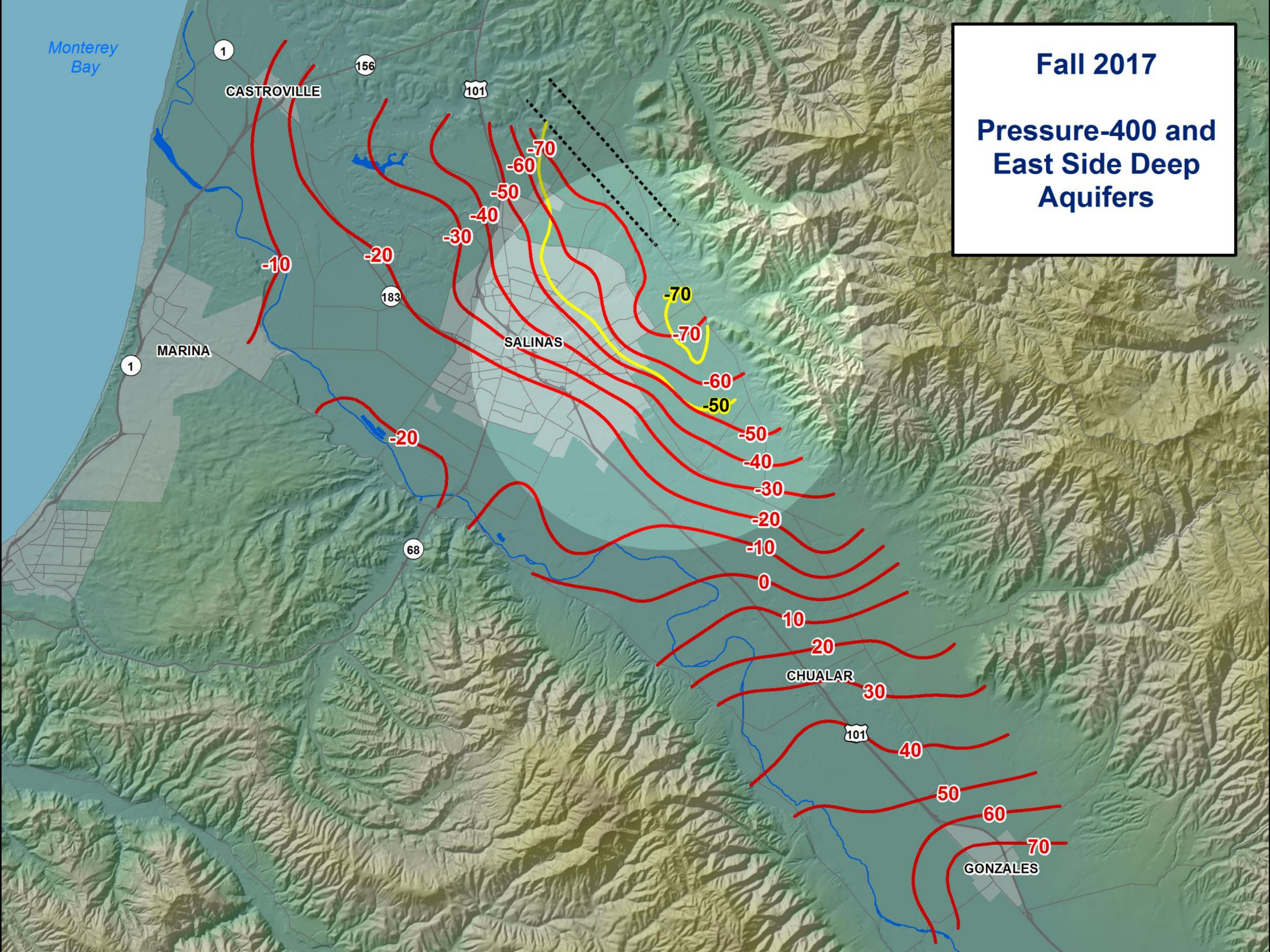
70

Fall 2017

Pressure-400 and East Side Deep Aquifers




Fall 2017
Pressure-400 and East Side Deep Aquifers
Monterey Bay
CASTROVILLE
MARINA
SALINAS
CHUALAR
GONZALES
1
156
101
183
68
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-40
-50
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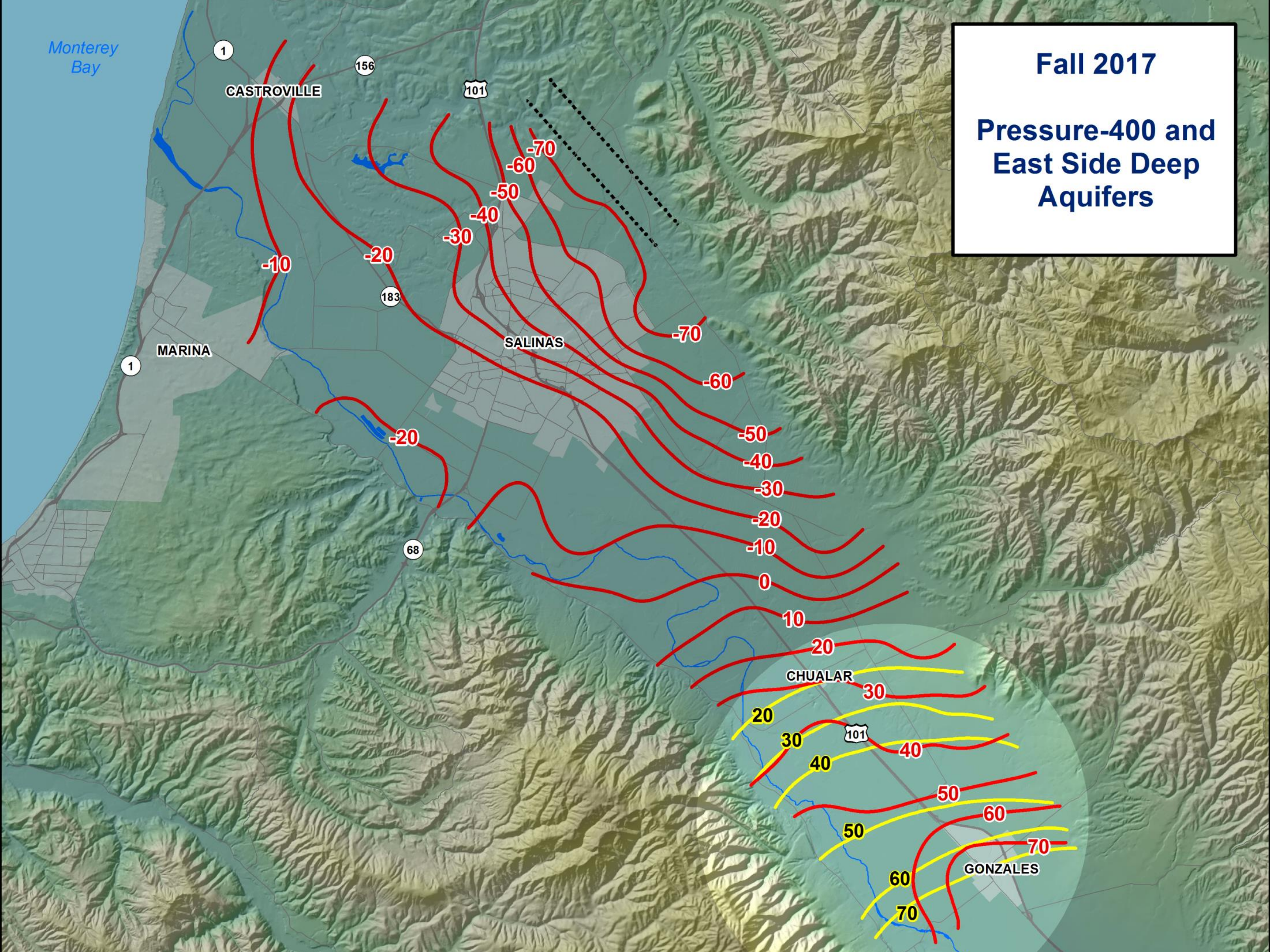
Fall 2017
Pressure-400 and East Side Deep Aquifers
Monterey Bay
CASTROVILLE
MARINA
SALINAS
CHUALAR
GONZALES
1
156
101
183
68
-10
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-50
-60
-70
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30
40
50
60
70

Summary: 2017 Fall GWL Changes Since 2015

- P180, East Side Shallow, Forebay, Upper Valley Aquifers
  - Coastal GWLs: little to no change
  - East Side: trough 10 feet recovery
  - Zero line moved three miles down valley
  - Largest recoveries near King City (30ft)
  - San Lucas to San Ardo area: little change

Summary: 2017 Fall GWL Changes Since 2015

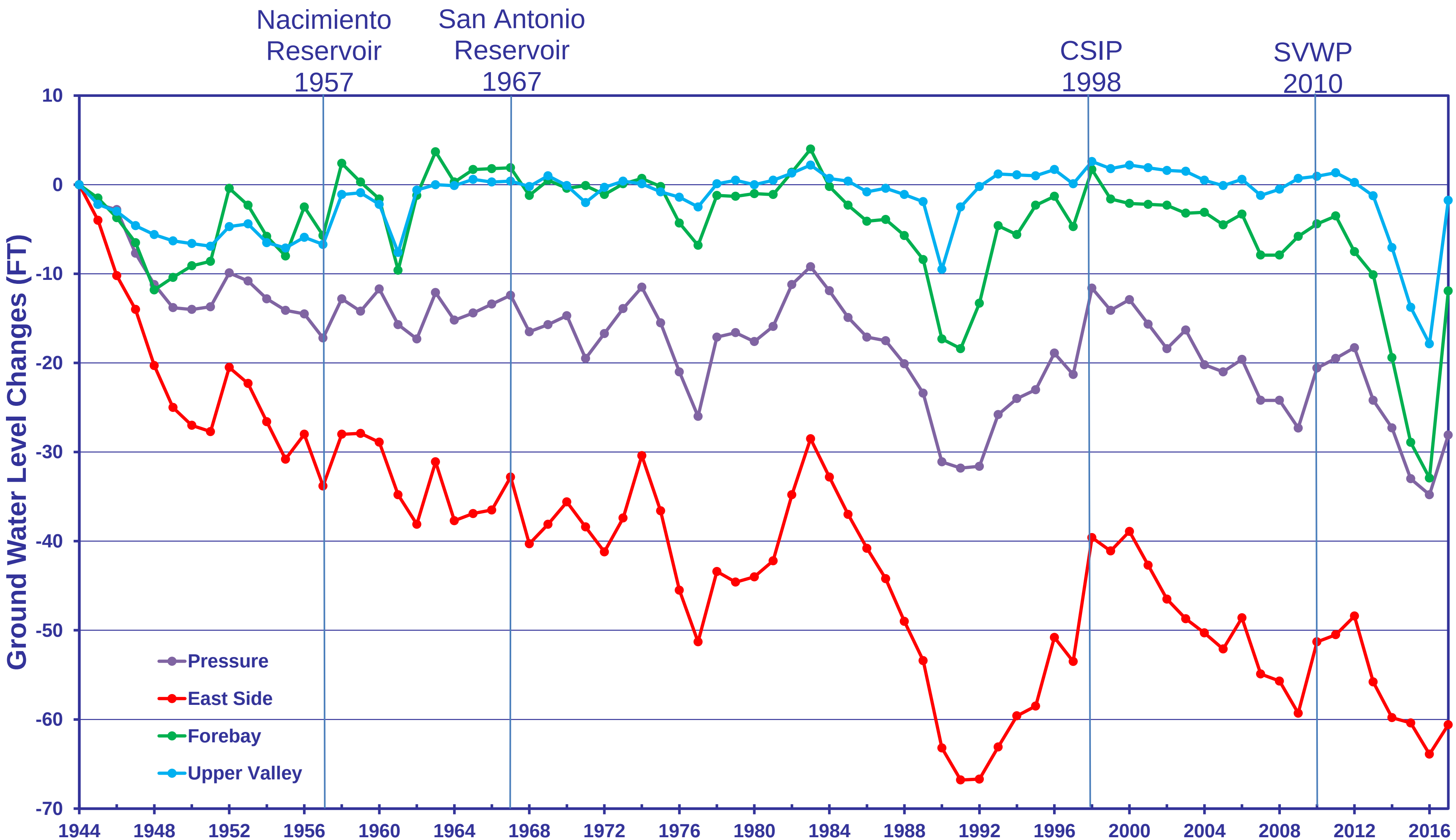
- P400, East Side Deep
  - Coastal GWLs: No change to 5ft higher
  - Salinas area: Little change
  - East Side: little to no change north, up to 10 ft recovery between Chualar & Gonzales
  - Zero line two miles down valley
  - 10 ft recovery near Chualar; little change near Gonzales

GWL Changes Since 1944

Fall data (1944-2017)

- Indicator of change in aquifer storage
- Approximately 400 GWL measurements
- 200-300 used for comparison
- Each Subarea represented by one value

Fall Groundwater Level Changes by Subarea



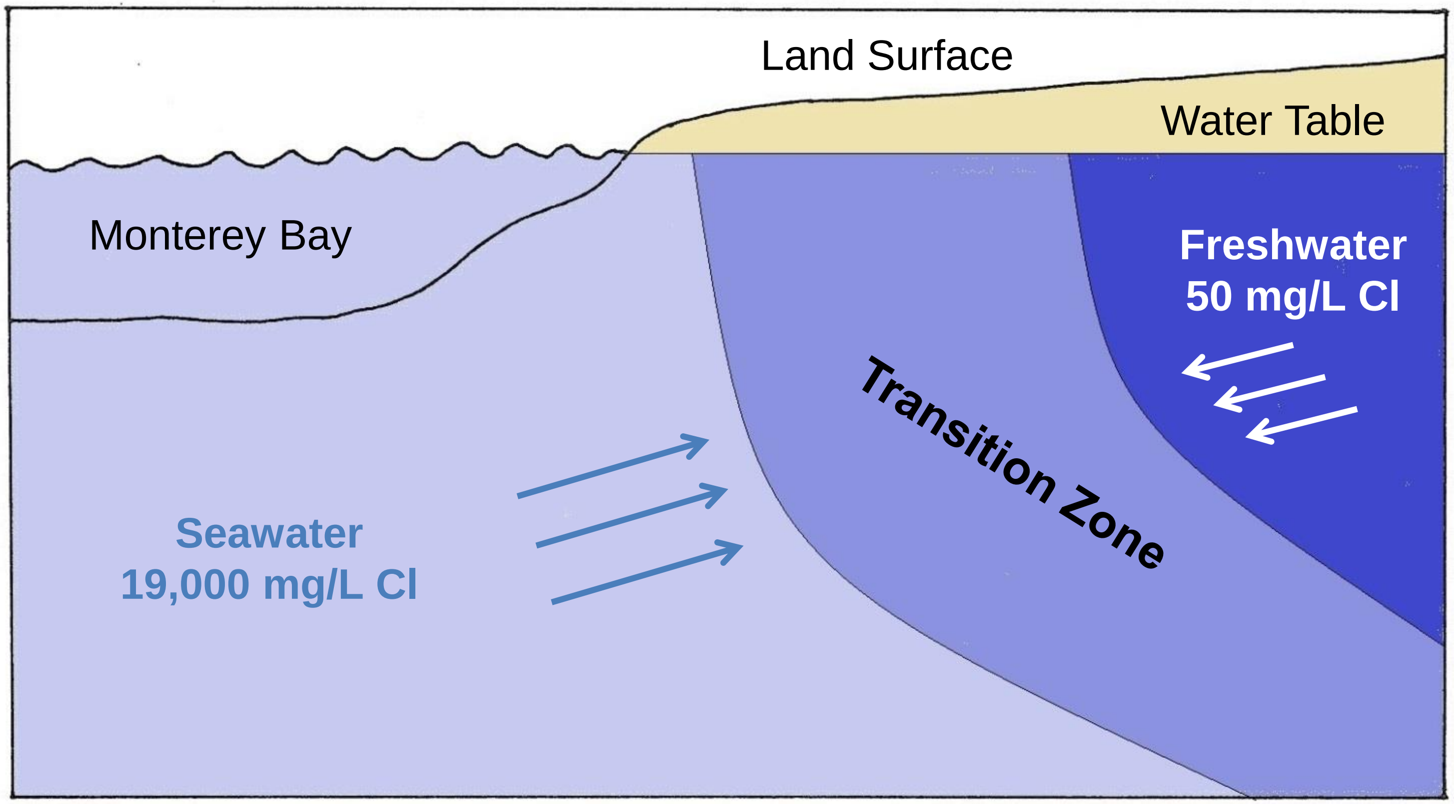
MONTEREY COUNTY WATER RESOURCES AGENCY

1947

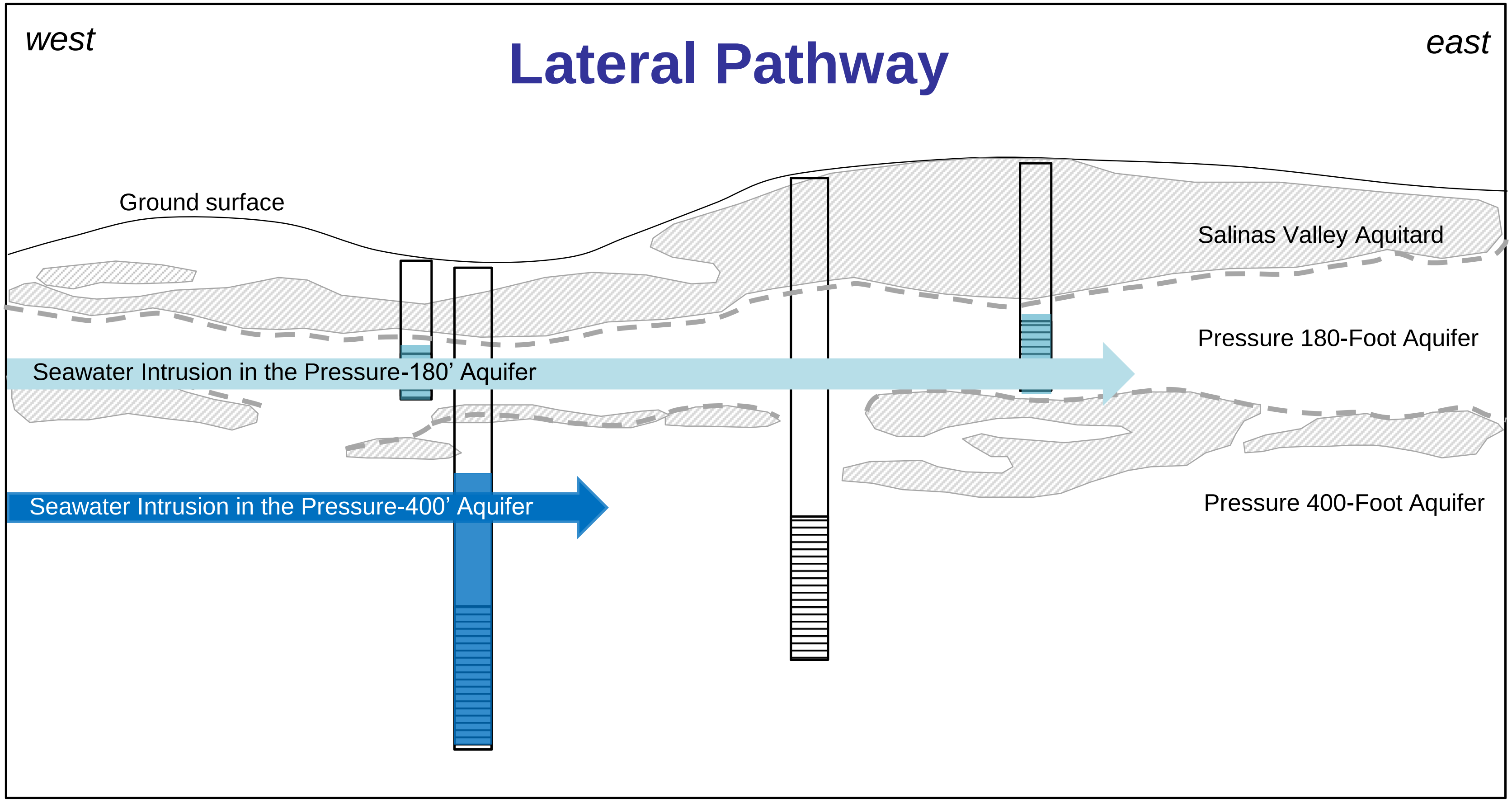
Coastal Salinas Valley Seawater Intrusion Maps

500 mg/L Chloride Contours
2017

Seawater Intrusion – Transition Zone



Seawater Intrusion – Pathways

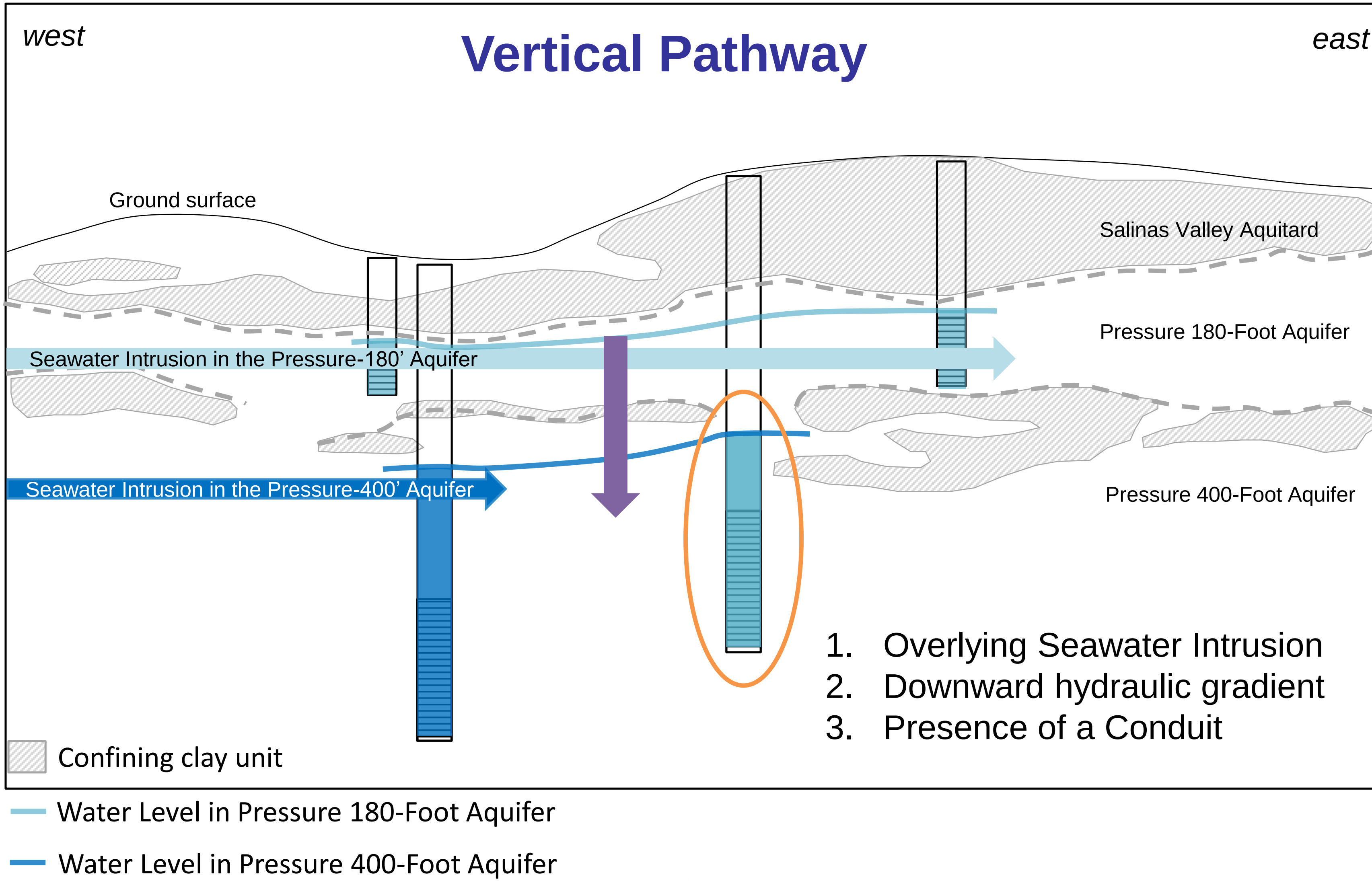


Confining clay unit

Water Level in Pressure 180-Foot Aquifer

Water Level in Pressure 400-Foot Aquifer

Seawater Intrusion – Pathways



Seawater Intrusion – Monitoring Program

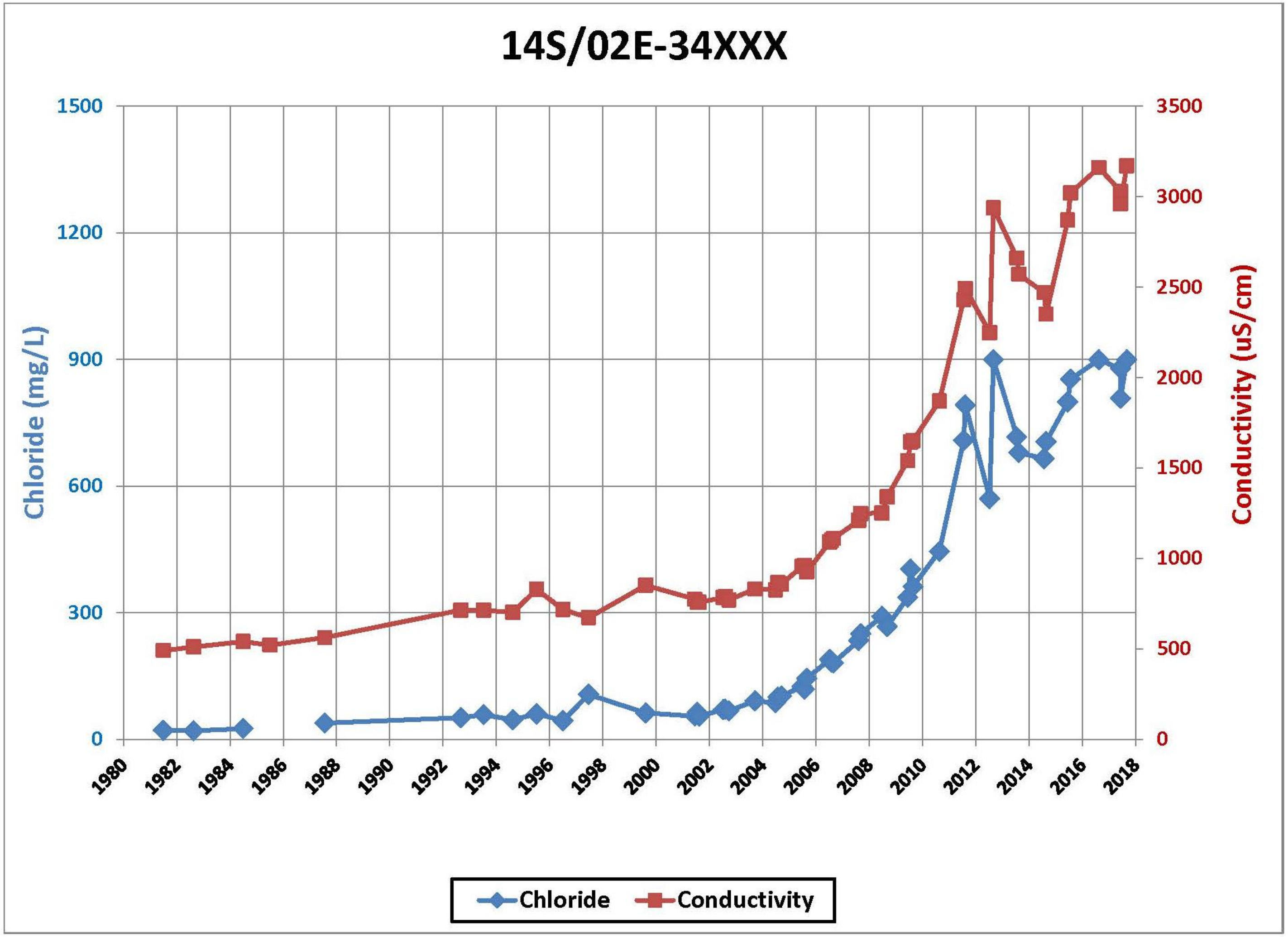
- Groundwater Wells
  - Sampled annually during peak pumping
  - 96 Agricultural wells sampled twice (Jun & Aug)
  - 25 Dedicated monitoring wells sampled
    - Agency’s wells and MPWSP wells
  - Analyzed for General Minerals

Seawater Intrusion – Analysis

- Data Evaluation
  - Historical Chloride & Conductivity Trends
  - Stiff and Piper Diagrams
  - Chloride Concentration vs. Na/Cl Molar Ratio Trends

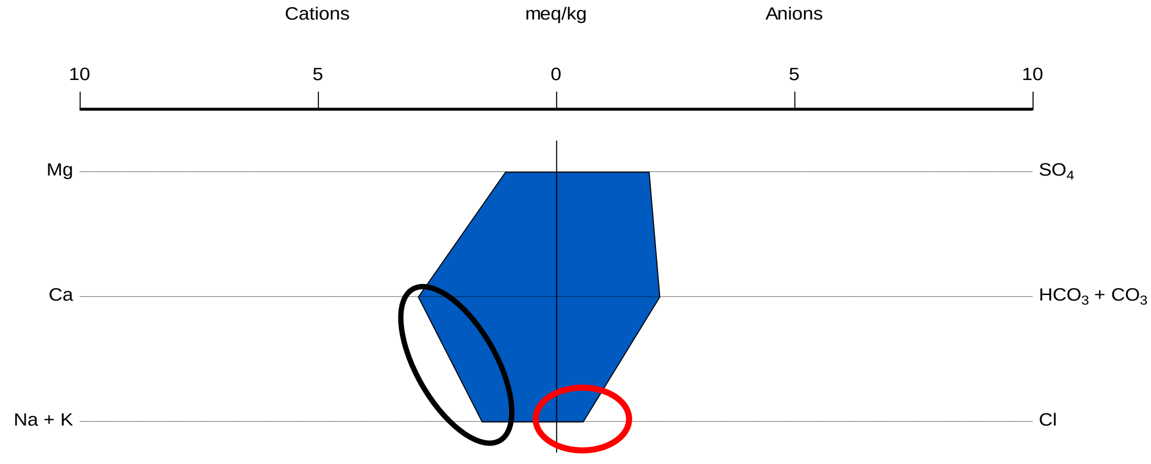
- Data Development Process
  - Water Quality
  - Well Construction
  - Well Pumping Data
  - Ground Water Level Contours

Chloride & Conductivity Time Series Indicating Intrusion

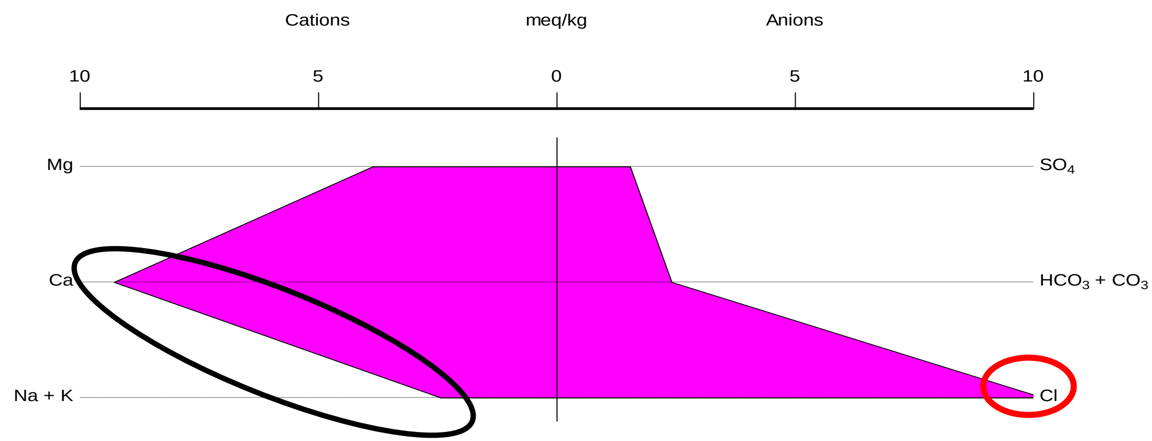


Stiff Diagrams

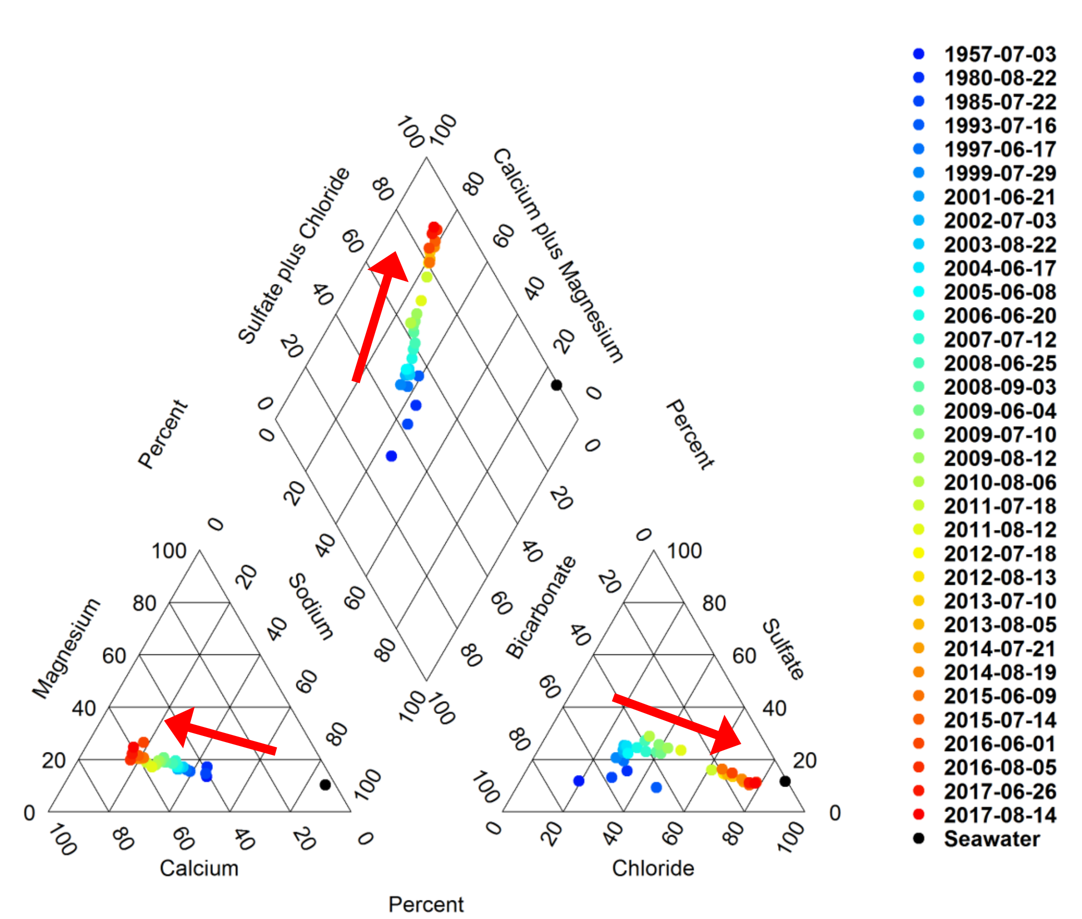
No Intrusion - 1982



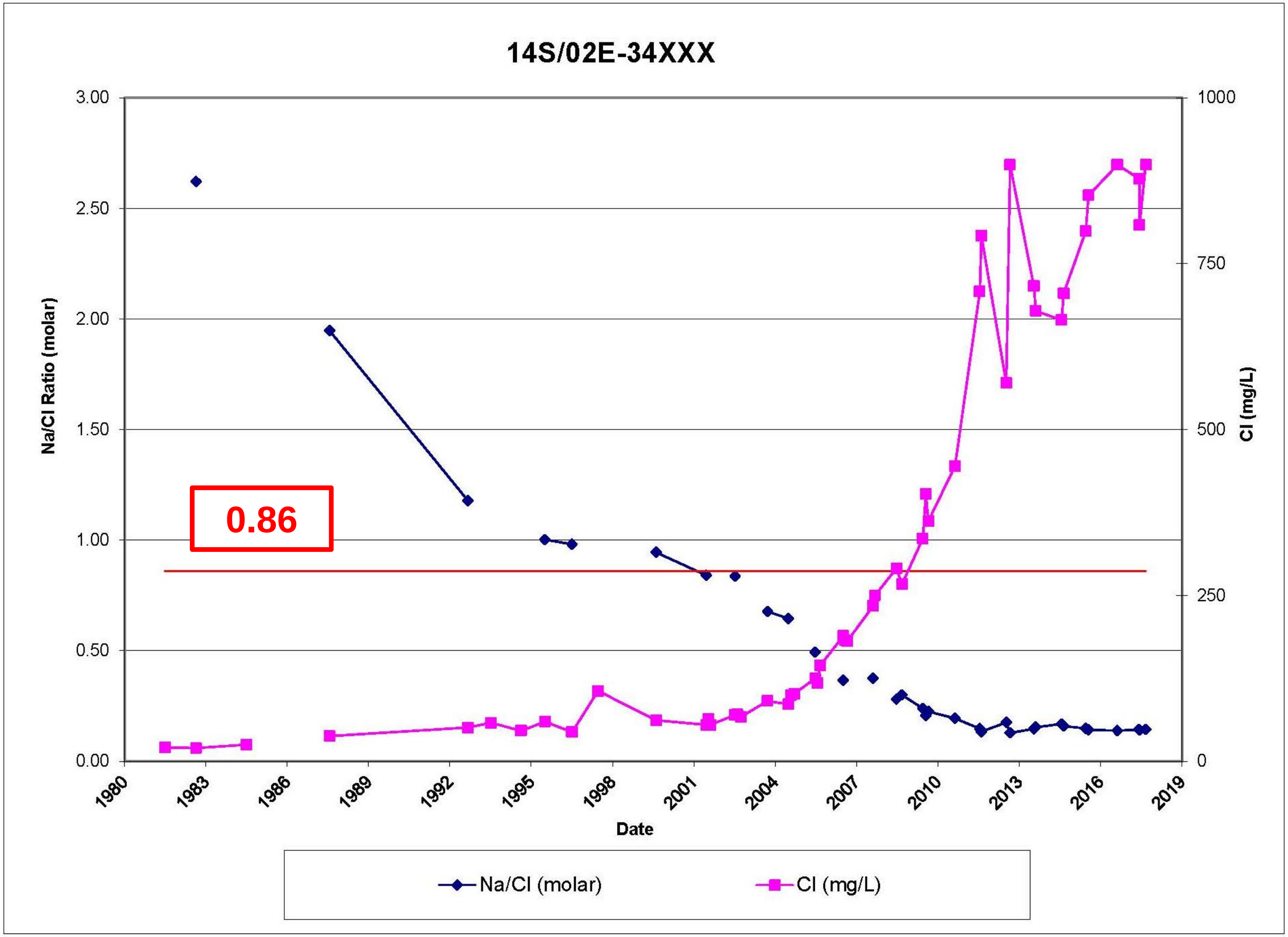
Early Intrusion - 2009



Piper Diagram
Indicating Phase-I Intrusion



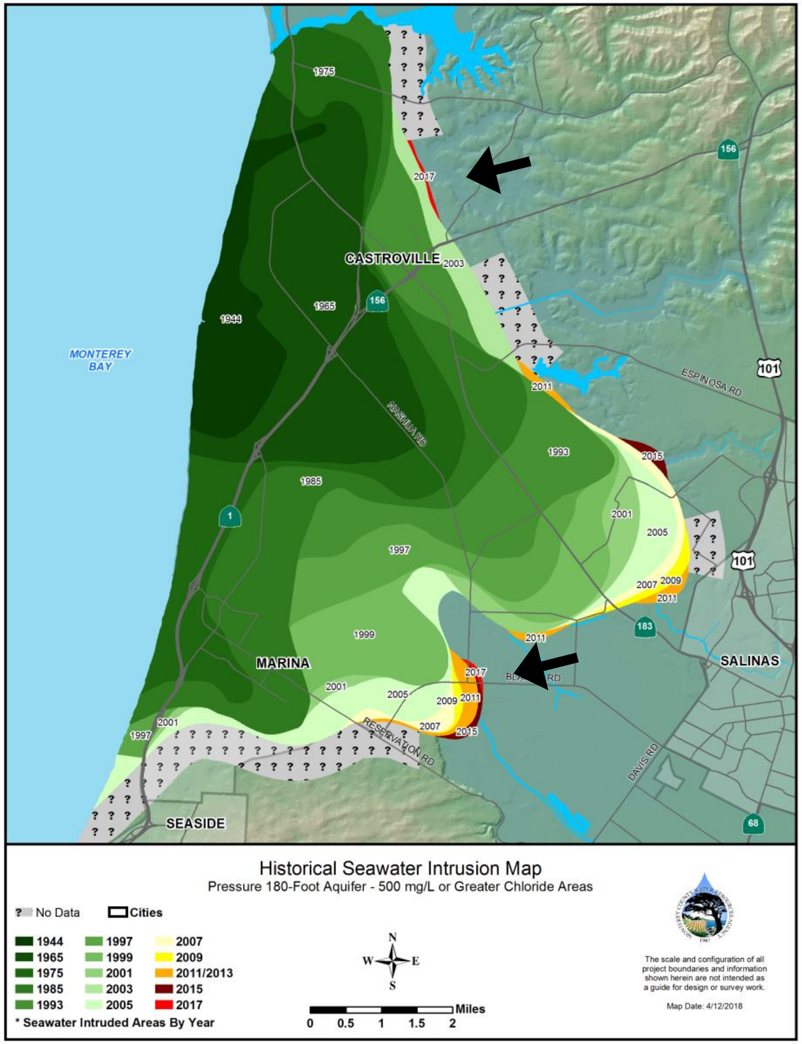
Chloride vs. Na/Cl Molar Ratio

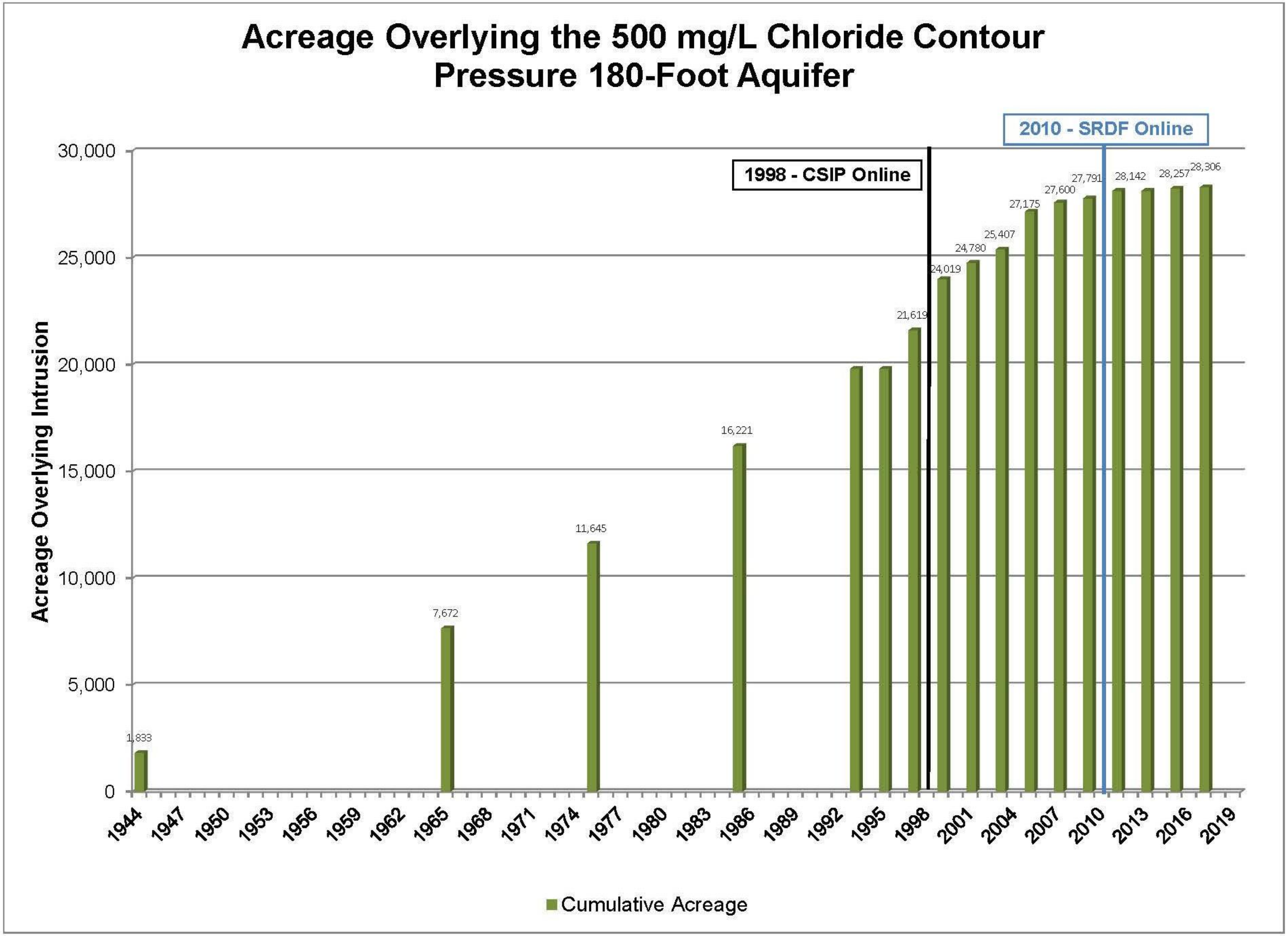


Seawater Intrusion – Data Processing

- Lab Results are Evaluated & Uploaded into WRAIMS Database Annually
- 500 mg/L Contours are Developed from the Odd Year Data & Added to the Historical SWI Maps

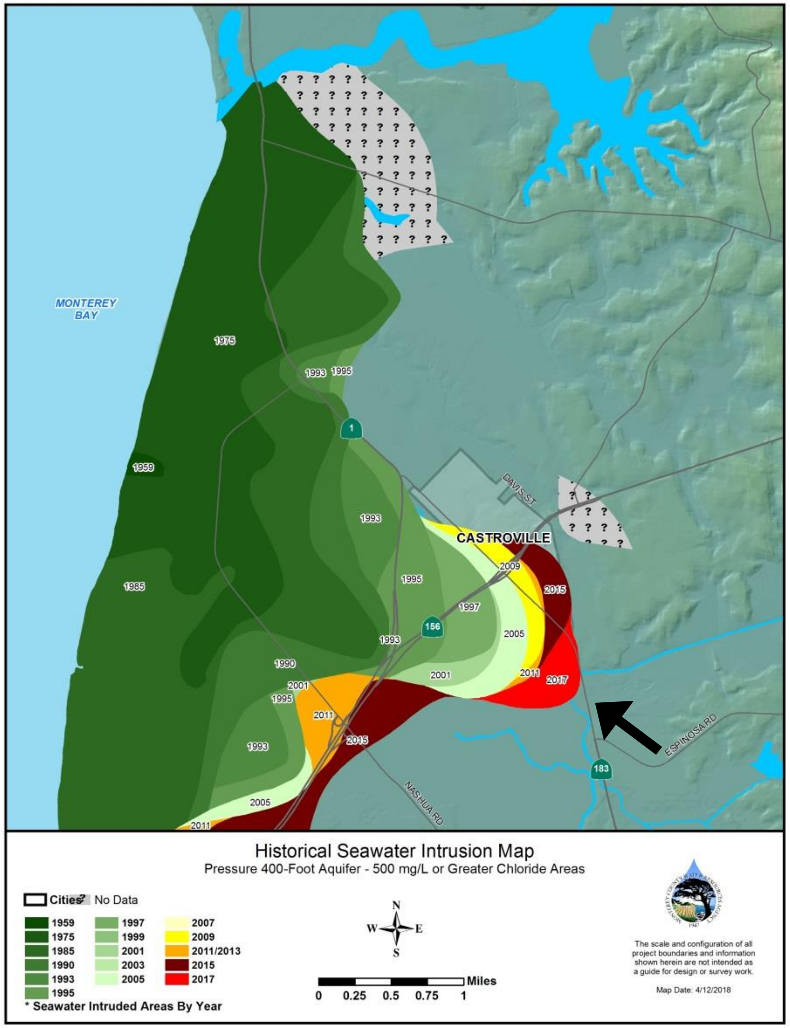
2017 Pressure 180-Foot Aquifer 500 mg/L Chloride Areas



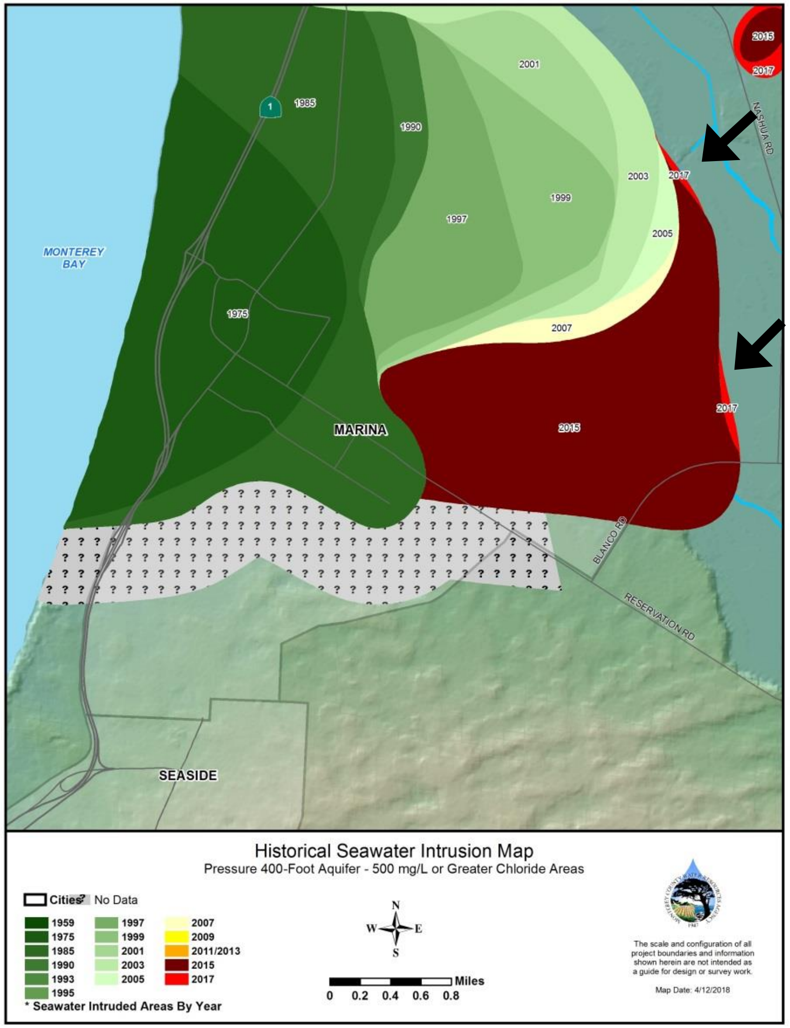


Acreage Overlying the 500 mg/L Chloride Contour
Pressure 180-Foot Aquifer
2010 - SRDF Online
1998 - CSIP Online
Acreage Overlying Intrusion
30,000
25,000
20,000
15,000
10,000
5,000
0
1,833
7,672
11,645
16,221
21,619
24,019
24,780
25,407
27,175
27,600
27,791
28,142
28,257
28,306
1944
1947
1950
1953
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
2010
2013
2016
2019
Cumulative Acreage

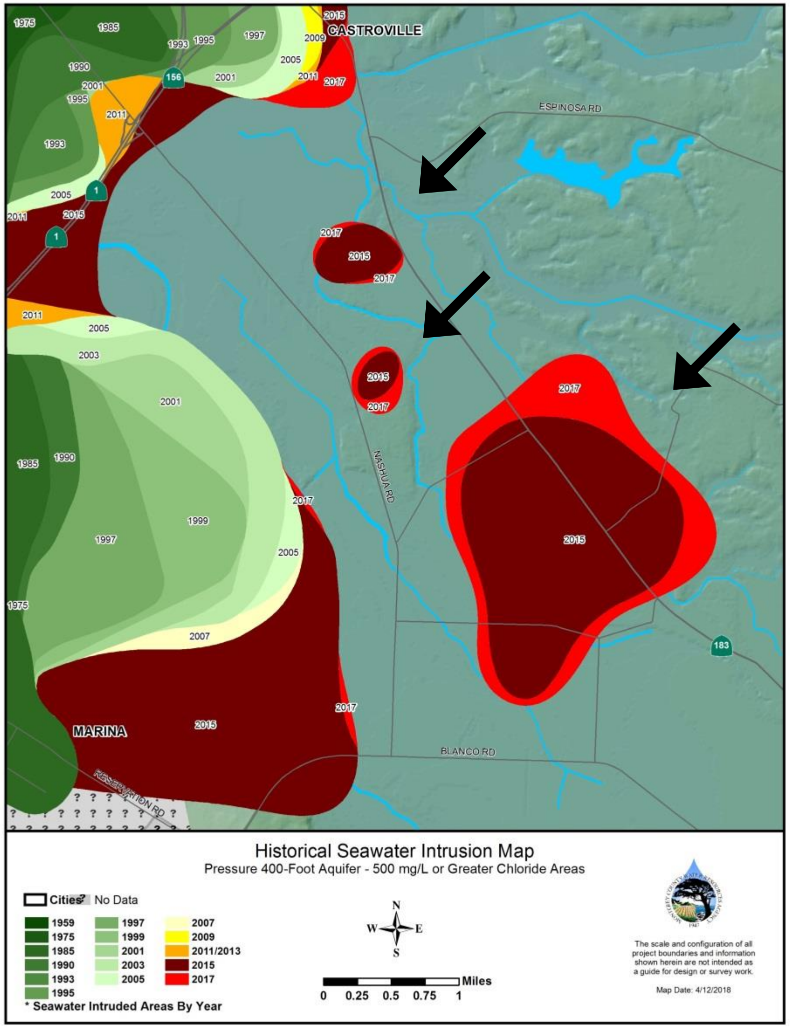
2017 Pressure 400-Foot Aquifer 500 mg/L Chloride Areas



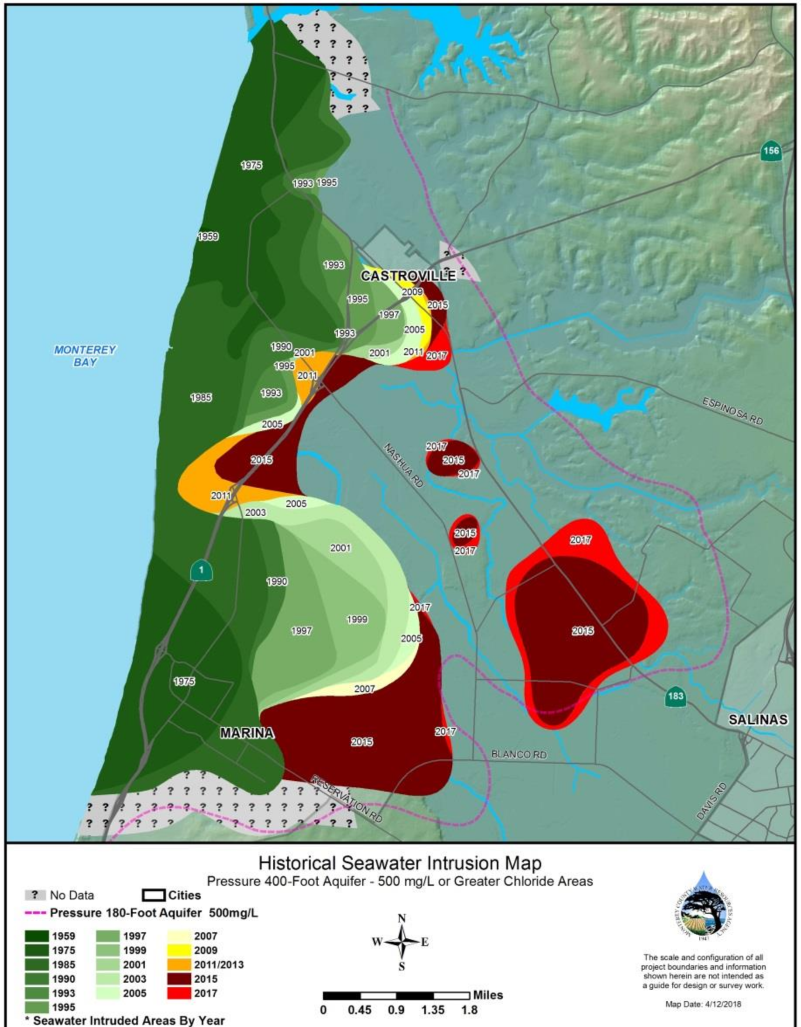
2017 Pressure 400-Foot Aquifer 500 mg/L Chloride Areas



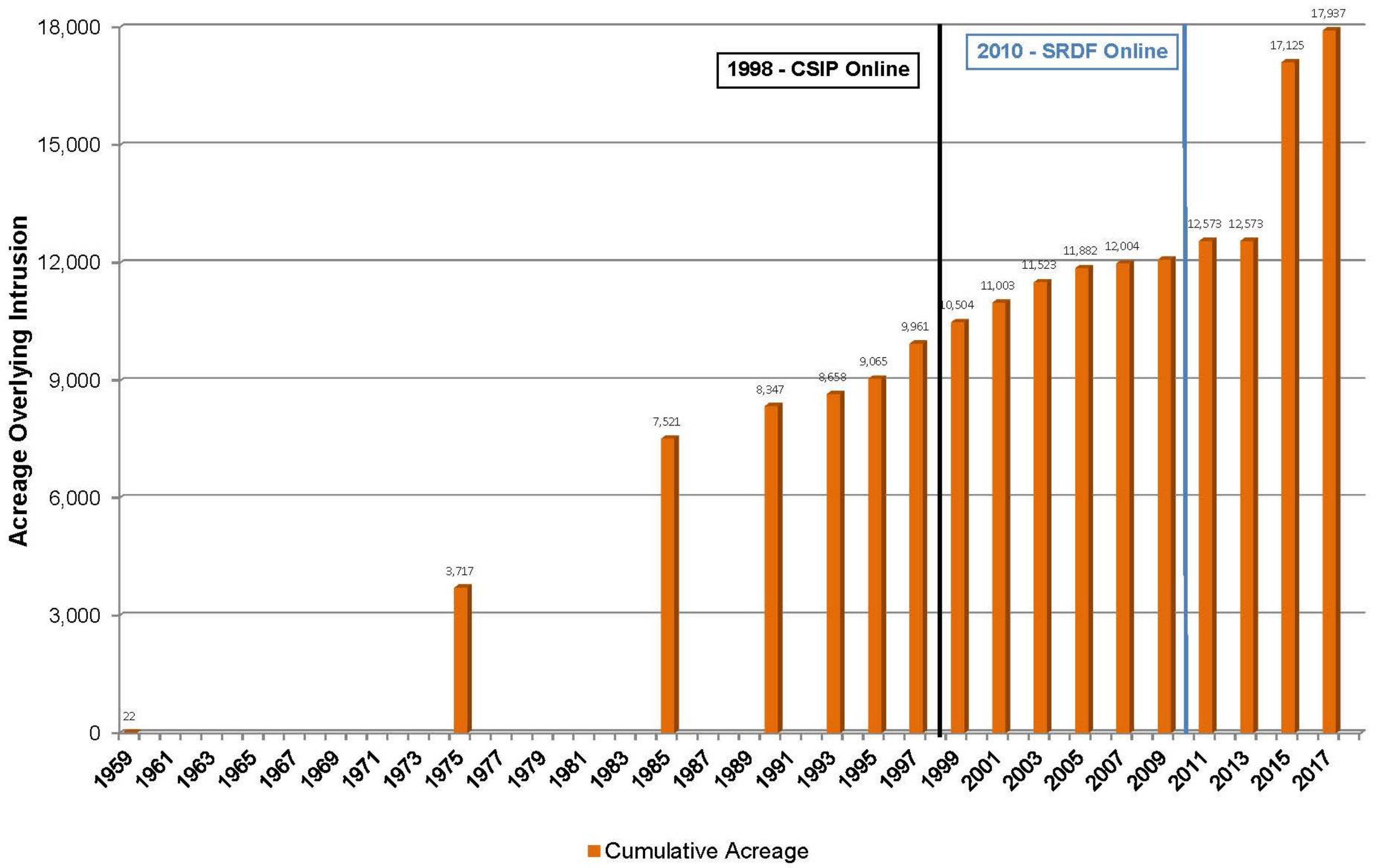
2017 Pressure 400-Foot Aquifer 500 mg/L Chloride Areas



2017 Pressure 400-Foot Aquifer 500 mg/L Chloride Areas



Acreage Overlying the 500 mg/L Chloride Contour
Pressure 400-Foot Aquifer



Conclusion

Pressure 180-Ft Contours

- Rate of SWI Continues to Decrease
- Minimal Advancement
- Minimal Lobe Broadening

Pressure 400-Ft Contours

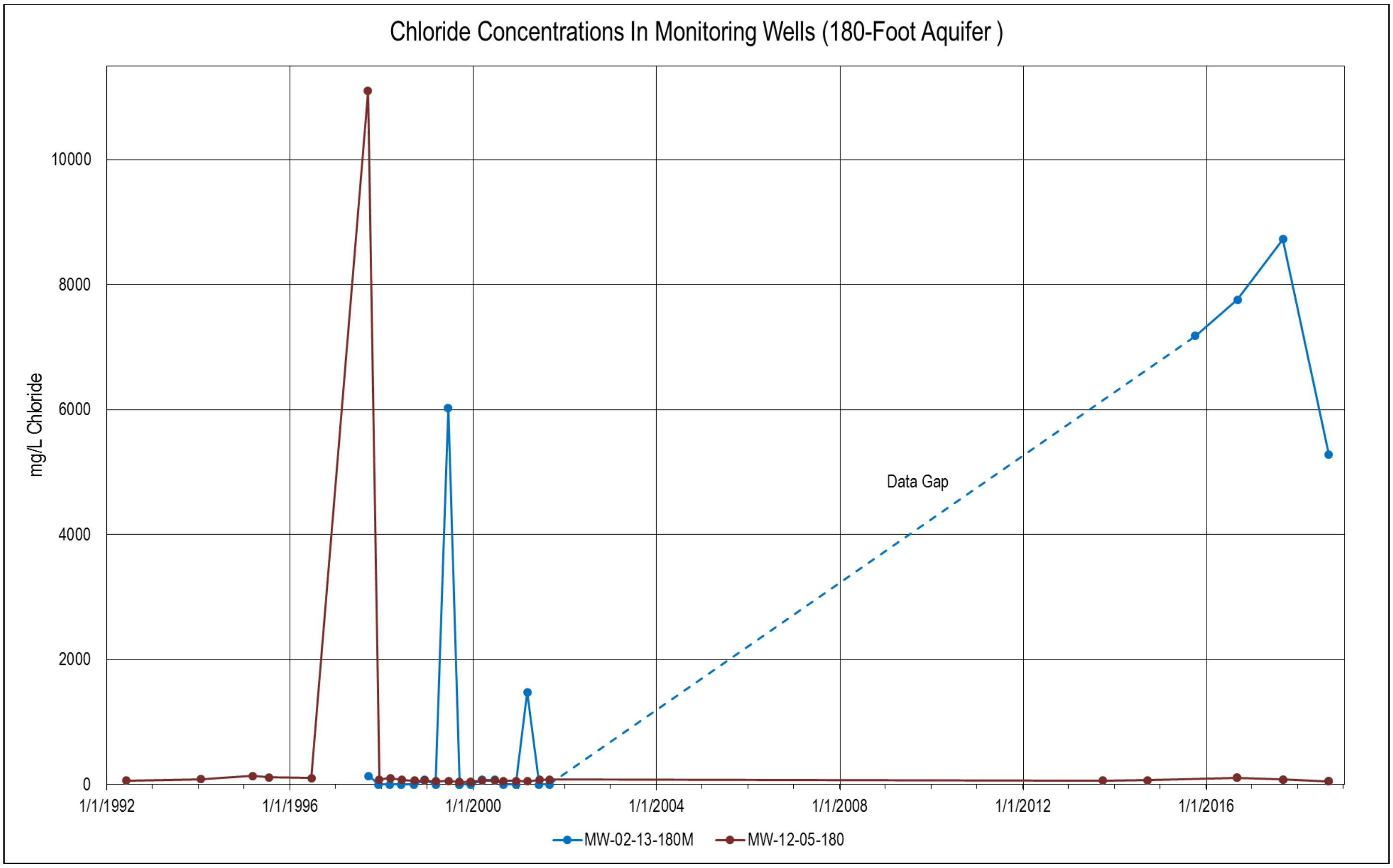
- Continued Lobe Broadening
- Expansion of the Intruded WQ in Front of the 500 mg/L Contour (“Islands)
- Minimal Advancement

TODAY'S ACTION

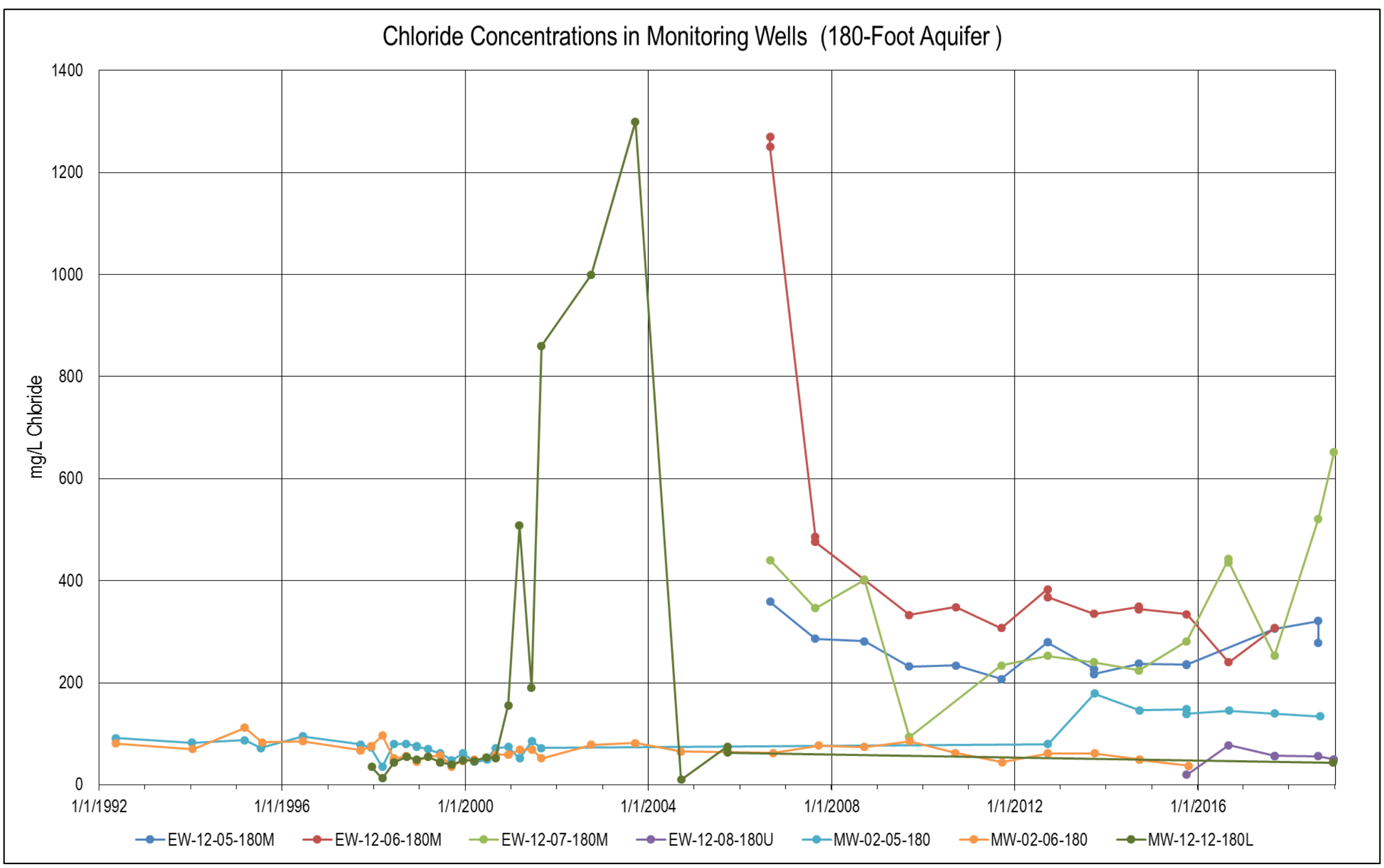
Consider Receiving the
2017 Groundwater Level Contours and
Coastal Salinas Valley
Seawater Intrusion Maps

MONTEREY COUNTY WATER RESOURCES AGENCY

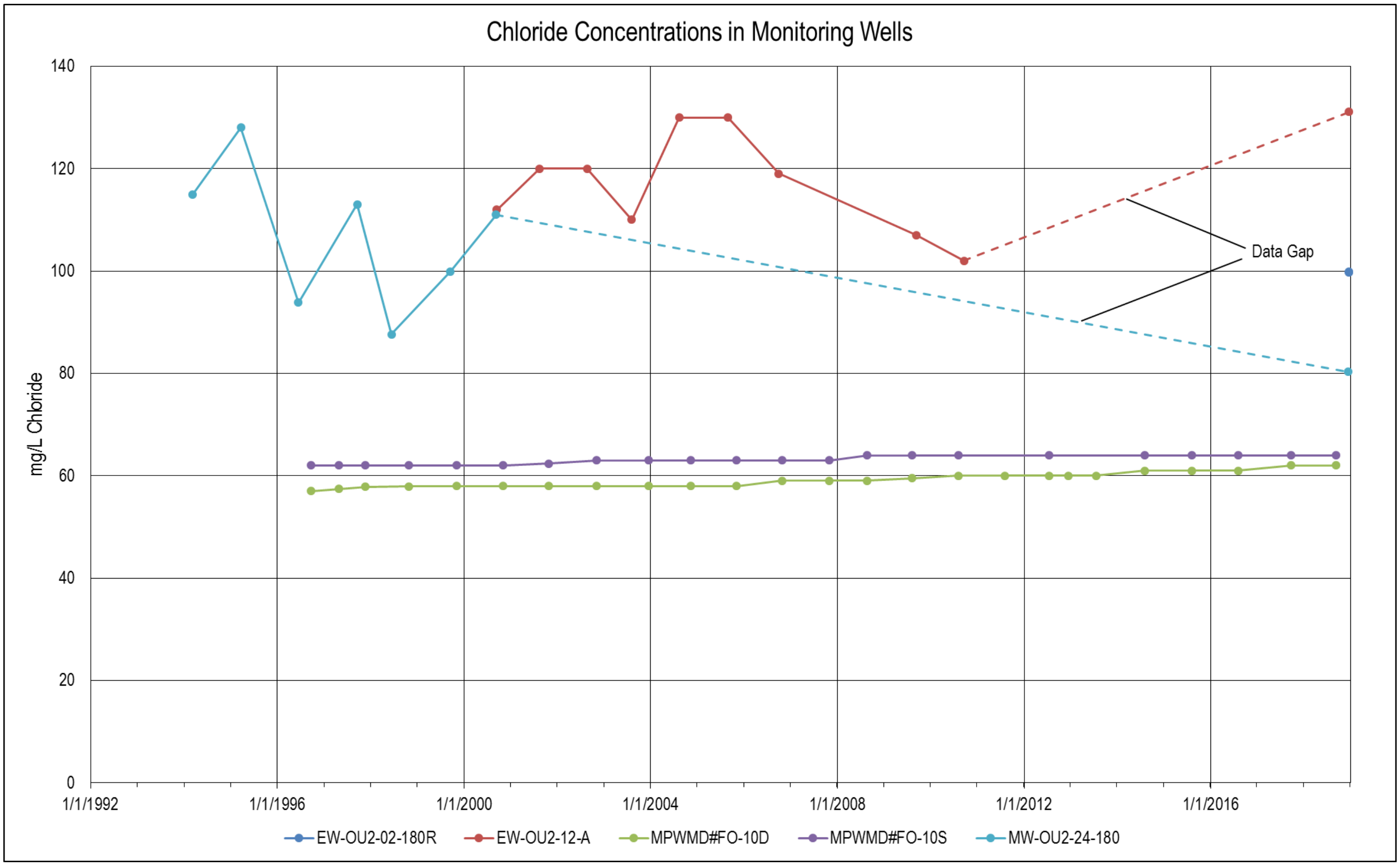
1947



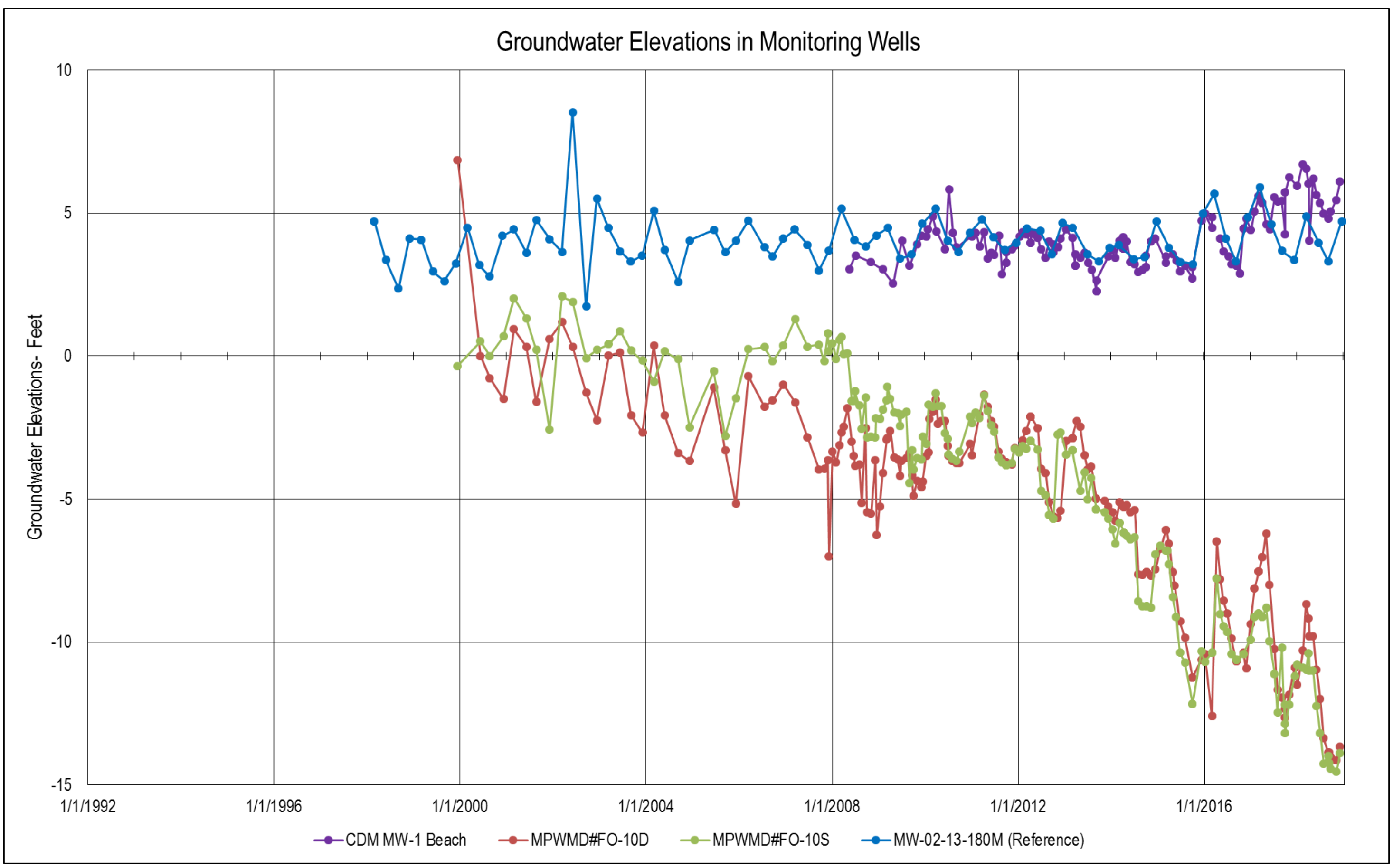
Chloride Concentrations In Monitoring Wells (180-Foot Aquifer)
mg/L Chloride
10000
8000
6000
4000
2000
0
1/1/1992
1/1/1996
1/1/2000
1/1/2004
1/1/2008
1/1/2012
1/1/2016
Data Gap
MW-02-13-180M
MW-12-05-180



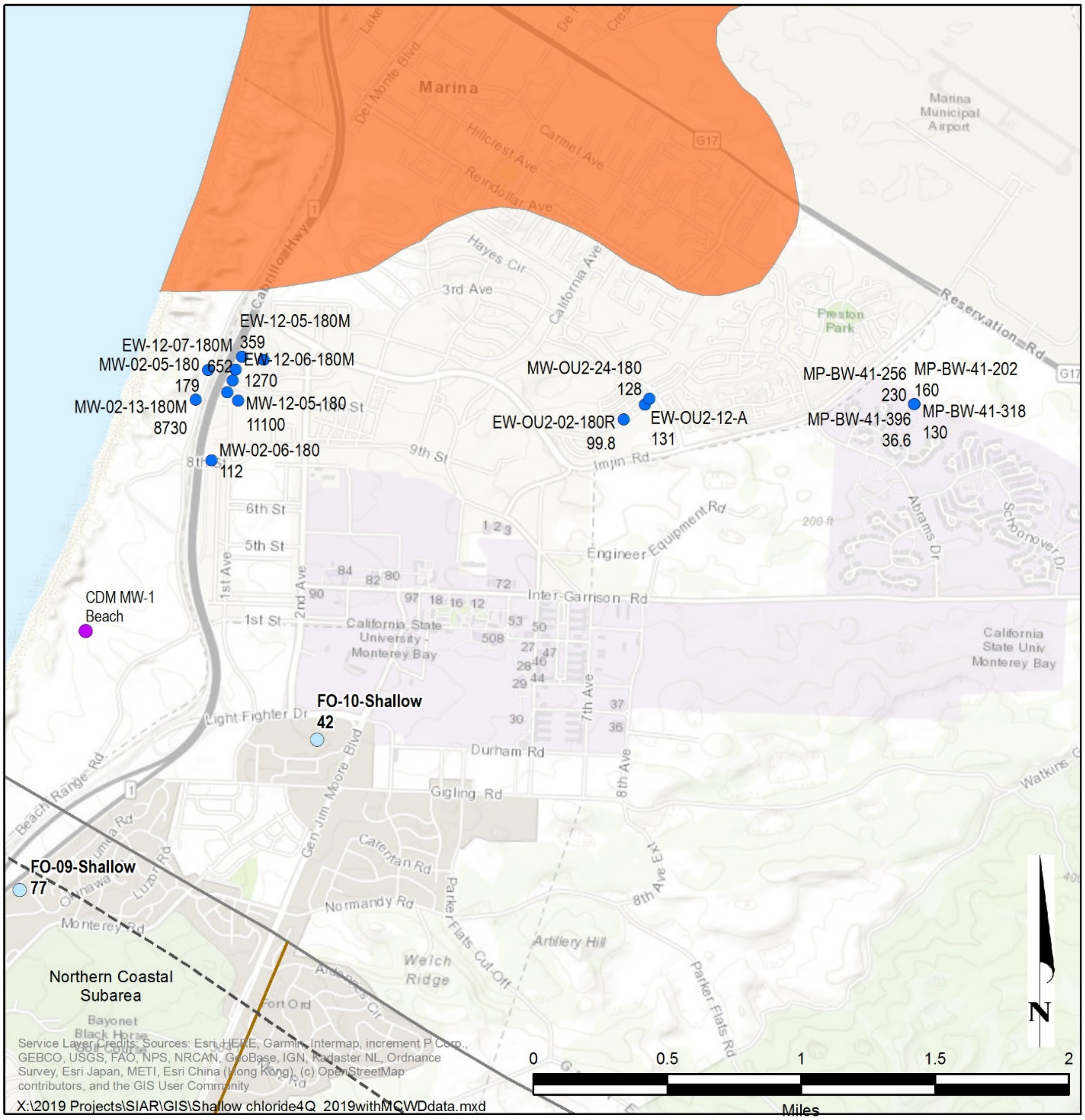
Chloride Concentrations in Monitoring Wells (180-Foot Aquifer)
mg/L Chloride
1400
1200
1000
800
600
400
200
0
1/1/1992
1/1/1996
1/1/2000
1/1/2004
1/1/2008
1/1/2012
1/1/2016
EW-12-05-180M
EW-12-06-180M
EW-12-07-180M
EW-12-08-180U
MW-02-05-180
MW-02-06-180
MW-12-12-180L



Chloride Concentrations in Monitoring Wells
mg/L Chloride
140
120
100
80
60
40
20
0
1/1/1992
1/1/1996
1/1/2000
1/1/2004
1/1/2008
1/1/2012
1/1/2016
Data Gap
EW-OU2-02-180R
EW-OU2-12-A
MPWMD#FO-10D
MPWMD#FO-10S
MW-OU2-24-180



Groundwater Elevations in Monitoring Wells
Groundwater Elevations- Feet
10
5
0
-5
-10
-15
1/1/1992
1/1/1996
1/1/2000
1/1/2004
1/1/2008
1/1/2012
1/1/2016
CDM MW-1 Beach
MPWMD#FO-10D
MPWMD#FO-10S
MW-02-13-180M (Reference)

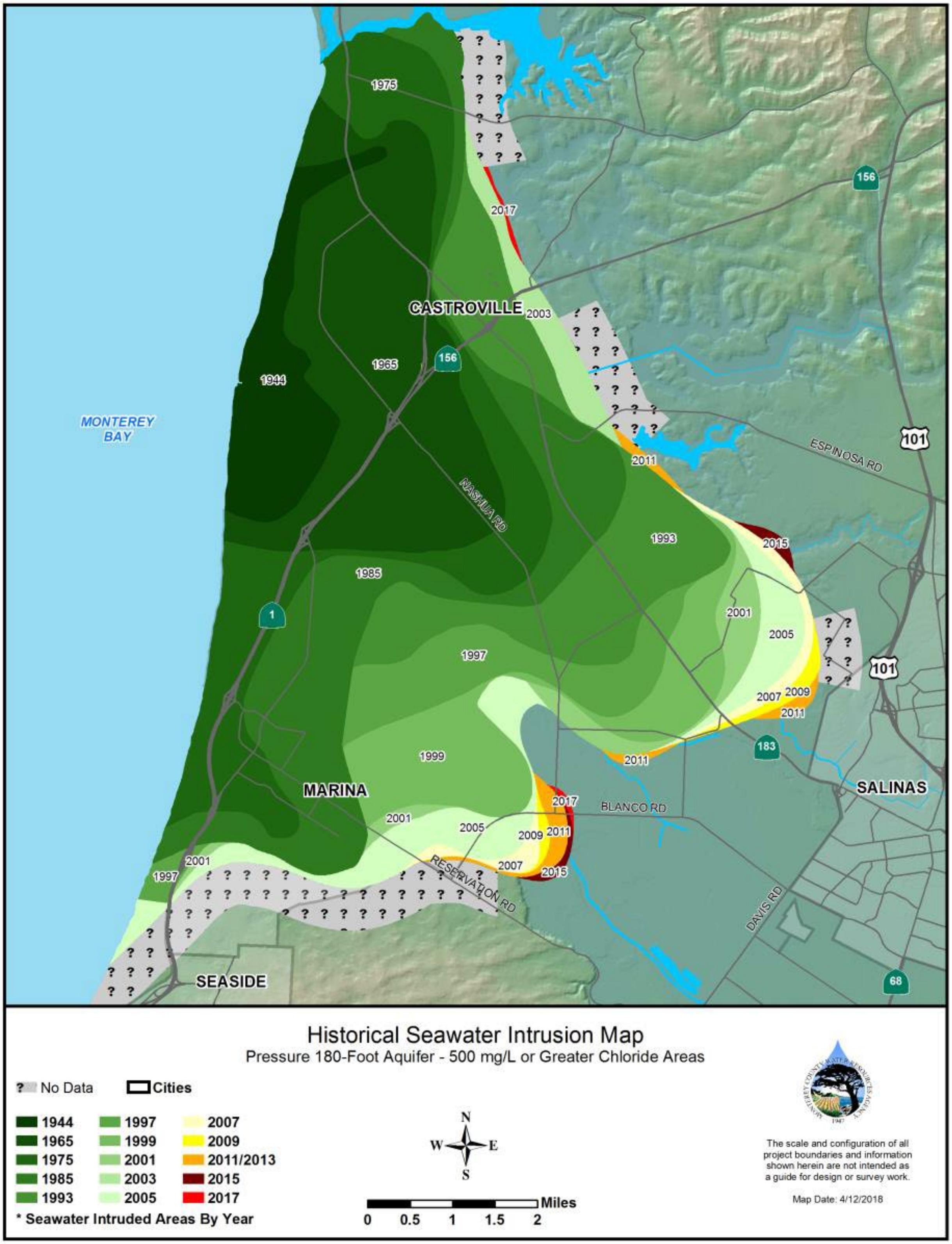


EXPLANATION

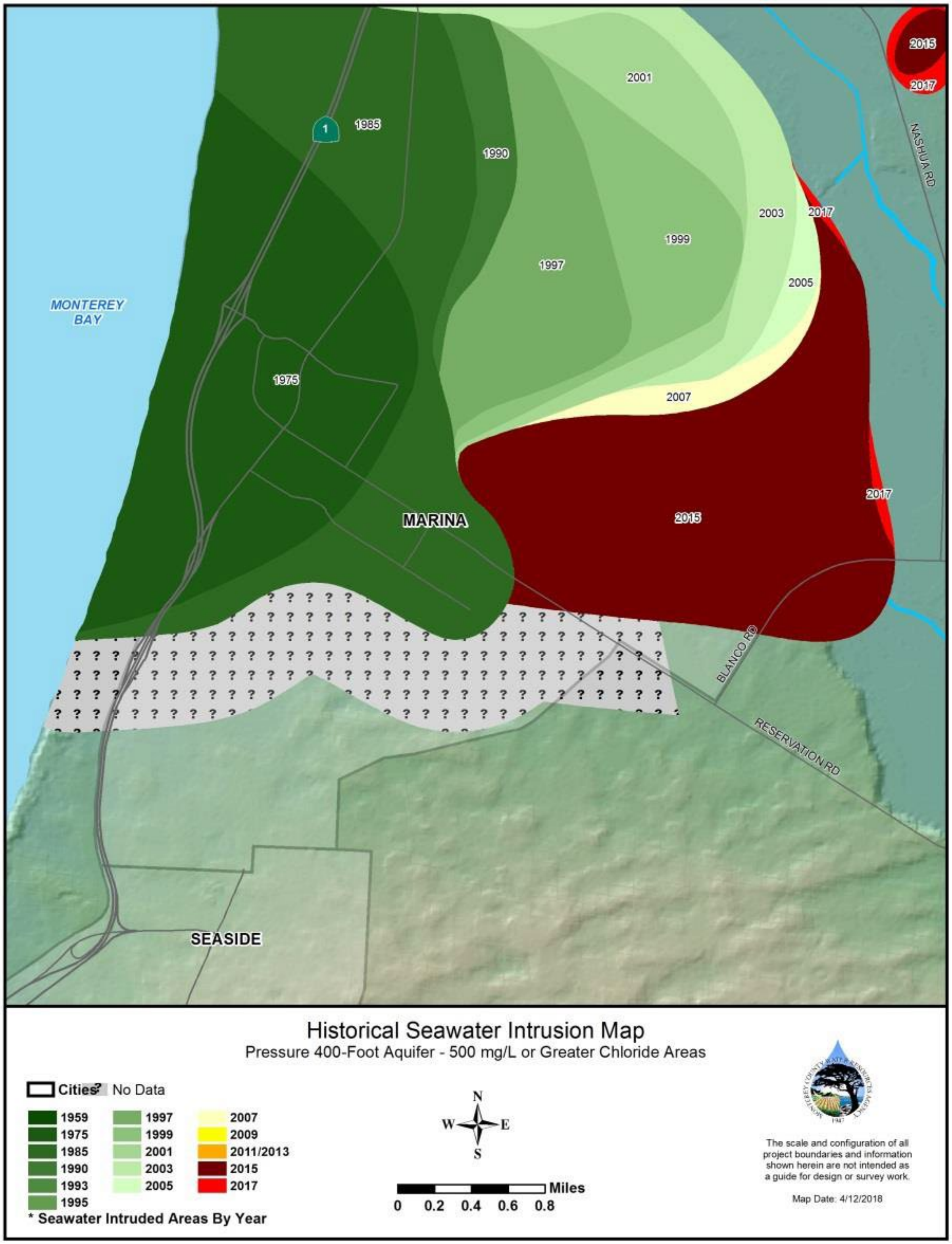
- Fort Ord Monitoring Wells with Maximum Chloride concentration (mg/L)
- Groundwater Elevation Data Reference Well
- 4th Quarter WY 2019 Chloride Concentration in mg/L
- Approximate Shallow Aquifer Northern Boundary

Adjudicated Seaside Groundwater Basin Boundary

- Basin Boundary
- Subarea Boundary
- >500 mg/L Chloride Areas - 400 ft Aquifer in Salinas Valley



2017 Seawater Intrusion Map – 180-foot Aquifer



2017 Seawater Intrusion Map – 400-foot Aquifer

PAGE NO.	PARAGRAPH	COMMENT
General Overall Comment	N/A	1. There are a huge number of acronyms in this Chapter. Please include near the front of the Chapter a list of acronyms and their meanings. 2. I am confused by the many names given to the various aquifers. For example in the Seaside Basin we have 3 aquifers: Aromas Sands, Paso Robles, and Santa Margarita. In the adjacent Monterey Subbasin Marina Management Area there are the upper and lower 180' and 400', the Dunes Sands, and the Deep Aquifers. In the Monterey Subbasin Corral de Tierra Management Area there are the El Toro Principle aquifers. I'm sure many of these are hydrogeologically interconnected and thus, in essence, the same aquifer. Near the front of this Chapter please include a table that gives the corresponding name of the aquifers in each of the Management Areas and the adjacent Seaside Subbasin and the 180/400-foot Subbasin, and a cross-section figure that graphically depicts the aquifers across each of these Management Areas and Subbasins.
7	First bulleted para	This para includes language indicating that there is a data gap in the southern portion of the Marina-Ord area Dune Sand Aquifer. Language should be added to say that this data gap needs to be filled as part of the GSP.
8	First bullet at top of page	This para states that the Dune Sand Aquifer protects the upper 180' aquifer from SWI. Please elaborate on how this protection is provided.
	2nd bullet under "400 Foot Aquifer"	Please explain what is causing the local groundwater depression just north of the boundary between the Seaside Subbasin and the Marina-Ord area. The Watermaster is very concerned that we are starting to see increasing chloride levels in our monitoring well FO-10 which is in that area and also in our monitoring well FO-9 which is inside the Seaside Subbasin not too far south and west of FO-10. For more detail on this please refer to page 33 of the Watermaster's 2020 Seawater Intrusion Analysis Report (SIAR) which is posted at this link: http://www.seasidebasinwatermaster.org/Other/2020%20Seawater%20Intrusion%20Analysis%20Report%20Final%2012-3-20.pdf
Figure 5-3	N/A	The depression referred to on page 8 is clearly shown in this Figure so the response to the comment above about this should also refer to this Figure.
Figure 5-7	N/A	The groundwater contours for the 400-foot aquifer shown in this Figure extend into the Seaside Subbasin. We do not have a 400-foot aquifer in the Seaside Subbasin. Presumably this is either the Paso Robles or the Santa Margarita aquifer, so the legend of this Figure should make that clarification.
Figure 5-8	N/A	The groundwater contours for the Deep Aquifers shown in this Figure extend into the Seaside Subbasin. We do not have a Deep Aquifer in the Seaside Subbasin, and the aquifers we do have, with the exception of the Aromas Sands, are all much deeper than the contours that are shown.

Figures 5-9 and 5-10	N/A	There are groundwater level contours in the Laguna Seca Subarea of the Seaside Subbasin that should also be plotted on this Figure, since they correspond to the same aquifers that are part of the El Toro Primary Aquifer. Those contours are contained in the Watermaster's 2017 Seawater Intrusion Analysis Report on pages 54 and 55. For 2017 the link to the SIAR is: http://www.seasidebasinwatermaster.org/Other/2017%20Seawater%20Intrusion%20Analysis%20Report_Final.pdf
21	Dune Sand Aquifer	The word "the" is missing in the first sentence of this bulleted para, right before the word "large".
23	First para under Corral de Tierra Area	When the term "El Toro Primary Aquifer System" is first introduced please describe the aquifers that comprise it, and if they are not the Paso Robles and Santa Margarita aquifers, explain how they correspond to those aquifers, which are the ones we monitor in the Laguna Seca Subarea of the Seaside Subbasin.
Figure 5-13	N/A	The plots in this Figure of MPWMD#FO-10 and MPWMD#FO-11S show falling groundwater levels, whereas the other plots in this Figure should stable levels. The reason for the falling levels in these wells, which are in the southwestern portion of the Marina-Ord area, should be explained in the text.
Figure 5-14	N/A	This Figure shows groundwater levels in the Deep Aquifers. The plot for MPWMD#FO-10D shows groundwater levels in the Santa Margarita aquifer, not the Deep Aquifer. I am not sure, but the same may be true of MPWMD#FO-11D.
31	Figure 5-18	The text should discuss the dramatic decline in groundwater elevations occurring since 1998, and a trend line for that portion of the data would be helpful to highlight the rate of decline.
Figure 5-20	N/A	There is considerably more groundwater level measurement data in the Seaside Subbasin than is depicted in this Figure. That data is available in the Watermaster's annual SIARs and should be added to this Figure, just as the data in the 180/400-foot Aquifer Subbasin is shown.
37	N/A	A paragraph should be added within the discussion of the AEM data describing the comments and concerns about the reliability of the AEM data which were raised by the Blue Ribbon Panel that reviewed the Cal Am Slant Well reports.
41	Next to last para	A sentence should be added at the end of this para stating that there is also a data gap in the southwestern portion of the Marina-Ord area, which prevents knowing the location of the SWI front in that area as well.
Figure 5-24	Legend	In the legend the "Note" pertaining to the Groundwater with TDS <1,000 mg/L is missing.
Figure 5-28	N/A	The text where it discusses this Figure should note that the Watermaster's Sentinel Well SBWM-1, which is located next to the coast just north of the Seaside-Marina-Ord boundary has not shown any indication of SWI in any of the aquifers that it penetrates, which include the Paso Robles and Santa Margarita aquifers. Therefore, it is not clear why the extent of the "Area of Known Seawater Intrusion" is shown going into that area. Due to the lack of monitoring well data in that area (as mentioned in some of the comments above) it is not clear how the extent of the SWI front can be accurately depicted in that part of the Marina-Ord area. This is supported by the MCWRA SWI mapping in Appendix 5B which has

		"???" shown in that area due to lack of data. This comment also applies to Figure 5-29 which also shows the "Area of Known Seawater Intrusion".
48	Next to last para	A sentence should be added at the end of this para stating that Wells MPWMD#FO-9 and FO-10 have also been showing increasing TDS levels in recent years.
	Last para	Provide a para here that discusses the apparent migration of SWI from the Marina-Ord area, south toward the Seaside Subbasin, as discussed in the Watermaster's 2020 SIAR.
Figure 5-29	N/A	Add an inset plot of TDS levels from well MPWMD#FO-9 to this Figure
50	Bullet list under the heading of Data Sources	Add MPWMD and the Watermaster as entities from which data was collected.

SBWA
SALINAS BASIN WATER ALLIANCE

Salinas Basin Water Alliance

P.O. Box 247, Salinas, CA 93902

March 10, 2021

Chair Tom Adcock
SVBGSA Advisory Committee
P.O. Box 1350
Carmel Valley, CA 93924

Dear Chair Adcock and SVBGSA Board Members,

On behalf of our directors and members, we are writing to voice several concerns about the GSA's process for approving and promoting projects and management actions for subbasins throughout the Salinas Valley.

First, we are concerned about the agency's timelines for subbasin committees to approve water allocation policies *before* disclosing or approving water budgets. We are acutely aware that the agency's mission is to ensure the sustainability of groundwater throughout the valley. How can we accomplish this if staff-recommended policies to committees are disconnected from the actual amounts of water being used annually in each subbasin? We have seen this order of operations in every one of the subbasin meetings so far and are concerned it flies in the face of the agency's extraordinary efforts to be transparent and effective.

Secondly, we are concerned about how the agency is formulating water budgets. We represent more than 37,000 acres owned and farmed throughout the valley. From our experience, the data being used from 2013 and earlier is not accurate to water usage today, self-reporting data is not a sufficient safeguard for sustainability, and thirdly, any valley-wide formula based on crops is insufficient as temperatures, soil composition, and other conditions vary. If we are to accurately measure and equitably discuss water use throughout the Salinas Valley, we must draw on water metering data to create water budgets.

We appreciate the opportunity to bring our valley-wide experience to the table and look forward to working with all the subcommittees to find sustainable solutions for everyone in the Salinas Valley.

Sincerely,

DocuSigned by:
George Fontes
273F0A6013E2424...

George Fontes, President, Board of Directors
Salinas Basin Water Alliance

From:	Emily Gardner
To:	Tina Wang
Subject:	Fwd: Monterey Subbasin GSP Committee Special Meeting on March 23
Date:	Thursday, July 22, 2021 3:56:15 PM

---------- Forwarded message ---------
From: <bobj83@comcast.net>
Date: Mon, Mar 22, 2021 at 11:04 AM
Subject: Monterey Subbasin GSP Committee Special Meeting on March 23
To: Hardgrave, Sarah <HardgraveS@co.monterey.ca.us>, Emily Garnder <gardnere@svbgsa.org>, Abby Ostovar <aostovar@elmontgomery.com>, Derrik Williams <dwilliams@elmontgomery.com>
CC: Bob Jaques <bobj83@comcast.net>, Jonathan Lear <jlear@mpwmd.net>, Tamara Voss <vosstl@co.monterey.ca.us>, Laura Paxton <watermasterseaside@sbcglobal.net>

Everyone,

As I commented on at the last GSP Committee meeting, I believe that Pumping Allocations will be an essential (not just a "Contingency") Action in order for the Corral de Tierra subarea to achieve the Subbasin's Sustainable Yield (SY). The other actions that are Projects only are projected to reduce pumping by a little less than 400 AFY, and the amount of reduction needed to reach SY is estimated to be 1,000 AFY. Thus, a substantial additional amount of reduction will be needed, and this appears only capable of being accomplished by implementing pumping allocations to further reduce pumping.

The term "Sustainable Yield" in the context of the documents being prepared for the GSP is actually the "Natural Safe Yield" as confirmed by Derrik at a recent meeting. The Sustainable Yield concept should be explained to the Committee members, because it is different than the Natural Safe Yield. The Sustainable Yield is nearly always less than the Natural Safe Yield. Specifically, if pumping within a subarea is concentrated in one location, localized lowering of ground water levels can occur there, even if the Natural Safe Yield of the subarea is not being exceeded. It appears that the majority of the pumping in the Corral de Tierra subarea is concentrated in the westernmost portion of the subarea, adjacent to the Laguna Seca Subarea of the Seaside Subbasin. This appears to be a major cause in the lowering of groundwater levels in the Laguna Seca Subarea, as well as in that part of the Corral de Tierra subarea, and hence need to be addressed in the GSP to stop this lowering of groundwater levels.

From the perspective of the Seaside Basin Watermaster, we are looking for the GSP for the Corral de Tierra subarea to address the depletion of groundwater in the Laguna Seca Subarea that is being caused by overpumping in the Corral de Tierra subarea. This is because if pumping in the Laguna Subarea were reduced or even stopped altogether, our modeling shows that even more water from the Laguna Seca subarea would be drawn into the Corral de Tierra subarea because of the lowered groundwater levels in the Corral de Tierra subarea. This tells us that the Watermaster has no capability of stopping the chronic lowering of groundwater levels in the Laguna Seca Subarea, and that this can only be corrected by reducing pumping in the Corral de Tierra subarea.

In summary, I believe this issue needs to be clearly discussed and highlighted in the GSP, so it is clear to all reader of the GSP that pumping allocations to reduce pumping will be necessary, and that they will need to be implemented early-on in the implementation of the GSP in order to avoid causing further detrimental impacts on the Laguna Seca subarea.

Thanks,

Robert S. Jaques, PE

Technical Program Manager

Seaside Basin Watermaster

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Monterey, CA 93940

Office: (831) 375-0517

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April 5, 2021

Marina Coast Water District
11 Reservation Road
Marina, CA 93933
Attn: Patrick Breen, Water Resources Manager
Email: pbreen@mcwd.org

Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Attn: Emily Gardner, Deputy General Manager and Derrik Williams, GSP Project Manager
Email: gardnere@svbgsa.org; dwilliams@elmontgomery.com

SUBJECT: HWG COMMENTS ON DRAFT MONTEREY SUBBASIN GROUNDWATER SUSTAINABILITY PLAN, CHAPTERS 4 AND 5

Dear Mr. Breen, Ms. Gardner, and Mr. Williams:

This letter provides the comments of the Hydrogeologic Working Group (HWG) on the Draft Monterey Subbasin Groundwater Sustainability Plan (GSP) Chapters 4 and 5. This letter provides both an Executive Summary highlighting some of our main comments, and a Detailed Comments section. It should be noted that the Executive Summary and Detailed Comments provided in this letter are not necessarily intended to be comprehensive, and additional comments may be provided at a later time.

EXECUTIVE SUMMARY

Our comments on the Draft Monterey Subbasin GSP Chapters 4 and 5 generally relate to the following items: description of geologic conditions, conclusions regarding groundwater conditions, preferential use of airborne electromagnetics (AEM) data over field data, and hydrogeologic interpretation of AEM data. Our high-level summary comments on Draft GSP chapters 4 and 5 are provided below, with a detailed comments section following this Executive Summary.

HWG summary comments on Chapters 4 and 5 are:

- The GSP presents a hydrogeologic conceptual model (HCM) with some inaccuracies based on invalid hydrogeologic interpretations of the AEM surface geophysics and other data that is not in agreement with available field data including boring logs, aquifer test, groundwater level, and groundwater quality data;
- The GSP does not utilize the most up-to-date hydrogeologic conceptual model for the northern Monterey Subbasin and southern 180/400 Aquifer Subbasin area in understanding the

hydrogeology of the area even the though the HWG conducted the most recent and extensive investigation of the hydrogeology specific to this area (e.g., HWG Technical Report, November 2017);

- Groundwater levels/quality and aquifer/aquitard continuity are mischaracterized in the northern Monterey Subbasin and southern 180/400 Aquifer Subbasin due to: inappropriate application of the Fort Ord Site Conceptual Model to this area; use of inaccurate hydrogeologic interpretations from AEM data; and lack of using all available field data and the most recent comprehensive hydrogeologic conceptual model of the area;
- The Dune Sand Aquifer (DSA) is not a Principal Aquifer and has been misclassified in the Monterey Subbasin GSP, and is in conflict with the 180/400 Foot Aquifer Subbasin GSP where the Dune Sand Aquifer is not classified as a Principal Aquifer;
- The inaccurate HCM analyses create conflicts with the 180/400-Foot Aquifer Subbasin GSP;
- While the HWG concur that achieving sustainability within the 180/400-Foot Aquifer Subbasin is important for achieving sustainability within Monterey Subbasin, the cause of depressed groundwater elevations and seawater intrusion in the Monterey Subbasin is mischaracterized as essentially being entirely due to pumping within the 180-/400-Foot Aquifer Subbasin and Seaside Subbasin; however, pumping from wells within Monterey Subbasin have played a major role in historical/current undesirable groundwater conditions and the Monterey Subbasin needs to do its part in achieving local and regional sustainability;
- The Monterey Subbasin GSP relies primarily on a study conducted by WRA Environmental (and by reference a study by Formation Environmental) in its discussion of groundwater dependent ecosystems (GDEs); however, there are many concerns about the methods/conclusions used in these studies to establish groundwater dependency of ecosystems that have been documented previously by HWG and supplemented by a recent study conducted by Geoscience/AECOM.

More specific and detailed comments on Monterey Subbasin Draft GSP chapters 4 and 5 are provided below.

DETAILED COMMENTS

Chapter 4 – Hydrogeologic Conceptual Model

1. The GSP states, "The geology described here is based on previously published scientific reports from investigations conducted by the USGS, State of California, other consulting firms, and academic institutions."(Section 4.1.1, Geological and Structural Setting, p. 64).

HWG Comment: *We note that extensive field work conducted by the HWG between 2013 and 2018, including test slant well installation/testing, drilling of several borings and installation of an extensive monitoring well network, extensive data analyses covering the coastal southern 180/400-Foot Aquifer Subbasin and coastal northern Monterey Subbasin are documented in publicly available reports prepared by the HWG and posted on the Monterey Peninsula Water Supply Project (MPWSP) website (e.g., HWG,* *November 2017). These HWG documents incorporated data from previous studies by others (many of which are cited in the Monterey Subbasin GSP), and allowed for improved hydrogeologic interpretations by incorporating both existing and new field data collected by HWG. The Monterey Subbasin GSP ignores these HWG documents and makes geologic interpretations that are inconsistent with the most recent data that has been collected. Some of the specific inconsistencies are noted in other comments in this letter.*

2. The GSP mischaracterizes the Dune Sand Aquifer in multiple instances in Chapter 4. One example is the attempt to label the Dune Sand Aquifer as a "Principal Aquifer" (Section 4.2.1, Hydrogeology in the Marina-Ord Area, Table 4-1, page 79).

HWG Comment: *The Dune Sand Aquifer is not a Principal Aquifer in the subbasin. The Draft GSP prepared by City of Marina (2019) stated the Dune Sand Aquifer, "…is not commonly used for drinking water or agricultural irrigation". The Monterey County Water Resources Agency (MCWRA), which has studied and characterized the groundwater basin for many decades, does not consider the Dune Sand Aquifer as a principal aquifer (e.g., no seawater intrusion maps are prepared for the Dune Sand Aquifer by MCWRA). The 180/400-Foot Aquifer Subbasin GSP, which the MCWD GSA adopted and submitted to DWR, also does not classify the Dune Sand Aquifer as a Principal Aquifer. The Dune Sand Aquifer is not a Principal Aquifer due in part to its lack of capability for use in groundwater production (e.g., thin saturation, groundwater quality issues related to sea water intrusion and nitrates, etc.). In addition, the Hydrogeology section for the Corral de Tierra Area in Monterey Subbasin GSP Chapter 4 states that following about the upper 120 feet of sediments, "Several small domestic wells draw groundwater from these local alluvial aquifers, but these volumes of groundwater are minimal…Since this volume of groundwater is neither economic or significant, these shallow sediments are not considered a principal aquifer…Groundwater in these sediments is hydraulically connected to the small streams found in the area…" (page 111 of Chapter 4). This conclusion for the Corral de Tierra Area is inconsistent with designating the Dune Sand Aquifer, which cannot even claim to be tapped by "several small domestic wells", as a Principal Aquifer. As noted above, designation of the Dune Sand Aquifer as a Principal Aquifer is inconsistent with the 180/400-Foot Aquifer Subbasin GSP (where the Dune Sand Aquifer also is present), which specifically did not designate the Dune Sand Aquifer as a Principal Aquifer. It is also important to point out that the Dune Sand Aquifer, as defined in the Monterey Subbasin GSP, consists of two distinct aquifers – the coastal Dune Sand Aquifer that directly overlies the 180-Foot Aquifer and the perched/mounded Dune Sand Aquifer (known as the A-Aquifer in Fort Ord studies) that overlies the Fort-Ord Salinas Valley Aquitard (FO-SVA) clay layer (incorrectly referred to as Salinas Valley Aquitard in the Monterey Subbasin GSP). The coastal Dune Sand Aquifer is intruded with sea water, while the perched/mounded Dune Sand Aquifer is perched in areas, has thin saturation, is impacted by nitrates, and is not developed with production wells for any significant water supply uses.*

3. The GSP relies on old geologic cross-sections from 2001 (Section 4.2.1.1, Cross-Sections, pages 80-85).

HWG Comment: *The cited geologic cross-section references and Figures 4-9 through 4-12 do not utilize best available science and most recent borehole and geophysical logs for wells drilled in the area, nor do* *they utilize the most recent geologic cross-sections developed based on these data (see HWG, November 2017). This results in mischaracterization of hydrogeologic conditions for the GSP Plan Area. Geologic cross-sections that use the latest available data and include areas within the Monterey Subbasin are provided in previously published HWG documents (HWG, November 2017; HWG et al., February 2020).*

4. With regard to the Dune Sand Aquifer, the GSP states, "The aquifer is perched further away from the coast in areas where the SVA exists… " (Section 4.2.12, Principal Aquifers, page 86).

HWG Comment: *The HWG agrees with this GSP statement about the Dune Sand Aquifer being perched in areas where it is underlain by the SVA (more correctly referred to as the FO-SVA). However, perched aquifers should not be designated as Principal Aquifers as is being done in the Monterey Subbasin GSP.*

5. The GSP refers to an average saturated thickness of the Dune Sand Aquifer being approximately 50 feet (Section 4.2.12, Principal Aquifers, page 86).

HWG Comment: *As described above, there are two distinct aquifers being referred to collectively in the GSP as the Dune Sand Aquifer. While the coastal DSA may have a saturated thickness of 50 feet or more in some areas, the perched/mounded DSA has a saturated thickness considerably less than 50 feet.*

6. The GSP does not distinguish and describe the differences between the Salinas Valley Aquitard (SVA) and Fort-Ord Salinas Valley Aquitard (FO-SVA) and its significance to the perched/mounded aquifer (underlain by FO-SVA) versus the Dune Sand Aquifer and its equivalents (not underlain by FO-SVA) in many places in the document (Chapter 4).

HWG Comment: *It should be noted that the SVA and FO-SVA are not the same aquitard and FO-SVA occurs at a higher elevation; therefore, they should not be referred to as the same aquitard.*

7. The GSP shows a Conceptual Site Model diagram that was developed from Fort Ord studies, and implies that the Fort Ord Conceptual Site Model diagram applies throughout the Monterey Subbasin (Section 4.2.1.2, Principal Aquifers, Figure 4-13, p.87).

HWG Comment: *Recent studies completed by the HWG demonstrate that the Fort Ord Conceptual Site Model does not apply in the southern portion of the 180/400 Foot Aquifer Subbasin or the northern portion of the Monterey Subbasin. In particular, the concepts of an Intermediate 180-Foot Aquitard and lack of a 180/400 Foot Aquitard do not apply outside of Fort Ord. Work completed by HWG demonstrates that the 180-Foot Aquifer is one vertically continuous aquifer and that the 180/400 Foot Aquitard is present (HWG, November 2017).*

8. The GSP states that horizontal hydraulic conductivity in the DSA ranges from 0.14 to 120 feet/day (Section 4.2.1.2, Principal Aquifers, p.87).

HWG Comment: *It is important to distinguish the two major portions of what is referred to in the GSP as the DSA – coastal and perched/mounded. While the coastal DSA does have K values on the higher end of the cited range, perched/mounded portion of the DSA only has K values at the lower end of the cited range.*

9. The GSP makes general statements on hydrogeologic interpretations of AEM data, including outside of the GSP Plan area (Section 4.2.1.2, Principal Aquifers, p. 88).

HWG Comment: *It is not clear why the GSP is speculating on aquifer conditions outside of the Monterey GSP Plan Area based solely on AEM data, and without consideration of geologic and well data. The GSP also provides no demonstration/evidence of how these conclusions were reached. The HWG has previously provided extensive documentation of erroneous hydrogeologic interpretations of the AEM data (HWG, November 2017, January 2018, August 2018, January 2019, March 2019, and April 2019). The HWG April 2019 document clearly demonstrates with field data that the hydrogeologic interpretations of aquitard gaps from the AEM study are invalid. Furthermore, as described above, MPWSP monitoring well borehole logs demonstrate that areas of uncertain aquitard continuity identified by MCWRA (who did not have MPWSP monitoring well borehole data available to them at the time of their study) near the northern Monterey Subbasin boundary are no longer uncertain and clearly have significant aquitard material present. Furthermore, review of water level and water quality data for the MPWSP clearly demonstrate the presence and continuity of the 180/400-Foot Aquitard in this area.*

The Monterey Subbasin GSP does not describe the applicability of the concept of a sea water wedge (i.e., where sea water intrusion occurs, less saline water often overlies more saline water in a given aquifer) to explain the expected presence of less saline water overlying more saline water in some areas of the vertically continuous 180-Foot Aquifer. The presence of less saline water in the upper portion of an aquifer does not demonstrate the aquifer is not sea water intruded. Furthermore, given the standard of 500 mg/L chloride applied by MCWRA for defining the area of seawater intrusion, the AEM data collected in the area are not capable of distinguishing between a chloride concentration below the standard (e.g., 200 mg/L) from a chloride concentration above the standard (e.g., 600 mg/L) given inherent uncertainties in AEM data interpretation and the complicating variable of lithologic influences on AEM data.

10. The GSP states, "South of the City of Marina, in a portion of the former Fort Ord, the 180-Foot Aquifer is separated into an "upper" zone of sandy deposits with some gravel and a "lower" zone of gravel with sand and clay lenses; the two zones are separated by a thin clay layer (Ahtna Engineering, 2013). Data collected within the former Fort Ord show that significant head differences exist between the upper and lower ones of the 180-Foot Aquifer." (Section 4.2.1.2, Principal Aquifers, p. 91).

HWG Comment: *The HWG agrees that the area where this conceptual model applies is in a portion of former Fort Ord to the south of the City of Marina. However, the GSP implies this conceptual model (illustrated in Figure 4-13) applies throughout the GSP Plan Area, including north of Reservation Road, which is not correct as documented in work by HWG that is not referenced in this GSP (e.g., HWG, November 2017).*

11. The GSP discussion of the "Middle (180/400) Aquitard" suggests it is not present beneath the majority of the Marina-Ord Area, and implies this conceptual model applies throughout the Monterey Subbasin as illustrated by Figure 4-13 (Section 4.2.1.2, Principal Aquifers, p. 91).

HWG Comment: *As noted above with other aspects of the conceptual model presented in Figure 4-13, the concept that the 180/400 Foot Aquitard is not present in northern Monterey Subbasin and southern 180/400 Foot Aquifer Subbasin is erroneous (see recent work by HWG not referenced in the GSP, as well as MCWD well logs). For example, HWG work demonstrates similar groundwater elevations in the upper and lower 180 Foot Aquifer (MW-6), and significantly different groundwater elevations and fluctuations in the 180 and 400 Foot Aquifers (multiple MPWSP monitoring wells).*

12. The GSP states, “The Lower 180-Foot Aquifer zone and the 400-Foot Aquifer in the vicinity of the City of Marina are functionally the same due to the missing Middle (180/400-Foot) Aquitard in this area.” (Section 4.2.1.2, Principal Aquifers, p. 94).

HWG Comment: *As discussed above with other aspects of the Site Conceptual Model (Figure 4-13), this characterization does not apply to Northern Monterey Subbasin, contrary to what is stated/implied in the GSP.*

13. The GSP states, “Near the Monterey-Seaside subbasin boundary, a depression exists in the groundwater potentiometric surface of the 400-Foot Aquifer…These data suggest that a potential connection may exist between the 400-Foot Aquifer and the Deep Aquifer in this area.” (Section 4.2.1.2, Principal Aquifers, p. 94.)

HWG Comment: *There is no geologic evidence provided in the GSP to support this statement. Preliminary review of geologic data (lithologic logs and Elogs) by HWG for MPWMD FO-10 and FO-11 indicate presence of sufficient thicknesses of clay layers to serve as aquitard layers between the 400-Foot and Deep Aquifers at this location.*

14. The GSP states, “As shown in Section 6 below, groundwater flow direction in the 400-Foot Aquifer is strongly influenced by groundwater pumping in the Salinas Valley Groundwater Basin, inland of the Monterey Subbasin.” (Section 4.2.1.2, Principal Aquifers, p. 94)

HWG Comment: *A primary theme of this GSP here and elsewhere is that pumping in the 180/400 Foot Aquifer Subbasin is essentially solely responsible for seawater intrusion in the 180-Foot Aquifer and 400-Foot Aquifer within Monterey Subbasin, and for depressed Deep Aquifer groundwater elevations in the within Monterey Subbasin. However, the history of groundwater development in the Monterey Subbasin demonstrates how groundwater production wells developed for MCWD and Fort Ord resulted in seawater intrusion in the 180-Foot Aquifer and 400-Foot Aquifers in Monterey Subbasin (for example, see quote below from Harding ESE, 2001). In addition, Deep Aquifer groundwater elevations were fluctuating around sea level prior to pumping of Deep Aquifer wells by MCWD that dropped Deep Aquifer groundwater elevations well below sea level. Thus, groundwater pumping from wells screened in the 180-Foot, 400-Foot, and Deep Aquifers within Monterey Subbasin have played a significant role in historical/current seawater intrusion and depressed groundwater elevations within Monterey Subbasin.*

Harding ESE (2001) states: “Seawater intrusion beneath the city of Marina was observed soon after installing several production wells in the 180-Foot Aquifer (MCWD-1, the first city well, was installed in

1956). Subsequent seawater intrusion into this area was closely related to ground water withdrawal by the city of Marina and former Fort Ord. Deteriorating water quality forced the city of Marina to discontinue pumping most of its 180-Foot Aquifer wells by the late 1970's and install water-supply wells in the 400-foot (MCWD-8, -8a, and -9) and Deep Aquifers (MCWD-10, -11, and-12)."

15. The GSP states with respect to the Deep Aquitard (otherwise known as 400 Foot/Deep Aquitard), "There is no analysis available for its spatial occurrence or geologic composition." (Section 4.2.1.2, Principal Aquifers, p. 95).

HWG Comment: *The GSP could have conducted the "missing" analysis of the aquitard for the Monterey Subbasin given that several MCWD production wells (e.g., MWCW 10, 11, 12) and other wells (e.g., USGS deep nested monitoring well, agricultural wells) have available lithologic and geophysical logs. Such an analysis would demonstrate the presence of a 200 to 300 foot thick clay layer (i.e., 400/Deep Aquitard) between the 400-Foot Aquifer and uppermost Deep Aquifer Zone. The lack of seawater intrusion in the Deep Aquifer, which has groundwater elevations on the order of 50 to 100 feet below sea level in the northern Monterey Subbasin area and a strong vertically downward gradient from the 400-Foot Aquifer, combined with high salinity in the 400-Foot Aquifer within and surrounding the northern Monterey Subbasin also shows the strong integrity of the aquitard between the 400-Foot Aquifer and Deep Aquifer. T*he large difference in water levels between the 400-Foot Aquifer and Deep Aquifers also provides evidence of a thick/tight aquitard separating these aquifer zones.

16. The GSP describes the Reliz Fault as displaced the Monterey Formation, which is the base of the Deep Aquifer, shifted downward on the northeast side by 1,000 feet. It then states the fault does not appear to impede groundwater flow within the Dune Sand Aquifer, 180-Foot Aquifer, or 400-Foot Aquifers (Section 4.2.1.3, Structural Restrictions to Flow, p. 98).

HWG Comment: *The GSP does not comment on the possibility of the Reliz Fault altering groundwater flow within the Deep Aquifer.*

17. This section of the GSP begins, "This Section presents a general discussion of the natural fresh groundwater quality in the Marina-Ord Area, focusing on general geochemistry (Section 4.2.1.4, General Water Quality, p. 98).

HWG Comment: *Given the significance of historical and ongoing seawater intrusion in the Dune Sand Aquifer, 180-Foot Aquifer, and 400-Foot Aquifer in the Marina-Ord Area, it is unclear why this section would only describe the fresh water within the Marina-Ord Area.*

18. With regard to the Dune Sand Aquifer, the GSP states, "Groundwater in this aquifer is primarily fresh; minimal seawater intrusion has occurred in this aquifer (Section 4.2.1.4, General Water Quality, p. 98).

HWG Comment: *The coastal Dune Sand Aquifer is intruded by seawater, as demonstrated by monitoring wells at the MCWD office on Reservation Road (Staal, Gardner & Dunne, 1991 and 1992; Fugro West, 1996, 2001) and in the vicinity of the CEMEX site (HWG, November 2017).*

19. The GSP states, "The Dune Sand Aquifer contributes recharge to the 180-Foot Aquifer…" (Section 4.2.1.4, General Water Quality, p. 98).

HWG Comment: *It should be noted that this recharge from the Dune Sand Aquifer to the 180-Foot Aquifer is minimal (likely on the order of a few hundred acre-feet per year). This recharge has not stopped seawater intrusion from occurring in this area.*

Chapter 5 – Groundwater Conditions

1. The GSP notes data sources used in the GSP, which includes documents/data for Monterey Peninsula Landfill (Section 5.1.1, Data Sources, p. 6).

HWG Comment: *We note that Monterey Peninsula Landfill (MPL) is not located within Monterey Subbasin. In addition, if data from Monterey Peninsula Landfill are being used, why are data from MPWSP monitoring network not being used. Notably, later in Chapter 5, the GSP uses AEM data outside of Monterey Subbasin and within the area of MPWSP monitoring network data, yet there is no use of MPWSP data that contradicts the hydrogeologic interpretation of AEM data provided in the GSP.*

2. The GSP states that the Dune Sand Aquifer is a Principal Aquifer and that the 180-Foot Aquifer contains two distinct layers, known as the upper- and lower- 180-Foot Aquifer (Section 5.1.2.1, Marina-Ord Area, p.7).

HWG Comment: *The Dune Sand Aquifer should not be designated as a Principal Aquifer, and is in conflict with the 180/400 Foot Aquifer Subbasin GSP in this regard. Furthermore, the splitting of the 180-Foot Aquifer into two distinct aquifers only applies in the Fort Ord area, and does not apply in northern Monterey Subbasin (HWG, November 2017). While the entire thickness of the 180-Foot Aquifer is intruded by seawater near the coast and for a significant distance inland, the presence of less saline water within the upper portion of the 180-Foot Aquifer further inland is merely a function of the nature of seawater intrusion wedges, and not a function of the presence of an intermediate aquitard within the 180-Foot Aquifer in northern Monterey Subbasin.*

3. The GSP describes groundwater flow conditions in the 180-Foot Aquifer, and states, "…inflow from the Dune Sand Aquifer protects the upper 180-Foot Aquifer from seawater intrusion." (Section 5.1.2.1, Marina-Ord Area, p.8).

HWG Comment: *Any groundwater flow that may occur from the Perched/Mounded portion of the inland Dune Sand Aquifer to the underlying 180-Foot Aquifer has historically not prevented seawater* *intrusion from occurring within the 180-Foot Aquifer, which has been and remains heavily intruded with seawater. Any claims to the contrary, such as in this referenced statement from the Monterey Subbasin GSP, are incorrect. As noted above, there are not geologically distinct Upper and Lower 180 Foot Aquifers in northern Monterey Subbasin. The amount of recharge from the Dune Sand Aquifer to the 180-Foot Aquifer is small, as can easily be demonstrated by calculation of the amount of precipitation recharge in the Dune Sand Aquifer within the area west of the groundwater divide that has potential to recharge the 180-Foot Aquifer (e.g., on the order of a few hundred AFY, before subtracting Ford Ord remedial pumping). Furthermore, in order to dilute incoming seawater to a fresh water concentration, there would need to be over 30 times more fresh water than seawater in the mixing zone to create a net fresh water condition. Thus, a few hundred AFY of fresh water can effectively only dilute about 10 to 20 AFY of incoming seawater.*

4. The GSP states, "…the lower 180-Foot Aquifer is hydraulically connected to the 400-Foot Aquifer in the Marina-Ord Area due to the discontinuous nature of the 180/400-Foot Aquitard within this region…As such, groundwater elevation and gradients in the lower 180-Foot Aquifer are similar to those in the 400-Foot Aquifer in the Marina Ord Area of the Subbasin…" (Section 5.1.2.1, Marina-Ord Area, p.8).

HWG Comment: *This characterization of the discontinuous nature of the 180-400 Aquitard is not applicable to the northern portion of the Monterey Subbasin. Groundwater levels in the 180-Foot Aquifer and 400-Foot Aquifer are clearly different and distinct in the northern half of Monterey Subbasin and in the adjacent 180/400-Foot Aquifer Subbasin (HWG, November 2017). The Monterey Subbasin GSP does not demonstrate the similarity or difference in groundwater elevations to justify its characterization.*

5. Figures 5-1 and 5-5 show the western extent of the FO-SVA north of Monterey Subbasin as extending to MPWSP MW-3.

HWG Comment: *The extent of FO-SVA shown on the maps is outdated and also does not incorporate more recent data and analyses based on the MPWSP borehole/well data. We also note that groundwater elevation figures for all units except the Dune Sand Aquifer extend northward across the Monterey Subbasin/180-400 Foot Aquifer Subbasin boundary, even though many Dune Sand Aquifer well locations are available and shown on the figures for the MPWSP and MPL monitoring networks. In addition, there are several monitoring wells located at the MCWD District office headquarters and treatment plant on Reservation Road near the coast (Staal, Gardner & Dunne, 1991 and 1992; Fugro West, 1996 and 2001).*

6. In describing groundwater elevations in the 400-Foot Aquifer the GSP states, "A local groundwater depression exists just north of the Monterey-Seaside Subbasin boundary where a potential connection between the 400-Foot Aquifer and the Deep Aquifers may be located ." (Section 5.1.2.1, Marina-Ord Area, p.8).

HWG Comment: *The GSP provides no geologic evidence for a potential connection at this location between the two aquifers. The GSP only cites to HLA (2001) for cross-sections in this area, but other geologic cross-sections are available to consider from previous reports (e.g., HWG, 2017; Yates et.al., 2005). The location of this depression, which is more centrally located within Monterey Subbasin than described in the GSP text, is only about 1.5 miles south of MCWD Deep wells where a thick (i.e., 200 to 300 feet) aquitard exists between the 400 Foot Aquifer and Deep Aquifer.*

7. GSP Figures 5-1 and 5-5 (Groundwater Level Contours in the Dune Sand Aquifer – Fall 2017 and Spring 2018) show locations of MPWSP and MPL wells, but do not use the data to prepare groundwater level contours.

HWG Comment: *It is not clear why the GSP maps would show these MPWSP/MPL well locations but not use the data. We also note that geologic and borehole geophysical data from these wells are not used in developing geologic cross-sections or to develop an understanding of the geologic conditions for the HCM. This is particularly noteworthy in that the GSP Chapter 5 later uses hydrogeologic interpretations from the AEM data in lieu of actual borehole/well data to derive different conclusions regarding the HCM that are not supported by borehole/well data.*

8. GSP Figures 5-2 and 5-5 (Groundwater Level Contours in the 180-Foot Aquifer – Fall 2017 and Spring 2018) show locations of only three of the MPWSP wells (MW-6, MW-8, and MW-9), and do not use data from MW-8 and MW-9.

HWG Comment: *It is not clear why the GSP maps only show selected MPWSP well locations and do not use most of the data from the selected wells that are shown on the maps. We also note that geologic and borehole geophysical data from these wells are not used in developing geologic cross-sections or in developing an understanding of the geologic conditions underlying the HCM. This is particularly noteworthy in that the GSP Chapter 5 later uses hydrogeologic interpretations from the AEM data in lieu of actual borehole/well data to derive different conclusions regarding the HCM that are not supported by borehole/well data. We also note that groundwater is indicated to flow inland from the ocean to a pumping center in the north central portion of Monterey Subbasin.*

9. Figures 5-3 and 5-7 (Groundwater level Contours in the 400-Foot Aquifer – Fall 2017 and Spring 2018) show a +10 feet MSL contour as the shoreline in Marina Subbasin.

HWG Comment: *There is no well control to support this +10 feet MSL contour line, or even the zero contour line. We note that groundwater elevations in the 400-Foot Aquifer for MPWSP MW-3 (very close to the shoreline) ranged from 0 to -15 feet NAVD88 during this time period. We also note that groundwater is indicated to flow inland from the ocean to a depressed area in the south central portion of Monterey Subbasin. The Fall 2017 groundwater levels show that the pumping depression in the southern central area of Monterey Subbasin contributes to a broader depression that extends to the 180/400 Foot Aquifer Subbasin. Spring 2018 groundwater levels appear to indicate occurrence of a temporal groundwater divide around the MCWD well field.*

10. The GSP states, "…water levels in the Dune Sand Aquifer increase and decrease during extended wet and dry periods." This statement is apparently in reference to Figure 5-11: Representative Groundwater Elevation Hydrographs in the Dune Sand Aquifer (Section 5.1.3.1, Long-Term Groundwater Elevation Trends, Marina-Ord Area, p. 21).

HWG Comment: *The seven hydrographs shown in Figure 5-11 do not appear to respond to wet and dry periods. The only short-term response observed is around the year 2000 in the hydrograph for MW-OU2-05-A. This apparent stability of groundwater levels in the Perched/Mounded portion of the Dune Sand Aquifer is quite unlike the seasonal fluctuations that occur in response to pumping in the underlying aquifers, and further confirms that the DSA is undeveloped and essentially undevelopable as a water supply and therefore not a Principal Aquifer.*

11. The GSP states, "Groundwater elevations in the Lower 180-Foot Aquifer are generally equivalent to those observed in the 400-Foot Aquifer…" (Section 5.1.3.1, Long-Term Groundwater elevation Trends, 180-Foot Aquifer, Lower 180-Foot Aquifer, p. 21).

HWG Comment: *The GSP provides no evidence that groundwater elevations in the Lower 180-Foot Aquifer are equivalent to those in the 400-Foot Aquifer. In addition, no geologic evidence is provided that defines distinct Upper and Lower 180-Foot Aquifers in terms of a continuous intermediate aquifer throughout the Monterey Subbasin. MPWSP monitoring well MW-6 is a nested well cluster with separate wells in the upper and lower 180-Foot Aquifer and shows essentially identical groundwater elevations and fluctuations – it is located along Blanco Road on the border of the Monterey Subbasin with the 180/400-Foot Aquifer Subbasin.*

12. The GSP states that groundwater elevation data for MPWMD#FO-10 and MPWMD#FO-11 suggest, "…(1) these wells are screened within sediments that connect directly to the Deep Aquifers; or (2) leakage is occurring from the 400-Foot Aquifer into the Deep Aquifers in the vicinity of these wells." (Long-Term Groundwater Elevation Trends, 400-Foot Aquifer, p. 22).

HWG Comment: *Insufficient evidence is provided to make the stated conclusions; for example, no geologic evidence is provided to support these claims. In addition, more groundwater elevation data are needed to evaluate the gradient and flow direction in this portion of the aquifer. Preliminary review of geologic data (lithologic logs and Elogs) by HWG for MPWMD FO-10 and FO-11 indicate presence of sufficient thicknesses of clay layers to serve as aquitard layers between the 400-Foot and Deep Aquifers at this location.*

13. GSP Figure 5-15 shows groundwater hydrographs for Deep Aquifer wells near the Monterey Subbasin and 180/400-Foot Aquifer Subbasin boundary. Figure 5-16 shows Deep Aquifer groundwater pumping over time. In reference to the adjacent 180/400-Foot Aquifer Subbasin, the GSP states that, "…groundwater elevations in wells located near Cooper Road and Blanco Road have declined more than 5 ft/year over the past 15 years."

HWG Comment: *We note that the three wells in the 180/400-Foot Aquifer Subbasin have data through about 2020 and generally show fluctuating but overall stable groundwater elevations from about 2015 to 2020. Several of the MCWD wells within the Monterey Subbasin shown in the figure are lacking data from about 2017 to 2020, but the overall trend from available data appears to be declining groundwater elevations within Monterey Subbasin from 2015 to 2020. We note that Figure 5-16 shows significant increases in both agricultural and urban pumping from the Deep Aquifer after 2013, with urban pumping comprising approximately half of the total Deep Aquifer pumping over that time period. Figure 5-16 shows a doubling of urban pumping between 2013 and 2018, but no discussion/explanation of the sharp jump in urban pumping is provided in the text. Overall, the characterization of recent Deep Aquifer groundwater elevation trends between the two subbasins in the text appears to be inaccurate based on review of the figures.*

14. The GSP states, "These downward vertical gradients are caused by areal surface recharge, groundwater extraction from deeper aquifers, and laterally extensive aquitards, which exist in the Marina-Ord Area." (Section 5.1.4, Vertical Hydraulic Groundwater Gradients, pp. 31-32).

HWG Comment: *We note that the GSP references the presence of laterally extensive aquitards separating Principal Aquifers throughout Monterey Subbasin, a statement that we agree with, and yet the conceptual model described in GSP Chapters 4 and 5 provides for essentially no aquitard between the 180-Foot and 400-Foot Aquifers and a big hole in the thick aquitard between the 400-Foot Aquifer and Deep Aquifers.*

15. The GSP states that in the central Marina-Ord Area the groundwater elevations in the upper 180-Foot Aquifer are 70 feet lower than in the Dune Sand Aquifer (Section 5.1.4, Vertical Hydraulic Groundwater Gradients, p. 32).

HWG Comment: *This 70 foot difference in groundwater elevation almost certainly reflects the presence of perched aquifer conditions in the Dune Sand Aquifer at this location, which is why the HWG refers to the portion of the so-called Dune Sand Aquifer overlying the FO-SVA as the Perched/Mounded Aquifer. This observation also begs the question of why the Dune Sand Aquifer is being classified as a Principal Aquifer in this GSP, when much of it is a thinly saturated perched aquifer.*

16. The GSP states, "Within the Monterey Subbasin, seawater intrusion has been documented in the northern portion of the lower 180-Foot and 400-Foot Aquifers." (Section 5.3, Seawater Intrusion, p. 36).

HWG Comment: *As discussed other HWG comments in this letter, the designation of a geologically distinct lower 180-Foot Aquifer does not apply in the northern portion of the Monterey Subbasin. The entire thickness of the 180-Foot Aquifer is intruded at the coast and for some distance inland, with a seawater wedge having formed further inland (i.e., less saline water overlying more saline water due to density differences).*

17. The GSP describes data sources used in their analysis of seawater intrusion for the GSP, which include two airborne electromagnetic (AEM) surveys (Section 5.3.1, Seawater Intrusion, Data Sources, p. 36).

HWG Comment: *We note that the GSP utilizes an AEM profile entirely within the 180/400-Foot Aquifer Subbasin that passes through/near several MPWSP boreholes/wells, yet the GSP does not use the readily available MPWSP borehole/well data in its analysis. Furthermore, the HWG has conclusively demonstrated in previous documents (e.g., HWG, April 2019) that hydrogeologic interpretations derived from AEM data are flawed and inconsistent with borehole/well data.*

18. The GSP devotes several pages and two figures (5-26 and 5-27) to describing AEM surveys, primarily a profile entirely outside of the Monterey Subbasin (Section 5.3.1.2, Geophysical Data, pp. 36-38, 41-42, and 45-46).

HWG Comment: *It is not clear why the GSP relies so heavily on AEM data (primarily outside the Monterey Subbasin) in its discussion of seawater intrusion (and disregards borehole/well data for the same area) – especially given the flaws in the hydrogeologic and groundwater quality interpretations made using AEM data previously described in multiple HWG documents (e.g., January, March, April 2019). The hydrostratigraphy shown on the AEM profiles (Figures 5-26 and 5-27) is incorrect; particularly with regard to its depiction of aquitards (i.e., the presence of a continuous intermediate aquitard within the 180-Foot Aquifer and absence of a 180/400 Aquitard). In essence, the GSP is inappropriately trying to apply the Fort Ord hydrogeologic conceptual model (developed for a limited area south of Reservation Road) throughout the northern Monterey Subbasin and into the adjacent 180/400 Foot Aquifer Subbasin. Field borehole/well data demonstrate that application of the Fort Ord HCM to northern Monterey Subbasin and southern 180/400 Foot Aquifer Subbasin is incorrect. There is no evidence/basis to support the stratigraphic interpretations in Figures 5-26 and 5-27 related to the presence (or absence) of aquitards between various aquifers. We note that there are no control points for the majority of the cross-section in Figure 5-26, yet the figure implies an abundance of fresh water. Field water quality data from MW-7M do not match that indicated on the profile. The two profiles are inconsistent; where control points exist with a TDS color coded legend the profiles are not shaded accordingly; however, where no control points exist to validate AEM water quality the profiles are shaded.*

19. In describing the purpose of the AEM surveys, the GSP states, "The studies' goal was to evaluate the understanding of the hydrostratigraphy in the study area and to interpret that distribution of groundwater quality indicated by available well data." (Section 5.3.1.2, Geophysical Data, p. 37).

HWG Comment: *While this statement references "available well data", it does not actually cite or use available well data. Rather, the GSP interpretations of hydrostratigraphy and seawater intrusion in this section are based primarily on interpretations of AEM data that are at odds with well data (see various HWG documents such as January 2019, March 2019, and April 2019).*

20. The GSP describes how AEM data (i.e. electrical resistivity) are dependent on, "…the amount of clay, the amount of water, and/or the salinity of the water…" (Section 5.3.1.2, Geophysical Data, p. 37).

HWG Comment: *While we agree with this statement, these facts also point out the high level of uncertainty associated with interpretation of AEM data in this coastal seawater intruded setting where multiple variables are impacting recorded AEM (resistivity) values. This allows for multiple non-unique interpretations of AEM data to be made in such settings, which creates more uncertainty in those hydrostratigraphic and groundwater quality interpretations. The GSP itself acknowledges that water quality interpretation is "difficult to discern" for a wide range of AEM resistivity values. The GSP does not acknowledge that geochemical interpretation of AEM resistivity values even outside of the cited large range are still subject to uncertainties related to variation in lithologic/saturation conditions.*

21. The GSP states, "The AEM surveys have found that high salinity groundwater as a result of seawater intrusion exists within the lower 180-Foot Aquifer and 400-Foot Aquifers of the Monterey Subbasin. This volume of high salinity groundwater is overlain by fresh groundwater in the Dune Sand and upper 180-Foot Aquifers. The results of the AEM study are consistent with water quality data collected within the Subbasin (EKI, 2019)." (Section 5.3.1.2, Geophysical Data, p. 38).

HWG Comment: *Both the AEM data and borehole/well data demonstrate that the coastal Dune Sand Aquifer and essentially the entire thickness of the 180-Foot Aquifer are seawater intruded from the ocean shoreline to approximately one mile inland. At that point, the coastal Dune Sand Aquifer begins to transition to the Perched/Mounded Aquifer that overlies of FO-SVA that is generally not seawater intruded because it is an elevated thinly saturated perched aquifer further inland, and the fully seawater intruded area of the 180-Foot Aquifer transitions to a seawater intrusion wedge with less saline water overlying more saline water due to density differences. While the results of the AEM survey may be consistent with the primarily Perched/Mounded Aquifer groundwater quality data cited in EKI (2019), the AEM survey based hydrostratigraphic and groundwater quality interpretations are inconsistent with the groundwater quality data collected for the MPWSP (e.g., HWG, April 2019) and key MCWD and Seaside Basin wells.*

22. The GSP presents an analysis (Figure 5-23) that demonstrates the definition of 500 mg/L chloride as the threshold for defining seawater intrusion is equivalent to a TDS of 1,000 mg/L. The GSP also cites the State of California upper Secondary Maximum Contaminant Level of 1,000 mg/L for TDS (Section 5.3.2, Defining Seawater Intrusion, p. 40).

HWG Comment: *We concur with the use of 500 mg/L chloride (although a good argument can be made for use of 250 mg/L chloride as a better indicator) and 1,000 mg/L TDS as an appropriate standards/thresholds for drinking water and seawater intrusion. We note that the AEM studies (study authors and study proponents) continue to argue for a drinking water and seawater intrusion threshold of 3,000 mg/L TDS, but this is at odds with GSP stated seawater intrusion and drinking water standards/thresholds of 500 mg/L and 1,000 mg/L TDS. Furthermore, due to the significant uncertainties in AEM groundwater quality interpretations, the AEM studies primarily attempt to differentiate* *groundwater above and below 3,000 mg/L TDS. The use of AEM data with a lower cutoff value (e.g., 1,000 mg/L TDS) results in even greater uncertainty in interpreted results than are achieved using the already uncertain AEM interpretations based on a cutoff of 3,000 mg/L TDS. We note that the GSP adopts a double standard by saying seawater intrusion has occurred when TDS exceeds 1,000 mg/L or chloride exceeds 500 mg/L in the Deep Aquifer, yet concentrations of 3,000 mg/L TDS and over 1,000 mg/L chloride represent low-TDS groundwater that is considered a source of drinking water supply in the AEM studies cited in the GSP.*

23. In reference to the AEM profiles shown in Figures 5-26 and 5-27, the GSP states, "TDS and AEM data shown on these cross-sections confirm that seawater intrusion in the Monterey Subbasin primarily exists in the lower 180-Foot Aquifer and 400-Foot Aquifer, whereas groundwater in the Dune Sand and upper 180-Foot Aquifers remains fresh." (Section 5.3.3 Seawater Intrusion Maps and Cross-Sections, p. 41).

HWG Comment: *While the statement refers to Monterey Subbasin, it should be noted that the Figure 5-26 is located entirely outside (north of) Monterey Subbasin, and Figure 5-27 contains very little data for the AEM profile within Monterey Subbasin. Furthermore, we have previously commented (in this letter and previous documents) on the flaws in the hydrostratigraphic and water quality interpretations shown on these AEM profiles (e.g., HWG, April 2019). Actual borehole/well data show the coastal Dune Sand Aquifer and entire thickness of the 180-Foot Aquifer are heavily intruded with seawater at the coast and for a significant distance inland. We recommend that AEM data only be used where results can be clearly validated with actual lithologic and water quality data. By not using this approach, the groundwater conditions are being misrepresented.*

24. In reference to the 180-Foot and 400-Foot Aquifers, the GSP states, "It appears that seawater intrusion in these two aquifers forms a unified intrusion wedge, due to the discontinuity of the 180/400-Foot Aquitard near the coast." (Section 5.3.3 Seawater Intrusion Maps and Cross-Sections, p. 41).

HWG Comment: *The HWG has previously demonstrated the flaws and inaccuracies in the hydrostratigraphic/water quality interpretations from AEM data inherent in this statement (i.e., absence of 180/400 Aquitard) (see HWG, April 2019).*

25. The GSP states, "Based on available TDS and AEM data, Figure 5-28 depicts the estimated extent of seawater intrusion within the Monterey Subbasin." (Section 5.3.3 Seawater Intrusion Maps and Cross-Sections, p. 41).

HWG Comment: *The area covered by Figure 5-28 does not include the AEM profile shown in Figure 5-26 and the AEM profile in Figure 5-27 provides very little data for the mapped area in Figure 5-28. Therefore, Figure 5-28 presumably is based essentially exclusively on TDS data. Furthermore, the area covered by Figure 5-28 has separate 180-Foot and 400-Foot Aquifers separated by an aquitard, so one map is mixing data from different aquifers and should be revised to be two separate figures as is done by the MCWRA.*

26. The GSP states, "…the 180-Foot Aquifer in the Subbasin is divided by an intermediate aquitard into an upper zone and a lower zone. There is no observed seawater intrusion in the upper portion of the 180-Foot Aquifer." (Section 5.3.3 Seawater Intrusion Maps and Cross-Sections, pp. 41-42).

HWG Comment: *As discussed previously in this letter, the area covered by Figure 5-28 does not have a continuous intermediate aquitard in the 180-Foot Aquifer, does have a 180/400-Foot Aquitard, and seawater intrusion is present in a significant zone along (and inland of) the ocean throughout the entire thickness of the 180-Foot Aquifer (see HWG, 2017; Staal, Gardner & Dunne, 1992; Fugro West 1996 and 2001).*

27. In reference to Figure 5-28, the GSP states, "The figure shows that depressed groundwater elevations in the 180/400 Foot Aquifer Subbasin are creating inland groundwater gradients that are contributing to seawater intrusion within the Monterey Subbasin." (Section 5.3.3 Seawater Intrusion Maps and Cross-Sections, pp. 41-42).

HWG Comment: *It should be noted that there are also depressed groundwater elevations from groundwater pumping within the Monterey Subbasin that are contributing to inland groundwater gradients that are contributing to seawater intrusion within the Monterey Subbasin. In fact, the groundwater elevation contour map provided in Figure 5-28 indicates flow lines from the ocean end in a groundwater depression within the Monterey Subbasin. Furthermore, much greater historical pumping from Fort Ord and MCWD wells within the Monterey Subbasin created seawater intrusion within the Monterey Subbasin. Once seawater intrusion occurs, it requires many decades of maintaining seaward gradients to flush saline water back out of the aquifers.*

28. GSP Figure 5-24 purports to show TDS concentrations and the extent of seawater intrusion in Monterey Subbasin (Section 5.3.3 Seawater Intrusion Maps and Cross-Sections, p. 43).

HWG Comment: *The dark blue zone in the Dune Sand Aquifer map extending approximately 0.5 miles inland from the shoreline suggests presence of fresh water coastal Dune Sand Aquifer, which is attributed to the 2018 AEM Survey report according to the map legend. The light blue zone that presumably attempts to define TDS concentrations below 1,000 mg/L includes a lobe that extends west of the FO-SVA extent that is not supported by any well data. On the contrary, available well data from the MCWD office site on Reservation Road for the Dune Sand Aquifer shows significant seawater intrusion has occurred in the area the AEM Survey report shown to be fresh water in the Dune Sand Aquifer along the coast (Staal, Gardner & Dunne, 1991 and 1992; Fugro West, 1996a and 1996b; Fugro West, 2001).*

29. The GSP states, "…seawater continues to flow across the area that is intruded towards the 180/400 Foot Aquifer Subbasin, while there is minimal migration of seawater intrusion to inland areas of the Monterey Subbasin. (Section 5.3.4, Historical Progression of Seawater Intrusion, p. 48.)

HWG Comment: *While the title of this GSP section refers to "Historical Progression of Seawater Intrusion", it fails to actually discuss the historical progress of seawater intrusion within Monterey Subbasin. As indicated in seawater intrusion maps prepared by MCWRA (Appendix 5B), a significant lobe of seawater intrusion into the 180-Foot Aquifer and 400-Foot Aquifer solely within Monterey Subbasin occurred south of Reservation Road in the 1970's and 1980's. This initial seawater intrusion into Monterey Subbasin occurred as a result of groundwater pumping from MCWD and Fort Ord wells screened in the 180-Foot Aquifer and 400-Foot Aquifer production zones, which were sequentially abandoned and moved inland and/or deeper as seawater intrusion moved inland in response to pumping of MCWD and Fort Ord production wells (Harding ESE, 2001). Most of the saline water that was induced to flow into Monterey Subbasin in the 1970s and 1980s still resides in Monterey Subbasin aquifers, and remains part of the overall area of seawater intrusion that exists today.*

30. Figure 5-29 of the GSP (Total Dissolved Solid Concentration Trends in the Lower 180-Foot, 400-Foot Aquifer) shows historical and recent TDS concentrations in various wells, including MCWD Wells MCWD-29 and MCWD-31. (Section 5.3.4, Historical Progression of Seawater Intrusion, p. 49).

HWG Comment: *Figure 5-29 indicates TDS concentrations of approximately 400 mg/L during 2019 in MCWD-29 and MCWD-31. Review of the 2019 AEM Survey Report Table 4-1 shows that AEM based TDS concentrations in the zone screened by these wells is estimated to be greater than 1,000 mg/L (about three times the field measured concentrations). Based on analysis (AEM data is a major data source of mapping sweater intrusion in the GSP) and relationships between chloride and TDS established in the GSP (e.g., chloride concentrations of 500 mg/L equate to TDS concentrations of approximately 1,000 mg/L), it seems that MCWD wells MCWD-29 and MCWD-31 should be included within the area of mapped seawater intrusion. In fact, this discrepancy demonstrates how interpretation of AEM data with regard to water quality can result in significant errors relative to field measured data. Interpreted AEM data has also been shown to significantly underpredict TDS/chloride concentrations (e.g., HWG, April 2019) is some areas.*

31. The GSP relies on a study conducted by WRA Environmental (2020) to conclude that 19.51 acres of aquatic and upland biological communities at six ponds are dependent upon groundwater (Section 5.7.1, Groundwater Dependent Ecosystems, Coastal Vernal Ponds within the City of Marina, p. 68).

HWG Comment: *We note that the five authors of the report by WRA Environmental are all biologists, with no apparent contribution from a hydrogeologist to help evaluate groundwater conditions and dependence of the plant communities on groundwater. The only investigation of groundwater in the report was digging a hole to 14 inches in depth to look for soil saturation; however, these field efforts are inadequate to determine groundwater conditions at the sites because there may be shallow fine-grained sediment layers supporting perched/saturated soils in the upper few feet of soil. The WRA report also cites the fact that their field efforts were conducted in June 2020, well after the end of the rainy season, and water was still observed in most of the ponds (implying it must be groundwater). However, review of monthly precipitation data for the 2019 and 2020 water years indicates the 2019 year was very wet (133% of normal) and the 2020 water year was wet (105% of normal). In addition, heavy rainfall* *occurred in March and April 2020 (about 6.5 inches or close to half the average annual rainfall) with smaller amounts of rainfall in May and June; therefore, it would be expected that surface runoff remained in the ponds with near surface saturation at the time of WRA's June 2020 site visits. We also note that the WRA Report relies on other studies such as Formation Environmental (April 2020) and the draft City of Marina GSA GSP (2020). The HWG has previously commented on these studies, and Geoscience/AECOM conducted the most recent study on the vernal pools (HWG, November 2019; Geoscience and AECOM, August 18, 2020). Summary Geoscience/AECOM comments on the Formation Environmental TM included: 1) very limited use of available groundwater data from MPWSP MW-4 and MW-7 to one point in time without considering entire record and impact of agricultural irrigation return flows in immediate vicinity; 2) relies solely on ET data to justify conclusion that Armstrong Ranch Ponds are groundwater dependent without consideration of alternative water sources such a seasonal surface water from rainfall; 3) failure to account for perched aquifer conditions underlying area; 4) failure to account for effects of urbanization surrounding six ponds in city of Marina that caused ponds to become primarily reliant of surface water runoff and leading to ponds becoming perennial. Furthermore, all six ponds in the Marina area are not hydraulically connected to the coastal Dune Sand Aquifer (thus, pumping from coastal Dune Sand Aquifer will not affect them); and all ponds received surface discharge from storm drains that empty into the ponds. Several ponds were found to have hardpan layers beneath them that limit percolation and likely account for WRA observations of shallow saturation. In addition, water quality data suggest that ponds are more influenced by stormwater runoff than groundwater from the perched aquifer system. Overall, it was found that the Formation Environmental study is fundamentally flawed , misrepresents potential impacts on ponds from pumping in the coastal Dune Sand Aquifer, and does not consider all available evidence concerned the nature of these pond resources and potential impacts to them from pumping. HWG comments on the City of Marina GSA Draft GSP state, "the fact that nearby GDEs are seasonally flooded and have a seasonal nature to them (and are associated with "a lens of less pervious soil") suggests a surface water source is most likely sustaining vegetation in these areas. The GSP evaluation to determine if potential GDEs are actual GDEs did not consider that shallow groundwater in these nearby potential GDE areas is saline or the likelihood that fresh surface water is the primary sustaining factor for these areas and (which means they are not GDEs)."*

32. We note that the City of Marina Draft GSP stated the following with regard to pumping from Marina Coast Water District Deep Aquifer wells, "The combined extraction from these wells was approximately 1,823 AFY in 2015, and is forecast to increase to 3,905 AFY by 2035…" (Section 3.1.8, page 3-17).

HWG Comment: *While the Monterey Subbasin GSP comments on the impacts of increasing pumping from the Deep Aquifer in the adjacent 180/400-Foot Aquifer Subbasin, it is silent on the issue of increased pumping from existing (and potential future new) MCWD Deep Aquifer wells. The cited MCWD Deep Aquifer pumping numbers represent a greater than doubling of the amount of current MCWD pumping from the Deep Aquifer, a pumping amount that already results in Deep Aquifer water levels within Monterey Subbasin on the order of 50-100 feet below sea level. Such increased pumping from the Deep Aquifer by MCWD and others is likely not sustainable.*

33. We note that the City of Marina Draft GSP stated, "In the Monterey Subbasin, groundwater demand from the Deep Aquifer by MCWD to supply the City of Marina is expected to increase….however, the increase is projected to be within MCWD's allocated pumping rights." (Section 3.3.10.4, page 3-69).

HWG Comment: *Regardless of the validity of allocated pumping rights (which is yet to be determined), it remains unclear if the proposed MCWD increase in pumping from the Deep Aquifer is sustainable. In addition, the increased pumping from the Deep Aquifer to the east to support agricultural expansion is based on overlying rights, not allocated (paper water) pumping rights, and are thereby presumably superior to MCWD rights.*

Monterey Subbasin GSP Comment Log (Prepared by SVBGSA)

1. In Comment 41 (dated 1/7/21) Tina Wang states, "…There is one thing we pointed out in that chapter, is the dune sand aquifer and the upper 180 foot aq is not SWI intruded, it is fresh."

HWG Comment: *As pointed out in our comments on GSP Chapters 4 and 5, the Fort Ord Site Conceptual Model (i.e., continuous intermediate aquitard within 180-Foot Aquifer and lack of a 180/400-Foot Aquitard) does not apply in northern Monterey Subbasin. Furthermore, available field data indicate that the Dune Sand Aquifer and upper portion of the 180-Foot Aquifer are seawater intruded (chloride greater than 500 mg/L) for a significant distance inland from the coast in the northern Monterey Subbasin and Southern 180/400-Foot Aquifer Subbasin. We also note that EKI's (and others) definition of fresh water in many previous documents related to the MPWSP has been TDS up to 3,000 mg/L; however, HWG have shown such levels of TDS also have greater than 1,000 mg/L chloride in the area, which is far in excess of the 500 mg/L standard applied by MCWRA for seawater intrusion. The Monterey Subbasin GSP uses AEM data outside of Monterey Subbasin (i.e., in southern 180/400-Foot Subbasin) to claim the presence of this so-called fresh water, yet actual field data show seawater intrusion has occurred at the coast and for a significant distance inland in this area (see HWG, 2017).*

2. In Comment 44 (dated 1/7/21) Derrik Williams responds to the commenter (Bob Jaques) that, "We have discussed the AEM data with some members of the blue ribbon panel…the didn't have too many concerns.'

HWG Comment: *If the commenter is referring to the Hydrogeologic Working Group, this statement by Derrik Williams is incorrect. The HWG has many concerns about the hydrogeologic interpretation of the AEM data and has documented our concerns in numerous documents (e.g., HWG, 2017; HWG, 2018; HWG, January 2019; HWG, March 2019; HWG, April 2019; HWG, June 2020).*

Sincerely,

The Hydrogeologic Working Group (Dennis Williams, Tim Durbin, Martin Feeney, Peter Leffler)

Dennis Williams

Tim Durbin

Martin Feeney

Peter Leffler

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HWG, *Memorandum Responding to Comments on HWG Hydrogeologic Investigation Technical Report*, January 4, 2018.

HWG, *HWG Comments on Technical Appendices/Attachments to Letters Submitted by MCWD and City of Marina to the CPUC and MBNMS on April 19, 2018, Letter to John Forsythe/CPUC and Paul Michel/MBNMS*, August 15, 2018.

HWG, *HWG Comments on Technical Presentations and Letters/Memorandum Prepared by HGC, EKI, and MCWD for City of Marina Public Workshop on MPWSP Coastal Development Permit Held on January 8, 2019*, January 25, 2019.

HWG, *HWG Responses to Dr. Knight Letter Addressed to HWG and Submitted During City of Marina Planning Commission Hearing on MPWSP Coastal Development Permit Held on February 14, 2019*, March 6, 2019.

HWG, *HWG Comments on Remy Moose Manley Letter Attachments Prepared by HGC, EKI, and AGF for City of Marina Planning Commission Hearing Agenda Item #6A on MPWSP Coastal Development Permit Held on February 14*, 2019, April 12, 2019.

HWG, *HWG Comments on City of Marina Draft Groundwater Sustainability Plan for the Marina GSA Area of the 180/400 Foot Aquifer Subbasin Dated October 2019*, submitted to City of Marina Groundwater Sustainability Agency, November 1, 2019.

HWG, ESA, and HydroFocus, *Response to Tom Luster Email Dated January 30, 2020*, Responses to questions posed by Weiss Associates (third party independent reviewer for California Coastal Commission [CCC]) and Mr. Tom Luster in the CCC proceeding on the Monterey Peninsula Water Supply Project, February 20, 2020.

HWG, *HWG Comments on AGF Final Report on the 2019 Airborne Electromagnetic Survey of Selected Areas Within the Marina Coast Water District, Undated*, June 26, 2020; Exhibit 14 in Latham & Watkins LLLP, September 17, 2020, *Special Meeting Agenda Items Th3a & 4a: Monterey Peninsula Water Supply Project, Coastal Development Permit, Application No. 9-19-0918, and Appeal No. A-3-MRA-19-0034*.

Marina Coast Water District Well Logs – Wells 8A, 10, 11, 12, Well A, Well C.

Staal, Gardner & Dunne, *Feasibility Study, Seawater Intake Wells, Marina County Water District Wastewater Treatment Facility, Marina, California*, Report prepared for Marina County Water District, February 1991.

Staal, Gardner & Dunne, *Feasibility Study, Saline Ground Water Intake System, Monterey Sand Company Site, Marina, California*, Report prepared for Monterey Peninsula Water Management District, February 1992.

WRA Environmental, *Biological Resource and Groundwater Dependency Analysis of Marina Vernal Ponds*, Report prepared for City of Marina, July 30, 2020.

LIST OF ACRONYMS & ABBREVIATIONS

AEM	Aerial Electromagnetics
bgs	below ground surface
Cal Am or CalAm	California American Water Company
CPUC	California Public Utilities Commission
DSA	Dune Sand Aquifer
FO-SVA	Ford Ord Salinas Valley Aquitard
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HCM	Hydrogeologic Conceptual Model
HWG	Hydrologic Working Group
MCWD	Marina Coast Water District
MCWRA	Monterey County Water Resources Agency
MPL	Monterey Peninsula Landfill
mg/L	Milligrams per Liter
MGSA	Marina Groundwater Sustainability Agency
MPWSP	Monterey Peninsula Water Supply Project
MW	Monitoring Well
SGMA	Sustainable Groundwater Management Act
SVB	Salinas Valley Basin
TDS	Total Dissolved Solids
USGS	United States Geological Survey

Salinas Basin Water Alliance

SBWA

SALINAS BASIN WATER ALLIANCE

Salinas Basin Water Alliance Board of Directors

George Fontes

David Bunn

Greg Scattini

Gary Tanimura

Tom Bengard

April 21, 2021

Dear Chair Hardgrave and Monterey Subbasin Committee Members,

As landowners, growers, and agricultural businesses throughout the Salinas Valley, we are writing to support the Monterey Subbasin's emphasis on closing water data gaps ahead of the draft GSP to achieve true sustainability both in the subbasin and the entire Salinas Valley.

As the chair and members of the public have noted, there is a clear lack of data to reflect the impact that activities in neighboring subbasins have on the Monterey subbasin. Without understanding those impacts (including pumping in the 180/400 subbasin or even the GSA's divvying up of agricultural and housing developments between neighboring subbasins), it will be difficult to define sustainability in the Monterey subbasin or have confidence that proposed projects or management actions will have any impact at all.

We are writing to encourage the GSA to address this data gap before pushing the subbasin committee to prematurely approve a draft GSP with projects and management actions. Achieving sustainability will require a true understanding of groundwater flow to and from the subbasin and will ensure community support and engagement if stakeholders see the clear and demonstrable benefits of proposed projects.

Our alliance represents more than 41,000 acres throughout the Salinas Valley. All of our producers carefully monitor and report their water usage and several have property in the Monterey Subbasin. We believe a universal reported metering system that relies on data, not merely estimates, is an essential aspect of groundwater storage monitoring and sustainability efforts.

Our alliance is dedicated to protecting groundwater supply for the long-term. That requires honest data throughout the valley. Closing the data gaps in the Monterey Subbasin is an critical step in that direction.

Sincerely,

George Fontes, President, Salinas Basin Water Alliance

From:	bobj83@comcast.net
To:	Patrick Breen; Tina Wang
Cc:	Bob Jaques; Laura Paxton; Jonathan Lear
Subject:	Monitoring Well FO-10 Induction Logging Results and Request
Date:	Thursday, April 22, 2021 5:33:23 PM
Attachments:	Martin Feeney FO-9 and FO-10 MW Logging_Rpt-final 4-5-21.pdf

Patrick and Tina,

Attached is the Tech Memo prepared by Martin Feeney after the recent completion of induction logging of monitoring wells FO-9 and FO-10.

As his Memo reports, he does not have an explanation for the findings in FO-10 in which the logging showed high conductivity over nearly the entire depth of the well, whereas the E-log from the original construction of this well did not show this. One theory, that there is leakage in this casing just as is believe to be the case in the casing of FO-9, does not bear out, since there are clearly different water level readings in the different depth wells at FO-10. That indicates that these wells are not cross-connected through casing leakage.

Our TAC asked that you please include investigating the cause of these findings in the GSP for this portion of the Monterey Subbasin, and developing any response action that the investigation finds should be taken.

With regard to FO-9 Shallow, MPWMD plans to video inspect this well, and also FO-10 Shallow, to confirm the suspected casing leakage in FO-9 Shallow and to determine the structural integrity of FO-10 Shallow. They plan to do that work in the next couple of weeks and I will share with you the results of that inspection.

If it is found that the casing in FO-9 Shallow is leaking, and that it is not feasible to repair it, MPWMD said that as the owner of the well they plan to destroy it to avoid having it be a cross-aquifer contamination source. Since water level and water quality data from that part of the Seaside Basin is important not only to the Watermaster and MPWMD, but also to MCWD to provide information for your development of the Monterey Subbasin GSP, if the well needs to be destroyed we would like to discuss with you a cost-sharing arrangement to have a replacement monitoring well installed near that location.

Thanks,

Robert S. Jaques, PE
Technical Program Manager
Seaside Basin Watermaster
83 Via Encanto
Monterey, CA 93940
Office: (831) 375-0517
Cell: (831) 402-7673

From:	Martin Feeney
To:	Jonathan Lear
Cc:	bobj83@comcast.net; Tina Wang; Patrick Breen
Subject:	Re: Monitoring Well FO-10 Induction Logging Results and Request
Date:	Friday, April 23, 2021 4:06:27 PM

Yes, the plan is to do FO-9 Shallow and Deep. This scheduled for Wednesday.

Cheers

Martin

Martin B. Feeney PG CEG CHg
Consulting Hydrogeologist
831-915-1115

On Apr 23, 2021, at 2:55 PM, Jonathan Lear <jlear@mpwmd.net> wrote:

Martin's recommendation to the District was only to video log FO-09 because the fluid resistivity log from FO-10 proves the increased chloride in the samples taken from FO-10 are representative of water in the screens. In the TAC meeting I stated we were going to perform 2 video logs, but I was referring to FO-09 Shallow and Deep, not Fo-09 and FO-10.

From: bobj83@comcast.net <bobj83@comcast.net>
Sent: Friday, April 23, 2021 2:39 PM
To: Jonathan Lear <jlear@mpwmd.net>
Cc: Bob Jaques <bobj83@comcast.net>
Subject: RE: Monitoring Well FO-10 Induction Logging Results and Request

Jon,
I thought you were going to check the structural integrity of FO-10 too, to make sure it didn't have any leaks.
Bob

From: Jonathan Lear <jlear@mpwmd.net>
Sent: Friday, April 23, 2021 1:40 PM
To: Tina Wang <twang@ekiconsult.com>; bobj83@comcast.net; Patrick Breen <pbreen@mcwd.org>
Cc: Laura Paxton <watermasterlaura@sbcglobal.net>
Subject: RE: Monitoring Well FO-10 Induction Logging Results and Request

Hi,

One correction. The District is planning to video FO-09 shallow and deep and not FO-10.

-Jon

From: Tina Wang <twang@ekiconsult.com>
Sent: Friday, April 23, 2021 1:18 PM
To: bobj83@comcast.net; Patrick Breen <pbreen@mcwd.org>
Cc: Laura Paxton <watermasterlaura@sbcglobal.net>; Jonathan Lear <jlear@mpwmd.net>
Subject: RE: Monitoring Well FO-10 Induction Logging Results and Request

Bob – Thank you for this information and forwarding the request from the Seaside TAC. We'll review and incorporate them into the GSP.

Tina Wang, P.E.
EKI Environment & Water, Inc.
2001 Junipero Serra Boulevard, Suite 300
Daly City, California 94014
T: (650) 292-9100 | D: (650) 292-9050
twang@ekiconsult.com | www.ekiconsult.com

From: bobj83@comcast.net <bobj83@comcast.net>
Sent: Thursday, April 22, 2021 5:33 PM
To: Patrick Breen <pbreen@mcwd.org>; Tina Wang <twang@ekiconsult.com>
Cc: Bob Jaques <bobj83@comcast.net>; Laura Paxton <watermasterlaura@sbcglobal.net>; Jonathan Lear <jlear@mpwmd.net>
Subject: Monitoring Well FO-10 Induction Logging Results and Request

Patrick and Tina,

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As his Memo reports, he does not have an explanation for the findings in FO-10 in which the logging showed high conductivity over nearly the entire depth of the well, whereas the E-log from the original construction of this well did not show this. One theory, that there is leakage in this casing just as is believe to be the case in the casing of FO-9, does not bear out, since there are clearly different water level readings in the different depth wells at FO-10. That indicates that these wells are not cross-connected through casing leakage.

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Thanks,

Robert S. Jaques, PE
Technical Program Manager
Seaside Basin Watermaster
83 Via Encanto
Monterey, CA 93940
Office: (831) 375-0517
Cell: (831) 402-7673

Martin B. Feeney
Consulting Hydrogeologist

P.G. 4634
C.E.G. 1454
C.Hg 145

April 5, 2021

Seaside Basin Watermaster
PO Box 51502
Pacific Grove, CA
93950

Attention: Bob Jaques, PE

Subject: Geophysical Investigation Fort Ord Monitoring Wells FO-9 and FO-10 – Preliminary Findings

Dear Bob:

Two monitoring wells in the Seaside Basin monitoring program, FO-9 Shallow and FO-10 Shallow, have recently displayed increasing concentrations of chloride ions; raising the possibility that these data are indicative of advancement of seawater into the basin. However, these data are difficult to reconcile with other data from the more seaward Sentinel Wells that have seen no changes. The ad-hoc advisory team discussed this and generally believed that the data from the monitoring wells would benefit from further confirmation. It was suggested that the monitoring wells be induction logged and the data from the induction logs be compared to the original electric logs to assist in evaluating if there have been conductivity changes in the formation since the time of the well installations. This work has been completed and I'm pleased to provide the initial data and preliminary interpretations.

Background.
Monitoring Wells Clusters FO-9 and FO-10 were drilled in 1994 and 1996, respectively. The wells are nested completions with multiple casings of varying lengths in the same borehole. FO-9 has two completions - a shallow completion in the Paso Robles Formation and a deeper completion in the Santa Margarita Sandstone. FO-10 has 3 completions - one in the Paso Robles Formation, one in the Santa Margarita Sandstone and a third completion in an intermediate depth. The details of well construction are shown on Figures 1 and 2.

Findings

Prior to the recent field work, the original elogs from both of the borings were digitized so the original elogs could be easily compared to the inverse of the induction logs (elog measures resistivity, induction log measures the inverse, i.e., conductivity). After acquiring digital versions of the elogs, the wells were geophysically logged on March 23, 2021. Both induction logs and temperature/fluid resistivity logs were performed. The induction logging measures the bulk conductivity of a sphere of earth materials (including the borehole contents - gravel envelope and casings) of approximately 6 feet in diameter. The temperature/fluid resistivity measures temperature/resistivity of the fluid in the casing. The temperature data allows for the resistivity data to be corrected for temperature. At each location, the deepest accessible well was induction logged while the shallow well was temperature/fluid resistivity logged. The data from the logging and the well construction are attached as Figure 1 and 2.

<u>FO-09</u>

- Both of the completions (shallow and deep) at this site have debris (airlift pipe, suction pipe?) in the bottom of the wells so we were not able to get to bottom or even into perforations.

- As can be seen in the Fluid Resistivity log for this well, FO-09 Shallow is leaking poor quality water into the well at about 185 feet bgs (about -40 ft msl). The data suggest the well has a structural flaw (crack, open joint?) at this depth.
- Below this depth, water quality is impacted but as the log approaches the perforations, the quality improves.
- The induction logging matches the original elog reasonably well. Although the magnitude of the recent trace appears higher than the original, no area looks more conductive than it was in 1994. The higher magnitude of the recent trace is likely a function relating to the legacy elog to which it is compared, which reflects the higher conductivity fluid in the borehole at the time of original logging. The drilling mud had a conductivity (EC) of about 625 µS at time of drilling whereas now the water (where not impacted by the leak) in the well (and formation) is closer to 400 µS.
- The elevated chloride values in the water quality samples from this well are the result of the entry of water from higher in the casing, not recently advancing SWI.

FO-10

- The induction tool was not able descend in the deep well as the upper section has a bend in the casing that is too tight for passage. The intermediate and shallow wells were successfully logged to bottom.
- The induction log is severely muted when compared with the original elog. At first glance it looks like seawater intrusion, but on further reflection the shift is along the entire profile, which is considered unlikely. The reason for the muted response is unclear. Discussions with the geophysical contractor suggest that all the intermediate well seals are leaking and allowing poor quality water from above. Whereas that theory would explain the data, it again is consider highly unlikely because water level data from these wells consistently show significant differences between shallow and deep completions.
- The fluid resistivity logs show elevated EC in the screen section relative to the standing water in the casing, suggesting the quality in the screen section may be changing and the water quality samples from this well maybe valid.

The two shallow wells were displaying elevated chloride values. The new data confirms that the water quality samples from FO-09 Shallow are impacted by a structural flaw in the casing that is allowing poor quality water to enter the casing and contaminate the perforated area from which samples are taken. The recent samples are not representative of the in-situ aquifer water from the screened interval at this location. It is recommended that this well be video surveyed to assess the nature of the flaw. After confirmation of the nature of the structural flaw, the well should be repaired or destroyed to prevent continued contamination of the Paso Robles Formation at this location.

The data also confirms that the recent increase in chlorides in FO-10 Shallow is representative of the water in the perforations. The reason for the increase is not known. Ongoing routine sampling may assist in better determining water quality trends and any additional well investigative recommendations at this location.

The opportunity to perform this work is appreciated. Please call if you have any questions.

Sincerely,

Figure 1

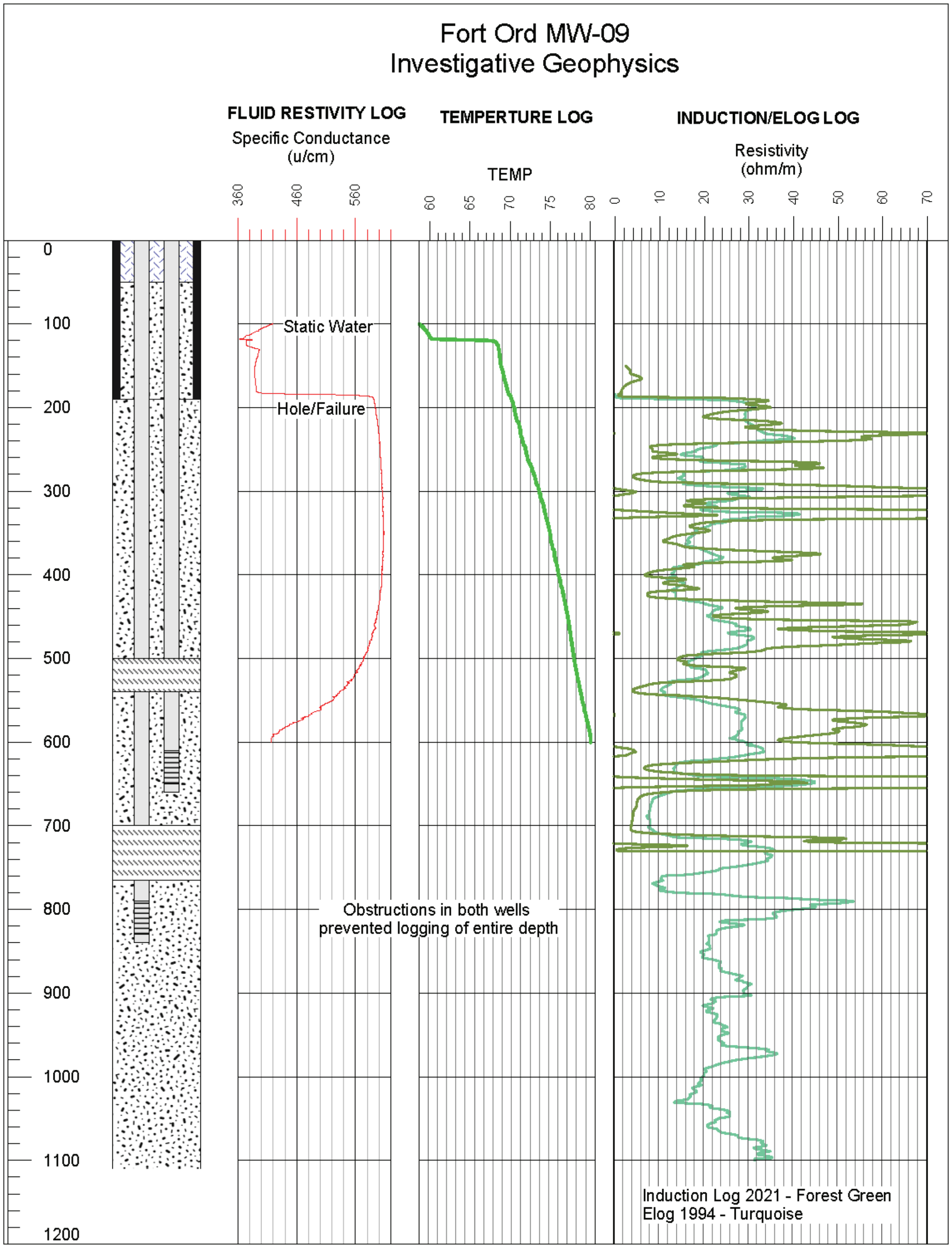
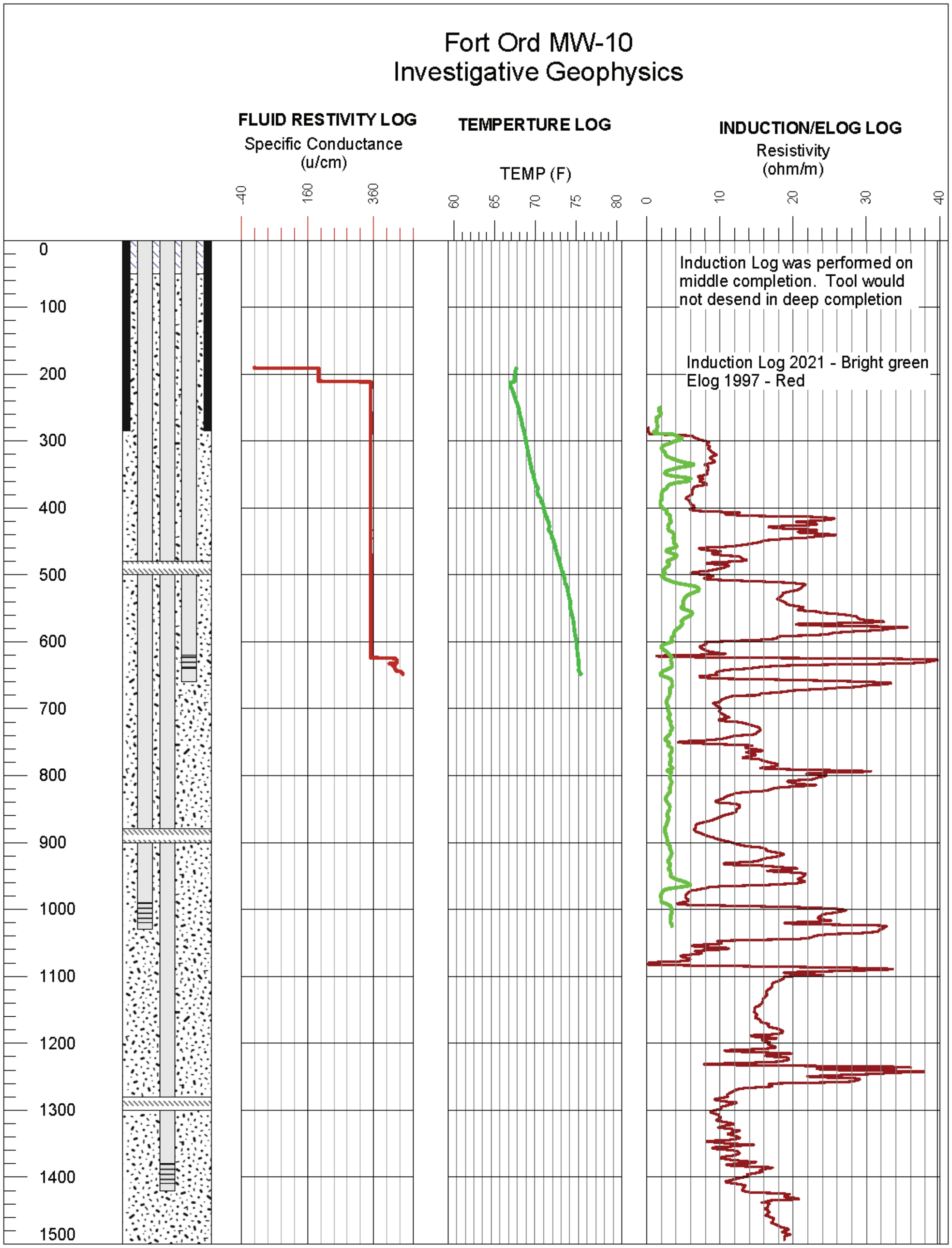

Fort Ord MW-09
Investigative Geophysics
FLUID RESTIVITY LOG
Specific Conductance
(u/cm)
360
460
560
TEMPERTURE LOG
TEMP
60
65
70
75
80
INDUCTION/ELOG LOG
Resistivity
(ohm/m)
0
10
20
30
40
50
60
70
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
Static Water
Hole/Failure
Obstructions in both wells
prevented logging of entire depth
Induction Log 2021 - Forest Green
Elog 1994 - Turquoise

Figure 2


Fort Ord MW-10
Investigative Geophysics
FLUID RESTIVITY LOG
Specific Conductance
(u/cm)
-40
160
360
TEMPERTURE LOG
TEMP (F)
60
65
70
75
80
INDUCTION/ELOG LOG
Resistivity
(ohm/m)
0
10
20
30
40
Induction Log was performed on middle completion. Tool would not desend in deep completion
Induction Log 2021 - Bright green
Elog 1997 - Red
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500

COMMUNITY WATER CENTER
EL CENTRO COMUNITARIO POR EL AGUA

San Jerardo Cooperative, Inc.

April 23, 2021

Salinas Valley Basin Groundwater Sustainability Agency

Submitted electronically to

Emily Gardner, Deputy General Manager

Donna Meyers, General Manager

Subject Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency

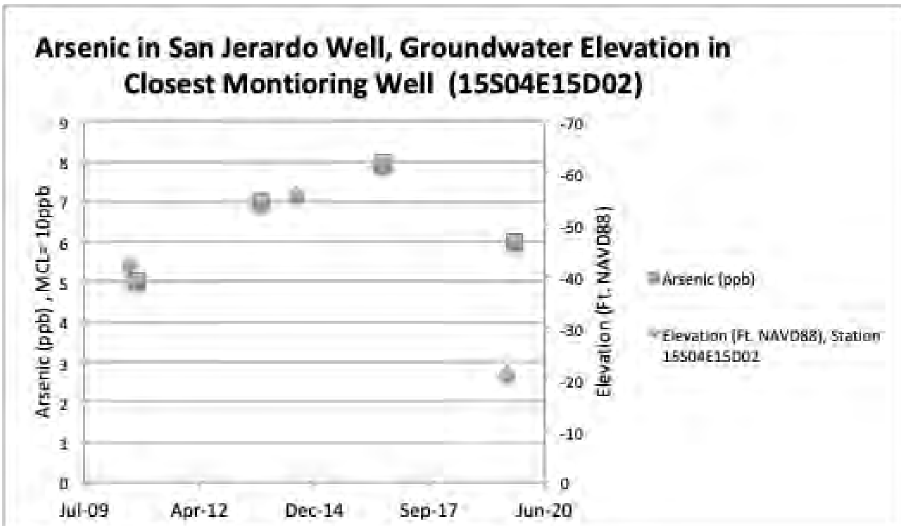
The Community Water Center (CWC) and the San Jerardo Cooperative would like to offer comments and recommendations in response to the draft Groundwater Sustainability Plans (GSPs) Chapter 1-8 for the Langley, East Side, Forebay, and pper Valley Subbasins as well as Chapters 1-5 and 7 for the Monterey Subbasin that were released in 2020 and early 2021 by the Salinas Valley Basin Groundwater Sustainability Agency (SVB GSA). In addition, we offer preliminary comments on the draft Chapter 9 Implementation Actions that were shared with subbasin committees in April 2020. These comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

The challenges facing San Jerardo and similar communities throughout all the subbasins in the Salinas Valley are the foundation of our comments in this letter. The San Jerardo Cooperative s well is highly vulnerable to changes in groundwater levels and groundwater quality. Over decades of living and working at San Jerardo Cooperative, Horacio Amezquita has observed firsthand how the irrigation practices on properties surrounding the cooperative impact the water quality in their current and former wells. The San Jerardo Cooperative receives drinking water from a small public water system (CA2701904) and is very concerned that pumping, irrigation practices, and groundwater management in the East Side Subbasin will cause their drinking water well, which currently meets all drinking water standards, to e ceed the ma imum contaminant levels for arsenic and or nitrate. nfortunately, data from the State Water Board indicates increasing levels of nitrate and arsenic in their well with a high arsenic level of 8 ppb on 8 22 2016 that also corresponds to a low groundwater elevation of -61.5 in Station 15S04E15D02, the closest monitoring well to the San Jerardo Cooperative s well (See CWC Figures 1 and 2).[1] While there are too few monitoring data points to draw significant conclusions, CWC Figure 1 does suggest that arsenic levels are higher when groundwater levels are lower. Scientifics studies confirm that contaminants like arsenic, uranium, and chromium (including he avalent chromium)

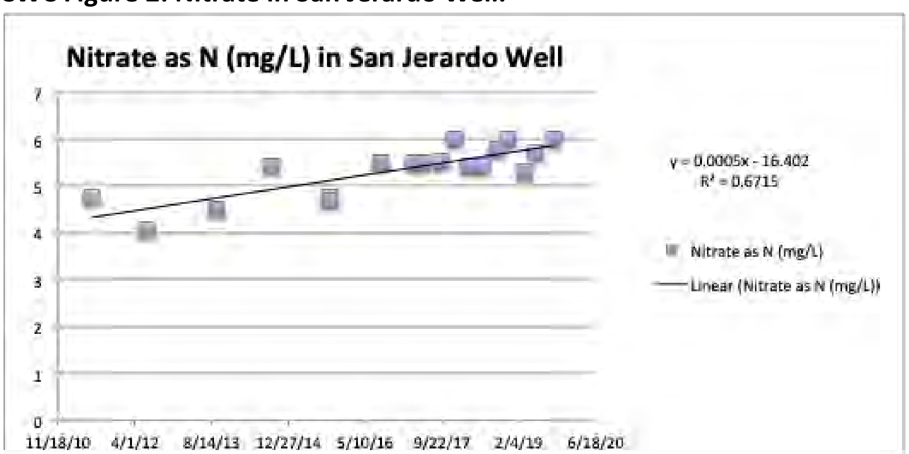
[1] CWC Figure 1 contains all available arsenic data from the State Water Board s Drinking Water Watch online database (https sdwis.waterboards.ca.gov PDWW) which was collected in October 2010, 9 11 13, 8 22 16, and 9 23 19. We then added the monitoring data for Station 15S04E15D02 for the dates most close to the arsenic sampling dates (August 2010, August 2014, August 2016, and August 2019). CWC Figure 2 data was also downloaded from the same online database.

are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations.[2]

CWC Figure 1: Arsenic in San Jerardo Well, Groundwater Elevation in Closest Monitoring Well
(Note The groundwater elevation y-a is is reversed to illustrate that lower groundwater elevations are associated with higher arsenic levels.)



CWC Figure 2: Nitrate in San Jerardo Well.



We provide more specific chapter-by-chapter comments in this comment letter. We recommend the GSP should be revised throughout to acknowledge the science showing that groundwater pumping and groundwater level changes can influence water quality.

We strongly recommend that the GSPs incorporate a more robust and representative monitoring network and minimum thresholds to protect vulnerable communities like San Jerardo and those

[2] Community Water Center and Stanford niversity, 2019. Factsheet Groundwater uality in the Sustainable Groundwater Management Act (SGMA) Scientific Factsheet on Arsenic, ranium, and Chromium for more information.https d3n8a8pro7vhm .cloudfront.net communitywatercenter pages 293 attachments original 156 0371896 CWC FS Grndwtr ual 06.03.19a.pdf 1560371896.

dependent on shallow domestic drinking water wells. This network should include state and local small water systems.

We also firmly agree with the State Water Board s December 8, 2020 comments to the Department of Water Resources on the 180 400 Foot Aquifer GSP, have included them as a reference throughout this comment letter, and recommend that the SVB GSA implement their recommendations in all the other Subbasins GSPs currently in development.[3]

Thank you for reviewing this letter and for the consideration of our comments on the draft GSP chapters. We look forward to working with the SVB GSA to ensure that the GSPs are protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns. We also look forward to meeting with you in the future to further discuss issues raised in this and past comments.

Sincerely,

Heather Lukacs
Community Water Center

Horacio Amezquita
General Manager, San Jerardo Cooperative, Inc.

Justine Massey
Community Water Center

Mayra Hernandez
Community Water Center

GSP Chapter 3 Description of Plan Area

The description of the plan area can be improved by clarifying the descriptions of the drinking water users in the area. In order to develop a GSP that addresses the needs of all beneficial users, it is critical that the location and groundwater needs of Disadvantaged Communities (DACs) and all drinking water users including domestic well communities are e plicitly addressed early on in the GSP. In addition to comments previously submitted to the GSA on July 10, 2020, we recommend the following updates to this chapter

- **Include a map of all disadvantaged communities (DACs) and their drinking water sources in the subbasin including private wells** as determined both by census data (block groups, census designated places, and census tracts) and median household income surveys conducted in accordance with state and federal agency guidelines. We appreciate that the SVB GSA added Appendi 11E Disadvantaged Communities to the 180 400 foot aquifer GSP (Pages 928-941, January 3, 2020) with important information about the location and drinking water challenges, both water quality and seawater intrusion, facing DACs. This information is critical to inform the

[3] DWR SGMA GSP Portal https   sgma.water.ca.gov portal gsp comments 29.

rest of the GSP. We recommend that it be moved into Chapters 3 and 5 and augmented in the ways described in this section.

- **Correct small error in text in Section 3.2.1 Water Source Types** that incorrectly states that small state water systems are included in the Tracking California database. The Tracking California database only includes public water systems serving 15 or more connections.
- **Clarify the number and type of public water systems in the subbasins throughout the entire plan.** In each subbasin plan, there are discrepancies between types and numbers of public water systems in different chapters. For e ample, the East Side GSP lists the following
  - Table 3-2 Well Count Summary shows Public Supply **24 wells**
  - Table 5-3 GAMA Water uality Summary shows Number of E isting Wells in Monitoring Network Sampled in Water ear 2019 to be **41** for 123-TCP, **46** for Nitrate, and 9 for TDS.
  - Section 7.5 All the municipal supply wells in the Subbasin are part of the RMS network. A total of **51 public supply** wells were sampled in W 2019.
  - Table 8-4 Groundwater uality Minimum Thresholds - **No well count shown**.

  We recognize that different data sources have different limitations and recommend using the best available data consistently throughout the plan.
- **Add a table of all public water systems, their names, locations, number of connections, and number of active wells** in the te t or in an appendi that is consistent with the numbers of wells in Table 3-2, Table 5-3, Section 7.5, and other locations where mentioned in the GSPs.
- **Add state and local small water systems to Figure 3-5.** While these systems are currently not in Figure 3-5, their services areas do appear on the SVB GSA GIS portal (svbgsa.maps.arcgis.com) and are labeled as Parcels served by small water systems (fewer than 15 connections).
- Consider using the same terminology as the Monterey County Department of Health for the state and local small water systems serving 2-14 connections and not using small public water systems in Section 3.4.4.2 and throughout the plan. Some definitions of small public water systems include water systems serving up to 199 or even 3300 connections.[4]
- **Revise Section 3.6.3 on the Agricultural Order to indicate that Agricultural Order 4.0 was adopted in April 2021 and include monitoring requirements including on-farm domestic well monitoring of nitrate and 123-trichloropropane, as well as irrigation well monitoring of nitrate.**

GSP Chapter 4 Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a key component of the basin setting. The basin setting represents the baseline assumptions that the GSA relies on throughout the GSP when choosing minimum thresholds, measurable ob ectives, and undesirable results, as well as when planning pro ects and management actions. We recommend that the GSA

- **Revise Section 4.6 on Water Quality to acknowledge that "natural groundwater quality in the Subbasin" can be influenced by pumping and the way groundwater is managed.**[5] As indicated

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[4] California Code, Health and Safety Code - HSC 116275

[5] Community Water Center and Stanford niversity, 2019. Factsheet Groundwater uality in the Sustainable Groundwater Management Act (SGMA) Scientific Factsheet on Arsenic, ranium, and Chromium for more information.https d3n8a8pro7vhm .cloudfront.net communitywatercenter pages 293 attachments original 156 0371896 CWC FS Grndwtr ual 06.03.19a.pdf 1560371896.

in our cover letter, this is of particular importance for the San Jerardo Cooperative who has e periencedincreases in nitrate and arsenic in their well.

GSP Chapter 5 Groundwater Conditions

In Chapter 5, we recommend that the GSA make the following changes to all subbasin GSPs (East Side, Langley, Monterey, pper Valley, and Forebay). The goal is to clearly represent current and past water quality conditions in the subbasin in order to inform the monitoring network sustainable management criteria, planning, management actions, and pro ects.

Groundwater uality Distribution and Trends

- **Clearly state in the introduction to Section 5.4 that the amount and location of pumping can impact groundwater quality distribution and trends.** We recommend including this language in the letter submitted by the State Water Board to DWR regarding the 180 400 foot aquifer GSP (Dec. 2020) Not all water quality impacts to groundwater must be addressed in the GSP, but significant and unreasonable water quality degradation due to groundwater conditions occurring throughout the subbasin, and that were not present prior to January 1, 2015, must be addressed in the GSP s minimum thresholds. [6] High rates of groundwater pumping can pull in contaminant plumes towards drinking water wells, cause the release of arsenic from the strata in the ground, and when shallow wells go dry or are too contaminated to use, new wells must be drilled into deeper portions of the aquifer where they are more likely to encounter high arsenic levels.[7] As previously mentioned, this is of direct concern to the San Jerardo Cooperative who has observed increasing arsenic levels in their relatively new drinking water well, which was drilled to replace a more shallow well contaminated with nitrate and 123-trichloropropane.
- **Include trend data for drinking water wells in the subbasins.** In some places, nitrate and other contaminants are increasing in drinking water wells. It is important to understand current contamination values and also whether well water quality is improving, staying the same or declining as well as the relationship of water quality to other sustainability indicators. As indicated by the data provided in this section, Monterey County maintains an e ceptional dataset of water quality data for over 900 state and local small water systems serving 2-14 connections that should be utilized throughout the GSPs. Monterey County has sampled many small water systems for decades. CWC Figures 3 and 4 show nitrate concentrations increasing over time in two state small water systems in the East Side sub basin with high levels in one of the systems (Middlefield Rd. Water System 4) in 2015. Figure 5 illustrates arsenic concentrations in the Metz Road Water System 4 in the Forebay Subbasin. In some cases, data shows fluctuations and peaks in concentrations during the 2015-2016 timeframe. This is similar to the San Jerardo e ample shared previously. Further, the Central Coast Regional Water Board has analyzed data from their Irrigated Lands Regulatory Program to show that many wells across the region are showing increasing levels of nitrate concentrations.[8]

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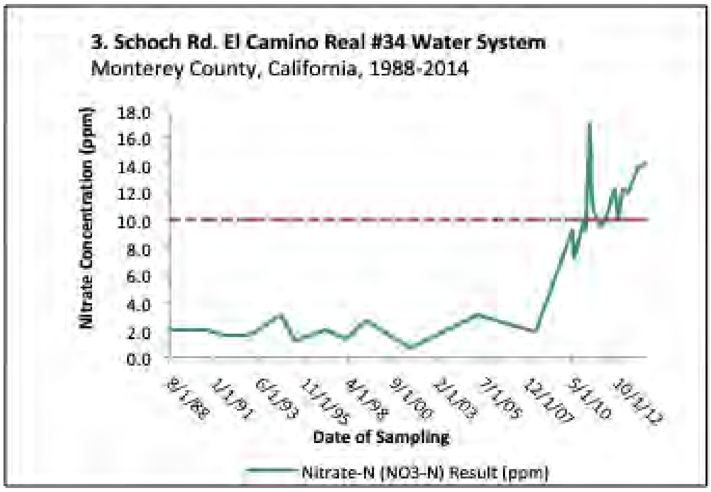
[6] DWR SGMA GSP Portal https sgma.water.ca.gov portal gsp comments 29

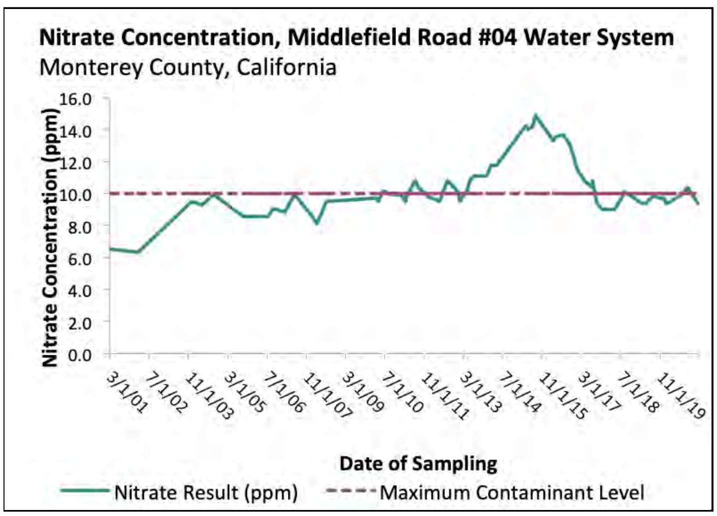
[7] Community Water Center and Stanford niversity, 2019. Factsheet Groundwater uality in the Sustainable Groundwater Management Act (SGMA) Scientific Factsheet on Arsenic, ranium, and Chromium for more information. Available at https www.communitywatercenter.org sgmaresources

[8] Draft Ag Order, Attachment A, 141-143, https www.waterboards.ca.gov centralcoast water issues programs ag waivers docs ag order4 renewal 2021 april pao4 att a clean.pdf.

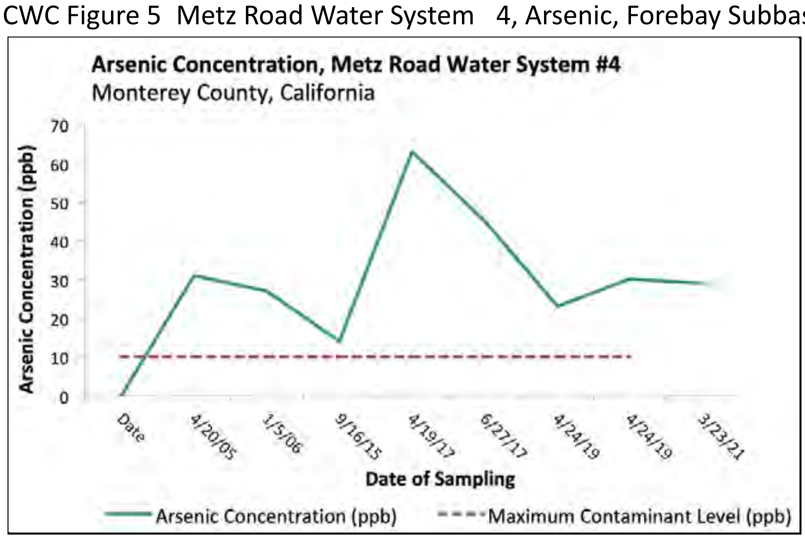
CWC Figure 3 El Camino Real WS 34 - Nitrate as N, East Side Subbasin



CWC Figure 4 Middlefield Road WS 4 - Nitrate as N, East Side Subbasin



CWC Figure 5 Metz Road Water System 4, Arsenic, Forebay Subbasin



- **Revise Section 5.4 to include a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, **nitrate, 123-trichloropropane, hexavalent chromium,**[9] **arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells.** It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.
    - **Present maps and supporting data for all constituents of concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the e ception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR 354.16(d)).
    - **Augment and clarify data presented in Table 5-3 GAMA Water Quality Data Summary and Section 5.4.1 in the following ways:**
        - **Add all state and local small water systems data.** Table 5-3 should include all state and local small water system data for nitrate, arsenic, he avalent chromium, and any other contaminants that Monterey County monitors in the subbasin.
        - **Include additional contaminants that have been detected in the subbasin(s) to be consistent with Tables 8-5 and 8-6.** Our review of publicly available data on drinking water wells of all types (private domestic wells, state local small water systems, and public water systems) indicate that there are additional constituents of concern beyond those currently listed. We included CWC Figure 6 (page 9) to highlight the spatial distribution of arsenic in public water system wells in the **East Side, Langley and Monterey Subbasins**, and CWC Figure 7 (page 10) to highlight the spatial distribution of he avalent chromium in in public water system wells in the **Langley Subbasin**. We recommend a more comprehensive analysis of all other constituents in the subbasins, including, but not limited to the following[10]

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[9] The ma imum contaminant level for he avalent chromium should be reinstated in 2021. Data is available from the State Water Resources Control Board and Monterey County Environmental Health Bureau (public water system data, state local small water system data) as well as on GAMA from the Central Coast Regional Water uality Control Board s private well testing program.

[10] All Monterey County data shared in this section was collected by the small water system program.
https www.co.monterey.ca.us government departments-a-h health environmental-health drinking-water-prote ction state-and-local
It was downloaded from the Greater Monterey County Community Water Tool on April 22, 2021
http www.greatermontereyirwmp.org documents disadvantaged-community-plan-for-drinking-water-and-waste water

- **East Side Subbasin:** Table 5-3 presents data on two primary contaminants in drinking water nitrate and 123-trichloropropane, but arsenic is also of particular concern to San Jerardo Cooperative and others in the subbasin. GAMA shows that four public water system wells have e ceedances of the arsenic MCL in the past three years (CWC Figure 8), and state local small water system out of compliance lists from the Monterey County Health Department (2021) show that both Old Stage Rd WS 6 and Old Stage Rd WS 7 are out of compliance for arsenic and that at least five other state or local small water systems have between 6-8 ppb of arsenic, which means they are similar to San Jerardo Cooperative in terms of their vulnerability to water level fluctuations or other changes.
- **Forebay Subbasin:** While arsenic is less common in the Forebay than in the Langley, Monterey, and East Side Subbasins, our review of the Monterey County Health Department data indicates that 17 state or local smalls had arsenic at levels above 1 ppb in the 2015-2017 time period, and at least two of these had levels above the MCL. See CWC Figure 5 (page 8) which illustrates trends in one of the out-of-compliance small water systems, Metz Road Water System 4. In addition, three systems monitored by Monterey County as part of their Local Primacy Program for public water systems serving 15-199 connections had he avalent chromium detections of 2.8 ppb, 3.4 ppb, and 2.1 ppb in the 2014-2017 timeframe.
- **Upper Valley Subbasin:** Although arsenic is not as common in the pper Valley as other subbasins, it has been detected in levels between 3.2 and 5 ppb in si small water systems monitored by Monterey County.

■ Clarify what is meant by DDW wells in Table 5-3. If these are public supply wells in GAMA, please clearly state this.

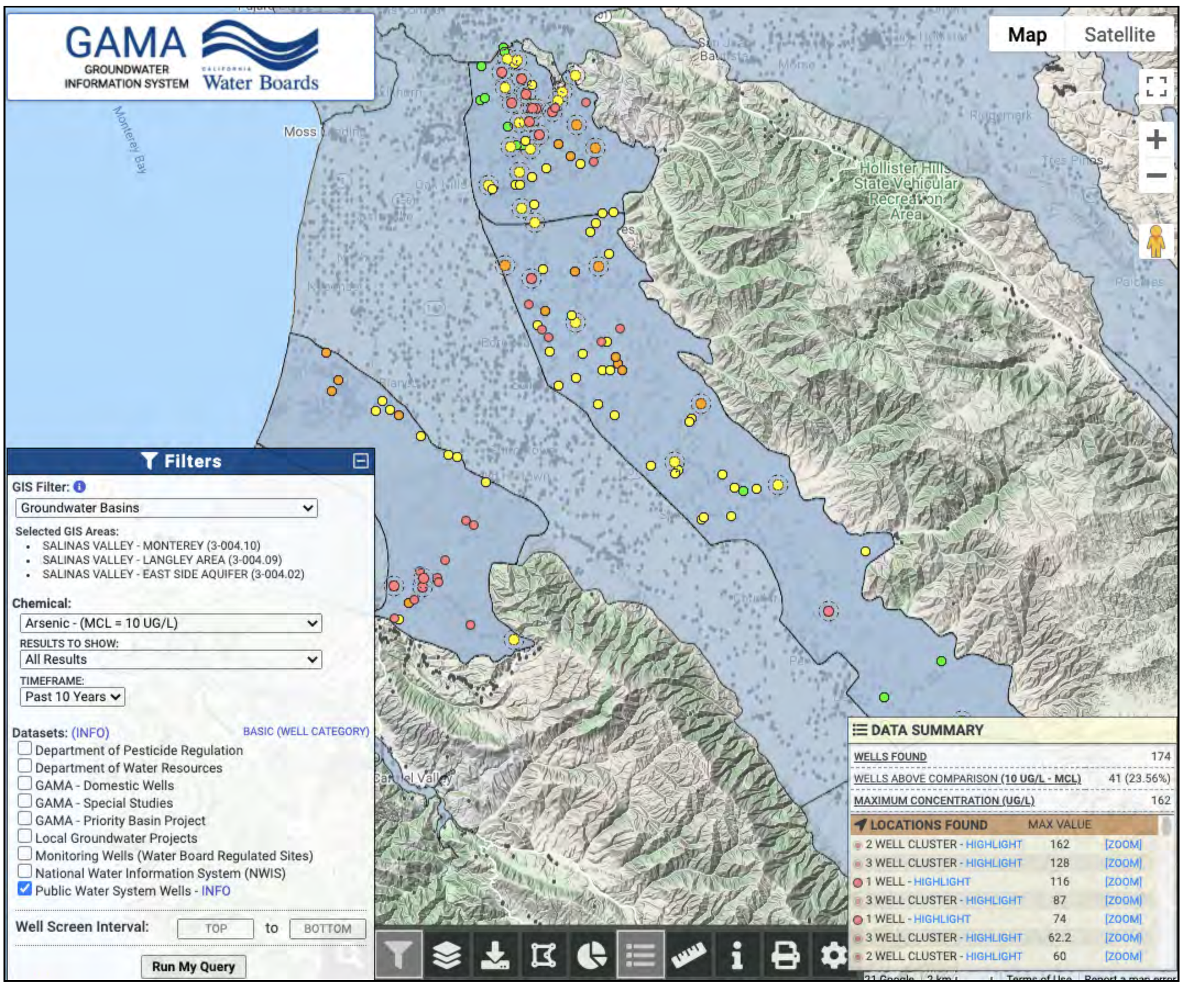
■ **Include the following in Table 5-3: (1) total number of wells of each type, (2) the total number of wells sampled for each constituent, and (3) Of the total number sampled, the number of systems that are out-of-compliance with drinking water standards.** Since public water systems and ILRP wells are monitored on different schedules, there are significant data gaps and inconsistencies when comparing one year to the ne t in the way that drinking water contaminants are currently represented in GSPs Chapters 5, 7, and 8. For e ample, we were surprised to see only 15 ILRP Domestic Wells included in Table 5-3 the East Side Subbasin GSP. GAMA shows that there were 139 ILRP wells in the East Side Subbasin sampled for nitrate in the past 3 years, 331 sampled in the last 10 years, and only 8 sampled in the last year. Moreover, CWC Figure 8 illustrates 43 Public Water System Wells in the East Side Subbasin with arsenic data in the past 3 years. On CWC Figure 8, San Jerardo Cooperative s well is shown in orange to indicate that it is at-risk but has not yet e ceeded the MCL. However, only 18 Public Water System Wells have sampling data for arsenic from the past year, and during this timeframe, San Jerardo Cooperative s well is not represented (See CWC Figure 9).

■ **Use the compliance status or most recent sample result instead of using the "Number of Wells Exceeding Regulatory Standard in Regulatory Year 2019"**

This is especially important for Table 8-4 and Table 8-5 but also applies to Table 5-3. We recommend the following for different types of drinking water systems

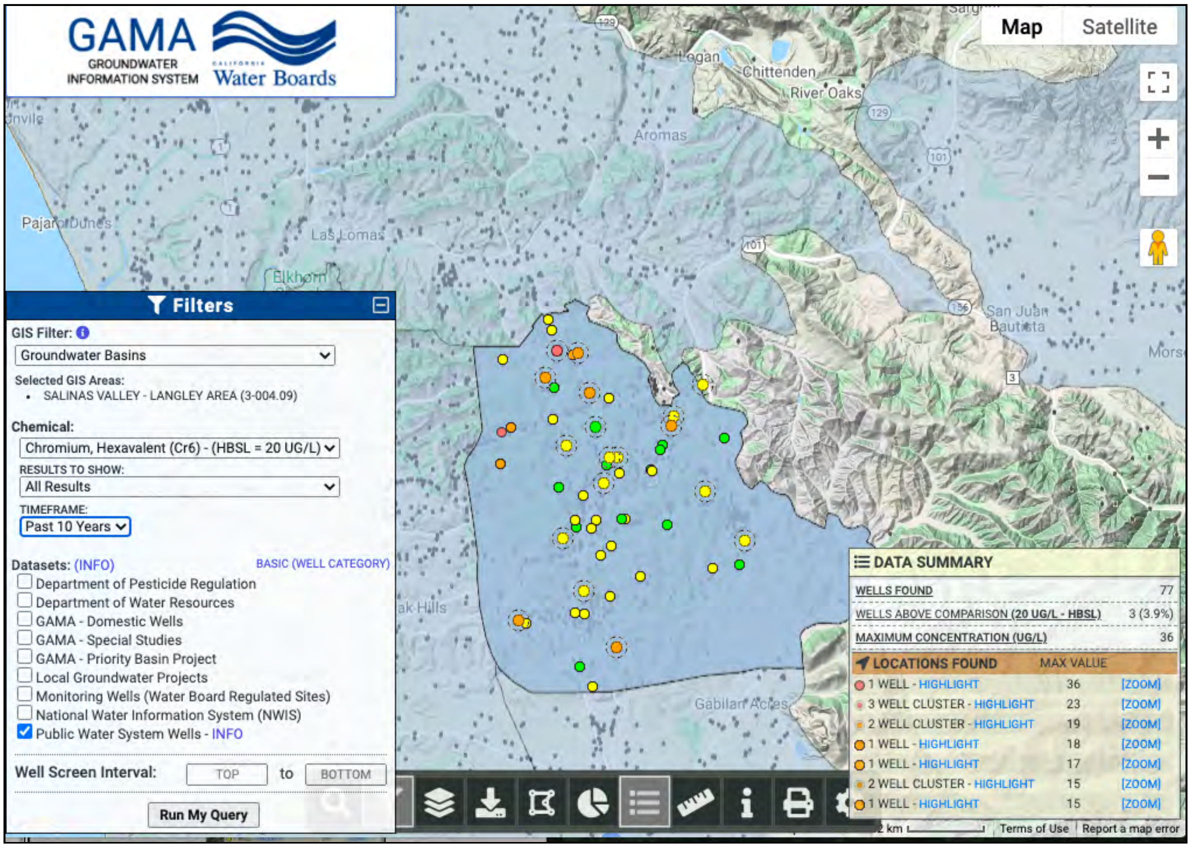
- For public water systems, we recommend using the State Water Board s determination regarding compliance status.
- For state and local small water systems, we recommend using the Monterey County Health Department list of out-of-compliance systems, which is published on their website and available by request on an annual basis based on the most recent sample collected.[11]
- For ILRP wells, we recommend the GSA consider an approach similar to Monterey County and show the most recent sample result for each monitoring well (and not only those sampled in the past year).

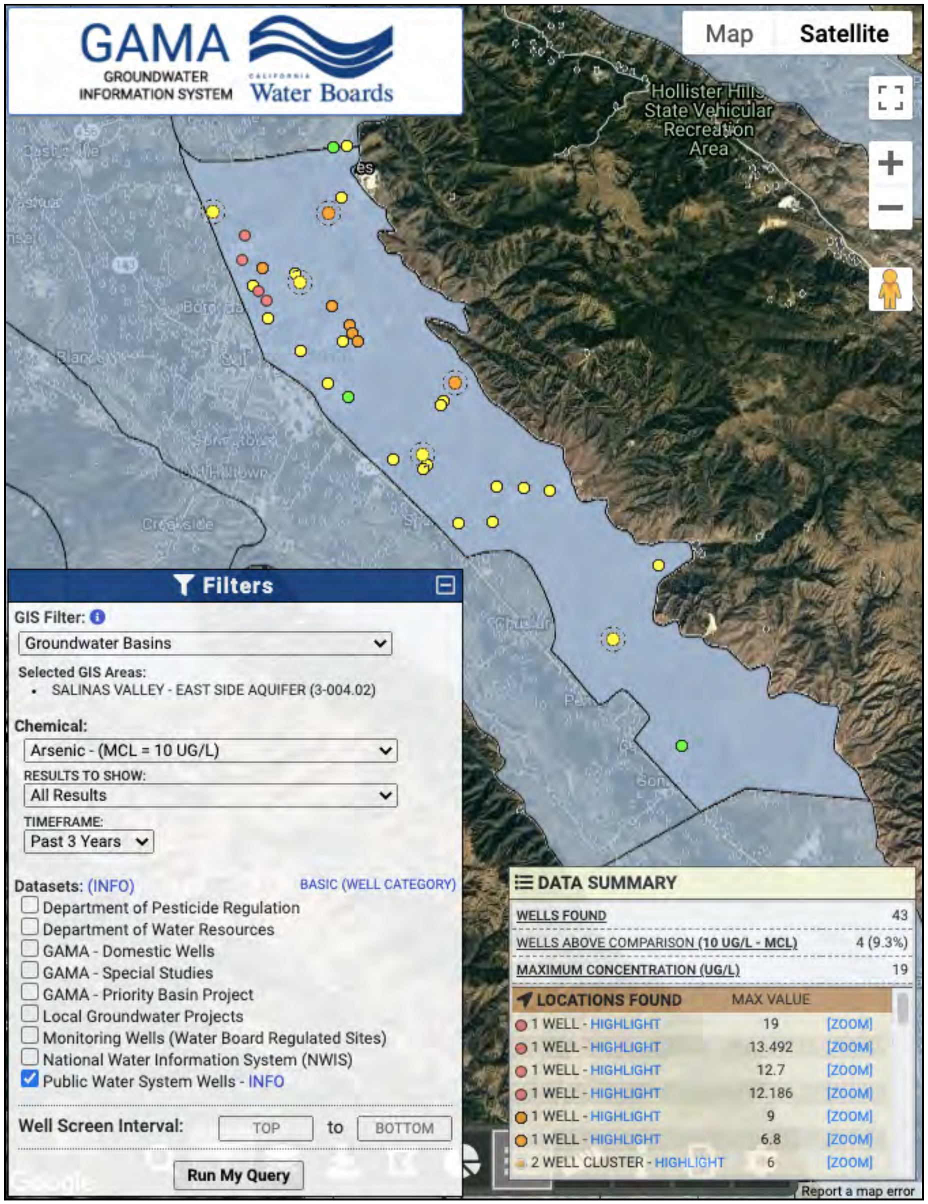
CWC Figure 6 Arsenic Concentrations in Public Water System Wells, Monterey, Langley East Side Subbasins (Red dots 10 ppb, Orange 5-9.9 ppb, ellow 0.6-5.9 ppb, Green non-detect)



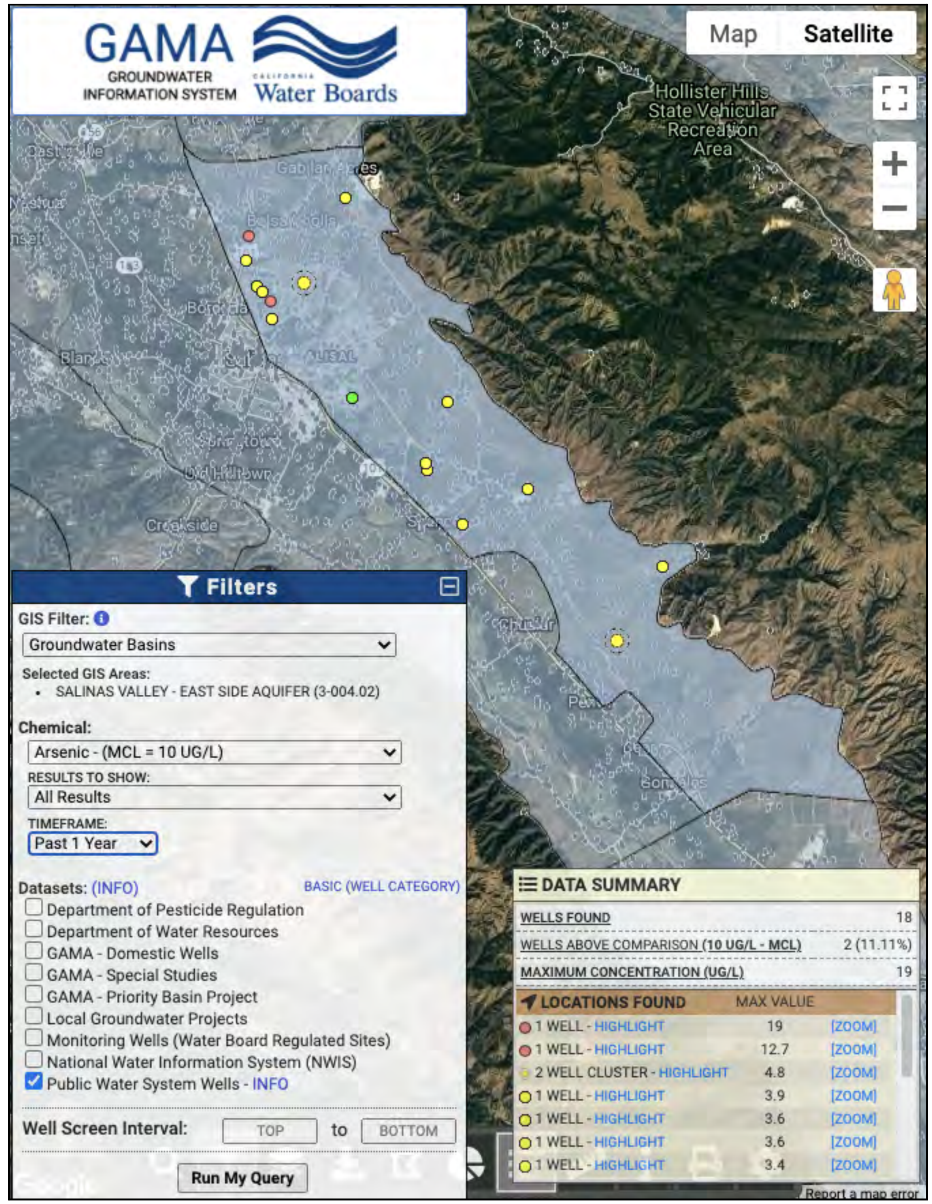
[11]https www.co.monterey.ca.us government departments-a-h health environmental-health drinking-water-protection state-and-local.

CWC FIgure 7 He avalent Chromium Concentrations in Public Water System Wells, Langley Subbasin





CWC Figure 8 43 Public Water System Wells have arsenic data in the past 3 years. One well at San Jerardo Cooperative appears orange on this map.



CWC Figure 9 Only 18 Public Water Systems Wells have arsenic data in the past year. San Jerardo Cooperative s wells are not shown on this map.

GSP Chapter 6 Water Budgets

SGMA requires a GSP to quantify the water budget in sufficient detail in order to build local understanding of how historic changes have affected the si sustainability indicators in the basin.[12] ltimately, this information is intended to be used to predict how these same variables may affect or guide future management actions.[13] GSAs must provide adequate water budget information to demonstrate that the GSP adheres to all SGMA and GSP regulation requirements, that the GSA will be able to achieve the sustainability goal within 20 years, and be able to maintain sustainability over the 50 year planning and implementation horizon.[14]

We are concerned that the calculations of sustainable yield and the water budget in this chapter may *overestimate the actual sustainable yield and water availability of the subbasins*. We highlight points of concern below and recommended changes.

6.4 Pro ected Water Budgets

The SVB GSA Subbasin GSPs e plain that p ro ected water budgets are e tracted from the SVOM, which simulates future hydrologic conditions with assumed climate change. Two pro ected water budgets are presented, one incorporating estimated 2030 climate change pro ections and one incorporating estimated 2070 climate change pro ections. … The climate change pro ections are based on data provided by DWR (2018). [15] Including climate change scenarios in water planning is an important step for California s increased resiliency, however, which scenarios to include is a critical question.

Climate change is changing when, where, and how the state receives precipitation.[16] Impacts to water supply, particularly drinking water supply, could be devastating if planning is inadequate or too optimistic. GSAs must adequately incorporate climate change scenarios in water budgets. As such, the DWR Climate Change Guidance[17] makes recommendations to GSAs for how to conduct their climate change analysis while preparing water budgets. DWR also provides climate data for a 2030 Central Tendency scenario and 2070 Central Tendency, 2070 Dry-E treme Warming (DEW), and 2070 Wet-Moderate Warming (WMW) scenarios. While DWR s Guidance should be improved with more specific guidelines and requirements, the current Guidance specifically encourages GSAs to analyze the more e treme DEW and WMW pro ections for 2070 to plan for likely events that may have costly outcomes. Therefore, we recommend that the SVB GSA subbasin GSPs

- **Include water budget analyses based on DWR's 2070 DEW and WMW scenarios in order to analyze the full range of likely scenarios[18] that the region faces.**

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[12] 23 CCR 354.18.

[13] California Department of Water Resources (DWR), 2016. Best Management Practices for the Sustainable Management of Groundwater, Modeling (BMP 5), December 2016.

[14] 23 CCR 354.24.

[15] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data se During Groundwater Sustainability Plan Development. https data.cnra.ca.gov dataset sgma-climate-change-resources resource f824eb68-1751-4f37-9a15-d9edbc854e1f inner span True.

[16] nion of Concerned Scientists. Troubled Waters Preparing for Climate Threats to California s Water System, 2020. https www.ucsusa.org resources troubled-waters top.

[17] See DWR (2018) reference above.

[18] Terminology used in the California Climate Change Assessment, 2019. (Table 3). https www.energy.ca.gov sites default files 2019-11 Statewide Reports-S M-CCCA4-2018-013 Statewide Summary Report ADA.pdf.

- Currently, the SVB GSA s e clusive use of the central tendency climate scenario predicts an increase in surface water availability, as represented in the tables in Section 6.4.3 of the subbasin GSPs. The Pro ected Groundwater Budgets show increases in deep percolation of stream flow, deep percolation of precipitation, and irrigation. The subbasin GSPs are relying on this presumed increase for their water budgets. However, the 2070 DEW scenario provided by DWR could likely result in a significant decrease in precipitation and increase in evapotranspiration, which would have substantial effects on the subbasin water budgets. By analyzing only the central tendency scenario and not other likely scenarios such as the e tremely dry and wet scenarios provided by DWR, the SVB GSA is ignoring the specific 2070 DEW and WMW scenarios provided by DWR as well as an increasing trend in drought frequency. In doing so, the GSP could be overestimating groundwater recharge or underestimating water demands, inadequately planning, and eopardizing groundwater sustainability. This will waste precious time to prepare and reduce the vulnerability of the basin s agriculture and already vulnerable communities.
- DWR s guidance (2018) states that the central tendency scenarios *might* be considered most likely future conditions -- that is not a clear endorsement of a higher statistical probability. It appears that they are calling it the central tendency merely because it falls in the middle of the other two pro ections, not because it s significantly more probable.
- DWR (2018) e plicitly encourages GSAs to plan for more stressful future conditions
  - GSAs should understand the uncertainty involved in pro ecting future conditions. The recommended 2030 and 2070 central tendency scenarios describe what might be considered most likely future conditions there is an appro imately equal likelihood that actual future conditions will be more stressful or less stressful than those described by the recommended scenarios. Therefore, GSAs are encouraged to plan for future conditions that are more stressful than those evaluated in the recommended scenarios by analyzing the 2070 DEW and 2070 WMW scenarios. [19]
- Including the DEW and WMW climate scenarios as part of the 2070 water budget analysis is necessary to meet the statutory requirement to use the best available information and best available science. [20] Sustainable planning must include planning for foreseeable negative and challenging scenarios. The e treme scenarios provided by DWR are certainly foreseeable, as they have been modeled and made available to the GSA for analysis.
- It is important for the SVB GSA to include the 2070 DEW and WMW scenarios, because shallow drinking water wells in the area are particularly vulnerable to various e treme conditions, especially drought.

[19] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data se During Groundwater Sustainability Plan Development. Section 4.7.1.
https data.cnra.ca.gov dataset sgma-climate-change-resources resource f824eb68-1751-4f37-9a15-d9edbc854e1f inner span True. (In red is a statement about the central tendency scenarios referenced in SVB GSA public meetings and email communications by the GSA s engineering consultant, and in blue is the important te t accompanying it, urging GSAs to analyze the more e treme scenarios. CWC staff cited this complete paragraph in email communications with the consultant and GSA staff on April 8, 2021. CWC also raised this point at Forebay and pper Valley Subbasin Committee meetings in March and at the April SVB GSA Board Meeting.)
[20] See 23 CCR 355.4(b)(1).

- **Share water budget results based on the 2070 central tendency, DEW and WMW scenarios that DWR has provided with the Subbasin committees, the Advisory Committee, and the GSA board**. This should be done at a *minimum* to see what the difference in outcomes could be, and to provide a transparent process for selecting the preferred scenario. This analysis is particularly important because of the drastic differences between the dry and wet scenarios for this region. Drought and or intensified rainfall (more water falling over a shorter period of time) would pose severe challenges[21] to the Subbasins plans for recharge, which is a critical component of their plans to reach sustainability.
- **Plan for potential adverse climate conditions when determining Projects and Management Actions.** The results of limited-scope planning will be detrimental to beneficial users throughout the SVB GSA. If water planning continues to fail to account for the full range of likely climate impacts, California risks wasted water investments, unmet sustainability goals, and increased water supply shortfalls. [22] This is true not ust generally across California, but also specifically on the Central Coast. Without effective adaptations, pro ected future e treme droughts will challenge the management of the Central Coast region s already stressed water supplies, including e isting local surface storage and groundwater recharge as well as imported surface water supplies from the State Water Pro ect which will become less reliable, and more e pensive. [23]

GSP Chapter 7 Monitoring Network

Robust monitoring networks are critical to ensuring that the GSP is on track to meet sustainability goals. GSAs undertaking recharge, significant changes in pumping volume or location, con unctive management or other forms of active management as part of GSP implementation must consider the interests of all beneficial users, including domestic well owners and S DACs. We have the following overarching recommendations for this chapter and provide more details for sub-sections below

- **Require well registration and metering for all wells in the Salinas Valley, and begin implementation of a well registration and metering program in early 2022 with a dedicated budget.** We voice our strong support, with modifications indicated in our comments below, for proposed Implementation Action 12 Well Registration in Section 9.1 of Chapter 9 released in April 2021 and recommend that this action be updated and moved to Chapter 7. We agree with the SVB GSA s statement in Section 7.3.2 Groundwater Storage Monitoring Data Gaps that Accurate assessment of the amount of pumping requires an accurate count of the number of municipal, agricultural, and domestic wells in the GSP area. During implementation, the SVB GSA will finalize a database of e isting and active groundwater wells in the Eastside Aquifer Subbasin. This is essential for the plan to achieve sustainability for all beneficial users and influences many different chapters including

[21] nion of Concerned Scientists. Inter-model agreement on pro ected shifts in California hydroclimate characteristics critical to water management. 2020, p. 13. https link.springer.com content pdf 10.1007 s10584-020-02882-4.pdf.
[22] See nion of Concerned Scientists. Troubled Waters (2020) cited above.
[23] Regional Climate Change Assessment for the Central Coast, 2019. (Discussing drought pp. 21-23. Internal citations omitted). https www.energy.ca.gov sites default files 2019-11 Reg Report-S M-CCCA4-2018-006 CentralCoast ADA.pdf.

- Monitoring networks In order to develop a monitoring network that is representative, it will be essential to understand the number, location, well construction, and type (domestic, irrigation, other) of all wells located in the subbasins.
- Water budget and minimum thresholds nderstanding the amount and location of pumping of all water users will be essential for creating an accurate water budget and minimum thresholds consistent with achieving sustainability.
- Pro ects and management actions Section 9.2.1 Well Registration and Metering is a key management action and component of the Water Charges Framework (in the 180 400 foot aquifer) and forthcoming subbasin GSPs. This will underpin the funding structure for many future pro ects.

- **Require flowmeter calibration to ensure consistent and fair monitoring among all agricultural groundwater users (Section 7.3.1).** Rather than consider the value of developing protocols for flowmeter calibration, the GSPs should require flowmeter calibration. The water budget and sustainable yield calculation depend on reliable and fair monitoring and reporting of pumping.
- **Provide a plan and schedule for data gap resolution in forthcoming Chapter 10 of the subbasin GSPs.** In the 180 400 foot aquifer GSP, there was not a clear plan or schedule for the resolution of data gaps in Chapter 7 even though it indicated that this would be included in Chapter 10.
- **Revise GSP monitoring chapters such that monitoring networks for groundwater storage (pumping), groundwater elevation, and groundwater quality adequately monitor how groundwater management actions could impact vulnerable communities including those reliant on domestic wells and shallow portions of the aquifers** (see more detail below).

7.2 Groundwater Elevation Monitoring Network

- **Include groundwater elevation monitoring sites in the network that are representative in terms of the depth and geographic distribution of private domestic wells, and that takes into account areas of high agricultural pumping and wells vulnerable to groundwater decline.**
  - The draft East Side Subbasin GSP Table 7-1 of Eastside Aquifer Groundwater Elevation Representative Monitoring Site Network shows all irrigation and observation wells (and no domestic wells) which range in depth from 299 to 1122 feet.[24] et, the DWR Well Completion Report Map Application[25] shows that 1 mile by 1 mile square sections near San Jerardo Cooperative include private domestic wells with the following minimum depths 110 ft, 210 ft, 172 ft, 208 ft, and 132 ft which are more shallow than all the wells in the current monitoring network (See CWC Figure 10).
- **Overlay the private well density map (Figure 3-7), the DWR Well Completion Report Map Application (with minimum, average, and maximum depths), the water level monitoring network (with well depths), and available pumping data to better illustrate if and how representative the proposed groundwater elevation monitoring network is of private domestic wells and which areas are vulnerable to water elevation changes.** The GSPs state The BMP notes that professional udgment should be used to design the monitoring network to account for high-pumping areas, proposed pro ects, and other subbasin-specific factors. This will also help to better visualize where there are gaps in the monitoring network which the GSAs can address.

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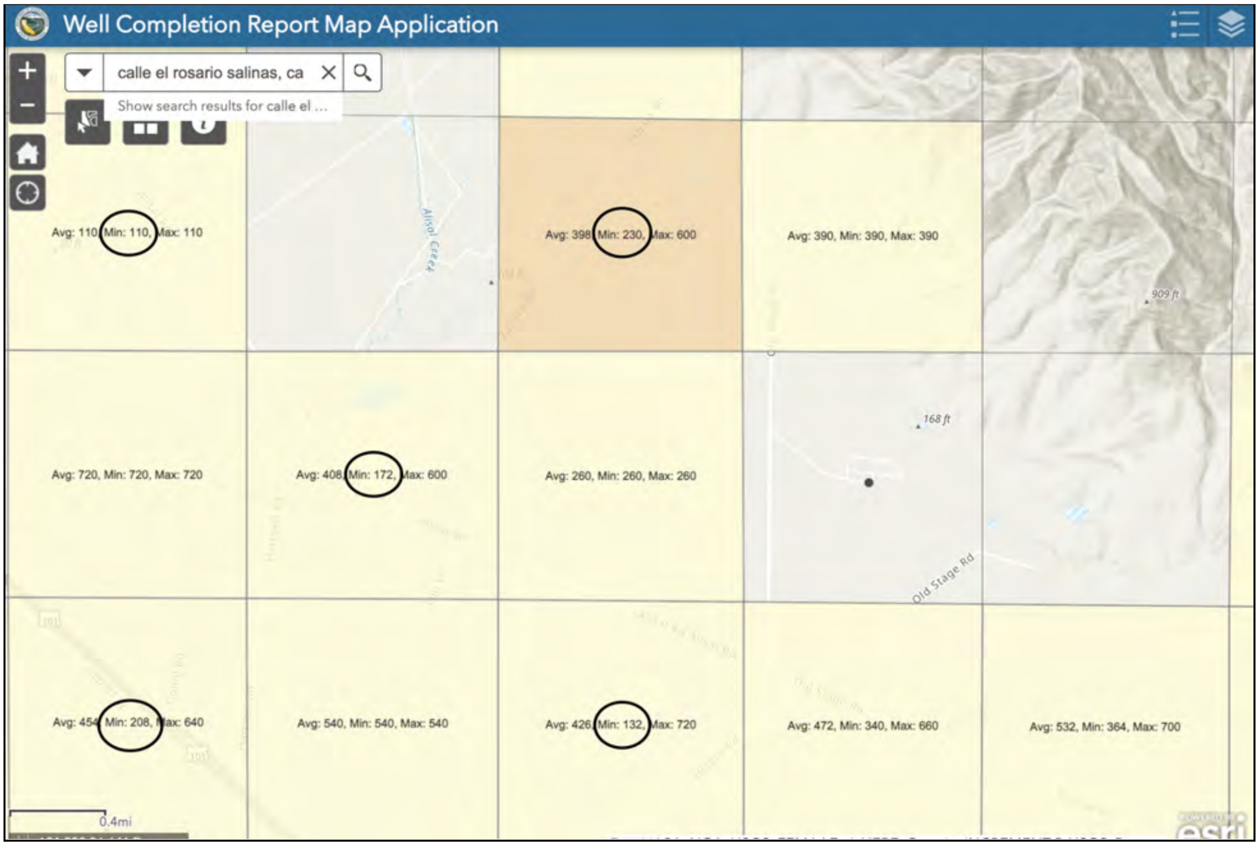
[24] One well shows 0 depth but that must be an error or missing value.

[25] https water.ca.gov Programs Groundwater-Management Wells Well-Completion-Reports



CWC Figure 10 Screenshot of DWR Well Completion Report Map application in the area near San Jerardo Cooperative highlighting that several 1 mi. by 1 mi. square sections include private domestic wells less than 250 feet deep.

7.5 Water uality Monitoring Network

- **Clarify the number of public water system wells that will be included in the water quality monitoring network.** We strongly support the GSPs inclusion stated in Section 7.5 that All the municipal supply wells in the Subasin are part of the RMS network. As indicated in Chapter 3 and Chapter 5 comments, the GSPs should also clearly identify the number of public supply wells as well as the number of public supply wells that are out of compliance and at risk in each subbasin. Section 7.5 currently states that A total of 51 public supply wells were sampled in W 2019 and indicates that all wells are listed in Appendi 7E (which is not publicly available at this time). This section and appendi should be consistent with the total number of wells represented in Table 8-4 which includes groundwater quality minimum thresholds.
- **Representative Water Quality Monitoring Wells for the shallow aquifer should be established in the GSPs based on all currently available data sources with direct agreements with landowners or public entities established.**
    - **Develop long-term access agreements for Representative Monitoring Wells (RMWs) that use private wells.** Collecting data from private wells is not a reliable approach due to access challenges, lack of well construction information, and unreliable accounting of

pumping or non-pumping measurements. The GSPs should specifically identify the RMW owners and operators, include signed long-term access agreements, and identify a plan to obtain adequate monitoring data, if for any reason the well owners decide to not grant access to the wells or provide associated data to the SVB GSA. In order to maintain consistency for future sustainability analyses, the SVB GSA should also consider conducting its own water quality analysis of wells where access agreements have already been established to water quality RMWs.

- **Clarify that state and local small water systems will be added to the water quality monitoring network and that well construction information is no longer needed in order to fill this data gap.** Monterey County Environmental Health Bureau permits and monitors over 900 state and local small water systems in the County and have managed the data collected for decades. This dataset has advantages over the ILRP domestic well dataset in that it includes data on contaminants like arsenic and he avalent chromium in addition to nitrate. Local small water systems serve 2-4 households and are much more similar to private domestic wells than public water systems in terms of depth, well construction, age, size, and maintenance - thus this data would provide a broader representation of shallow drinking water wells. State and local small water systems are located in areas of irrigated agricultural lands as well as rural residential and other land uses. This dataset should complement and not replace ILRP domestic well data.
    - **Clearly add state and local small water system data as a data gap in Section 7.5.2.** In Section 7.5 Water uality Monitoring Network, the draft GSPs state These state and local small wells are not in the current monitoring system because well location coordinates and construction information are currently missing. SVB GSA will work with the County to fill this data gap. When location and well construction data become available, these wells will be added to the monitoring network and included in Appendi 7E and Figure 7-4. However Section 7.5.2 Groundwater uality Monitoring Data Gaps states There is adequate spatial coverage to assess impacts to beneficial uses and users.
- **Do not rely solely on ILRP well data to represent private domestic wells (which are often more shallow than public water system wells).** Similar to CASGEM, the current groundwater quality monitoring network includes monitoring points on private property including ILRP domestic and irrigation wells, but it should not be restricted to ILRP sites only. While on-farm domestic and irrigation wells monitored through the ILRP provide a potentially useful, though limited, source of water quality information, additional representative monitoring wells in the shallow aquifer are important to include for several reasons (1) The ILRP network only includes wells located on agricultural irrigated lands, and not all ILRP properties include domestic wells. Agricultural land use is not the primary land use in the Langley and Monterey Subbasins so this monitoring network offers very limited coverage. While agricultural land use is the primary land use in the East Side, pper Valley, and Forebay Subbasins, there are private domestic wells in areas with different primary land uses (e.g. rural), and SGMA requires that monitoring networks are geographically representative. Monitoring network wells must also be sufficiently representative to cover all uses and users in the basin, (2) There are other, more robust networks established by SGS, GAMA, and Monterey County that could be drawn on and included to make the groundwater quality monitoring network more comprehensive and representative of conditions in the shallow aquifer, (3) Ag Order 4.0 was adopted on April 15, 2021, which means the first year of monitoring data will not be

available until late 2022, (4) The GSA has no authority to determine the robustness or enforcement of monitoring in the irrigated lands network, and (5) while Ag Order 4.0 proposes to require testing for 1,2,3-TCP as well as nitrate, the current ILRP domestic well data only samples for nitrate, and neither Order tests for other contaminants found in the region. In our e perience, not all growers are consistent with their water quality and other reporting, despite the regulatory requirements in place.

- **Update Domestic ILRP and Irrigation ILRP wells in a different color on Figure 7-5 Locations of ILRP Wells Monitored under Ag Order 3.0.** Since these wells are monitored for different constituents and serve different beneficial users, it is important to illustrate them separately.

GSP Chapter 8 Sustainable Management Criteria

We have grouped our comments in this section into general recommendations related to all sustainable management criteria (SMCs) followed by a section specific to the water quality SMCs. We recommend that the Salinas Valley GSA implement the following recommendations in the subbasin GSPs

- **Undertake a drinking water well impact analysis that adequately quantifies and captures well impacts at the minimum thresholds, proposed undesirable results, and potential interim conditions.** Include this analysis during the annual reporting process. We disagree with the assumption included in all draft GSPs that the e act location of wells needs to be known in order to include them in a drinking water well impact analysis. In the 180 400 Foot Aquifer Subbasin GSP, the SVB GSA included a domestic well impact analysis. Although the SVB GSA did not describe the methods used in this analysis,[26] it is CWC s understanding that the analysis was based on Public Land Survey System (PLSS) section location data, demonstrating that such an analysis is feasible. Similar analyses in the Water Foundation Whitepaper (June 2020)[27] and in the Kings River East GSP[28] were completed using the same PLSS section location data for private domestic wells that is available to the SVB GSA. The current analysis is incomplete as it includes very few wells in all subbasins. The current analysis is also substantially inaccurate as it relies on the average computed depth of domestic wells in the Subbasin, and groundwater elevations vary significantly across the subbasin and also on an annual basis. For e ample, only 8 of the 154 domestic wells in the Forebay GSP with an average depth of 292.45 feet, and only 20 of 2016 domestic wells in the East Side GSP with an average depth of 365.5 feet were included. CWC Figure 10 illustrates that the average computive depth is not representative of conditions in shallow domestic wells. Therefore, we recommend revising Section 8.5.2.2 Minimum Threshold Impact on Domestic wells following the process e plained below
    - **Include a map of potentially impacted wells so the public can better assess well impacts specific to DACs, small water systems, or other beneficial users of water.**

[26] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180 400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020.
https   sgma.water.ca.gov portal service gspdocument download 4012
[27] The Water Foundation Whitepaper, April 2020   Estimated Numbers of Californians Reliant on Domestic Wells Impacted as a Result of the Sustainability Criteria Defined in Selected San Joaquin Valley Groundwater Sustainability Plans and Associated Costs to Mitigate Those Impacts. April 9, 2020.
http   waterfdn.org wp-content uploads 2020 05 Domestic-Well-Impacts White-Paper 2020-04-09.pdf
[28] Kings River East Groundwater Sustainability Agency. Groundwater Sustainability Plan. Adopted December 13, 2019.

- **Quantify impacts for all drinking water wells in the subbasin for which approximate location (PLSS section) and well depth are available.** Similar analyses based on the PLSS section location of private domestic wells have been completed by Water Foundation (June 2020)[29] and in the Kings River East GSP[30].
- **Account for well screen and pump depth when available.** When not available, well screen and pump depth should be estimated conservatively to capture potential impacts to well operability under water scarcity conditions.
- **Quantify impacts for potential unfavorable interim conditions, such as droughts and short-term lowering of groundwater levels while implementation measures are put in effect.**
- **Quantify the elevation difference (in feet) between current groundwater levels and well bottoms, screens, and pumps.** If current groundwater levels are nearing well bottoms, screens or pumps, that indicates that the wells are vulnerable to interim lowering of groundwater levels.
- **Quantify the elevation difference (in feet) between the minimum threshold groundwater levels and well bottoms, screens, and pumps.** If the minimum threshold is near the well bottom, screen or pump, that well will be impacted if groundwater levels in the vicinity drop below the minimum threshold (even if minimum thresholds are met at 90 percent of monitoring wells and an undesirable result has not technically occurred).
- **Quantify the number of potentially impacted wells of each well type (irrigation, domestic, state/local small water system, public water system) for water quality, water levels, and sea water intrusion MTs.**
- **Quantify the costs associated with impacted wells including desalinization/treatment, lowering pumps, well replacement and increased pumping costs associated with the increased lift at the projected water levels.**

Groundwater uality

We are pleased that the Salinas Valley Subbasin GSPs establish minimum thresholds based on ma imum contaminant levels (MCLs) for contaminants of concern for drinking water supply systems. There are however other areas in regards to groundwater quality sustainable management criteria that are not clear and could cause significant impacts to drinking water users if not adequately addressed. Therefore, we recommend the following revisions

- **Revise Section 8.3 General Process for Establishing Sustainable Management Criteria to include a sensitivity analysis around "average hydrogeologic conditions" following our recommendations outlined in Chapter 6.**
- **Add state and local small water systems to the monitoring network with the same water quality minimum thresholds and measurable objectives for reasons stated in Chapter 7 comments.** A table for state and local small water system minimum thresholds was included in the 180 400 foot aquifer GSP, but in the draft subbasin GSPs, there is no such table and Table 8-1 only mentions public supply and on-farm domestic wells.

[29] See previous reference.
[30] See previous reference.

- **If a contaminant was already above the MCL as of January 1, 2015, subbasin GSPs should set a MT to prevent further degradation or aim to improve groundwater quality conditions where possible.** Increased contamination levels can require water systems to utilize more e pensive treatment methods and or to purchase additional alternative supplies as blending may become more difficult or impossible. Communities reliant on domestic wells who are aware of contamination in their water and use point of use point of entry (PO POE) treatment systems may no longer be able to use their devices if contaminate levels rise too high. Higher contaminant levels can also result in higher costs of waste disposal from certain types of treatment systems. Further, residents who rely upon domestic wells, state small water systems, or local small water systems may not even know what contaminants are in their water and at what levels. sers of these drinking water sources are not required to conduct testing, and many times do not have the resources necessary to conduct regular testing. Rising contaminant levels put these users and their health at serious risk. Increased contamination levels result in unreasonable impacts to access to safe and affordable water and are, thus, inconsistent with SGMA and the Human Right to Water. This recommendation is consistent with the State Water Board s recommendations regarding this topic in their letter to DWR regarding the 180 400 foot aquifer GSP in which they state Increasing concentrations of nitrate, arsenic, and other constituents at monitoring wells with e isting e ceedances may represent worsening of e isting conditions due to groundwater pumping. Staff recommend setting concentration threshold levels for these wells in order to determine if impacts due to pumping are occurring. [31]
    - **Develop management areas to protect areas where drinking water wells have water quality that are vulnerable, including the San Jerardo area.**
- **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSPs should set MOs at 75% of the MCLs.** Subbasin GSPs should include MOs as action triggers at 75 of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold e ceedance at a representative monitoring well. This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. If the GSA waits until the minimum threshold is e ceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold e ceedances should also be clearly e plained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded. *We also recommend that groundwater quality and trigger levels at 75% are added to Section 9.1.3 Implementation Action 11: Local Groundwater Elevation Trigger (April 2021 draft) which currently only includes groundwater elevations.*
- **Clearly identify and describe past and present levels of contamination and salinity at each representative monitoring well (RMW) and attribute specific numeric values for MTs/MOs at each RMW for each contaminant of concern.** uantitative values need to be established for MTs MOs for each applicable sustainability indicator at each RMW as required by 23 CCR 354.28 and 23 CCR 354.30. The GSPs should include a map and tables that include each individual RMW along with water quality data for each RMW (this data is currently summarized in Table 8-4 and Table 8-5). This information should be presented clearly so that both the public can determine how the proposed monitoring network and sustainable management criteria (SMCs) relate to their own drinking water well or water supply system.

[31] State Water Board comments to DWR on 180 400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal https sgma.water.ca.gov portal gsp comments 29

- **Include hexavalent chromium as a contaminant of concern and plan to add contaminants of emerging concern to the monitoring network.** While there is currently not a Ma imum Contaminant Level for he avalent chromium, there is still a Public Health Goal and public health threat posed by this contaminant in drinking water. The State is required to adopt an MCL for chromium-6 again and is in the process of updating the MCL. In addition to including he avalent chromium, the GSPs must e plain how the Plans will be updated to align groundwater monitoring efforts and the sustainable management criteria with any contaminants of emerging concern in the basin and any future new MCLs.
- **Include an analysis of the relationship between changes in groundwater levels and groundwater quality concentrations.** Section 8.5.2.3 of the draft GSPs discusses the relationship between individual minimum thresholds and other sustainability indicators, and states Decreasing groundwater elevations can cause wells to draw poor-quality groundwater from deeper zone. No additional poor groundwater quality issues were identified due to low groundwater elevations when groundwater elevations were previously at minimum threshold levels. We ask that ustification is provided to backup the second statement or that it is removed until an analysis is conducted. It is our understanding that groundwater quality issues did, in fact, worsen during low groundwater elevations years. Arsenic in the San Jerardo well was at its highest during the lowest groundwater elevation measurement (See CWC Figure 1). The te t should acknowledge that groundwater pumping can not only cause the movement of contaminant plumes, but can also cause the release of naturally occurring contaminants such as arsenic and chromium. In order to clearly evaluate the relationship between changes in groundwater levels and groundwater quality, SVB GSA should undertake an analysis of the change in water quality constituent concentrations relative to change in water levels,[32] particularly over drought periods, to evaluate the potential relationship between water quality and groundwater management activities.[33]
- **Add the total number of wells in each category that will be included in the water quality monitoring network and have SMCs evaluated to Table 8-4. For each constituent of concern, add the number of wells included in the chart and the number exceeding the MT/MO based on the latest sample.** This comment has the same goal as the comment we provided in Chapter 7. SMCs should be set at every public drinking water well and a representative network of drinking water wells that rely on more shallow aquifers. It is essential to track the same wells each year in the monitoring network. If a well is no longer active, it should be removed from the network. In the current representation, it is not clear which wells are included in the monitoring

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[32] See P.A.M. Bachand et. al. Technical Report Modeling Nitrate Leaching Risk from Specialty Crop Fields During On-Farm Managed Floodwater Recharge in the Kings Groundwater Basin and the Potential for its Management https suscon.org wp-content uploads 2018 10 Nitrate_Report_FInal.pdf. See also, Groundwater Recharge Assessment Tool, created by Sustainable Conservation to help groundwater managers make smart decisions in recharging overdrafted basins, including modeling whether a particular recharge pro ect would result in short or long term benefits or harms to water quality, http www.groundwaterrecharge.org .

[33] More information about groundwater quality and the relationship between changes in groundwater levels can be found in the following resources

Stanford, 2019. A Guide to Water uality Requirements nder the Sustainable Groundwater Management Act. Community Water Center, 2019. Guide to Protecting Drinking Water uality nder the Sustainable Groundwater Management Act. https d3n8a8pro7vhm .cloudfront.net communitywatercenter pages 293 attachments original 1559328858 Guide_to_Protecting_Drinking_Water uality nder_the_Sustainable_Groundwater_Management_Act.pdf 1559328858

Community Water Center and Stanford niversity, 2019. Factsheet Groundwater uality in the Sustainable Groundwater Management Act (SGMA) Scientific Factsheet on Arsenic, ranium, and Chromium for more information.https d3n8a8pro7vhm .cloudfront.net communitywatercenter pages 293 attachments original 1560371896 CWC_FS_Grndwtr ual_06.03.19a.pdf 1560371896.

network, which wells have data for each constituent, and which wells are e ceeding the regulatory standard.

- **Engage stakeholders and scientists in a transparent discussion regarding "the process the GSAs would use to decide whether or not an exceedance of an MT for water quality degradation was caused by GSP implementation."**[34] The State Water Board recommended that the 180 400 foot aquifer GSP outline this process otherwise, it is difficult to udge how adequately the GSP addresses undesirable results related to water quality degradation. This relates to the undesirable result for water quality which currently reads There shall be no additional minimum threshold e ceedances beyond e isting groundwater quality conditions during any one year as a direct result of pro ects or management actions taken as part of GSP implementation.

[34] State Water Board comments to DWR on 180 400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal https sgma.water.ca.gov portal gsp comments 29 .

April 28, 2021

Salinas Valley Basin Groundwater Sustainability Agency

Submitted electronically to

Emily Gardner, Deputy General Manager

Donna Meyers, General Manager

Re: Comments on Draft Chapter 9 Project and Management Actions for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency

The Community Water Center (CWC) offers the following comments and recommendations regarding key components of the draft Chapter 9 Pro ects and Management Actions (Implementation Actions) that were shared with SVB GSA subbasin committees in April 2020. These comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

Chapter 9 Pro ects and Management Actions

During the April 7, 2021 East Side and pper Valley subbasin committee meetings, feedback was requested on a draft list of pro ect and management actions. As outlined in the April 7 meeting materials, p ro ects implement the GSP and enable the subbasin to reach sustainability by 2042, then maintain sustainability for another 30 years. Both groundwater levels and water quality degradation can have adverse impacts on drinking water users and disadvantaged communities (DACs), who are protected as beneficial users under SGMA[1]. Therefore, pro ects and management actions (also referred to as implementation actions) should address sustainability issues facing drinking water and other domestic water uses, in order to ensure their continued availability.

As this chapter is further revised for the East Side and Upper Valley subbasins and as potential projects and management actions are considered for the Forebay, Langley, and Monterey, the GSPs should (1) clearly identify potential impacts to water quality from all projects and management actions, (2) include management actions that respond to immediate needs and (3) develop a more robust implementation schedule and funding plan for projects and management actions. We acknowledge that the implementation actions are currently in the beginning stages of design but encourage incorporating these elements early on.

9.1.3 Implementation Action Local Groundwater Elevation Trigger

The Local Groundwater Elevation Trigger is a significant start to tracking and addressing impacts to domestic wells. We support the inclusion of a notification system whereby well owners can notify the GSA or relevant partner agency if their well goes dry. Because SVB GSA defines its sustainability criteria in a way that potentially allows for drinking water well impacts and because there is so much uncertainty regarding potential domestic well impacts, we recommend that this implementation action be updated to incorporate a **Robust Drinking Water Well Mitigation Program.** This program should include the Local Groundwater Elevation Trigger as well as (1) a plan to prevent impacts to drinking water users from

[1] WAT **10723.2.**

dewatering, increases in contaminant levels and increases in salinity, and (2) a plan to mitigate the drinking water impacts that occur even when precautions are taken.

CWC together with other organizations published a Framework for a Drinking Water Well Mitigation Program (2020) that we recommend the SVB GSA uses as a guide when further developing this implementation action. We are also interested in sharing more with staff and are willing to provide a presentation to SVB GSA staff, board members, and or the advisory committee on this Framework. The framework describes the importance of adaptive management and affirms the intent of the draft Local Groundwater Elevation Trigger management action and states, Developing a protective warning system... can alert groundwater managers when groundwater levels and groundwater quality are dropping to a level that could potentially negatively affect drinking water users. These triggers are essential for groundwater management and can be ad usted to fit the needs of different management actions as well as the basin as a whole. [2] We also support the provision in the draft Local Groundwater Elevation Trigger Implementation Action that offers referral to assistance with short-term supply solutions, technical assistance to assess why it went dry, and or long-term supply solutions. This type of adaptive management implementation action is crucial to ensuring that all beneficial users within the basin are protected under the GSP. As we have highlighted in previous comments[3]

> A GSP that lacks a mitigation program to curtail the effects of pro ects and management actions as to the safety, quality, affordability, or availability of domestic water, violates both SGMA itself and the Human Right to Water (HR2W).[4] The California legislature has recognized that water used for domestic purposes has priority over all other uses since 1913[5] in Water Code 106, which declares it, established policy of this State that the use of water for domestic purposes is the highest use of water and that the ne t highest use is for irrigation. [6] The passage of the Safe and Affordable Drinking Water Fund by Governor Newsom indicates a clear State-level commitment to provide safe and affordable drinking water to California s most vulnerable residents.[7] To ensure compliance with the Legislature s long established position, the HR2W requires that agencies, including the Department of Water Resources and the State Water Board, must consider the effects on domestic water users when reviewing and approving GSPs.[8] Therefore, GSPs that cause disparate impacts to domestic water use are in violation of the HR2W, SGMA, and Water Code 106.6.

In order to effectively protect drinking water users during GSP implementation, we recommend that the GSA s **Drinking Water Well Impact Mitigation Program Implementation Action,** in line with and e panding upon the currently proposed Local Groundwater Elevation Trigger, should include the following components

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[2] *See* Self-Help Enterprises, Leadership Counsel for Justice and Accountability, Community Water Center (2020) *Framework for a Drinking Water Well Impact Mitigation Program*.
https static1.squarespace.com static 5e83c5f78f0db40cb837cfb5 t 5f3ca9389712b732279e5296 159781100812 9 Well Mitigation English.pdf.

[3] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180 400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020.
https sgma.water.ca.gov portal service gspdocument download 4012.

[4] WAT 106.3 (a).

[5] Senate Floor Analysis, AB 685, 08 23 2012.

[6] This policy is also noted in the Legislative Counsel s Digest for AB 685.

[7] SB 200 (Monning, 2019).

[8] WAT 106.3 (b).

- **Include a vulnerability analysis of Disadvantaged Communities (DACs) and drinking water supplies in order to protect drinking water for these vulnerable beneficial uses and users.** Although rural domestic and small water system demand does not contribute substantially to the overdraft conditions, drinking water users could face significant impacts, particularly if the region faces another drought. Without a clear commitment and timeline for actions regarding establishing groundwater allocations or reductions in groundwater pumping, the SVB GSA may create disparate impacts on already vulnerable communities. See comments submitted by CWC and San Jerardo Cooperative on April 23, 2021 regarding Chapter 8 of SVB GSA Subbasin GSPs for further recommendations for conducting well impact analyses.
- **Develop the trigger system in collaboration with stakeholders, in particular groups that are more susceptible to groundwater elevation and quality changes, and then connect stakeholder recommendations back to quantifiable measures such as the GSP measurable objectives, MCLs, and numbers of partially or fully dry drinking water wells.**[9]
- **Ensure that the monitoring network is representative of conditions in all aquifers in general, including the shallow aquifer upon which domestic wells rely.** This comment aligns with comments submitted April 23, 2021 regarding Chapter 7 of the SVB GSA Subbasin GSPs, and is particularly crucial as part of a Trigger Management Action (or Well Impact Mitigation Program).
- **Routinely monitor for all contaminants that could impact public health (not only nitrate, but also chromium-6, arsenic, 123-TCP, uranium, and DBCP) through the representative water quality monitoring network.** Contaminated drinking water can cause both acute and long-term health impacts and can affect the long-term viability of impacted regions.[10] Among other causes, groundwater contamination can result through the use of man-made chemicals, fertilizers, or naturally-occurring elements in soils and sediments.[11] Routinely monitoring for contaminants will allow the GSA to accurately monitor for impacts on the most vulnerable beneficial users, and protect DACs and domestic well owners access to safe and affordable drinking water.[12]
    - **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSP should set MOs at 75% of the MCLs.** The GSP should include MOs as action triggers at 75 of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold e ceedance at a representative monitoring well.[13] This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. As discussed in previous

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[9] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

[10] Community Water Center. Guide to Protecting Drinking Water uality nder the Sustainable Groundwater Management Act. (2019).
https d3n8a8pro7vhm .cloudfront.net communitywatercenter pages 293 attachments original 1559328858 Guide to Protecting Drinking Water uality nder the Sustainable Groundwater Management Act.pdf 1559328858.

[11] See previous Community Water Center (2019) reference.

[12] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

[13] This recommendation was also made previously in a comment letter to SVB GSA from CWC and San Jerardo Cooperative regarding Chapter 8 of the 180 400 ft Aquifer GSP on November 25, 2020, as well as in our comments to the SVB GSA on April 23, 2021 regarding Chapter 8 of drafts for the SVB GSA Subbasin GSPs.

submitted comments, water quality impacts can intensify as water levels decrease.[14] If the GSA waits until the minimum threshold is e ceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold e ceedances should also be clearly e plained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded.

- **Include a combination of different strategies for mitigation including: replacing impacted wells with new, deeper wells, connecting domestic well users to a nearby public water system, or providing interim bottled water.**
- **Include an implementation timeframe, budget, and funding source**.[15] As currently written, the Local Groundwater Elevation Trigger suggests convening a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold. We support emergency response if one or more wells are impacted, and also request that this section be updated to include strategies to prevent impacts from occuring in the first place. Additionally, plans to address and mitigate those impacts should be solidified beforehand so resources can be mobilized in a timely manner. Drinking water users cannot afford to wait for interim plans to be developed once their primary sources of water for drinking, cooking and hygiene are compromised.

9.1.3 Implementation Action Domestic Water Partnership

CWC would like to voice preliminary support for the Domestic Water Partnership Implementation Action, as a step towards coordinating local and regional responses to water quality issues. However, we reiterate that the GSA remains directly responsible for recognizing and resolving water quality degradation that results from its policies and pro ects. We also would like to affirm our previous comments encouraging the SVB GSA to include - without delay - Monterey County water quality data for state and local small water systems. This data is readily available and would add significantly to the proposed water quality monitoring network in draft subbasin Chapters 7. We do not want this potential partnership implementation action to delay the incorporation of this important data source. This action can and should, however, integrate this County data into current draft subbasin plans in order to identify potentially vulnerable populations and create management actions to protect them. We will offer further comments and recommendations on this sub ect as future drafts are released. To echo recommendations made previously regarding Suggested Partnerships for Multi-Benefit Remediation Pro ects

- **The GSA should work with local and regional water agencies or the county to implement groundwater quality remediation projects that could improve both quality as well as levels and to ensure groundwater management does not cause further degradation of groundwater**

[14] Community Water Center and Stanford niversity. Groundwater uality in the Sustainable Groundwater Management Act (SGMA) Scientific Factsheet on Arsenic, ranium, and Chromium. (2019). https d3n8a8pro7vhm .cloudfront.net communitywatercenter pages 293 attachments original 1560371896 C WC FS Grndwtr ual 06.03.19a.pdf 1560371896.

[15] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

quality.[16] The strategic governance structure of GSAs can uniquely leverage resources, provide local empowerment, centralize information, and help define a regional approach to groundwater quality management unlike any other regional organization. When implemented effectively, GSPs have the potential to be instrumental in reducing levels of contaminants in their regions, thus reducing the cost of providing safe drinking water to residents. GSAs are the regional agency that can best comprehensively monitor and minimize negative impacts of declining groundwater levels and degraded groundwater quality that would directly impact rural domestic well users and S DACs within their urisdictions. When potential pro ects are proposed, SVB GSA should consider how pro ects could potentially both positively and negatively impact groundwater quality conditions and should take leadership in coordinating regional solutions.

[16] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180 400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020.
https sgma.water.ca.gov portal service gspdocument download 4012.

From:	Emily Gardner
To:	Patrick Breen (pbreen@mcwd.org); Tina Wang; Abby Ostovar; Bonnie Gradillas
Subject:	Fwd: My additional input on GSP for Monterey Subbasin
Date:	Tuesday, April 27, 2021 9:28:35 PM
Attachments:	Monterey Subbasin GSP - Coppernoll.docx

Monterey Subbasin Comments

---------- Forwarded message ---------
From: <mcopperma@aol.com>
Date: Tue, Apr 27, 2021 at 9:15 PM
Subject: My additional input on GSP for Monterey Subbasin
To: gardnere@svbgsa.org <gardnere@svbgsa.org>

Hello Emily,

Thank you so much for your kind message. I am attaching the edits I promised along with a few questions/observations. If you have any questions, please let me know. I hope the input is helpful re the edits.

We all appreciate all the conscientious hard work that has been invested in these GSP chapters, which represent a solid, substantial beginning to assist us in developing further information and projects. Bravissimo to the authors.

Very respectfully,
Margaret-Anne Coppernoll

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Monterey Subbasin GSP:

Edits recommended:

1. Page 41: last paragraph before item 3.2.2.5, 2nd sentence: implementation **of** other options. Add word "of" which is missing in the sentence.
2. Page 43: paragraph 3.3, 2nd sentence: the word "by" seems misplaced: recommend change place of the word by: with a conjunctive use component under development **by** MPWMD – not under by development.
3. Page 44: 2nd paragraph, 1st sentence: Fort Ord lead by the Army began in 1986 – should be **led** by the Army…
4. Page 44: 2nd paragraph, 2nd sentence: the cleanup activities at Ft Ord has included groundwater … should be "activities **have** included groundwater…"
5. Page 44: last paragraph, 1st sentence: "…limitations are in place **at the** such as zoning… **at the** are extra words to be deleted" "…limitations are in place such as zoning".
6. Page 49: PS 3.12: Remove the extra **d.** at beginning of d)
7. Page 53: 3.5.1.3 City of Seaside: 2nd paragraph, 2nd line: "MCWRA, which is **as** the entity responsible…." Should be "MCWRA which is the entity responsible."
8. Page 54: 3.5.1.4: 1st sentence: Ft Ord, which cover…. Should be **covers…**
9. Page 55: 3.5.1.5: Ca Coastal Act: 2nd paragraph, last line: "islocated" should be "**is located".**

Questions/Observations:

1. The HWG comment letter diminishes the importance of the Dune Sand Aquifer which is a Principal Aquifer. Along with the Perched Dune Sand Aquifer this aquifer provides freshwater groundwater and is considered a Principal Aquifer, per my understanding. The AEM scientific research technology that provides data on groundwater and aquifer/aquitard conditions is a very important tool used worldwide to explore underground information with amazing accuracy.
2. Do current agriculture enterprises use the most advanced water conservation technology to irrigate crops?
3. How can we monitor private domestic wells (drinking water systems) with less than 15 residential service connections, industrial, and irrigation wells, that are not regulated by the DDW? Their pumping does impact aquifer health, so it seems there should be a way to include these wells in a monitoring system to obtain their usage data. Even if the impact is minor, this impact, when added to all the other pumping, could exceed sustainability yet we would not be including that factor in water use assessments.
4. Does testing/monitoring for water quality include herbicides/pesticides, pharmaceuticals, etc., such as glyphosate?

From:	Emily Gardner
To:	Patrick Breen (pbreen@mcwd.org); Tina Wang
Subject:	Fwd: CWC and San Jerardo Cooperative Comments on draft subbasin GSP Chapters 1-8
Date:	Monday, April 26, 2021 10:27:39 PM
Attachments:	CWC and San Jerardo Cooperative Salinas Valley Subbasin GSP Ch 1-8 comments 4.23.21.pdf

Good evening,

I have attached a comment letter that is addressed to the Monterey Subbasin.

Sincerely,

Emily Gardner

---------- Forwarded message ---------
From: **Heather Lukacs** <heather.lukacs@communitywatercenter.org>
Date: Fri, Apr 23, 2021 at 6:32 PM
Subject: CWC and San Jerardo Cooperative Comments on draft subbasin GSP Chapters 1-8
To: Emily Gardner <gardnere@svbgsa.org>
Cc: Donna Meyers <meyersd@svbgsa.org>, Mayra Hernandez <mayra.hernandez@communitywatercenter.org>, Justine Massey <justine.massey@communitywatercenter.org>, Horacio Amezqutia <horacioamezquita@yahoo.com>

Dear Emily and Donna,

Please see the attached comments and recommendations submitted on behalf of the Community Water Center (CWC) and San Jerardo Cooperative to the Salinas Valley Basin Groundwater Sustainability Agency on draft GSP Chapters 1-8 for the Langley, East Side, Forebay, and Upper Valley Subbasins as well as draft Chapters 1-5 and 7 for the Monterey Subbasin.

We look forward to continuing to work with the SVB GSA to ensure that the GSPs are protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns. We also look forward to meeting with you in the future to further discuss issues raised in these and past comments.

Best,

Heather Lukacs, CWC
Horacio Amezquita, San Jerardo Cooperative
Justine Massey, CWC
Mayra Hernandez, CWC

--
Heather Lukacs, PhD
Pronouns: She/Her/Hers
Director of Community Solutions

Community Water Center

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www.communitywatercenter.org

All CWC staff are currently working remotely. Please reach all staff via email and cell phone.

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COMMUNITY WATER CENTER
EL CENTRO COMUNITARIO POR EL AGUA

San Jerardo Cooperative, Inc.

April 23, 2021

Salinas Valley Basin Groundwater Sustainability Agency

Submitted electronically to:

Emily Gardner, Deputy General Manager

Donna Meyers, General Manager

Subject Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency:

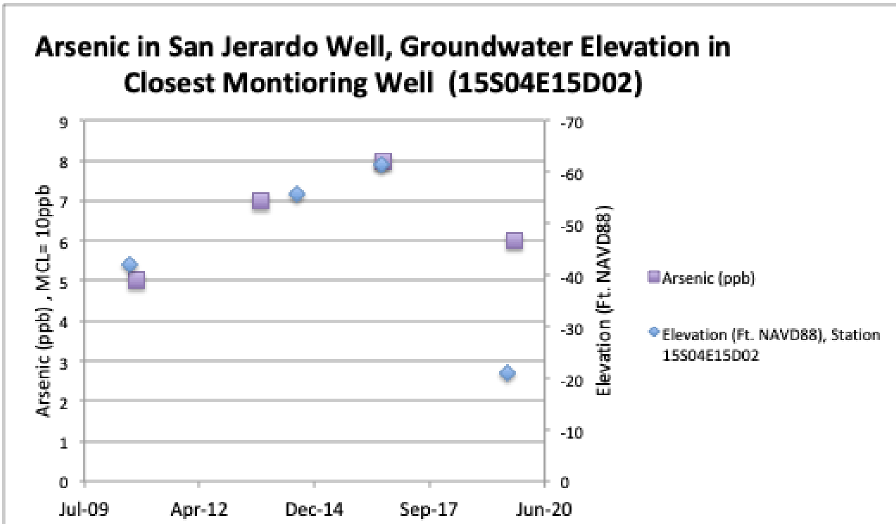
The Community Water Center (CWC) and the San Jerardo Cooperative would like to offer comments and recommendations in response to the draft Groundwater Sustainability Plans (GSPs) Chapter 1-8 for the Langley, East Side, Forebay, and Upper Valley Subbasins as well as Chapters 1-5 and 7 for the Monterey Subbasin that were released in 2020 and early 2021 by the Salinas Valley Basin Groundwater Sustainability Agency (SVB GSA). In addition, we offer preliminary comments on the draft Chapter 9 Implementation Actions that were shared with subbasin committees in April 2020. These comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

The challenges facing San Jerardo and similar communities throughout all the subbasins in the Salinas Valley are the foundation of our comments in this letter. The San Jerardo Cooperative's well is highly vulnerable to changes in groundwater levels and groundwater quality. Over decades of living and working at San Jerardo Cooperative, Horacio Amezquita has observed firsthand how the irrigation practices on properties surrounding the cooperative impact the water quality in their current and former wells. The San Jerardo Cooperative receives drinking water from a small public water system (CA2701904) and is very concerned that pumping, irrigation practices, and groundwater management in the East Side Subbasin will cause their drinking water well, which currently meets all drinking water standards, to exceed the maximum contaminant levels for arsenic and/or nitrate. Unfortunately, data from the State Water Board indicates increasing levels of nitrate and arsenic in their well with a high arsenic level of 8 ppb on 8/22/2016 that also corresponds to a low groundwater elevation of -61.5 in Station 15S04E15D02, the closest monitoring well to the San Jerardo Cooperative's well (See CWC Figures 1 and 2).[1] While there are too few monitoring data points to draw significant conclusions, CWC Figure 1 does suggest that arsenic levels are higher when groundwater levels are lower. Scientifics studies confirm that contaminants like arsenic, uranium, and chromium (including hexavalent chromium)

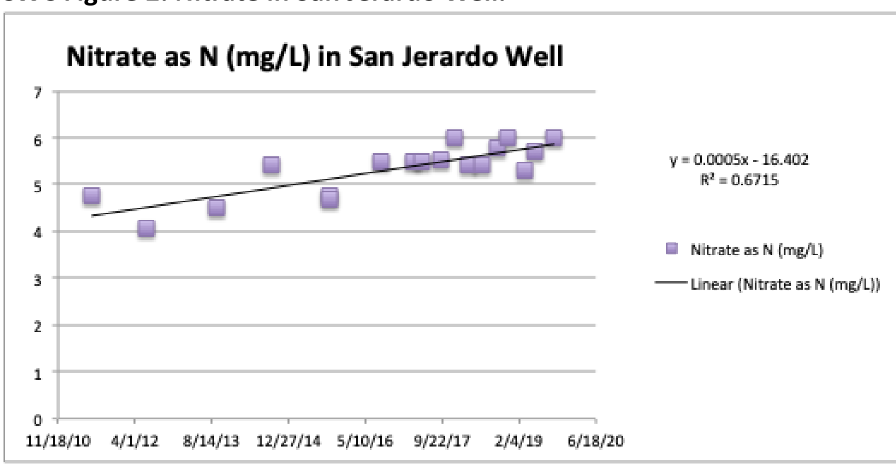
[1] CWC Figure 1 contains all available arsenic data from the State Water Board's Drinking Water Watch online database (https://sdwis.waterboards.ca.gov/PDWW/) which was collected in October 2010, 9/11/13, 8/22/16, and 9/23/19. We then added the monitoring data for Station 15S04E15D02 for the dates most close to the arsenic sampling dates (August 2010, August 2014, August 2016, and August 2019). CWC Figure 2 data was also downloaded from the same online database.

are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations.[2]

CWC Figure 1: Arsenic in San Jerardo Well, Groundwater Elevation in Closest Monitoring Well
(Note: The groundwater elevation y-axis is reversed to illustrate that lower groundwater elevations are associated with higher arsenic levels.)



CWC Figure 2: Nitrate in San Jerardo Well.



We provide more specific chapter-by-chapter comments in this comment letter. We recommend the GSP should be revised throughout to acknowledge the science showing that groundwater pumping and groundwater level changes can influence water quality.

We strongly recommend that the GSPs incorporate a more robust and representative monitoring network and minimum thresholds to protect vulnerable communities like San Jerardo and those

[2] Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

dependent on shallow domestic drinking water wells. This network should include state and local small water systems.

We also firmly agree with the State Water Board's December 8, 2020 comments to the Department of Water Resources on the 180/400 Foot Aquifer GSP, have included them as a reference throughout this comment letter, and recommend that the SVB GSA implement their recommendations in all the other Subbasins GSPs currently in development.[3]

Thank you for reviewing this letter and for the consideration of our comments on the draft GSP chapters. We look forward to working with the SVB GSA to ensure that the GSPs are protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns. We also look forward to meeting with you in the future to further discuss issues raised in this and past comments.

Sincerely,

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Community Water Center

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Justine Massey
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GSP Chapter 3: Description of Plan Area

The description of the plan area can be improved by clarifying the descriptions of the drinking water users in the area. In order to develop a GSP that addresses the needs of all beneficial users, it is critical that the location and groundwater needs of Disadvantaged Communities (DACs) and all drinking water users including domestic well communities are explicitly addressed early on in the GSP. In addition to comments previously submitted to the GSA on July 10, 2020, we recommend the following updates to this chapter:

- **Include a map of all disadvantaged communities (DACs) and their drinking water sources in the subbasin including private wells** as determined both by census data (block groups, census designated places, and census tracts) and median household income surveys conducted in accordance with state and federal agency guidelines. We appreciate that the SVB GSA added "Appendix 11E Disadvantaged Communities" to the 180/400 foot aquifer GSP (Pages 928-941, January 3, 2020) with important information about the location and drinking water challenges, both water quality and seawater intrusion, facing DACs. This information is critical to inform the

[3] DWR SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29.

rest of the GSP. We recommend that it be moved into Chapters 3 and 5 and augmented in the ways described in this section.

- **Correct small error in text in Section 3.2.1 Water Source Types** that incorrectly states that "small state water systems" are included in the Tracking California database. The Tracking California database only includes public water systems serving 15 or more connections.
- **Clarify the number and type of public water systems in the subbasins throughout the entire plan.** In each subbasin plan, there are discrepancies between types and numbers of public water systems in different chapters. For example, the East Side GSP lists the following:
    - Table 3-2 Well Count Summary shows "Public Supply= **24 wells**"
    - Table 5-3 GAMA Water Quality Summary shows "Number of Existing Wells in Monitoring Network Sampled in Water Year 2019" to be **41** for 123-TCP, **46** for Nitrate, and 9 for TDS.
    - Section 7.5 "All the municipal supply wells in the Subbasin are part of the RMS network." A total of **51 public supply** wells were sampled in WY 2019.
    - Table 8-4 Groundwater Quality Minimum Thresholds - **No well count shown**.

  We recognize that different data sources have different limitations and recommend using the best available data consistently throughout the plan.
- **Add a table of all public water systems, their names, locations, number of connections, and number of active wells** in the text or in an appendix that is consistent with the numbers of wells in Table 3-2, Table 5-3, Section 7.5, and other locations where mentioned in the GSPs.
- **Add state and local small water systems to Figure 3-5.** While these systems are currently not in Figure 3-5, their services areas do appear on the SVB GSA GIS portal (svbgsa.maps.arcgis.com) and are labeled as "Parcels served by small water systems (fewer than 15 connections).
- Consider using the same terminology as the Monterey County Department of Health for the state and local small water systems serving 2-14 connections and not using "small public water systems" in Section 3.4.4.2 and throughout the plan. Some definitions of small public water systems include water systems serving up to 199 or even 3300 connections.[4]
- **Revise Section 3.6.3 on the Agricultural Order to indicate that Agricultural Order 4.0 was adopted in April 2021 and include monitoring requirements including on-farm domestic well monitoring of nitrate and 123-trichloropropane, as well as irrigation well monitoring of nitrate.**

GSP Chapter 4: Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a key component of the basin setting. The basin setting represents the baseline assumptions that the GSA relies on throughout the GSP when choosing minimum thresholds, measurable objectives, and undesirable results, as well as when planning projects and management actions. We recommend that the GSA:

- **Revise Section 4.6 on Water Quality to acknowledge that "natural groundwater quality in the Subbasin" can be influenced by pumping and the way groundwater is managed.[5]** As indicated

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[4] California Code, Health and Safety Code - HSC § 116275

[5] Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

in our cover letter, this is of particular importance for the San Jerardo Cooperative who has experienced increases in nitrate and arsenic in their well.

GSP Chapter 5: Groundwater Conditions

In Chapter 5, we recommend that the GSA make the following changes to all subbasin GSPs (East Side, Langley, Monterey, Upper Valley, and Forebay). The goal is to clearly represent current and past water quality conditions in the subbasin in order to inform the monitoring network sustainable management criteria, planning, management actions, and projects.

Groundwater Quality Distribution and Trends

- **Clearly state in the introduction to Section 5.4 that the amount and location of pumping can impact groundwater quality distribution and trends.** We recommend including this language in the letter submitted by the State Water Board to DWR regarding the 180/400 foot aquifer GSP (Dec. 2020): “Not all water quality impacts to groundwater must be addressed in the GSP, but significant and unreasonable water quality degradation due to groundwater conditions occurring throughout the subbasin, and that were not present prior to January 1, 2015, must be addressed in the GSP’s minimum thresholds.”[6] High rates of groundwater pumping can pull in contaminant plumes towards drinking water wells, cause the release of arsenic from the strata in the ground, and when shallow wells go dry or are too contaminated to use, new wells must be drilled into deeper portions of the aquifer where they are more likely to encounter high arsenic levels.[7] As previously mentioned, this is of direct concern to the San Jerardo Cooperative who has observed increasing arsenic levels in their relatively new drinking water well, which was drilled to replace a more shallow well contaminated with nitrate and 123-trichloropropane.
- **Include trend data for drinking water wells in the subbasins.** In some places, nitrate and other contaminants are increasing in drinking water wells. It is important to understand current contamination values and also whether well water quality is improving, staying the same or declining as well as the relationship of water quality to other sustainability indicators. As indicated by the data provided in this section, Monterey County maintains an exceptional dataset of water quality data for over 900 state and local small water systems serving 2-14 connections that should be utilized throughout the GSPs. Monterey County has sampled many small water systems for decades. CWC Figures 3 and 4 show nitrate concentrations increasing over time in two state small water systems in the East Side sub basin with high levels in one of the systems (Middlefield Rd. Water System #4) in 2015. Figure 5 illustrates arsenic concentrations in the Metz Road Water System #4 in the Forebay Subbasin. In some cases, data shows fluctuations and peaks in concentrations during the 2015-2016 timeframe. This is similar to the San Jerardo example shared previously. Further, the Central Coast Regional Water Board has analyzed data from their Irrigated Lands Regulatory Program to show that many wells across the region are showing increasing levels of nitrate concentrations.[8]

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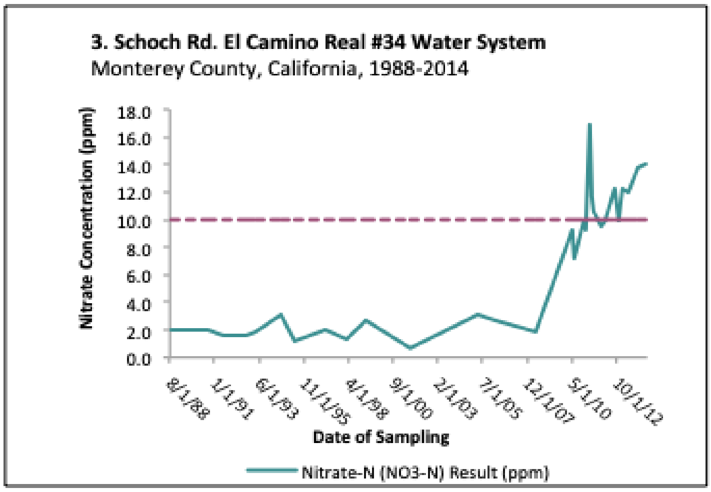
[6] DWR SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29

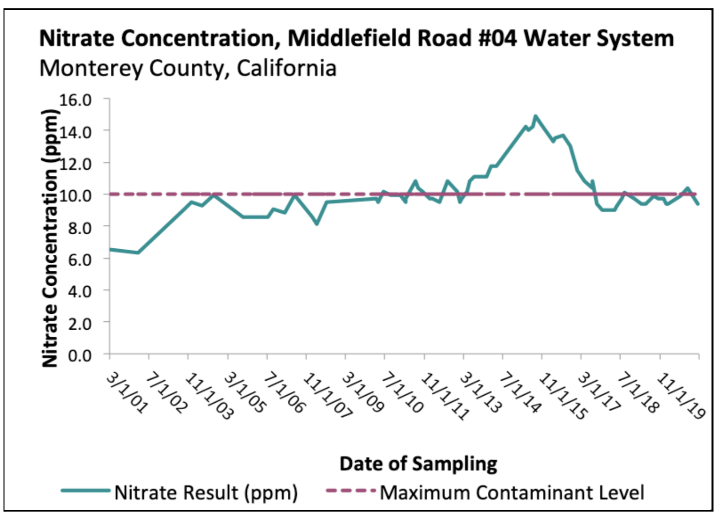
[7] Community Water Center and Stanford University, 2019. Factsheet “Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium” for more information. Available at: https://www.communitywatercenter.org/sgmaresources

[8] Draft Ag Order, Attachment A, 141-143, https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order4_renewal/2021april/pao4_att_a_clean.pdf.

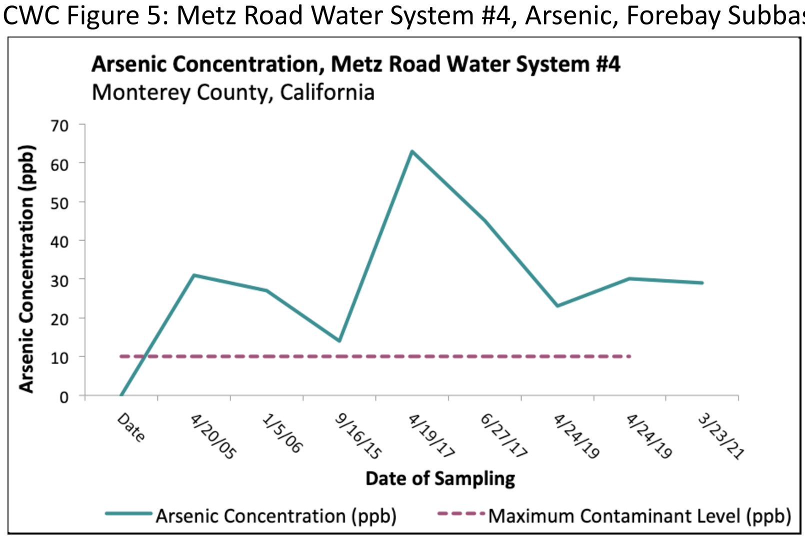
CWC Figure 3: El Camino Real WS #34 - Nitrate as N, East Side Subbasin



CWC Figure 4: Middlefield Road WS #4 - Nitrate as N, East Side Subbasin



CWC Figure 5: Metz Road Water System #4, Arsenic, Forebay Subbasin



- **Revise Section 5.4 to include a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, **nitrate, 123-trichloropropane, hexavalent chromium,**[9] **arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells.** It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.
    - **Present maps and supporting data for all constituents of concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)).
    - **Augment and clarify data presented in Table 5-3 GAMA Water Quality Data Summary and Section 5.4.1 in the following ways:**
        - **Add all state and local small water systems data.** Table 5-3 should include all state and local small water system data for nitrate, arsenic, hexavalent chromium, and any other contaminants that Monterey County monitors in the subbasin.
        - **Include additional contaminants that have been detected in the subbasin(s) to be consistent with Tables 8-5 and 8-6.** Our review of publicly available data on drinking water wells of all types (private domestic wells, state/local small water systems, and public water systems) indicate that there are additional constituents of concern beyond those currently listed. We included CWC Figure 6 (page 9) to highlight the spatial distribution of arsenic in public water system wells in the **East Side, Langley and Monterey Subbasins**, and CWC Figure 7 (page 10) to highlight the spatial distribution of hexavalent chromium in in public water system wells in the **Langley Subbasin**. We recommend a more comprehensive analysis of all other constituents in the subbasins, including, but not limited to the following[10]:

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[9] The maximum contaminant level for hexavalent chromium should be reinstated in 2021. Data is available from the State Water Resources Control Board and Monterey County Environmental Health Bureau (public water system data, state/local small water system data) as well as on GAMA from the Central Coast Regional Water Quality Control Board's private well testing program.

[10] All Monterey County data shared in this section was collected by the small water system program.
https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local
It was downloaded from the Greater Monterey County Community Water Tool on April 22, 2021:
http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/

- **East Side Subbasin:** Table 5-3 presents data on two primary contaminants in drinking water: nitrate and 123-trichloropropane, but arsenic is also of particular concern to San Jerardo Cooperative and others in the subbasin. GAMA shows that four public water system wells have exceedances of the arsenic MCL in the past three years (CWC Figure 8), and state/local small water system out of compliance lists from the Monterey County Health Department (2021) show that both Old Stage Rd WS #6 and Old Stage Rd WS #7 are out of compliance for arsenic and that at least five other state or local small water systems have between 6-8 ppb of arsenic, which means they are similar to San Jerardo Cooperative in terms of their vulnerability to water level fluctuations or other changes.
- **Forebay Subbasin:** While arsenic is less common in the Forebay than in the Langley, Monterey, and East Side Subbasins, our review of the Monterey County Health Department data indicates that 17 state or local smalls had arsenic at levels above 1 ppb in the 2015-2017 time period, and at least two of these had levels above the MCL. See CWC Figure 5 (page 8) which illustrates trends in one of the out-of-compliance small water systems, Metz Road Water System #4. In addition, three systems monitored by Monterey County as part of their Local Primacy Program for public water systems serving 15-199 connections had hexavalent chromium detections of 2.8 ppb, 3.4 ppb, and 2.1 ppb in the 2014-2017 timeframe.
- **Upper Valley Subbasin:** Although arsenic is not as common in the Upper Valley as other subbasins, it has been detected in levels between 3.2 and 5 ppb in six small water systems monitored by Monterey County.

■ Clarify what is meant by "DDW wells" in Table 5-3. If these are "public supply wells" in GAMA, please clearly state this.

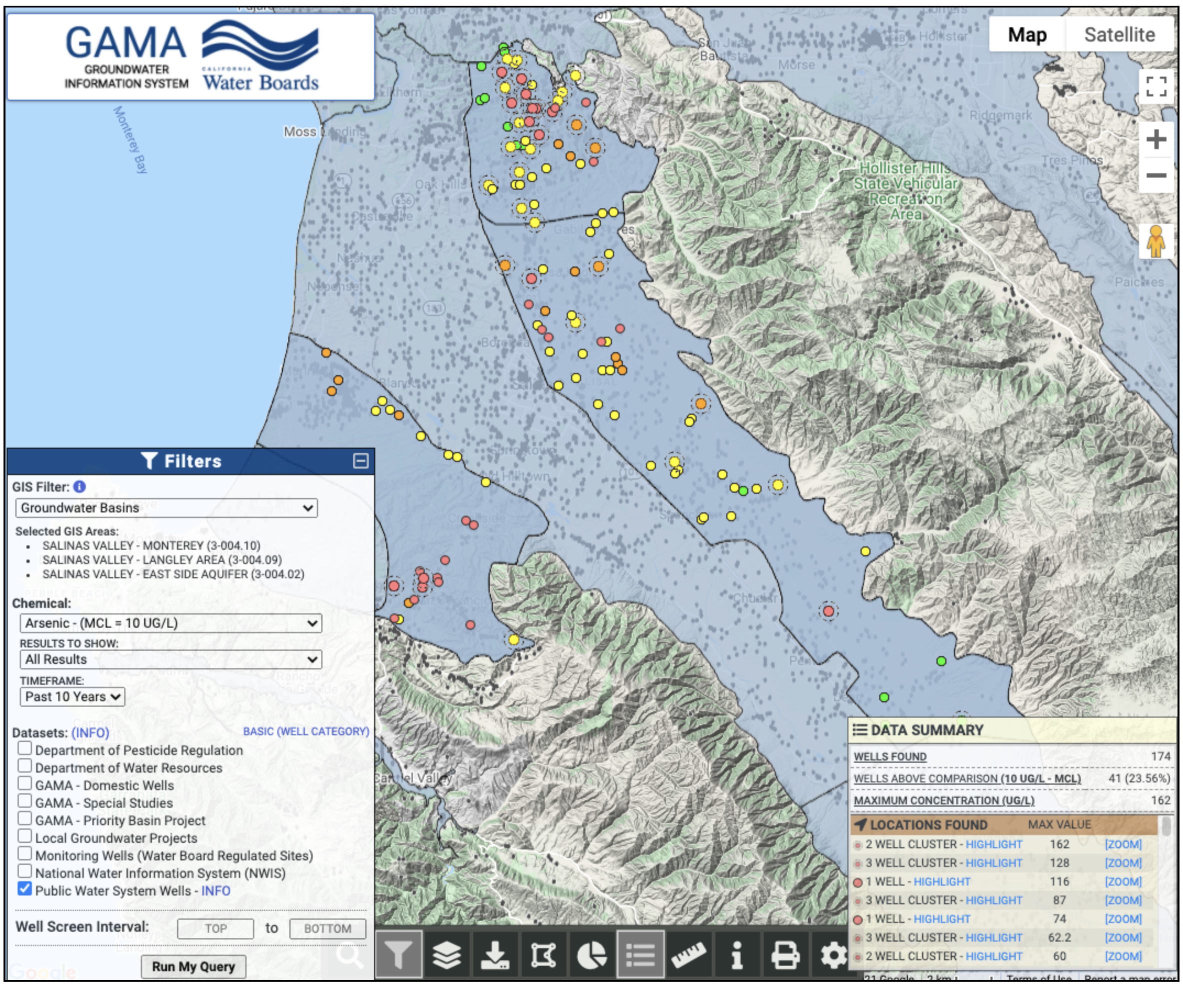
■ **Include the following in Table 5-3: (1) total number of wells of each type, (2) the total number of wells sampled for each constituent, and (3) Of the total number sampled, the number of systems that are out-of-compliance with drinking water standards.** Since public water systems and ILRP wells are monitored on different schedules, there are significant data gaps and inconsistencies when comparing one year to the next in the way that drinking water contaminants are currently represented in GSPs Chapters 5, 7, and 8. For example, we were surprised to see only 15 ILRP Domestic Wells included in Table 5-3 the East Side Subbasin GSP. GAMA shows that there were 139 ILRP wells in the East Side Subbasin sampled for nitrate in the past 3 years, 331 sampled in the last 10 years, and only 8 sampled in the last year. Moreover, CWC Figure 8 illustrates 43 Public Water System Wells in the East Side Subbasin with arsenic data in the past 3 years. On CWC Figure 8, San Jerardo Cooperative's well is shown in orange to indicate that it is at-risk but has not yet exceeded the MCL. However, only 18 Public Water System Wells have sampling data for arsenic from the past year, and during this timeframe, San Jerardo Cooperative's well is not represented (See CWC Figure 9).

■ **Use the compliance status or most recent sample result instead of using the "Number of Wells Exceeding Regulatory Standard in Regulatory Year 2019"**

This is especially important for Table 8-4 and Table 8-5 but also applies to Table 5-3. We recommend the following for different types of drinking water systems:

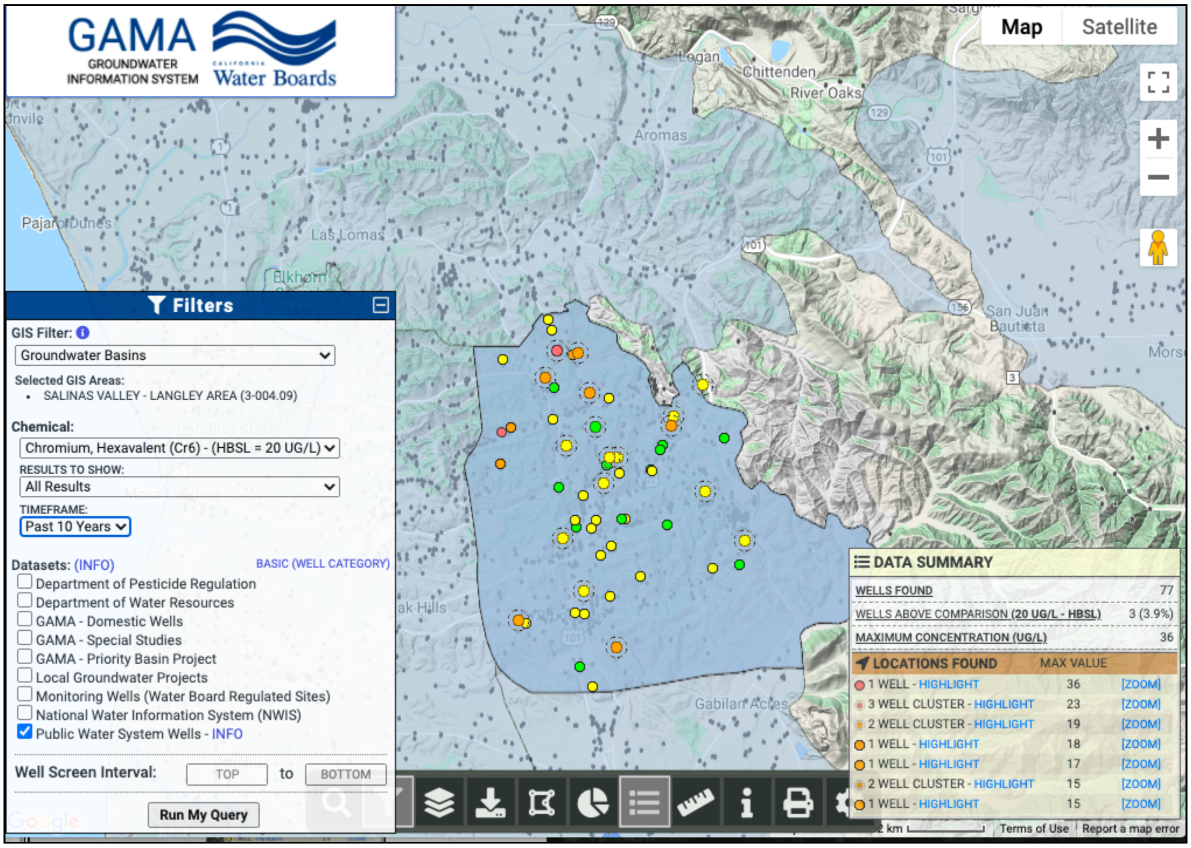
- For public water systems, we recommend using the State Water Board's determination regarding compliance status.
- For state and local small water systems, we recommend using the Monterey County Health Department list of out-of-compliance systems, which is published on their website and available by request on an annual basis based on the most recent sample collected.[11]
- For ILRP wells, we recommend the GSA consider an approach similar to Monterey County and show the most recent sample result for each monitoring well (and not only those sampled in the past year).

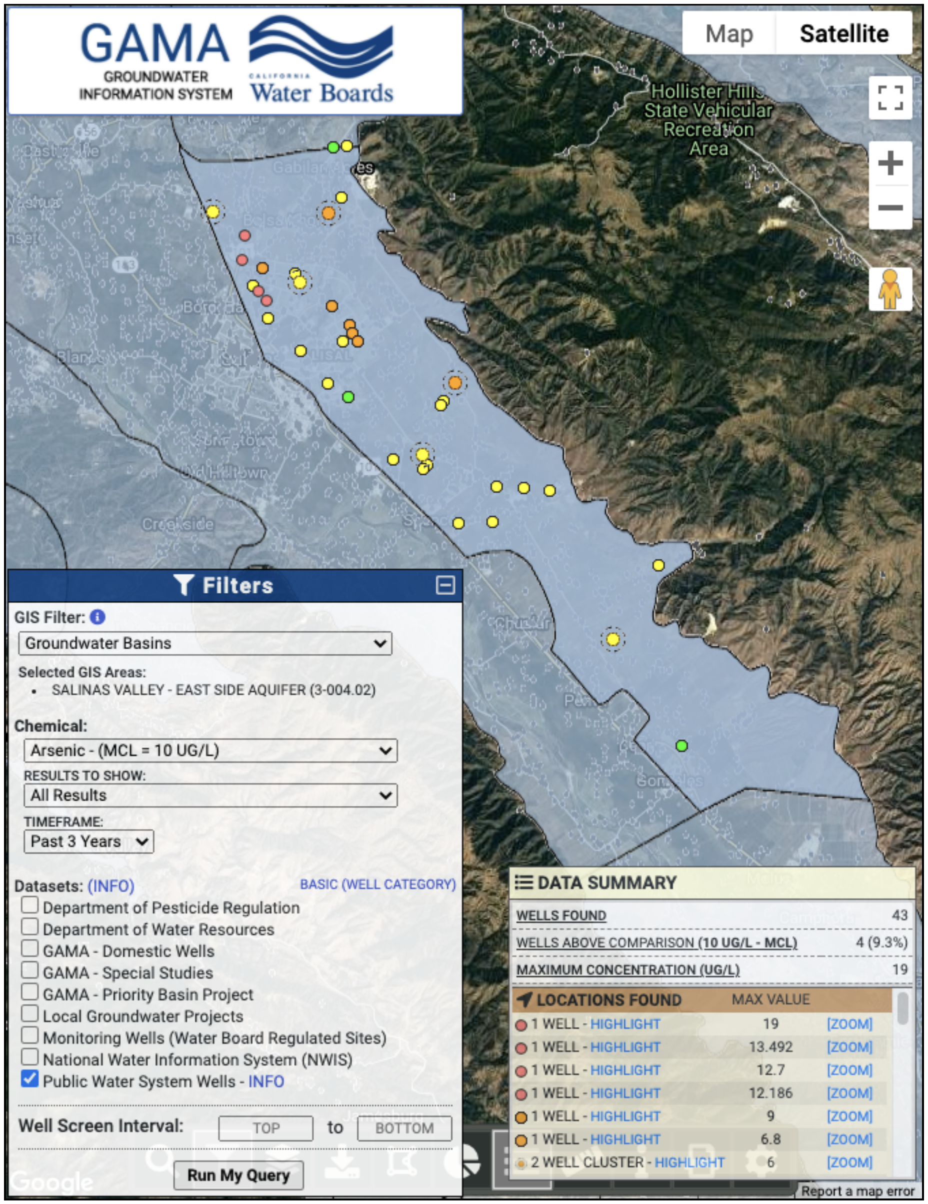
CWC Figure 6: Arsenic Concentrations in Public Water System Wells, Monterey, Langley East Side Subbasins (Red dots = >10 ppb, Orange = 5-9.9 ppb, Yellow = 0.6-5.9 ppb, Green= non-detect)



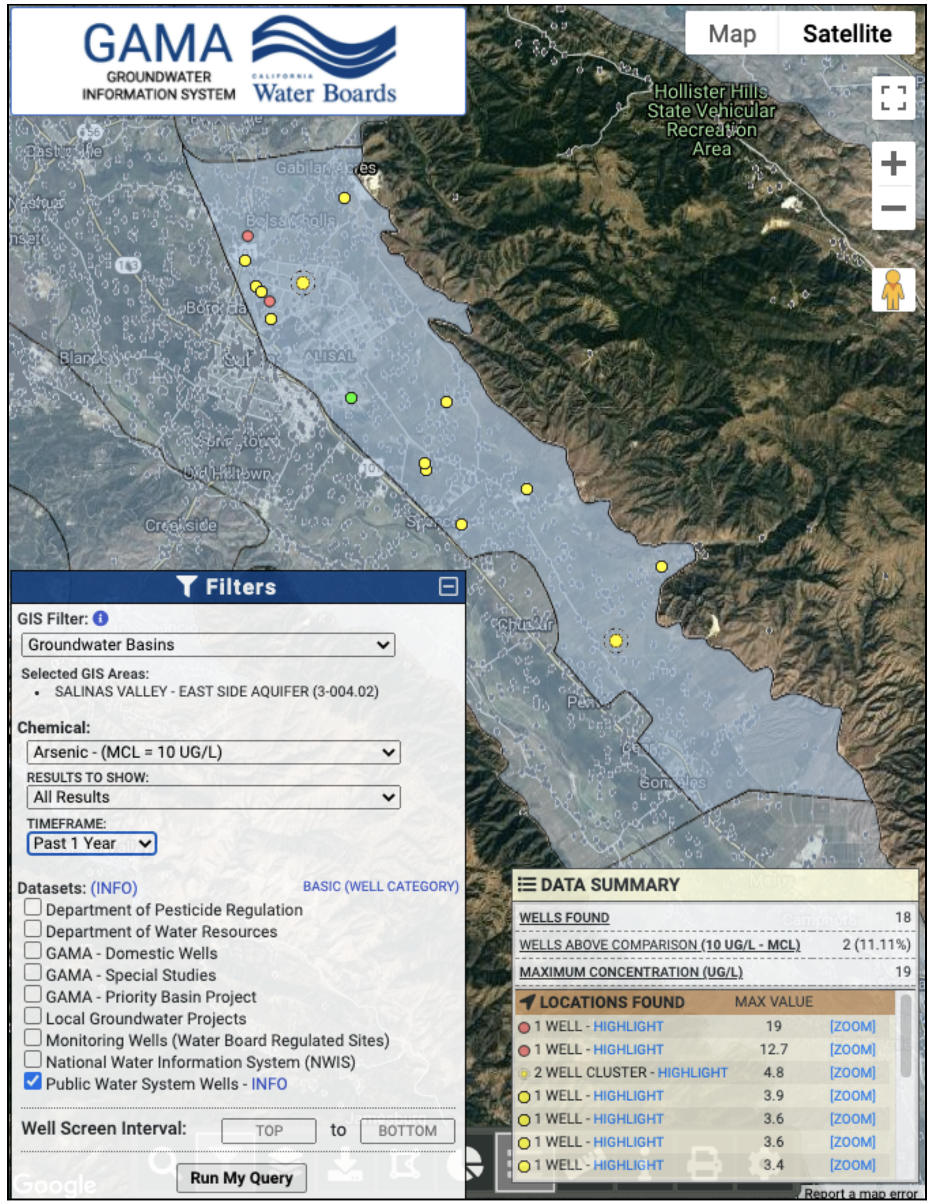
[11] https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local.

CWC FIgure 7: Hexavalent Chromium Concentrations in Public Water System Wells, Langley Subbasin





CWC Figure 8: 43 Public Water System Wells have arsenic data in the past 3 years. One well at San Jerardo Cooperative appears orange on this map.



CWC Figure 9: Only 18 Public Water Systems Wells have arsenic data in the past year. San Jerardo Cooperative's wells are not shown on this map.

GSP Chapter 6: Water Budgets

SGMA requires a GSP to quantify the water budget in sufficient detail in order to build local understanding of how historic changes have affected the six sustainability indicators in the basin.[12] Ultimately, this information is intended to be used to predict how these same variables may affect or guide future management actions.[13] GSAs must provide adequate water budget information to demonstrate that the GSP adheres to all SGMA and GSP regulation requirements, that the GSA will be able to achieve the sustainability goal within 20 years, and be able to maintain sustainability over the 50 year planning and implementation horizon.[14]

We are concerned that the calculations of sustainable yield and the water budget in this chapter may *overestimate the actual sustainable yield and water availability of the subbasins*. We highlight points of concern below and recommended changes.

6.4 Projected Water Budgets

The SVB GSA Subbasin GSPs explain that "[p]rojected water budgets are extracted from the SVOM, which simulates future hydrologic conditions with assumed climate change. Two projected water budgets are presented, one incorporating estimated 2030 climate change projections and one incorporating estimated 2070 climate change projections. … The climate change projections are based on data provided by DWR (2018)."[15] Including climate change scenarios in water planning is an important step for California's increased resiliency, however, which scenarios to include is a critical question.

Climate change is changing when, where, and how the state receives precipitation.[16] Impacts to water supply, particularly drinking water supply, could be devastating if planning is inadequate or too optimistic. GSAs must adequately incorporate climate change scenarios in water budgets. As such, the DWR Climate Change Guidance[17] makes recommendations to GSAs for how to conduct their climate change analysis while preparing water budgets. DWR also provides climate data for a 2030 Central Tendency scenario and 2070 Central Tendency, 2070 Dry-Extreme Warming (DEW), and 2070 Wet-Moderate Warming (WMW) scenarios. While DWR's Guidance should be improved with more specific guidelines and requirements, the current Guidance specifically encourages GSAs to analyze the more extreme DEW and WMW projections for 2070 to plan for likely events that may have costly outcomes. Therefore, we recommend that the SVB GSA subbasin GSPs:

- **Include water budget analyses based on DWR's 2070 DEW and WMW scenarios in order to analyze the full range of likely scenarios[18] that the region faces.**

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[12] 23 CCR § 354.18.
[13] California Department of Water Resources (DWR), 2016. Best Management Practices for the Sustainable Management of Groundwater, Modeling (BMP #5), December 2016.
[14] 23 CCR § 354.24.
[15] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True.
[16] Union of Concerned Scientists. Troubled Waters: Preparing for Climate Threats to California's Water System, 2020. https://www.ucsusa.org/resources/troubled-waters#top.
[17] See DWR (2018) reference above.
[18] Terminology used in the California Climate Change Assessment, 2019. (Table 3). https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf.

- Currently, the SVB GSA's exclusive use of the "central tendency" climate scenario predicts an increase in surface water availability, as represented in the tables in Section 6.4.3 of the subbasin GSPs. The Projected Groundwater Budgets show increases in deep percolation of stream flow, deep percolation of precipitation, and irrigation. The subbasin GSPs are relying on this presumed increase for their water budgets. However, the 2070 DEW scenario provided by DWR could likely result in a significant decrease in precipitation and increase in evapotranspiration, which would have substantial effects on the subbasin water budgets. By analyzing only the central tendency scenario and not other likely scenarios such as the extremely dry and wet scenarios provided by DWR, the SVB GSA is ignoring the specific 2070 DEW and WMW scenarios provided by DWR as well as an increasing trend in drought frequency. In doing so, the GSP could be overestimating groundwater recharge or underestimating water demands, inadequately planning, and jeopardizing groundwater sustainability. This will waste precious time to prepare and reduce the vulnerability of the basin's agriculture and already vulnerable communities.
- DWR's guidance (2018) states that the central tendency scenarios *might* be considered most likely future conditions -- that is not a clear endorsement of a higher statistical probability. It appears that they are calling it the central tendency merely because it falls in the middle of the other two projections, not because it's significantly more probable.
- DWR (2018) explicitly encourages GSAs to plan for more stressful future conditions:
    - "GSAs should understand the uncertainty involved in projecting future conditions. The recommended 2030 and 2070 central tendency scenarios describe what might be considered most likely future conditions; there is an approximately equal likelihood that actual future conditions will be more stressful or less stressful than those described by the recommended scenarios. Therefore, GSAs are encouraged to plan for future conditions that are more stressful than those evaluated in the recommended scenarios by analyzing the 2070 DEW and 2070 WMW scenarios."[19]
- Including the DEW and WMW climate scenarios as part of the 2070 water budget analysis is necessary to meet the statutory requirement to use the "best available information and best available science."[20] Sustainable planning must include planning for foreseeable negative and challenging scenarios. The extreme scenarios provided by DWR are certainly foreseeable, as they have been modeled and made available to the GSA for analysis.
- It is important for the SVB GSA to include the 2070 DEW and WMW scenarios, because shallow drinking water wells in the area are particularly vulnerable to various extreme conditions, especially drought.

[19] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. Section 4.7.1. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True. (In red is a statement about the central tendency scenarios referenced in SVB GSA public meetings and email communications by the GSA's engineering consultant, and in blue is the important text accompanying it, urging GSAs to analyze the more extreme scenarios. CWC staff cited this complete paragraph in email communications with the consultant and GSA staff on April 8, 2021. CWC also raised this point at Forebay and Upper Valley Subbasin Committee meetings in March and at the April SVB GSA Board Meeting.)
[20] See 23 CCR § 355.4(b)(1).

- **Share water budget results based on the 2070 central tendency, DEW and WMW scenarios that DWR has provided with the Subbasin committees, the Advisory Committee, and the GSA board**. This should be done at a *minimum* to see what the difference in outcomes could be, and to provide a transparent process for selecting the preferred scenario. This analysis is particularly important because of the drastic differences between the dry and wet scenarios for this region. Drought and/or intensified rainfall (more water falling over a shorter period of time) would pose severe challenges[21] to the Subbasins' plans for recharge, which is a critical component of their plans to reach sustainability.
- **Plan for potential adverse climate conditions when determining Projects and Management Actions.** The results of limited-scope planning will be detrimental to beneficial users throughout the SVB GSA. "If water planning continues to fail to account for the full range of likely climate impacts, California risks wasted water investments, unmet sustainability goals, and increased water supply shortfalls."[22] This is true not just generally across California, but also specifically on the Central Coast. "Without effective adaptations, projected future extreme droughts will challenge the management of the Central Coast region's already stressed water supplies, including existing local surface storage and groundwater recharge as well as imported surface water supplies from the State Water Project which will become less reliable, and more expensive."[23]

GSP Chapter 7: Monitoring Network

Robust monitoring networks are critical to ensuring that the GSP is on track to meet sustainability goals. GSAs undertaking recharge, significant changes in pumping volume or location, conjunctive management or other forms of active management as part of GSP implementation must consider the interests of all beneficial users, including domestic well owners and S/DACs. We have the following overarching recommendations for this chapter and provide more details for sub-sections below:

- **Require well registration and metering for all wells in the Salinas Valley, and begin implementation of a well registration and metering program in early 2022 with a dedicated budget.** We voice our strong support, with modifications indicated in our comments below, for proposed "Implementation Action 12: Well Registration" in Section 9.1 of Chapter 9 released in April 2021 and recommend that this action be updated and moved to Chapter 7. We agree with the SVB GSA's statement in Section 7.3.2 Groundwater Storage Monitoring Data Gaps that: "Accurate assessment of the amount of pumping requires an accurate count of the number of municipal, agricultural, and domestic wells in the GSP area. During implementation, the SVB GSA will finalize a database of existing and active groundwater wells in the Eastside Aquifer Subbasin." This is essential for the plan to achieve sustainability for all beneficial users and influences many different chapters including:

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[21] Union of Concerned Scientists. Inter-model agreement on projected shifts in California hydroclimate characteristics critical to water management. 2020, p. 13. https://link.springer.com/content/pdf/10.1007/s10584-020-02882-4.pdf.

[22] See Union of Concerned Scientists. Troubled Waters (2020) cited above.

[23] Regional Climate Change Assessment for the Central Coast, 2019. (Discussing drought pp. 21-23. Internal citations omitted). https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf.

- Monitoring networks: In order to develop a monitoring network that is representative, it will be essential to understand the number, location, well construction, and type (domestic, irrigation, other) of all wells located in the subbasins.
- Water budget and minimum thresholds: Understanding the amount and location of pumping of all water users will be essential for creating an accurate water budget and minimum thresholds consistent with achieving sustainability.
- Projects and management actions: Section 9.2.1 Well Registration and Metering is a key management action and component of the Water Charges Framework (in the 180/400 foot aquifer) and forthcoming subbasin GSPs. This will underpin the funding structure for many future projects.

- **Require flowmeter calibration to ensure consistent and fair monitoring among all agricultural groundwater users (Section 7.3.1).** Rather than "consider the value of developing protocols for flowmeter calibration," the GSPs should require flowmeter calibration. The water budget and sustainable yield calculation depend on reliable and fair monitoring and reporting of pumping.
- **Provide a plan and schedule for data gap resolution in forthcoming Chapter 10 of the subbasin GSPs.** In the 180/400 foot aquifer GSP, there was not a clear plan or schedule for the resolution of data gaps in Chapter 7 even though it indicated that this would be included in Chapter 10.
- **Revise GSP monitoring chapters such that monitoring networks for groundwater storage (pumping), groundwater elevation, and groundwater quality adequately monitor how groundwater management actions could impact vulnerable communities including those reliant on domestic wells and shallow portions of the aquifers** (see more detail below).

7.2 Groundwater Elevation Monitoring Network

- **Include groundwater elevation monitoring sites in the network that are representative in terms of the depth and geographic distribution of private domestic wells, and that takes into account areas of high agricultural pumping and wells vulnerable to groundwater decline.**
    - The draft East Side Subbasin GSP Table 7-1 of "Eastside Aquifer Groundwater Elevation Representative Monitoring Site Network" shows all irrigation and observation wells (and no domestic wells) which range in depth from 299 to 1122 feet.[24] Yet, the DWR Well Completion Report Map Application[25] shows that 1 mile by 1 mile square sections near San Jerardo Cooperative include private domestic wells with the following minimum depths: 110 ft, 210 ft, 172 ft, 208 ft, and 132 ft which are more shallow than all the wells in the current monitoring network (See CWC Figure 10).
- **Overlay the private well density map (Figure 3-7), the DWR Well Completion Report Map Application (with minimum, average, and maximum depths), the water level monitoring network (with well depths), and available pumping data to better illustrate if and how representative the proposed groundwater elevation monitoring network is of private domestic wells and which areas are vulnerable to water elevation changes.** The GSPs state: "The BMP notes that professional judgment should be used to design the monitoring network to account for high-pumping areas, proposed projects, and other subbasin-specific factors. " This will also help to better visualize where there are gaps in the monitoring network which the GSAs can address.

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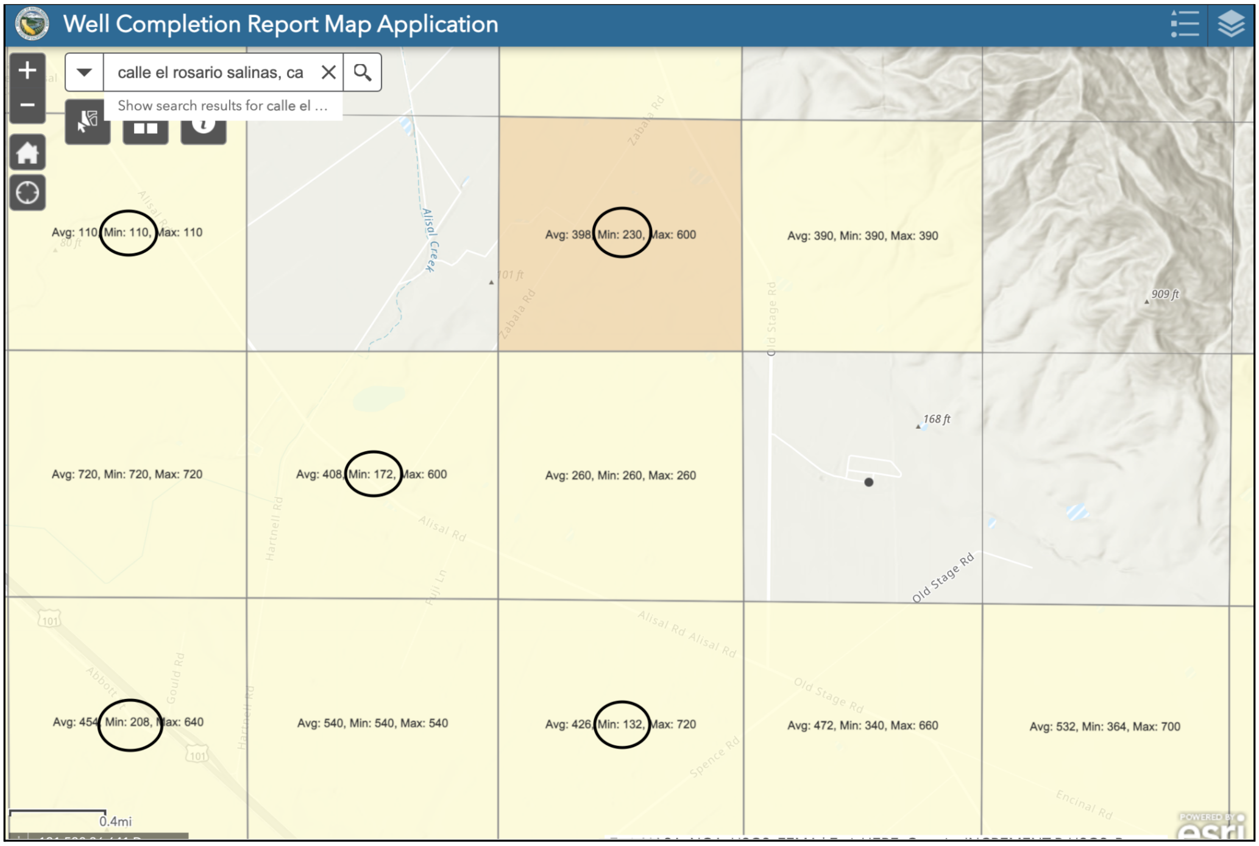
[24] One well shows "0" depth but that must be an error or missing value.
[25] https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports



CWC Figure 10: Screenshot of DWR Well Completion Report Map application in the area near San Jerardo Cooperative highlighting that several 1 mi. by 1 mi. square sections include private domestic wells less than 250 feet deep.

7.5 Water Quality Monitoring Network

- **Clarify the number of public water system wells that will be included in the water quality monitoring network.** We strongly support the GSPs inclusion stated in Section 7.5 that "All the municipal supply wells in the Subasin are part of the RMS network." As indicated in Chapter 3 and Chapter 5 comments, the GSPs should also clearly identify the number of public supply wells as well as the number of public supply wells that are out of compliance and at risk in each subbasin. Section 7.5 currently states that "A total of 51 public supply wells were sampled in WY 2019" and indicates that all wells are listed in Appendix 7E (which is not publicly available at this time). This section and appendix should be consistent with the total number of wells represented in Table 8-4 which includes groundwater quality minimum thresholds.
- **Representative Water Quality Monitoring Wells for the shallow aquifer should be established in the GSPs based on all currently available data sources with direct agreements with landowners or public entities established.**
    - **Develop long-term access agreements for Representative Monitoring Wells (RMWs) that use private wells.** Collecting data from private wells is not a reliable approach due to access challenges, lack of well construction information, and unreliable accounting of

pumping or non-pumping measurements. The GSPs should specifically identify the RMW owners and operators, include signed long-term access agreements, and identify a plan to obtain adequate monitoring data, if for any reason the well owners decide to not grant access to the wells or provide associated data to the SVB GSA. In order to maintain consistency for future sustainability analyses, the SVB GSA should also consider conducting its own water quality analysis of wells where access agreements have already been established to water quality RMWs.

- **Clarify that state and local small water systems will be added to the water quality monitoring network and that well construction information is no longer needed in order to fill this data gap.** Monterey County Environmental Health Bureau permits and monitors over 900 state and local small water systems in the County and have managed the data collected for decades. This dataset has advantages over the ILRP domestic well dataset in that it includes data on contaminants like arsenic and hexavalent chromium in addition to nitrate. Local small water systems serve 2-4 households and are much more similar to private domestic wells than public water systems in terms of depth, well construction, age, size, and maintenance - thus this data would provide a broader representation of shallow drinking water wells. State and local small water systems are located in areas of irrigated agricultural lands as well as rural residential and other land uses. This dataset should complement and not replace ILRP domestic well data.
    - **Clearly add state and local small water system data as a data gap in Section 7.5.2.** In Section 7.5 Water Quality Monitoring Network, the draft GSPs state: “These [state and local small] wells are not in the current monitoring system because well location coordinates and construction information are currently missing. SVB GSA will work with the County to fill this data gap. When location and well construction data become available, these wells will be added to the monitoring network and included in Appendix 7E and Figure 7-4." However Section 7.5.2 Groundwater Quality Monitoring Data Gaps states: "There is adequate spatial coverage to assess impacts to beneficial uses and users."
- **Do not rely solely on ILRP well data to represent private domestic wells (which are often more shallow than public water system wells).** Similar to CASGEM, the current groundwater quality monitoring network includes monitoring points on private property including ILRP domestic and irrigation wells, but it should not be restricted to ILRP sites only. While on-farm domestic and irrigation wells monitored through the ILRP provide a potentially useful, though limited, source of water quality information, additional representative monitoring wells in the shallow aquifer are important to include for several reasons: (1) The ILRP network only includes wells located on agricultural irrigated lands, and not all ILRP properties include domestic wells. Agricultural land use is not the primary land use in the Langley and Monterey Subbasins so this monitoring network offers very limited coverage. While agricultural land use is the primary land use in the East Side, Upper Valley, and Forebay Subbasins, there are private domestic wells in areas with different primary land uses (e.g. rural), and SGMA requires that monitoring networks are geographically representative. Monitoring network wells must also be sufficiently representative to cover all uses and users in the basin, (2) There are other, more robust networks established by USGS, GAMA, and Monterey County that could be drawn on and included to make the groundwater quality monitoring network more comprehensive and representative of conditions in the shallow aquifer, (3) Ag Order 4.0 was adopted on April 15, 2021, which means the first year of monitoring data will not be

available until late 2022, (4) The GSA has no authority to determine the robustness or enforcement of monitoring in the irrigated lands network, and (5) while Ag Order 4.0 proposes to require testing for 1,2,3-TCP as well as nitrate, the current ILRP domestic well data only samples for nitrate, and neither Order tests for other contaminants found in the region. In our experience, not all growers are consistent with their water quality and other reporting, despite the regulatory requirements in place.

- **Update Domestic ILRP and Irrigation ILRP wells in a different color on Figure 7-5 Locations of ILRP Wells Monitored under Ag Order 3.0.** Since these wells are monitored for different constituents and serve different beneficial users, it is important to illustrate them separately.

GSP Chapter 8: Sustainable Management Criteria

We have grouped our comments in this section into general recommendations related to all sustainable management criteria (SMCs) followed by a section specific to the water quality SMCs. We recommend that the Salinas Valley GSA implement the following recommendations in the subbasin GSPs:

- **Undertake a drinking water well impact analysis that adequately quantifies and captures well impacts at the minimum thresholds, proposed undesirable results, and potential interim conditions.** Include this analysis during the annual reporting process. We disagree with the assumption included in all draft GSPs that the exact location of wells needs to be known in order to include them in a drinking water well impact analysis. In the 180/400 Foot Aquifer Subbasin GSP, the SVB GSA included a domestic well impact analysis. Although the SVB GSA did not describe the methods used in this analysis,[26] it is CWC's understanding that the analysis was based on Public Land Survey System (PLSS) section location data, demonstrating that such an analysis is feasible. Similar analyses in the Water Foundation Whitepaper (June 2020)[27] and in the Kings River East GSP[28] were completed using the same PLSS section location data for private domestic wells that is available to the SVB GSA. The current analysis is incomplete as it includes very few wells in all subbasins. The current analysis is also substantially inaccurate as it relies on the "average computed depth of domestic wells in the Subbasin," and groundwater elevations vary significantly across the subbasin and also on an annual basis. For example, only 8 of the 154 domestic wells in the Forebay GSP with an average depth of 292.45 feet, and only 20 of 2016 domestic wells in the East Side GSP with an average depth of 365.5 feet were included. CWC Figure 10 illustrates that the average computive depth is not representative of conditions in shallow domestic wells. Therefore, we recommend revising Section 8.5.2.2 Minimum Threshold Impact on Domestic wells following the process explained below:
    - **Include a map of potentially impacted wells so the public can better assess well impacts specific to DACs, small water systems, or other beneficial users of water.**

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[26] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020.
https://sgma.water.ca.gov/portal/service/gspdocument/download/4012

[27] The Water Foundation Whitepaper, April 2020: "Estimated Numbers of Californians Reliant on Domestic Wells Impacted as a Result of the Sustainability Criteria Defined in Selected San Joaquin Valley Groundwater Sustainability Plans and Associated Costs to Mitigate Those Impacts." April 9, 2020.
http://waterfdn.org/wp-content/uploads/2020/05/Domestic-Well-Impacts_White-Paper_2020-04-09.pdf

[28] Kings River East Groundwater Sustainability Agency. Groundwater Sustainability Plan. Adopted December 13, 2019.

- **Quantify impacts for all drinking water wells in the subbasin for which approximate location (PLSS section) and well depth are available.** Similar analyses based on the PLSS section location of private domestic wells have been completed by Water Foundation (June 2020)[29] and in the Kings River East GSP[30].
- **Account for well screen and pump depth when available.** When not available, well screen and pump depth should be estimated conservatively to capture potential impacts to well operability under water scarcity conditions.
- **Quantify impacts for potential unfavorable interim conditions, such as droughts and short-term lowering of groundwater levels while implementation measures are put in effect.**
- **Quantify the elevation difference (in feet) between current groundwater levels and well bottoms, screens, and pumps.** If current groundwater levels are nearing well bottoms, screens or pumps, that indicates that the wells are vulnerable to interim lowering of groundwater levels.
- **Quantify the elevation difference (in feet) between the minimum threshold groundwater levels and well bottoms, screens, and pumps.** If the minimum threshold is near the well bottom, screen or pump, that well will be impacted if groundwater levels in the vicinity drop below the minimum threshold (even if minimum thresholds are met at 90 percent of monitoring wells and an undesirable result has not technically occurred).
- **Quantify the number of potentially impacted wells of each well type (irrigation, domestic, state/local small water system, public water system) for water quality, water levels, and sea water intrusion MTs.**
- **Quantify the costs associated with impacted wells including desalinization/treatment, lowering pumps, well replacement and increased pumping costs associated with the increased lift at the projected water levels.**

Groundwater Quality

We are pleased that the Salinas Valley Subbasin GSPs establish minimum thresholds based on maximum contaminant levels (MCLs) for contaminants of concern for drinking water supply systems. There are however other areas in regards to groundwater quality sustainable management criteria that are not clear and could cause significant impacts to drinking water users if not adequately addressed. Therefore, we recommend the following revisions:

- **Revise Section 8.3 General Process for Establishing Sustainable Management Criteria to include a sensitivity analysis around "average hydrogeologic conditions" following our recommendations outlined in Chapter 6.**
- **Add state and local small water systems to the monitoring network with the same water quality minimum thresholds and measurable objectives for reasons stated in Chapter 7 comments.** A table for state and local small water system minimum thresholds was included in the 180/400 foot aquifer GSP, but in the draft subbasin GSPs, there is no such table and Table 8-1 only mentions public supply and on-farm domestic wells.

[29] See previous reference.
[30] See previous reference.

- **If a contaminant was already above the MCL as of January 1, 2015, subbasin GSPs should set a MT to prevent further degradation or aim to improve groundwater quality conditions where possible.** Increased contamination levels can require water systems to utilize more expensive treatment methods and/or to purchase additional alternative supplies as blending may become more difficult or impossible. Communities reliant on domestic wells who are aware of contamination in their water and use point of use/point of entry (POU/POE) treatment systems may no longer be able to use their devices if contaminate levels rise too high. Higher contaminant levels can also result in higher costs of waste disposal from certain types of treatment systems. Further, residents who rely upon domestic wells, state small water systems, or local small water systems may not even know what contaminants are in their water and at what levels. Users of these drinking water sources are not required to conduct testing, and many times do not have the resources necessary to conduct regular testing. Rising contaminant levels put these users and their health at serious risk. Increased contamination levels result in unreasonable impacts to access to safe and affordable water and are, thus, inconsistent with SGMA and the Human Right to Water. This recommendation is consistent with the State Water Board's recommendations regarding this topic in their letter to DWR regarding the 180/400 foot aquifer GSP in which they state: "Increasing concentrations of nitrate, arsenic, and other constituents at monitoring wells with existing exceedances may represent worsening of existing conditions due to groundwater pumping. Staff recommend setting concentration threshold levels for these wells in order to determine if impacts due to pumping are occurring."[31]
    - **Develop management areas to protect areas where drinking water wells have water quality that are vulnerable, including the San Jerardo area.**
- **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSPs should set MOs at 75% of the MCLs.** Subbasin GSPs should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold exceedance at a representative monitoring well. This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. If the GSA waits until the minimum threshold is exceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded. *We also recommend that groundwater quality and trigger levels at 75% are added to Section 9.1.3 Implementation Action 11: Local Groundwater Elevation Trigger (April 2021 draft) which currently only includes groundwater elevations.*
- **Clearly identify and describe past and present levels of contamination and salinity at each representative monitoring well (RMW) and attribute specific numeric values for MTs/MOs at each RMW for each contaminant of concern.** Quantitative values need to be established for MTs/MOs for each applicable sustainability indicator at each RMW as required by 23 CCR § 354.28 and 23 CCR § 354.30. The GSPs should include a map and tables that include each individual RMW along with water quality data for each RMW (this data is currently summarized in Table 8-4 and Table 8-5). This information should be presented clearly so that both the public can determine how the proposed monitoring network and sustainable management criteria (SMCs) relate to their own drinking water well or water supply system.

[31] State Water Board comments to DWR on 180/400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29

- **Include hexavalent chromium as a contaminant of concern and plan to add contaminants of emerging concern to the monitoring network.** While there is currently not a Maximum Contaminant Level for hexavalent chromium, there is still a Public Health Goal and public health threat posed by this contaminant in drinking water. The State is required to adopt an MCL for chromium-6 again and is in the process of updating the MCL. In addition to including hexavalent chromium, the GSPs must explain how the Plans will be updated to align groundwater monitoring efforts and the sustainable management criteria with any contaminants of emerging concern in the basin and any future new MCLs.
- **Include an analysis of the relationship between changes in groundwater levels and groundwater quality concentrations.** Section 8.5.2.3 of the draft GSPs discusses the relationship between individual minimum thresholds and other sustainability indicators, and states: "Decreasing groundwater elevations can cause wells to draw poor-quality groundwater from deeper zone. No additional poor groundwater quality issues were identified due to low groundwater elevations when groundwater elevations were previously at minimum threshold levels." We ask that justification is provided to backup the second statement or that it is removed until an analysis is conducted. It is our understanding that groundwater quality issues did, in fact, worsen during low groundwater elevations years. Arsenic in the San Jerardo well was at its highest during the lowest groundwater elevation measurement (See CWC Figure 1). The text should acknowledge that groundwater pumping can not only cause the movement of contaminant plumes, but can also cause the release of naturally occurring contaminants such as arsenic and chromium. In order to clearly evaluate the relationship between changes in groundwater levels and groundwater quality, SVB GSA should undertake an analysis of the change in water quality constituent concentrations relative to change in water levels,[32] particularly over drought periods, to evaluate the potential relationship between water quality and groundwater management activities.[33]
- **Add the total number of wells in each category that will be included in the water quality monitoring network and have SMCs evaluated to Table 8-4. For each constituent of concern, add the number of wells included in the chart and the number exceeding the MT/MO based on the latest sample.** This comment has the same goal as the comment we provided in Chapter 7. SMCs should be set at every public drinking water well and a representative network of drinking water wells that rely on more shallow aquifers. It is essential to track the same wells each year in the monitoring network. If a well is no longer active, it should be removed from the network. In the current representation, it is not clear which wells are included in the monitoring

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[32] See P.A.M. Bachand et. al. Technical Report: Modeling Nitrate Leaching Risk from Specialty Crop Fields During On-Farm Managed Floodwater Recharge in the Kings Groundwater Basin and the Potential for its Management https://suscon.org/wp-content/uploads/2018/10/Nitrate_Report_FInal.pdf. See also, Groundwater Recharge Assessment Tool, created by Sustainable Conservation to help groundwater managers make smart decisions in recharging overdrafted basins, including modeling whether a particular recharge project would result in short or long term benefits or harms to water quality, http://www.groundwaterrecharge.org/.

[33] More information about groundwater quality and the relationship between changes in groundwater levels can be found in the following resources:

Stanford, 2019. A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act. Community Water Center, 2019. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858

Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

network, which wells have data for each constituent, and which wells are exceeding the regulatory standard.

- **Engage stakeholders and scientists in a transparent discussion regarding "the process the GSAs would use to decide whether or not an exceedance of an MT for water quality degradation was caused by GSP implementation."**[34] The State Water Board recommended that the 180/400 foot aquifer GSP outline this process "otherwise, it is difficult to judge how adequately the GSP addresses undesirable results related to water quality degradation." This relates to the undesirable result for water quality which currently reads: "There shall be no additional minimum threshold exceedances beyond existing groundwater quality conditions during any one year as a direct result of projects or management actions taken as part of GSP implementation."

[34] State Water Board comments to DWR on 180/400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29 .

From:	Emily Gardner
To:	Patrick Breen (pbreen@mcwd.org); Tina Wang
Cc:	Abby Ostovar; Bonnie Gradillas
Subject:	Fwd: CWC Comments on Draft Subbasin GSP Chapter 9
Date:	Wednesday, April 28, 2021 2:19:07 PM
Attachments:	CWC Salinas Valley Subbasin GSP Ch 9 comments 4.28.21.pdf

Good afternoon,

Attached you will find a comment letter for the Monterey Subbasin.

Thanks,

Emily

---------- Forwarded message ---------
From: **Justine Massey** <justine.massey@communitywatercenter.org>
Date: Wed, Apr 28, 2021 at 12:45 PM
Subject: CWC Comments on Draft Subbasin GSP Chapter 9
To: Emily Gardner <gardnere@svbgsa.org>, Donna Meyers <meyersd@svbgsa.org>
Cc: Heather Lukacs <heather.lukacs@communitywatercenter.org>, Mayra Hernandez <mayra.hernandez@communitywatercenter.org>

Dear Emily and Donna,

Please see the attached comments and recommendations submitted on behalf of Community Water Center regarding Chapter 9 of the SVB GSA Subbasin GSPs.

We hope that these comments can inform the ongoing development of the Subbasins' Projects and Management Actions (Implementation Actions), and we are available for further discussion.

In particular, we would like to explore the possibility of presenting on the Drinking Water Well Impact Mitigation Framework to SVB GSA staff, Board members, and/or Committee members in the coming months. We look forward to continuing to work together.

Best regards,
Justine

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Justine Massey, J.D.
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All CWC staff are currently working remotely. Please reach all staff via email and phone.

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April 28, 2021

Salinas Valley Basin Groundwater Sustainability Agency

Submitted electronically to:

Emily Gardner, Deputy General Manager

Donna Meyers, General Manager

Re: Comments on Draft Chapter 9 Project and Management Actions for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency:

The Community Water Center (CWC) offers the following comments and recommendations regarding key components of the draft Chapter 9 Projects and Management Actions (Implementation Actions) that were shared with SVB GSA subbasin committees in April 2020. These comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

Chapter 9 Projects and Management Actions

During the April 7, 2021 East Side and Upper Valley subbasin committee meetings, feedback was requested on a draft list of project and management actions. As outlined in the April 7 meeting materials, "[p]rojects implement the GSP and enable the subbasin to reach sustainability by 2042, then maintain sustainability for another 30 years." Both groundwater levels and water quality degradation can have adverse impacts on drinking water users and disadvantaged communities (DACs), who are protected as beneficial users under SGMA[1]. Therefore, projects and management actions (also referred to as implementation actions) should address sustainability issues facing drinking water and other domestic water uses, in order to ensure their continued availability.

As this chapter is further revised for the East Side and Upper Valley subbasins and as potential projects and management actions are considered for the Forebay, Langley, and Monterey, the GSPs should (1) clearly identify potential impacts to water quality from all projects and management actions, (2) include management actions that respond to immediate needs and (3) develop a more robust implementation schedule and funding plan for projects and management actions. We acknowledge that the implementation actions are currently in the beginning stages of design but encourage incorporating these elements early on.

9.1.3 Implementation Action: Local Groundwater Elevation Trigger

The Local Groundwater Elevation Trigger is a significant start to tracking and addressing impacts to domestic wells. We support the inclusion of a "notification system whereby well owners can notify the GSA or relevant partner agency if their well goes dry." Because SVB GSA defines its sustainability criteria in a way that potentially allows for drinking water well impacts and because there is so much uncertainty regarding potential domestic well impacts, we recommend that this implementation action be updated to incorporate a **Robust Drinking Water Well Mitigation Program.** This program should include the Local Groundwater Elevation Trigger as well as (1) a plan to prevent impacts to drinking water users from

[1] WAT § **10723.2.**

dewatering, increases in contaminant levels and increases in salinity, and (2) a plan to mitigate the drinking water impacts that occur even when precautions are taken.

CWC together with other organizations published a Framework for a Drinking Water Well Mitigation Program (2020) that we recommend the SVB GSA uses as a guide when further developing this implementation action. We are also interested in sharing more with staff and are willing to provide a presentation to SVB GSA staff, board members, and/or the advisory committee on this Framework. The framework describes the importance of adaptive management and affirms the intent of the draft Local Groundwater Elevation Trigger management action and states, "Developing a protective warning system... can alert groundwater managers when groundwater levels and groundwater quality are dropping to a level that could potentially negatively affect drinking water users. These "triggers" are essential for groundwater management and can be adjusted to fit the needs of different management actions as well as the basin as a whole."[2] We also support the provision in the draft "Local Groundwater Elevation Trigger" Implementation Action that offers "referral to assistance with short-term supply solutions, technical assistance to assess why it went dry, and/or long-term supply solutions." This type of adaptive management implementation action is crucial to ensuring that all beneficial users within the basin are protected under the GSP. As we have highlighted in previous comments[3]:

> A GSP that lacks a mitigation program to curtail the effects of projects and management actions as to the safety, quality, affordability, or availability of domestic water, violates both SGMA itself and the Human Right to Water (HR2W).[4] The California legislature has recognized that water used for domestic purposes has priority over all other uses since 1913[5] in Water Code § 106, which declares it, "established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation."[6] The passage of the Safe and Affordable Drinking Water Fund by Governor Newsom indicates a clear State-level commitment to provide safe and affordable drinking water to California's most vulnerable residents.[7] To ensure compliance with the Legislature's long established position, the HR2W requires that agencies, including the Department of Water Resources and the State Water Board, must consider the effects on domestic water users when reviewing and approving GSPs.[8] Therefore, GSPs that cause disparate impacts to domestic water use are in violation of the HR2W, SGMA, and Water Code § 106.6.

In order to effectively protect drinking water users during GSP implementation, we recommend that the GSA's **Drinking Water Well Impact Mitigation Program Implementation Action,** in line with and expanding upon the currently proposed Local Groundwater Elevation Trigger, should include the following components:

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[2] *See* Self-Help Enterprises, Leadership Counsel for Justice and Accountability, Community Water Center (2020) *Framework for a Drinking Water Well Impact Mitigation Program*.
https://static1.squarespace.com/static/5e83c5f78f0db40cb837cfb5/t/5f3ca9389712b732279e5296/1597811008129/Well_Mitigation_English.pdf.

[3] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020.
https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

[4] WAT § 106.3 (a).

[5] Senate Floor Analysis, AB 685, 08/23/2012.

[6] This policy is also noted in the Legislative Counsel's Digest for AB 685.

[7] SB 200 (Monning, 2019).

[8] WAT § 106.3 (b).

- **Include a vulnerability analysis of Disadvantaged Communities (DACs) and drinking water supplies in order to protect drinking water for these vulnerable beneficial uses and users.** Although rural domestic and small water system demand does not contribute substantially to the overdraft conditions, drinking water users could face significant impacts, particularly if the region faces another drought. Without a clear commitment and timeline for actions regarding establishing groundwater allocations or reductions in groundwater pumping, the SVB GSA may create disparate impacts on already vulnerable communities. See comments submitted by CWC and San Jerardo Cooperative on April 23, 2021 regarding Chapter 8 of SVB GSA Subbasin GSPs for further recommendations for conducting well impact analyses.
- **Develop the trigger system in collaboration with stakeholders, in particular groups that are more susceptible to groundwater elevation and quality changes, and then connect stakeholder recommendations back to quantifiable measures such as the GSP measurable objectives, MCLs, and numbers of partially or fully dry drinking water wells.**[9]
- **Ensure that the monitoring network is representative of conditions in all aquifers in general, including the shallow aquifer upon which domestic wells rely.** This comment aligns with comments submitted April 23, 2021 regarding Chapter 7 of the SVB GSA Subbasin GSPs, and is particularly crucial as part of a "Trigger" Management Action (or Well Impact Mitigation Program).
- **Routinely monitor for all contaminants that could impact public health (not only nitrate, but also chromium-6, arsenic, 123-TCP, uranium, and DBCP) through the representative water quality monitoring network.** Contaminated drinking water can cause both acute and long-term health impacts and can affect the long-term viability of impacted regions.[10] Among other causes, groundwater contamination can result through the use of man-made chemicals, fertilizers, or naturally-occurring elements in soils and sediments.[11] Routinely monitoring for contaminants will allow the GSA to accurately monitor for impacts on the most vulnerable beneficial users, and protect DACs' and domestic well owners' access to safe and affordable drinking water.[12]
    - **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSP should set MOs at 75% of the MCLs.** The GSP should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold exceedance at a representative monitoring well.[13] This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. As discussed in previous

[9] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

[10] Community Water Center. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act. (2019).
https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[11] See previous Community Water Center (2019) reference.

[12] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

[13] This recommendation was also made previously in a comment letter to SVB GSA from CWC and San Jerardo Cooperative regarding Chapter 8 of the 180/400 ft Aquifer GSP on November 25, 2020, as well as in our comments to the SVB GSA on April 23, 2021 regarding Chapter 8 of drafts for the SVB GSA Subbasin GSPs.

submitted comments, water quality impacts can intensify as water levels decrease.[14] If the GSA waits until the minimum threshold is exceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded.

- **Include a combination of different strategies for mitigation including: replacing impacted wells with new, deeper wells, connecting domestic well users to a nearby public water system, or providing interim bottled water.**
- **Include an implementation timeframe, budget, and funding source**.[15] As currently written, the Local Groundwater Elevation Trigger suggests convening "a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold." We support emergency response if one or more wells are impacted, and also request that this section be updated to include strategies to prevent impacts from occuring in the first place. Additionally, plans to address and mitigate those impacts should be solidified beforehand so resources can be mobilized in a timely manner. Drinking water users cannot afford to wait for interim plans to be developed once their primary sources of water for drinking, cooking and hygiene are compromised.

9.1.3 Implementation Action: Domestic Water Partnership

CWC would like to voice preliminary support for the Domestic Water Partnership Implementation Action, as a step towards coordinating local and regional responses to water quality issues. However, we reiterate that the GSA remains directly responsible for recognizing and resolving water quality degradation that results from its policies and projects. We also would like to affirm our previous comments encouraging the SVB GSA to include - without delay - Monterey County water quality data for state and local small water systems. This data is readily available and would add significantly to the proposed water quality monitoring network in draft subbasin Chapters 7. We do not want this potential partnership implementation action to delay the incorporation of this important data source. This action can and should, however, integrate this County data into current draft subbasin plans in order to identify potentially vulnerable populations and create management actions to protect them. We will offer further comments and recommendations on this subject as future drafts are released. To echo recommendations made previously regarding Suggested Partnerships for Multi-Benefit Remediation Projects:

- **The GSA should work with local and regional water agencies or the county to implement groundwater quality remediation projects that could improve both quality as well as levels and to ensure groundwater management does not cause further degradation of groundwater**

[14] Community Water Center and Stanford University. Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium. (2019). https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.
[15] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

quality.[16] The strategic governance structure of GSAs can uniquely leverage resources, provide local empowerment, centralize information, and help define a regional approach to groundwater quality management unlike any other regional organization. When implemented effectively, GSPs have the potential to be instrumental in reducing levels of contaminants in their regions, thus reducing the cost of providing safe drinking water to residents. GSAs are the regional agency that can best comprehensively monitor and minimize negative impacts of declining groundwater levels and degraded groundwater quality that would directly impact rural domestic well users and S/DACs within their jurisdictions. When potential projects are proposed, SVB GSA should consider how projects could potentially both positively and negatively impact groundwater quality conditions and should take leadership in coordinating regional solutions.

[16] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020. https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

Draft Chapter 7 – Comments from Seaside Basin Watermaster 5-10-21

Page	Section	Comment
7-6	7.3	This section states in part "The sustainability indicator for chronic lowering of groundwater levels is evaluated by monitoring groundwater elevations in designated monitoring wells." The list of entities that monitor the 390 wells mentioned here does not include the Watermaster. The Watermaster has numerous wells that are adjacent to the Corral de Tierra subarea, and some that are adjacent to the Marina-Ord subarea. Those should be included in order for the GSP to be able to see how its management actions are affecting the adjacent subbasin.
7-7	7.3	The 3rd bullet on this page states "RMS wells should facilitate monitoring along the existing seawater intrusion front to verify that water levels in these areas are not declining and increasing the risk of seawater intrusion." Monitoring Well FO-9 is within the Seaside subbasin, just south of the boundary with the Monterey subbasin, and is near the known seawater intrusion front. Therefore, it should be included as an RMS well.
7-12, 7-13,	7.3	Figures 7-4 and 7-5 should include Monitoring Well FO-9 Shallow and/or FO-9 Deep for the reasons stated above.
7-14	7.3	Figure 7-6 should include adjacent monitoring wells in the eastern portion of the Laguna Seca subarea of the Seaside subbasin to see how Corral de Tierra management actions are affecting the adjacent subbasin. Montgomery & Associates has maps showing the names and locations of those wells.
7-18	7.3.2	The statement from one of the reports cited in this section that 0.2 to 10 wells per 100 square miles is the recommended monitoring well density is ridiculous for purposes of performing any type of reliable groundwater modeling. Far greater well density is necessary for that purpose.
7-19	7.3.2	On this page there is the statement "…additional wells are necessary to provide additional groundwater elevation data near the ocean in areas subject to sea water intrusion." It also states that the generalized locations for monitoring wells was based on "Demonstrating conditions at Subbasin boundaries." For the reasons stated above Monitoring Well FO-9 should be included.
7-19	7.3.2	On this page it states "A higher density of monitoring wells is recommended near residential areas or other locations where groundwater withdrawal is significant" and that this is the case in the Corral de Tierra subarea. Per the comment above on page 7-14 the adjacent monitoring wells in the Laguna Seca subarea should be included.
7-20	7.3.2	Although not within the area identified on Figure 7-7 as a "data gap" area, Monitoring Well FO-9 Shallow should be included to help fill that gap.
7-21	7.3.2	Although not within the area identified on Figure 7-8 as a "data gap" area, Monitoring Well FO-9 Deep should be included to help fill that gap.
7-22	7.3.2	Per the comment above on page 7-14, the adjacent monitoring wells in the Laguna Seca subarea should be included in Figure 7-9.
7-23	7.3.3	In the top para on this page it appears that the word "parallel" should be "perpendicular." In the 2nd para after the words "…Monterey Subbasin…" the words "…or into any adjacent subbasins…" should be inserted. In that same para the word "southeastern" should be replaced with the word "southern." In the last para on

		this page, after the words "Monterey Subbasin" the words "…and in the adjacent Seaside Subbasin…" should be inserted.
7-25	7.3.3	In Figure 7-10 in the Legend this is a symbol for "Area of Potential Seawater Intrusion." It would be helpful to discuss in the text how that area was determined.
7-28	7.5	In the top para the words "…and the Seaside Groundwater Basin Watermaster…" should be added after the word "MPWMD." In that same para it states "Additional sites are added to the RMS network to facilitate monitoring of significant and unreasonable groundwater conditions…" This supports the need to add monitoring wells in the adjacent Seaside subbasin.
7-29	7.5	The Seaside Groundwater Basin Watermaster should be added to the list of monitoring agencies on this page.
7-33	7.5	Per comments above Monitoring Well FO-9 Shallow should be added to Figure 7-15.
7-34	7.5	Per comments above Monitoring Well FO-9 Deep should be added to Figure 7-16.
7-36	7.5	Per comments above Monitoring Wells FO-9 Shallow and Deep should be added to Table 7-4.
7-37	7.5	Sentinel MW#1 is also monitored by the Seaside Groundwater Basin Watermaster via induction logging and datalogger groundwater elevation monitoring.
7-37	7.5.1	In the 2nd bullet in this section correct the wording to read "The Seaside Basin Watermaster Monitoring and Management Program…"
7-37	7.5.2	In the 1st and 2nd bullets in this section add that Monitoring Well FO-9 should be included.
7-2 (note the page numbering needs to be corrected starting with page 7-1 at this point in the Chapter)	7.6	In Figure 7-17 monitoring wells in the eastern portion of the Laguna Seca subarea should be added to the wells in the groundwater quality monitoring network.
7-3	7.6.2	The statement that the network cannot be expanded by drilling new wells (i.e. monitoring wells) does not make sense.

T0: Salinas Valley Groundwater Sustainability Agency

From: Fred Nolan as public commentary

(montereyfred@gmail.com)

Subject: Suggested Solution to the groundwater sustainability in Monterey County

As I no longer use pen and pencil nor do I type due to Parkinson's disease I am dictating this with Dragon NaturallySpeaking.

The solution to all groundwater sustainability is not desalinisation. It is the reuse of the water we already have. The largest water reuse facility in the world is right here in California. Orange County produces in their ground water replenishment system enough drinkable water for 2 1/2 million people. On a vastly smaller scale we can do the same thing.

Recycling water is one third the cost desalinated ocean water. Building a desalinisation length costs approximately $200 million dollars. The probability of raising that kind of money in central California is ZERO.

I suggest we study Orange County's impressive recycling system. They have a number of very illuminating websites. The time has come to get over unscientific reservations about recycled water. The time for recycled water is here. Plant in Marina produces a small amount of high quality recycled water right now. By dramatically increasing the output of this desirable commodity we can meet our water needs indefinitely. If we are scientifically capable of putting robots on Mars we are capable of producing exquisite water over and over again.

Fred Nolan

Frederick Ernest Nolan Jr.
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May 12, 2021

Salinas Valley Basin Groundwater Sustainability Agency
Board of Directors
P.O. Box 1385
Carmel Valley, CA 93924

VIA: Email to SVBGSA General Manager

RE: Groundwater Sustainability Plans – Water Quality Objectives

Dear SVBGSA Chair Adcock and Directors:

Salinas Basin Agricultural Water Association is a coalition of agricultural organizations tasked with overseeing the implementation of the Sustainable Groundwater Management Act (SGMA) and the development of the groundwater sustainability plans for the Salians Valley groundwater aquifer. Our organization has been integrally involved in groundwater management since this passage of SGMA and the formation of the SVBGSA.

Watching the development of the groundwater sustainability plans for the five sub-basins, due in January 2022, there appears to be attention drawn by various stakeholders to specific groundwater quality references that are under the jurisdiction of the Central Coast Regional Water Board (RWB).

On April 15, 2021, a new Irrigation Lands Regulatory Program was adopted by the RWB, also knows as Ag Order 4.0. This program manages farming activities to specific water quality objectives, including the amounts of nitrogen that can be either applied or discharged from production fields, to either surface or groundwaters. Farming operations will be required to calculate their "Applied-Removed ratio" for each crop produced, meeting specific compliance standards that are ratcheted down each successive year. Additionally, each domestic-use

Salinas Basin Agricultural Water Association, Inc., incorporated in 2017, Members are: Monterey County Farm Bureau, Grower-Shipper Association of Central California, Monterey County Vintners & Growers Association, and Sustainable Ag Water Corporation.

well located on a farming operation must be tested annually for a broad set of water quality constituents.

Water quality objectives are heavily managed by Ag Order 4.0 and will be costly for farming operations and their landowners to implement. Record keeping, annual compliance reporting, and cooperative monitoring fees will add heavily to the burden of farm management and financial sustainability.

As the groundwater sustainability plans are developed, discussed by the Sub-basin Committees, and ultimately brought to the Advisory Committee and SVBGSA Board for approval, it should be clearly stated within those forums that water quality objectives for farming operations are managed under Ag Order 4.0 by the RWB, and that SVBGSA should not set any additional water quality parameters within the groundwater sustainability plans.

Conflicting and duplicative water quality objectives, if included in the groundwater sustainability plans, would lead to unnecessary costs for farming operations and landowners. Due consideration should be given to the Ag Order 4.0 program and how water quality objectives will be managed on-farm going forward, limiting groundwater sustainability plans to manage the balance of extractions and recharge for each respective sub-basin.

Thanks for your consideration.

Sincerely,

Norman C. Groot
President

July 12, 2021

Via email

Marina Coast Water District
11 Reservation Road Marina,
CA 93933 Attn: Patrick Breen, Water Resources Manager
Email: pbreen@mcwd.org

Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Attn: Emily Gardner, Deputy General Manager and Derrik Williams, GSP Project Manager Email: gardnere@svbgsa.org; dwilliams@elmontgomery.com

Re: Draft Chapter 8 of Monterey Subbasin Groundwater Sustainability Plan

Dear Mr. Breen, Ms. Gardner, and Mr. Williams:

I write on behalf of LandWatch Monterey County to comment on draft Chapter 8 of the Monterey Subbasin Groundwater Sustainability Plan (GSP).

The sustainable management criteria (SMCs), including the minimum threshold (MT) and measurable objective (MO) for chronic lowering of groundwater levels for the Monterey Subbasin may suffer from the same defect as in the 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan. That defect is that the groundwater level SMCs are not supported by consideration of their effects on other sustainability indicators, in particular, seawater intrusion. There appears to be no evidence that the groundwater level SMCs and their associated interim milestones will support attainment of the seawater intrusion threshold, particularly since the interim milestone would permit continued declines in historic groundwater levels and would not reach the SMCs for almost 20 years.

Furthermore, setting Corral de Tierra subarea groundwater level SMCs at historic levels would cause chronic lowering of groundwater levels in the neighboring Seaside Subbasin. According to the Seaside Basin Watermaster, pumping reductions and groundwater level increases are required in the Corral de Tierra subarea to remedy falling groundwater levels in the Laguna Seca Subarea.

Finally, the water quality sustainable management criteria should not be limited to effects caused by "direct GSA action" through GSA projects. The GSA must also limit excessive third party extractions that cause undesirable water quality results.

A. Groundwater level sustainable management criteria and interim milestones fail to support the seawater intrusion criteria.

1. The groundwater level minimum threshold must support the seawater intrusion minimum threshold.

SGMA requires that each minimum threshold must avoid *each* undesirable result because SGMA requires that "basin conditions at each minimum threshold will avoid undesirable results for *each of* the sustainability indicators." (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be "supported by" the "[p]otential effects on *other* sustainability indicators." (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided.

2. The proposed seawater intrusion SMCs do not permit any additional intrusion.

The draft Monterey Subbasin Chapter 8 sets the MT and MO for seawater intrusion for the "lower" 180-Foot Aquifer and the 400-Foot Aquifer at the line of advancement as of 2015. (Monterey Subbasin GSP, draft Chap. 8 ("Chap. 8."), p. 8-55 to 8-56.) Chapter 8 sets the MT and MO for seawater intrusion to the Deep Aquifers at Highway 1, based on the observation that there is limited intrusion in these aquifers. (*Id.*, pp. 8-51, 8-55 to 8-56.) In effect, Chapter 8 commits the GSP not to permit any additional seawater intrusion in these aquifers. This is a proper goal in light of the clear impacts to beneficial users.

3. The groundwater level SMCs and groundwater level interim milestones are set based on their effects on seawater intrusion.

The draft Monterey Subbasin Chapter 8 acknowledges that the MT and MO for groundwater levels must support attainment of the seawater intrusion MT and MO because it identifies the primary consideration in setting the groundwater level MT and MO is the effect on seawater intrusion:

> As discussed in Section 3.1.6, groundwater use within the Marina-Ord Area is almost exclusively limited to generation of municipal supplies by MCWD. Groundwater elevations are significantly higher than municipal production well screen elevations in all aquifers in the Marina-Ord Area, and there is limited concern regarding the potential dewatering of groundwater production wells. Therefore, *groundwater levels that could cause undesirable results associated*

> *with other locally relevant sustainability indicators, such as the lateral or vertical expansion of the existing seawater intrusion extent and/or eventual migration of saline water into Deep Aquifer wells, have been used to define groundwater level minimum thresholds in the Marina-Ord Area*.

(Chap. 8, p. 8-16, emphasis added.) Chapter 8 also provides that

> . . . undesirable results caused by chronic lowering of groundwater levels in the Marina-Ord Area are primarily associated with the expansion of seawater intrusion and other locally relevant sustainability indicators. *These sustainability indicators have been considered when defining groundwater level minimum thresholds in the Marina-Ord Area*.

(Chap. 8, p. 8-18, emphasis added.)

4. **Setting the groundwater level SMCs at historic 1995-2015 conditions is purportedly justified by the stability of the lateral extent of seawater intrusion in the Monterey Subbasin during that historic period.**

Chapter 8 contends that setting the groundwater level MT and MO for the 180- and 400-Foot Aquifers on the basis of the 1995 to 2015 groundwater levels is justified because the lateral extent of seawater intrusion in the Monterey Subbasin has been "generally stable" in that period:

> As discussed in the preceding sections, the potential effects of undesirable results caused by chronic lowering of groundwater levels in the Marina-Ord Area are primarily associated with the expansion of seawater intrusion. *The observed lateral extent of seawater intrusion within the Subbasin appears to have been generally stable within the 180- and 400-Foot Aquifers between 1995 and 2015. As such, minimum thresholds have been set based upon minimum groundwater elevations observed between 1995 and 2015 in the 180- and 400 Foot aquifers*.. Seawater intrusion is additionally monitored and managed pursuant to seawater intrusion SMCs (Section 8.9 below) to verify seawater intrusion does expand within the Subbasin due to sea-level rise and/or changes in the groundwater gradient.

(Chap. 8, p. 8-29.)

There are several problems with this contention, discussed below.

5. **The "stability" rationale for setting groundwater level SMC's based on historic conditions is undercut by Chapter 8's projections that groundwater levels will actually continue to decline and remain below historic conditions and by the interim milestones that permit such declines.**

First, the contention that groundwater level SMCs are justified by historic conditions ignores the GSP's own projection that groundwater levels will continue to decline until at least 2033 and will not attain the MO until 2042. Chapter 8 documents and projects in its "Example Trajectory for Groundwater Elevation Interim Milestones" that groundwater levels for a Marina-Ord well fell below the MT in 2019, will continue to fall until 2033, will not rise above the MT until 2039, and will not attain the MO until 2042. (Chap. 8, pp. 8-40 to 8-41, Figure 8-12.) The interim milestones for wells in the 400-Foot Aquifer and the Deep Aquifers assume and permit that groundwater levels will remain below historic levels and the MT for most of the next 20 years:

> Within the Monterey Subbasin, for wells in the 400-Foot Aquifer, Deep, and El Toro Primary Aquifer System Aquifers where groundwater levels have been declining, groundwater elevation interim milestones are defined based on a trajectory informed by current (fourth quarter of 2020) groundwater levels, historical groundwater elevation trends [footnote], and measurable objectives. This trajectory allows for and assumes a continuation of historical groundwater elevation trends during the first 5-year period of GSP implementation, a deviation from that trend over the second 5-year period, and a recovery towards the measurable objectives in the third and fourth (last) 5- year period.

(Chap. 8, p. 8-40.) The proposed interim milestones for wells in the 180-Foot and Deep Aquifers permit substantial declines in groundwater levels from 2020 conditions in the years 2027 and 2032. (*Id*., p. 8-43, Table 8-3.)

Allowing groundwater levels to fall below historic levels is purportedly justified because "there are large volumes of freshwater in the Subbasin that provide additional time and flexibility to reach identified SMCs while projects and management actions are implemented." (*Id.*) However, the draft GSP provides no evidence to suggest that groundwater levels that fall and remain below the historic conditions in the Marina-Ord area will not induce further seawater intrusion in the interim, resulting in a failure to meet the seawater intrusion SMCs.

The historic "stability" rationale cannot be extrapolated to claim that groundwater levels well *below* the historic record will continue to result in a stable areal extent of seawater intrusion. It makes no sense to contend that setting the MT and MO on the basis of historic conditions will not result in seawater intrusion when the GSP *would effectively fail to maintain those historic conditions for the next twenty years* during which the GSP is supposed to attain sustainability.

The historic stability rationale also ignores the fact that Deep Aquifer groundwater levels began dropping in 2014, have continued to drop, and are projected to continue to drop due to increased levels of extractions. MCWRA reported in 2020 that Deep Aquifer groundwater levels have been falling since 2014, are well below sea-level, and that induced vertical migration of contaminated water to the Deep Aquifers themselves is in fact occurring:

> As is the case with the 180-Foot and 400-Foot Aquifers, groundwater levels in the Deep Aquifers are predominantly below sea level. Beginning around 2014, groundwater levels in the Deep Aquifers began declining and are presently at a deeper elevation than groundwater levels in the overlying 400-Foot Aquifer based on comparisons of multiple well sets at selected locations, meaning that there is a downward hydraulic gradient between the impaired 400-Foot Aquifer and the Deep Aquifers (Figure 16 and Figure 17). This decrease in groundwater levels coincides with a noticeable increase in groundwater extractions from the Deep Aquifers (Figure 16 and Figure 17). The potential for inducing additional leakage from overlying impaired aquifers is a legitimate concern documented by previous studies and is something that would be facilitated by the downward hydraulic gradient that has been observed between the 400-Foot Aquifer and Deep Aquifers.
>
> Seawater intrusion has not been observed in the Deep Aquifers. However, the Agency has documented the case of one well, screened in the Deep Aquifers, that is enabling vertical migration of impaired groundwater into the Deep Aquifers. The Agency is working with the well owner on destruction of this well.[1]

In addition to the threat to contaminate the Deep Aquifers, the induced vertical migration of upper aquifer groundwater to the Deep Aquifers aggravates seawater intrusion in those upper aquifers. A 2003 study for MCWD concluded that increasing pumping of the Deep Aquifers from the 2002 baseline level of 2,400 AFY to just 4,000 AFY would (1) induce further seawater intrusion into the upper aquifers (the 180-Foot and 400-Foot Aquifers), which were vertically connected, and (2) risk contamination of the Deep Aquifers themselves.[2] Deep Aquifer pumping is now in excess of 10,000 AFY.[3]

And, in fact, Chap 8 admits that falling groundwater levels in the Deep Aquifer threatens to contaminate the Deep Aquifers and to induce seawater intrusion in the upper aquifers:

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1 Monterey County Water Resources Agency (MCWRA), Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin: 2020 Update, May 2020, p. 31, https://www.co.monterey.ca.us/home/showdocument?id=90578

2 WRIME, Deep Aquifer Investigative Study, May 2003, pp. 4-7, 4-11 to 4-12, pdf available upon request.

3 Monterey County Water Resources Agency (MCWRA), Well Permit Application Activities Update, prepared for May 17, 2021 MCWRA Board of Directors meeting, https://monterey.legistar.com/View.ashx?M=F&ID=9381226&GUID=34ED34CD-3A39-4851-87A3-298BE70D383C

> Seawater intrusion has not been observed in the Deep Aquifer to date. However, groundwater elevations have been declining and are significantly below sea level. The declining groundwater elevations in the Deep Aquifer may be causing groundwater elevations to fall within the 400-Foot Aquifer in the southwestern portion of the Marina-Ord Area (i.e., near wells MPMWD#FO-10S and MPMWD#FO-11S). Although there is some uncertainty whether the Deep Aquifer is subject to seawater intrusion from the ocean, continued decline of groundwater elevations in the Deep Aquifers could increase the risk of seawater intrusion and may eventually cause vertical migration of saline water from overlying aquifers into the Deep Aquifers. As such, minimum thresholds for the Deep Aquifers are set to historically observed minimum groundwater elevations between 1995 and 2015, which is equivalent to the groundwater elevations observed in 2015 for most Deep Aquifer wells.

(Chap. 8, p. 8-40.) Again, setting the groundwater level MT and MO to historic levels but then allowing 20 years to pass before the interim milestones actually require attainment of these historic levels cannot demonstrably ensure that there is no further advancement of seawater intrusion. However, that is precisely what is required by the seawater intrusion MT and MO.

6. **Chapter 8 fails to assess the effects on other subbasins of setting groundwater level SMCs based on historic conditions or allowing groundwater levels to decline further through relaxed interim milestones.**

As Chapter 8 acknowledges, the interconnectivity between the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin requires coordination of the sustainable management criteria for both subbasins. (*Id.*, p. 8-35.) Coordination is required in order to meet SGMA's requirement that the SMC's for one subbasin do not prevent another subbasin from meeting its sustainability goal.

Setting the groundwater level MT and MO at historic levels and then effectively ignoring these criteria through use of relaxed interim guidelines for 20 years may very well impair attainment of the seawater intrusion criteria for the 180/400-Foot Aquifer GSP, which are also set at a level that permits no further advancement of the seawater intrusion front.

However Chapter 8 provides no analysis of that possibility. Chapter 8 proposes to defer the assessment of the impact of the Monterey Subbasin's groundwater level MTs on the Deep Aquifers in the neighboring 180400-foot Aquifer Subbasin until after completion of the long-delayed Deep Aquifers Study and the eventual establishment of Deep Aquifer SMCs for the 180400-foot Aquifer Subbasin.

The Deep Aquifer Study, recommended almost four years ago, has neither been funded nor initiated.

Furthermore, there is no reason that an assessment of the effects of the Monterey Subbasin's groundwater level MTs should be limited to its effects on the Deep Aquifers in the 180/400-Foot Subbasin. The assessment should also include an assessment of the effects of the Monterey Subbasin's groundwater level MTs on seawater intrusion of each of the principle aquifers in that neighboring subbasin. The Monterey Subbasin GSP argues that pumping in the 180/400-Foot Aquifer Subbasin has caused seawater intrusion in the Monterey Subbasin. In turn, the Monterey Subbasin GSP must assess the reciprocal effects of its own pumping, SMCs, and interim milestones on the 180/400-Foot Aquifer Subbasin.

SGMA's mandate to use the best <u>available</u> science is not an invitation to let the perfect be an enemy of the good pending completion of the Deep Aquifer study. Chapter 8 must use the whatever science is <u>now</u> available to provide <u>some</u> discussion and assessment of the effect on the neighboring subbasins of allowing continued reductions in Monterey Subbasin groundwater levels below historic conditions through relaxed interim thresholds.

Again, it is not reasonable to extrapolate beyond the historic data to assume that lower-than-historic groundwater levels in the Monterey Subbasin will not impair adjacent basins. The purported stability of the lateral extent of seawater intrusion in the Monterey Subbasin from 1995 to 2015 was certainly not matched in the 180/400-Foot Aquifer Subbasin. Chapter 8 provides no evidence to justify the assumption that allowing lower-than-historic groundwater levels in the Monterey Subbasin will not contribute to the continuing seawater intrusion in the neighboring subbasin.

Finally, the Monterey Subbasin GSP must also evaluate and address the effects of reduced groundwater levels in the Corral de Tierra Subarea on the Seaside Subasin. Again, there is no evidence in the record that merely maintaining historic groundwater levels is sufficient to support groundwater levels in the Seaside Subbasin. To the contrary, comments by the Seaside Basin Watermaster indicate that chronic lowering of groundwater levels in the Laguna Seca Subarea of the Seaside Subbasin can only be corrected by *reducing* existing pumping in the Corral de Tierra, i.e., *increasing* groundwater levels *above* historic levels. (Robert Jacques, PE, email to Sarah Hardgrave, et al., March 22, 2021.) Setting Monterey Subbasin groundwater level SMC's at historic levels violates SGMA because it will prevent attainment of groundwater level objectives in the adjacent Seaside Subbasin.

B. Water quality sustainable management criteria should not be limited to effects caused by "direct GSA action;" the GSP must also limit extractions that cause undesirable results.

Chapter 8 purports to limit significant and unreasonable conditions related to groundwater quality degradation to "[l]ocally defined significant and unreasonable changes in groundwater quality resulting from *direct GSA action*." (Chap. 8, p. 8-56, italics added.) Thus, Chapter 8 contends that the GSP need only address water quality degradation that is a "direct result of projects or management actions conducted pursuant to GSP implementation:"

> For the Subbasin, any groundwater quality degradation that leads to an exceedance of MCLs or SMCLs in potable water supply wells or a reduction in crop production in agricultural wells that is a direct result of GSP implementation is unacceptable. Some groundwater quality changes are expected to occur independent of SGMA activities; because these changes are not related to SGMA activities they do not constitute an undesirable result. Therefore, the degradation of groundwater quality undesirable result is:
>
> > *Any exceedances of minimum thresholds during any one year as a direct result of projects or management actions conducted pursuant to GSP implementation is considered as an undesirable result.*

(*Id.*, underlining added.)

This language does not define what constitutes "a "direct result" of GSP implementation or "direct GSA action." Elsewhere, Chapter 8 gives three examples of conditions that may lead to an undesirable result and that the GSA is presumably prepared to address:

> • Required Changes to Subbasin Pumping. If the location and rates of groundwater pumping change *as a result of projects implemented under the GSP*, these changes could alter hydraulic gradients and associated flow directions, and cause movement of constituents of concern towards a supply well at concentrations that exceed relevant standards.
>
> • Groundwater Recharge. *Active recharge of imported water or captured runoff* could modify groundwater gradients and move constituents of concern towards a supply well in concentrations that exceed relevant limits.
>
> • Recharge of Poor-Quality Water. *Recharging the Subbasin* with water that exceeds an MCL, SMCL, or level that reduces crop production could lead to an undesirable result.

(Chap. 8, p. 8-57.) Significantly, none of these three conditions that might trigger GSA action include *excessive pumping* by other parties that may cause water quality degradation; each condition includes only the secondary effects of the GSA's own projects. The GSA's failure to take management action, e.g., its failure to restrict excessive extractions, may also cause water quality degradation. Chapter 8 should be revised to acknowledge that the GSA has both the authority and duty to address groundwater quality degradation caused by excessive pumping.

Chapter 8 contends that because other agencies have authority over groundwater quality, the GSA's role is somehow limited:

> The powers granted to GSAs to effect sustainable groundwater management under SGMA generally revolve around managing the quantity, location, and timing of groundwater pumping. SGMA does not empower GSAs to develop or enforce water quality standards; that authority rests with the SWRCB Division of Drinking Water and Monterey County. Because of the limited purview of GSAs with respect to water quality, and the rightful emphasis on those constituents that may be related to groundwater quantity management activities.
>
> Therefore, this GSP is designed to avoid taking any action that may inadvertently move groundwater constituents already in the Subbasin in such a way that the constituents have a significant and unreasonable impact that would not otherwise occur.

(*Id*., pp. 8-59 to 8-60.) The fact that the County *and* the RWQCB also have authority and responsibility to address water quality degradation demonstrates that the statutory scheme does not rely on the regulatory actions of any single agency. Nothing in SGMA's mandate that the GSP address water quality degradation permits the GSA to consider only the direct effect of GSA projects and only those projects that *move* pollutants. The GSP must also address the effects of its *regulatory omissions*, including omissions that move or *concentrate* existing pollutants by permitting excessive extractions.

DWR has made it clear in its imposition of corrective actions on the 180/400-Foot Aquifer Subbasin GSP that "groundwater management *and extraction*" may result in degraded water quality:

> RECOMMENDED CORRECTIVE ACTION 5 Coordinate with the appropriate groundwater users, including drinking water, environmental, and irrigation users as identified in the Plan, and water quality regulatory agencies and programs in the Subbasin to understand and develop a process for determining if groundwater management *and extraction* is resulting in degraded water quality in the Subbasin.[4]

Accordingly, the GSP cannot limit its concern to the effects of its own projects without taking responsibility for the effects of unregulated extractions on water quality degradation.

For example, if, in the Corral de Tierra Subarea, there is evidence that arsenic concentrations are increased by excessive extractions, then the GSP must manage extractions to avoid undesirable results from increased concentrations. Chapter 8 cannot simply state that "no clear correlation that can be established between groundwater levels and groundwater quality at this time" as if that disposes of the matter. (Chap. 8, p. 8-57.) Indeed, at the July GSA Board meeting, staff acknowledged that lowering groundwater levels *could* cause water quality degradation, specifically referencing Corral de Tierra.

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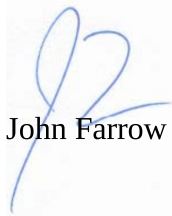
[4] Department of Water Ressources, GSP Assessment Staff Report Salinas Valley – 180/400 Foot Aquifer (Basin No. 3-004.01), June 3, 2021, p. 37, emphasis added available at https://sgma.water.ca.gov/portal/gsp/assessments/29.

The GSA must investigate, apply the best available science, and manage the resource to prevent undesirable contaminant concentrations caused by excessive extractions.

M. R. WOLFE & ASSOCIATES, P.C.



John Farrow

MRW:hs

Cc: Sarah Hardgrave, Chair, Monterey Subbasin Committee
Michael DeLapa, Executive Director, LandWatch Monterey County

Draft Chapter 8 – Comments from Seaside Basin Watermaster 7-13-21

Page	Section	Comment
8-8	8.4	The 3rd para on this page talks about SMCs in this subarea and their potential to impact SMCs in adjacent subbasins (in this case the Seaside subbasin). It goes on the say that SMCs for the Monterey subbasin will be set so as to be consistent with SMCs in those adjacent subbasins, so that adjacent subbasins will be able to be sustainable. For this reason it would be appropriate (as mentioned in other comments below) for the monitoring network of the Monterey subbasin to include some monitoring and/or production wells in the Seaside subbasin that are near the border between the two subbasins. Data from those wells can be provided to the SVBGSA at no cost, so the SVBGSA can determine what impact the Monterey subbasin's SMCs are having on the Laguna Seca subarea of the Seaside subbasin, which is the portion of the Seaside subbasin that abuts the Corral de Tierra subarea. This para also mentions that modeling will be one of the means of determining the impacts of the Corral de Tierra SMCs on the adjacent subbasin. The Monterey subbasin model being developed for the MCWDGSA by its consultant EKI should incorporate modeling information from the Seaside Watermaster's Seaside Basin Model (prepared by HydroMetrics) to ensure that the two models are consistent at the boundary between the subbasins.
8-10	Table 8-1	The Corral de Tierra area MT and MO groundwater elevations (2015 and 2008) are believed, based on modeling performed for the Watermaster by HydroMetrics, to be so low that they are causing water to (1) be drained out of the Seaside subbasin's Laguna Seca Subarea by creating an eastward sloping hydraulic gradient and/or (2) preventing the natural westward flow of groundwater from replenishing the Laguna Seca Subarea, resulting in falling groundwater levels in that subarea. The GSP should mention this and ensure that its SMCs prevent this adverse condition from continuing.
8-16	8.7.1	Reword the first bullet on this page to read "Groundwater elevations at or below those observed in 2015. Lower groundwater elevations could lead to inadequate water production in a significant number of domestic and small water system wells, not only in the Corral de Tierra subarea but also in the Laguna Seca subarea of the adjacent Seaside subbasin.
	8.7.2.1	This Section discusses a minimum threshold of 20% exceedances of groundwater levels. As mentioned in the comment above on page 8-8, some monitoring wells in the Laguna Seca subarea, which is directly impacted by groundwater levels in the Corral de Tierra subarea, should be included in *Representative Monitoring Sites* for the Corral de Tierra subarea when making the 20% calculation.
8-18	8.7.2.3	The bottom para on this page mentions undesirable results caused by chronic lowering of groundwater levels within the Corral de Tierra subarea. The following language should be inserted at the appropriate place in this para "These same undesirable effects will occur in the adjacent Laguna Seca subarea from chronic lowering of groundwater levels in the Corral de Tierra subarea."

Page	Section	Comment
8-19	8.7.2.3	The top para on this page mentions the term “clustering”. A better explanation of what would constitute “clustering” should be added to this para, since this is apparently going to be one of the criteria to determine if a significant and unreasonable effect is occurring.
8-21	Table 8-2	Many of the wells in this table also have common names which appear on maps in various reports that have been prepared for the Corral de Tierra and Laguna Seca subareas. A column should be added to this Table titled “Well Common Name” to include that information for the reader’s ease of knowing which well in located at the Monitoring Site. Also, as mentioned in the comment above on page 8-8, some monitoring wells in the Seaside subbasin should be included in this Table. Suggested wells for inclusion are: MPWMD#FO-5S, MPWMD#FO-5D, MPWMD#FO-6S, MPWMD#FO-6D, Seca Place, MPWMD#FO-9S, MPWMD #FO-9D,
8-25 and 8-26	Figures 8-4 and 8-5	The wells suggested for inclusion in the comment on page 8-21 (MPWMD#FO-9S and MPWMD #FO-9D) should be added to these figures to monitor the effectiveness of the SMCs in the Marina-Ord subarea on preventing seawater intrusion from flowing into the Seaside Subbasin.
8-27	Figure 8-6	The wells suggested for inclusion in the comment on page 8-21 (MPWMD#FO-5S, MPWMD#FO-5D, MPWMD#FO-6S, MPWMD#FO-6D, and Seca Place) should be added to these figures to monitor the effectiveness of the SMCs in the Corral de Tierra subarea on preventing chronic lowering of groundwater levels in the Seaside Subbasin.
8-29	8.7.3.1	The next to the last para on this page states “The declining groundwater elevations in the Deep Aquifer may be causing groundwater elevations to fall within the 400-Foot Aquifer in the southwestern portion of the Marina-Ord Area (i.e., near wells MPMWD#FO-10S and MPMWD#FO-11S).” An explanation to support this hypothesis should be included as this is not intuitively apparent.
8-30	8.7.3.1	In the top two paras there are two small typos to correct: (1) in the first para the word “elevations” should be singular; (2) in the second para the last sentence should be reworded in part to read “…Deep Aquifer’s wells as well as…”
8-31	8.7.3.1	The second bullet on this page mentions historical groundwater elevation data from wells monitored by MCWRA. This language should be expanded to include historical groundwater elevation data from wells monitored by the Seaside Basin Watermaster.
8-36	8.7.3.5	Add at the end of the first sentence at the top of this page the following wording “…including the occurrence of “Material Injury” (as defined in the Seaside Basin adjudication decision) in the Laguna Seca subarea due to lowered groundwater levels.”
8-37	8.7.4.1	Correct “MPMWD” to read “MPWMD” for the wells mentioned in this Section and the footnote at the bottom of this page. Also, update the language in the footnote to read as follows: “Chloride concentration measured from MPMWD#FO-10S and MPMWD#FO-09S in September 2020 were 89.9 mg/L and 90.4 mg/L, respectively. An investigation performed by MPWMD into the cause of this in mid-2021 concluded that there was leakage in the upper portion of the casing that was allowing salty shallow dune sand water to flow downward in this well, thus causing these increases in chloride readings. As part of GSP implementation, the Subbasin

Page	Section	Comment
		GSAs intend to investigate possible seawater intrusion near the southwestern portion of the Marina-Ord Area in collaboration of the Seaside Watermaster."
8-40	8.7.4.2	In the 2nd para on this page there is discussion about groundwater elevation trends continuing to fall in the early part of the implementation period and then recovering in the latter part of that period. It would helpful to the reader to have an explanation included as to how the rate of recovery of the fallen groundwater levels was determined, and what the level of confidence is in these projections. In other words, is it certain that the projects that will be included in Chapter 9 of the GSP will be able to bring groundwater levels up as shown in the figures in Appendix 8B?
8-47	8.8.3.1	There is a table showing estimated groundwater storage in the Marina-Ord area, but I did not see a similar table for the El Toro area.
8-48	8.8.3.4	This para discusses the setting of minimum thresholds to avoid dropping below recent levels of storage. The existing groundwater levels in the Corral de Tierra subarea are already causing a loss of groundwater in the Laguna Seca subarea of the Seaside subbasin. Therefore, the Corral de Tierra groundwater levels need to be raised, not just kept from falling further.
8-56	8.10.1 and 8.10.2	Question: If a water quality problem already exists and therefore the affected part of the subbasin is not sustainable as a potable water supply due to that problem (example of arsenic) doesn't SGMA require GSPs to include projects and management actions to remedy the problem in order to achieve sustainability?
8=59	8.10.3.1	Small typo to correct in the first para of this Section: put a comma rather than a period after "Monterey County" and make the word "because" not be capitalized.
8-61	8.10.3.1	Under the "Public water system supply wells regulated by the SWRCB DDW" shouldn't the smaller private systems that are not regulated by DDW, of which there are many in the Corral de Tierra subarea, also be included in the development of the SMCs because of their cumulative impact on the subbasin?
None shown	Figure 8A-9 and 8A-10 in Appendix A	The wells suggested for inclusion in the comment on page 8-21 (MPWMD#FO-9S and MPWMD #FO-9D) should be added to these figures to monitor the effectiveness of the SMCs in the Marina-Ord subarea on preventing seawater intrusion from flowing into the Seaside Subbasin.
None shown	Figure 8A-11 and 8A-12 in Appendix A	The wells suggested for inclusion in the comment on page 8-21 (MPWMD#FO-5S, MPWMD#FO-5D, MPWMD#FO-6S, MPWMD#FO-6D, and Seca Place) should be added to this figure to monitor the effectiveness of the SMCs in the Corral de Tierra subarea on preventing chronic lowering of groundwater levels in the Seaside Subbasin.

Gmail

Emily Gardner <gardnere@svbgsa.org>

Problems with SVBGSA projects

Yahoo Mail <sangjames@yahoo.com> Tue, Jul 20, 2021 at 10:24 AM
Reply-To: Yahoo Mail <sangjames@yahoo.com>
To: [redacted]

Hello All,

Can you forward this email to all sub-basin commitee members and anyone interested in the groundwater sustainability problem? Can you also forward this letter to Landwatch and George Fontes of Salinas Valley Water Coalition?

The problem with the SVBGSA plans is that they are a solution for the sustainability of the entire basin and not for the individual wells. Sustainability means that the goal is make sure that the amount of water being pumped out of the ground is equal or less than the amount of water entering the groundwater in each individual sub basin. But the focus of the plans should be to increase the levels of each farmers well water level, because the minimum threshold and the measurable objective of each well is what will determine whether the SVBGSA or the County of Monterey will determine if they need to take action to close the wells that may be running dry. Even if the SVBGSA meets it's goals of sustainability for the sub-basin, individual wells may be running dry. So the goal should be to raise the well water levels for each well, not to just reach sustainability for each sub-basin.

For example in the Eastside sub-basin, a plan for managed aquifer recharge on individual land owners and a plan for flood plain soaking from the creeks are being planned, but even if this happens, this plan may not have an effect on wells that are a distance away. That means that the well water may not be replenished because the source of infiltrating water will not reach the well water source. Two other plans for groundwater recharge are a diversion at Chualar at a cost of $56,000,000.00 and a diversion at Soledad at a cost of $105,000,000.00. These will divert excess stream water . The problem with these two plans are that they do not have a way to connect this water with the individual wells. They will probably direct the water to a basin, which will connect to an aquifer and not to any particular well. This diversion of water will fill a large area of groundwater but not all wells. You have to realize that each well is at a different area and connected to different water sources. You can determine this because each well has a different minimum threshold and measurable objective. For example monitoring well (14S/03E-06R01) has a MT of -29.7 and a MO of -24.9, while monitoring well {14S/03E-25C02} has a MT of -65.4 and a MO of -42.2. This means that each well has a different water source and cannot probably be replenish by delivering water from a far away infiltrating water basin. The other problem with these diversion plans are that they are dependent on excess stream water before there is allowed any diversion. If there is no excess water, there is no water being redirected! There are two other plans Eastside irrigation Water Supply Project at a cost of ($140,000,000.00) and a Surface Water Diversion from Gabilan Creek at a cost of ($10,000,000.00). Both have the same problem of delivering to the individual well. In the foreseeable drought that we have, I do not see these as reliable sources of water!

The Eastside Sub-basin is the most overdrawn of all the sub-basins. I presented a plan which I believe will solve the delivery of water and the supply of water to the wells at a greatly reduced cost. My plan involves the harvesting of rainwater during the rainy season of Monterey County during the wettest months of December, January and February. The rainy season of Monterey County involves the 5 months of November to March. Our rainfall varies between 5 inches to 30 inches per year. On an average we should be able to get 12 inches per year. In the Eastside Sub-basin their are 34,000 irrigated acres. The sub-basin is short about 10,000 to 20,000 acre feet of water per year. During wet season, when the farmers are not planting crops, they can subsoil plow their land to a depth of 24 to 36 inches. This will have the effect of capturing all the rainfall and prevent the precipitation from evaporating. The deeper the depth of plowing, the less evaporation. It is also important to subsoil plow close to their well, so that there is a better chance of this plowing to refill their well water. So if the farmer will subsoil plow at least 60 percent of their land during the wet season of December to February. They will capture enough rainfall to fill that 20,000 acre feet deficit for the basin. After the wet season is over, the farmer can plow his land normally and use it as he wishes. This strategy should work for any farmland whether you are in the Salinas Valley or the Central Valley. You may want to incentivize this in order to encourage the grower to do this strategy. In the Pajaro Valley, the growers are paid for the collection of rainwater by infiltrating basins. This plan will prevent fallowing of farm land, prevent the buying of farmland, prevent the reduction of economic activity and the lay off of farm workers! I hope this plan is accepted! [ref. You Tube video "Deep Soil Ripping for Water Conservation" by Megan Clayton]

The advantages of subsoil plowing to a depth of at least 24 inches in order to capture rainwater will achieve these goals: It will deliver water close to the individual wells in order to raise well water levels. It will be a yearly constant supply of water. It is cheaper than spending over $500,000,000.00 for all the plans presented to all of the sub-basins. It will incentivize the farmer to subsoil, if Monterey County or SVBGSA will reimburse him for the subsoiling. It may substantially raise the water aquifer levels and groundwater levels. Even all unirrigated lands may also be subsoiled in order to raise aquifer levels.

I want to address another issue. Land Watch presented a plan to stop the drilling of new wells in the deep aquifers. The Advisory Committee voted no and decided to do some more studies. George Fontes who represents the Salinas Valley Water Coalition, a group of growers of 80,000 acres in the Salinas Valley does not want this. I want to present a compromise . I think that we can allow them to drill new wells, but they have to agree to harvesting the rainwater at the method , that I suggested for The Eastside sub-basin. This will help replenish any water that will be pumped out of the deep aquifers.

Thanks to all for reading this!

James Sang sangjames@yahoo.com

Draft Chapter 8 – Supplemental Comments from Seaside Basin Watermaster 7-30-21

These are comments provided by the Watermaster's hydrogeologic consultant, Montgomery & Associates. They supplement the Watermaster's comments dated 7-13-21.

Page	**Section**	**Comment**
None shown	Figure 8-6	The Robley wells are the ones to focus on to understand what would happen in the Seaside Basin than the wells on Figure 8-6 that are much farther away from the Seaside Basin. The minimum threshold for the Robley wells are just above record lows in 2020 on the hydrographs (levels this year are undoubtedly going to be even lower!). The GSA has 20 years to get levels at or above the minimum threshold, so levels can still fall lower than they are now between now and 2042.
8- 33 and 8-39	Figures 8-9 and 8-10	We don't find the contours on Figures 8-10 and 8-11 very useful because we don't have contours generated the same way for the Seaside Basin (i.e., based on an assumed future condition). The flow direction from the contours is similar to current conditions (see Chapter 5, Figures 5-9 and 5-10) so there is no expected change in flow directions to what has happened in the past. What I found more informative was Figure 8-6 which shows historical hydrographs for the Robley wells together with minimum threshold (elevation that they should not really be going below) and the measurable objective (elevation where they would like to be). Note that the measurable objective is not enforceable but the minimum threshold is.
8-41	Figure 8-12	The example well in Figure 8-12 shows a continuing drop in groundwater levels, with levels only increasing to measurable objectives after 2030 when project benefits are projected to kick in.
8-43 and 8-44	Table 8-3	Table 8-3 provides interim milestone every five years to show how they project levels will eventually meet measurable objectives. This all indicates that groundwater levels in the Laguna Seca subarea will continue to fall for at least the next 10 years.
8-35 and 8-36	8.7.3.5	Effect of Minimum Thresholds on Neighboring Basins and Subbasins is an important section to look at – I do not feel they have adequately addressed effects on the Seaside Basin from the minimum thresholds. They do not mention the ongoing declines in the Laguna Seca subarea and what the minimum thresholds will do for that nor the impacts that will occur when levels are allowed to fall lower than the minimum threshold over the next 10 years. There is only one sentence addressing Seaside Basin and it reads "The Seaside Subbasin is an adjudicated basin and not subject to SGMA. The subbasin GSAs have and will continue to coordinate closely with the Seaside Watermaster to ensure that the Monterey Subbasin minimum thresholds do not prevent the Seaside basin from meeting its adjudication requirements."
N/A	N/A	There is still the ongoing issue in the Coral de Tierra subarea of poor pumping records. This means they still don't understand exactly what is causing the ongoing declines. Derrik mentioned that they are talking about expanding the County groundwater extraction monitoring (GEMS) into the Corral de Tierra subarea, but that section of the GSP has not been posted yet (probably Chapter 10).

Draft Chapter 8 – Supplemental Comments from Seaside Basin Watermaster 7-30-21

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Salinas Valley Water Coalition

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TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Board of Directors

12 August, 2021

Dear Board Members;

This letter is submitted on behalf of the Salinas Valley Water Coalition ("Coalition") and is in response to preliminary comments to the Groundwater Sustainability Plans ("GSPs") for the Eastside, Forebay, Langley, Monterey and Upper Valley Subbasins made by members of the public. Said public comments suggest an immediate implementation of the 180/400 Foot Aquifer GSP specific to the proposed Integrated Plan. Should the Salinas Valley Basin Groundwater Sustainability Agency ("SVBGSA") elect to begin implementation of the 180/400 Foot Aquifer GSP, shouldn't the SVBGSA implement *all* of the management actions proposed therein? This recommendation is particularly in light of the existing legal question on whether continuing to pump from sea-water intruded, overdrafted areas is considered reasonable and beneficial use of water.

As to the proposed Integrated Plan, the Coalition has previously stated, and is now again stating, that the SVBGSA does not have the proper tools to develop that plan. The Salinas Valley Integrated Hydrologic Model ("SVIHM") is not only provisional and not available for public vetting, but it has significant calibration issues causing it to be unreliable. Thus, the modeling performed using the SVIHM is not "sufficient to calibrate and reduce [its] uncertainty" (23 CCR §354.18) and is not likely to be properly calibrated for public vetting before these GSPs are due to the Department of Water Resources and thus, cannot be relied upon to make any decision, including taking any regulatory action or for developing the Integrated Plan.

That is, because the results from the SVIHM are provisional and uncertain and are subject to change in future GSP updates after the SVIHM is released by the USGS and unless and until (1) the SVIHM has been made publicly available and publicly vetted; (2) its inputs reflect the current operations of the reservoirs, including the operations of the Salinas Valley Water Project as reflected in its Engineer's Report and the MCWRA water right permits and other water rights; and (3) its calibration results meet industry standard of five percent (5%) to ten percent (10%), the model results cannot be used as basis to develop the Integrated Plan or to determine the flows between subbasins within the Salinas Valley Groundwater Basin because the results are only orders of magnitude approximates and not best available science.

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

That said, these subbasins have been the subject of many decades of studies and these studies are considered the best available science for reliance by the SVBGSA for inclusion in the GSPs. These studies include the 1988 USGS Water-Resources Investigation Report 87-4066, Simulated Effects of Ground-Water Management Alternatives for the Salinas Valley, California; and the Brown-Caldwell's State of the Salinas River Groundwater Basin Report, dated January 16, 2015. The executive summary of the Brown Caldwell Report and a USGS abstract summary are included as Exhibits A, Exhibit B respectively and the entire reports are included herein by reference and can be found at the following links: **https://www.co.monterey.ca.us/home/showpublisheddocument/61920/636547362391570000** and **https://doi.org/10.3133/wri874066** . Both studies placed "a specific focus on the effect of pumping changes on seawater intrusion" and found that "seawater intrusion could be cut by more than half (from about 18,000 to 8,000 afy) over a 20 year period by decreasing pumping in the Pressure and East Side Subareas by 30%; whereas reducing pumping the Forebay and Upper Valley Subareas had *minimal to no effect on seawater intrusion."* (Emphasis added.) The best available science concludes minimal impacts by Forebay and Upper Valley subbasins on seawater intrusion in the northern subbasin, which must be relied upon by the SVBGSA.

Finally, the Coalition has supported, and continues to support, projects to address the sea water intrusion and overdraft facing the northern subbasins. The Coalition has offered several solutions including using the Monterey County Water Resources Agency ("MCWRA") 11043 permit to develop excess surface water for the Pressure and East Side Subareas. The Coalition also supports the consideration of an extraction barrier in the Pressure Area that could provide an alternate water supply not only to agriculture but also to the urban areas in that subarea. Developing and implementing management actions and a project or projects should be the primary focus rather than more modeling using a known erroneous model that does not fall within SGMA standards.

Thank you for your consideration of the foregoing comments.

Sincerely,

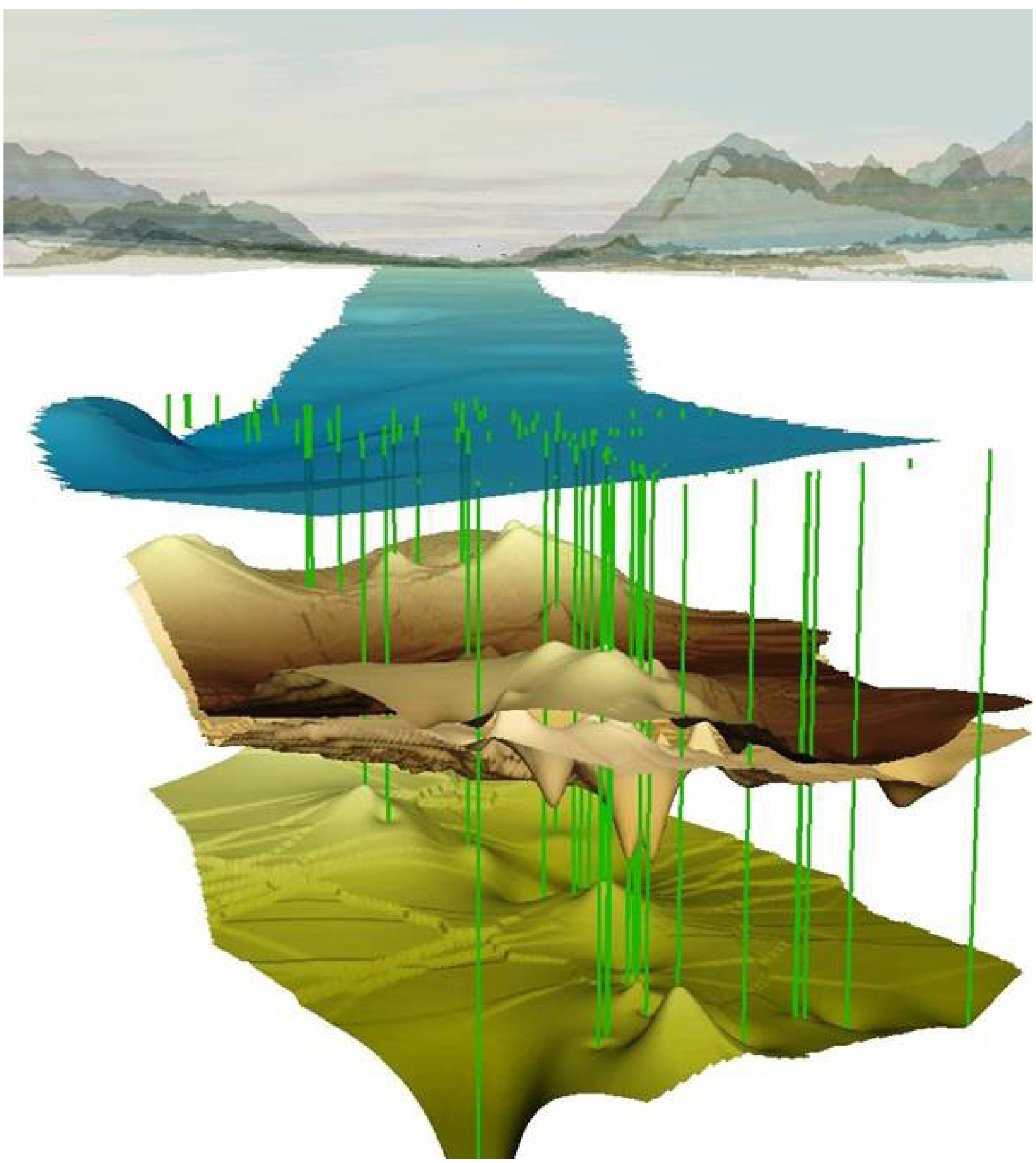
Nancy Isakson, President
Keith Roberts, Chair
Roger Moitoso, Vice- Chair
Rodney Braga, Director
Lawrence Hinkle, Director
Bill Lipe, Director
David Gill, Director
Steve McIntyre, Director
Brad Rice, Director
Jerry Rava, Director
Grant Cremers, Director
Allan Panziera, Director
Michael Griva, Past-Chair

EXHIBIT ‘A’

Prepared for Monterey County Resource Management Agency
Salinias, CA

State of the Salinas River Groundwater Basin

January 16, 2015



FINAL

State of the Salinas River Groundwater Basin

Prepared for

Monterey County Resource Management Agency

Salinas, CA

January 26, 2015

FINAL

State of the Salinas River Groundwater Basin

Prepared for

Monterey County Resource Management Agency
Carl P. Holm, AICP
Interim Director
168 W. Alisal, 2nd Floor
Salinas, CA 93901

January 26, 2015

Prepared by:

Matthew Baillie, Brown and Caldwell
Principal Hydrogeologist, California P.G.# 8811, C.H.G.#977

Les Chau, Brown and Caldwell
Project Manager, Geologist

Geologist of Record

PROFESSIONAL GEOLOGIST
JOSEPH TURNER
NO. 5125
EXPIRES 10/31/15
STATE OF CALIFORNIA

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List of Abbreviations

af	acre-feet
afy	acre-feet per year
BC	Brown and Caldwell
Cl	chloride
CSIP	Castroville Seawater Intrusion Project
DWR	California Department of Water Resources
ft/yr	feet per year
gpm	gallons per minute
MCWRA	Monterey County Water Resources Agency
mg/L	milligrams per liter
MSL	mean sea level
MTBE	Methyl Tertiary Butyl Ether
Na	sodium
P-180	Pressure 180-Foot
P-400	Pressure 400-Foot
PERC	perchlorate
SRDF	Salinas River Diversion Facility
SVA	Salinas Valley Aquitard
SVIGSM	Salinas Valley Integrated Groundwater Surface Water Model
SVWP	Salinas Valley Water Project
SWI	seawater intrusion
TCE	trichloroethylene
TDS	total dissolved solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	volatile organic compound

Executive Summary

An examination of the state of the Salinas River Groundwater Basin (Basin) was conducted by Brown and Caldwell in the last half of 2014 as part of the larger Basin Investigation requested by the County of Monterey. This State of the Basin Report addresses the ramifications of prolonged drought by considering likely changes in groundwater head elevations, groundwater storage, and seawater intrusion in the event that the current drought continues. In addition, some steps are presented that could be taken to help alleviate the consequences of further depleting groundwater storage.

This study was conducted for Monterey County under County Professional Agreement 14-714, dated 1 July 2014, in response to the Monterey County Board of Supervisors Referral No. 2014.01. The work was carried out with oversight provided by the Monterey County Water Resources Agency (MCWRA).

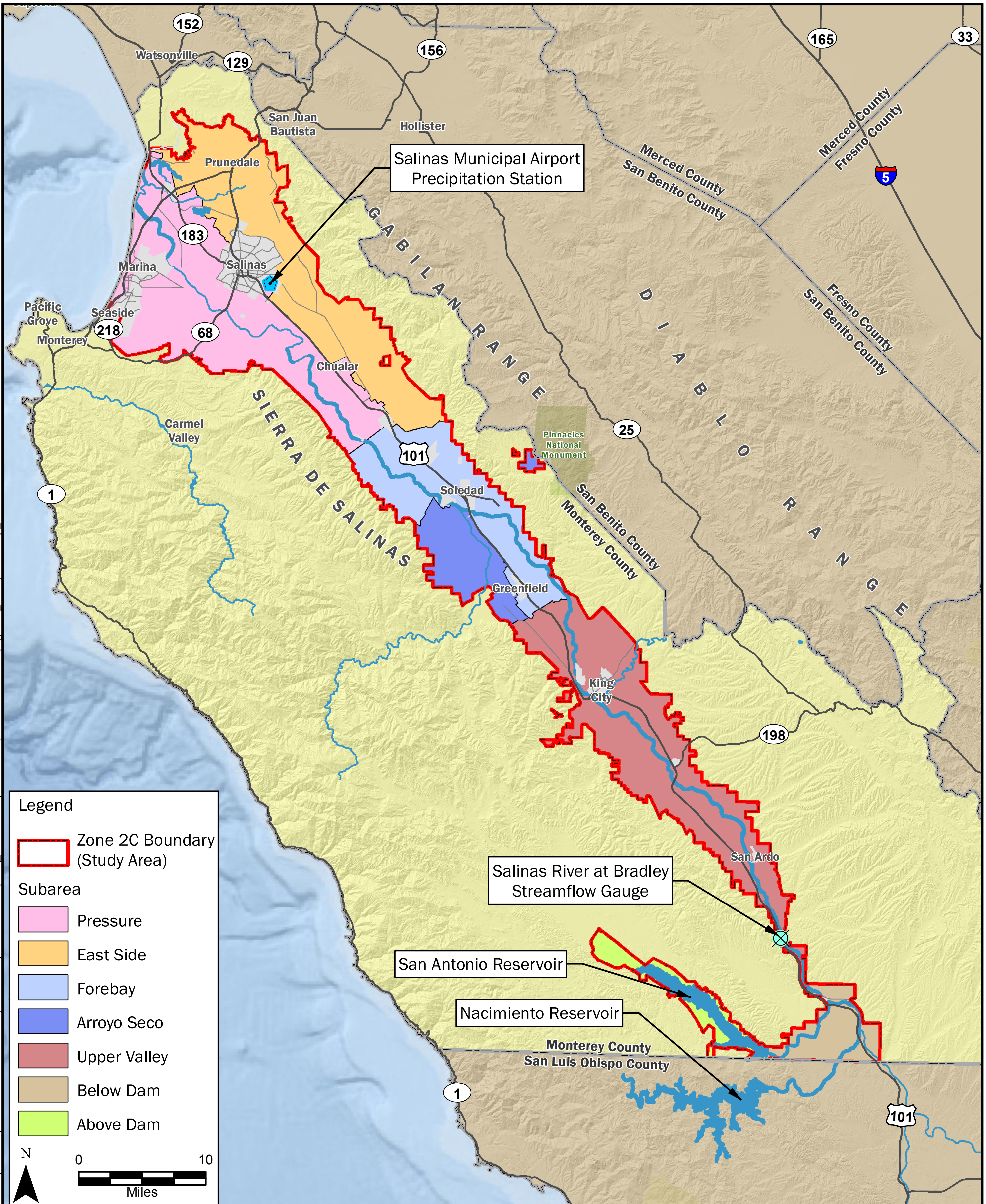
Study Area

The study area for this report is MCWRA Benefit Zone 2C (Zone 2C), which largely straddles the Salinas River within Monterey County (Figure ES-1). Zone 2C consists of 7 subareas named as follows: Above Dam, Below Dam, Upper Valley, Arroyo Seco, Forebay, East Side, and Pressure. The analyses detailed in this report cover the four primary water-producing subareas, the Pressure, East Side, Forebay (including the Arroyo Seco), and Upper Valley Subareas. These four subareas include most of the land area and account for nearly all of the reported groundwater usage within Zone 2C.

The Salinas River Groundwater Basin is the largest coastal groundwater basin in Central California. It lies within the southern Coast Ranges between the San Joaquin Valley and the Pacific Ocean, and is drained by the Salinas River. The valley extends approximately 150 miles from the La Panza Range north-northwest to its mouth at Monterey Bay, draining approximately 5,000 square miles in Monterey and San Luis Obispo Counties. The valley is bounded on the west by the Santa Lucia Range and Sierra de Salinas and on the east by the Gabilan and Diablo Ranges. The Monterey Bay acts as the northwestern boundary of the Basin.

The Salinas Valley has a Mediterranean climate. Summers are generally mild, and winters are cool. Precipitation is almost entirely rain, with approximately 90 percent falling during the six-month period from November to April. Rainfall is highest on the Santa Lucia Range (ranging from 30 to 60 inches per year) and lowest on the valley floor (about 14 inches per year). Very dry years are common and droughts can extend over several years, such as the eight-year drought of Water Years (WY) 1984 to 1991.

Major land uses in the Salinas Valley include agriculture, rangeland, forest, and urban development. Mixed forest and chaparral shrub cover the mountain upland areas surrounding the valley, while the rolling hills are covered with coastal scrub and rangeland. Agricultural and urban land uses are predominant on the valley floor.



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DATE	PROJECT	SITE
01/16/15	146430	**Salinas River Groundwater Basin Investigation**

Brown AND Caldwell

TITLE

Study Area Map

Figure ES-1

Historically, irrigated agriculture began with surface water diversions in 1773 on Mission Creek, and diversions from the Salinas River were first recorded in 1797. Groundwater pumping began as early as 1890, and expanded greatly through about 1920 as enabled by several developments such as widespread electrical lines, the development of better well pumps, and the replacement of grain crops with vegetable crops. Groundwater is currently the source of nearly all agricultural and municipal water demands in the Salinas Valley, and agricultural use represents approximately 90 percent of all water used in the Basin. In addition to groundwater, other sources of water for agricultural production include surface water diverted from the Arroyo Seco, recycled municipal waste water supplied by the Monterey County Water Recycling Projects, and surface water diverted from the Salinas River north of Marina as part of the Salinas Valley Water Project.

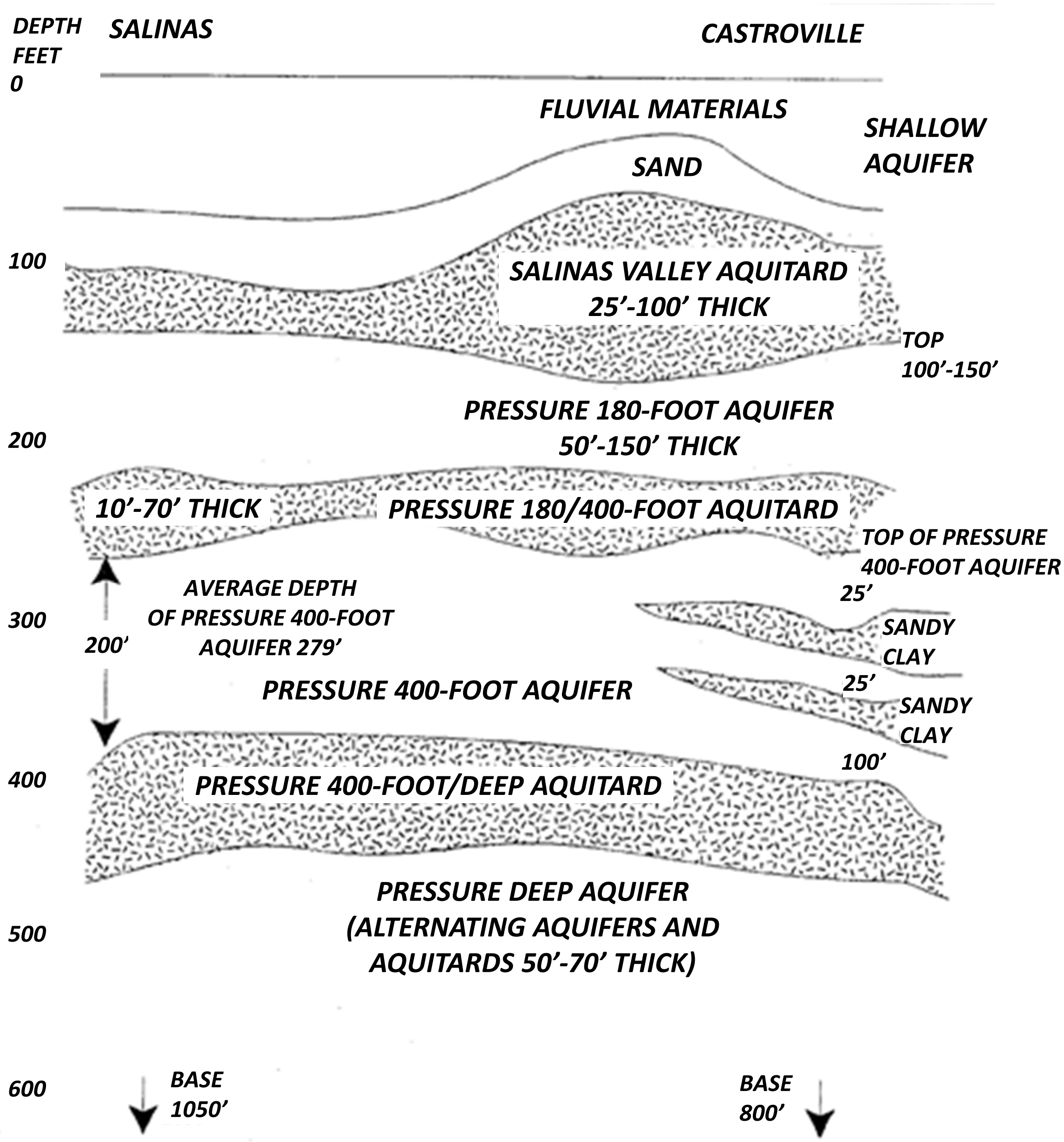
By 1944, groundwater pumping in the entire valley was estimated at about 350,000 acre-feet per year (afy), with about 30 percent of the pumping occurring within the Pressure Subarea, 10 percent in the East Side Subarea, 35 percent in the Forebay Subarea, and 25 percent in the Upper Valley Subarea. Groundwater use in the Salinas Valley peaked in the early 1970’s and then started declining, due primarily to changes in crop patterns, continued improvements in irrigation efficiency, and some conversion of agricultural lands to urban land uses.

Seawater intrusion was detected in coastal wells as early as the 1930’s, resulting from declining groundwater head elevations in the Pressure and East Side Subareas. Seawater intrusion has continued so that it now reaches as far as 8 miles inland within the Pressure Subarea. The declining head and intruding seawater helped lead to the construction of the Nacimiento and San Antonio Dams (releases beginning in 1957 and 1965, respectively), which are used for flood control, maintenance of groundwater head elevations, multi-year storage, and recreation. Today, as urbanization increases in the valley, alternative sources of urban water supplies and relocation of groundwater pumping are being evaluated and implemented by the Marina Coast Water District and various communities in the northern Salinas Valley.

Hydrogeology

The Salinas Valley Groundwater Basin is a structural basin (i.e., formed by tectonic processes) consisting of up to 10,000 to 15,000 feet of terrigenous and marine sediments overlying a basement of crystalline bedrock. The sediments are a combination of gravels, sands, silts, and clays that are organized into sequences of relatively coarse-grained and fine-grained materials. When layers within these sequences are spatially extensive and continuous, they form aquifers, which are relatively coarse-grained and are able to transmit significant quantities of groundwater to wells, and aquitards, which are relatively fine-grained and act to slow the movement of groundwater. Figure ES-2 is a generalized schematic cross-section across the Pressure Subarea illustrating its general hydrostratigraphy.

Groundwater flow in the Basin is generally down the valley, from the southern end of the Upper Valley Subarea toward Monterey Bay, up to about Chualar (Figure ES-3). North of Chualar, groundwater flows in a north to east direction toward a trough of depressed groundwater head on the northeastern side of Salinas. This trough is especially pronounced in August, the approximate time of the seasonal peak groundwater pumping.



Modified from Hall and Earthware of California, 1992.

Brown AND Caldwell	DATE 01/16/15	SITE Salinas River Groundwater Basin Investigation	Figure ES-2
	PROJECT 146430	TITLE Conceptual Hydrostratigraphic Section in the Pressure Subarea	

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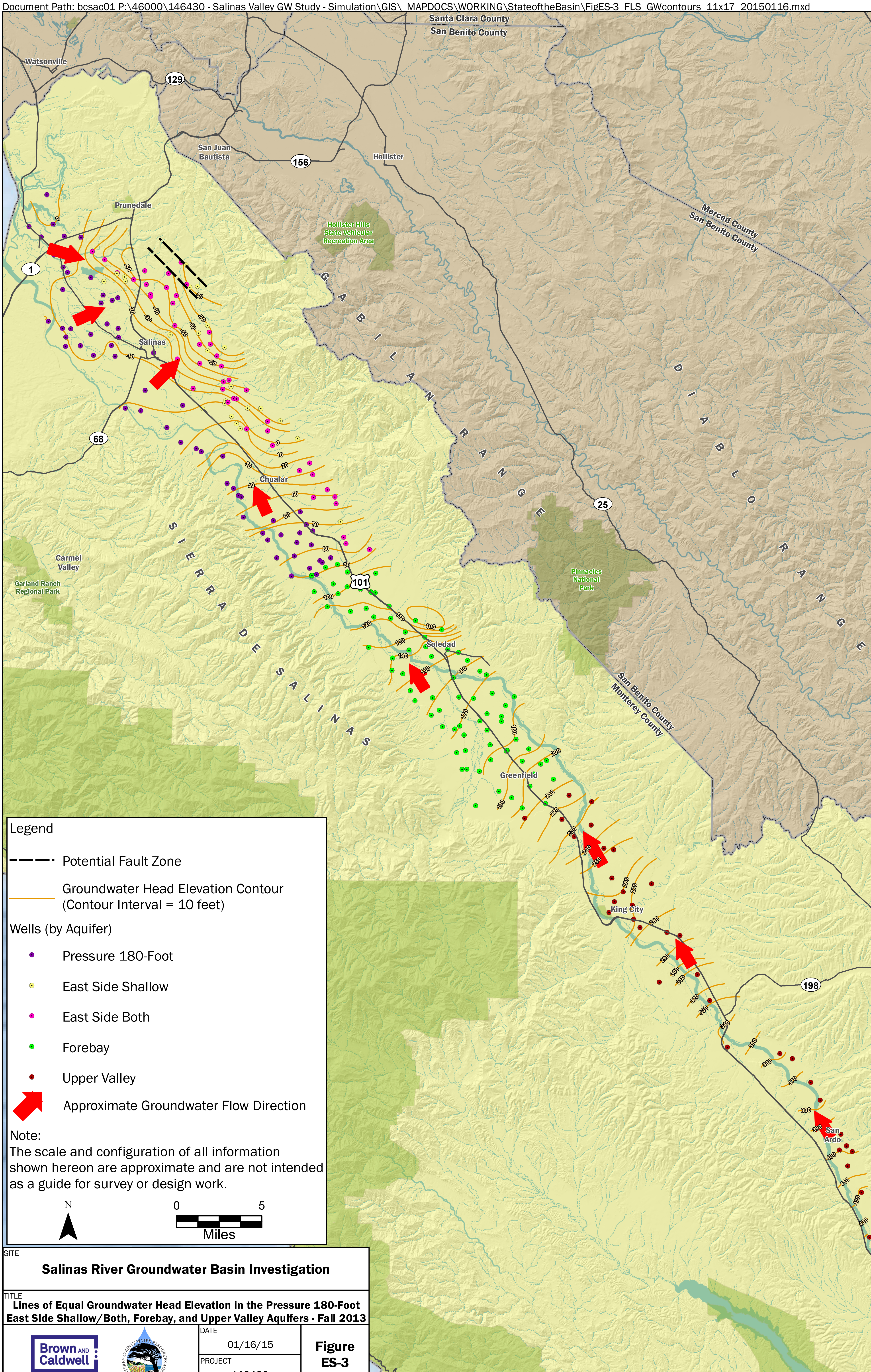

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Salinas River Groundwater Basin Investigation

TITLE

Lines of Equal Groundwater Head Elevation in the Pressure 180-Foot East Side Shallow/Both, Forebay, and Upper Valley Aquifers - Fall 2013

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PROJECT 146430

Figure ES-3

Water Balance

A water balance is a quantitative accounting of the various components of flow entering and leaving a groundwater system. Typical outflows include evapotranspiration, surface runoff that leaves the system, groundwater pumping, and groundwater outflow to a neighboring groundwater system. Typical inflows include recharge from infiltration of precipitation, releases from reservoirs (which receive runoff from precipitation), recharge from leaky aquitards, and groundwater inflow. The difference between inflows and outflows represents the change in groundwater storage. Because precipitation constitutes the major input of water to the Basin, rainfall records from the Salinas Municipal Airport gauge from 1873 to the present were analyzed. Based on the mean precipitation of 13.4 inches and standard deviation of 4.8 inches, each year's precipitation total was assigned to one of seven, "wetness levels," as follows: Extremely Dry, Very Dry, Dry, Normal, Wet, Very Wet, or Extremely Wet. In general, dry years are more common than wet years, but Extremely Dry years are less common than Extremely Wet years. The drought period from WY 1984 to 1991 included three Very Dry years, four Dry years, and one Normal year; this period was used in this study as a comparative period for predicting future changes in groundwater head and storage. Based on provisional data, the WY 2014 precipitation of about 5.9 inches represents a Very Dry year and the third-driest water year on record. The current drought of WY 2012 to 2014 includes two Dry years and one Very Dry year; over this three-year period, the total rainfall was about 15 inches below the period of record average.

This study emphasizes the importance of cumulative precipitation surplus, which quantifies precipitation on timescales longer than a year to examine the impacts of multi-year dry and wet periods. The cumulative precipitation surplus reached a high of about 41 inches at the end of WY 1958, and declined to zero by the end of WY 2013. During the extended drought from WY 1984 to 1991, the cumulative precipitation surplus declined by about 36 inches, an average of about 4.5 inches per year. The major declines in cumulative precipitation surplus had and continue to have negative effects on groundwater storage in Basin aquifers (see Storage Change discussion below). Figure ES-4 shows a time series of annual and cumulative precipitation surplus.

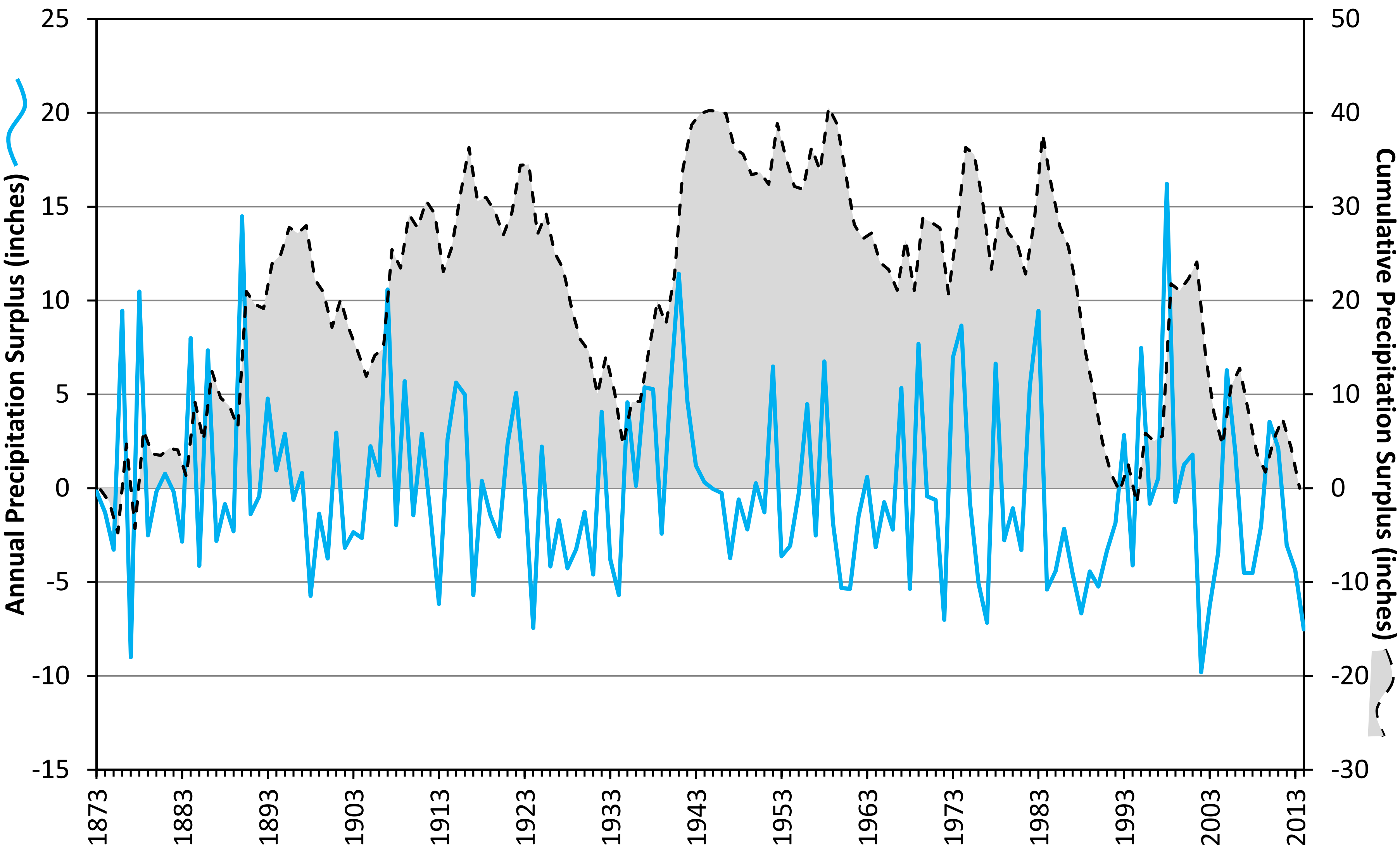
Inflows

Out of an estimated total of about 504,000 afy of inflow to the Basin, about 50 percent occurs as stream recharge, 44 percent occurs as deep percolation from agricultural return flows and precipitation, and 6 percent occurs as subsurface inflow from adjacent groundwater basins (MW, 1998). Table ES-1 summarizes the inflow components of the water budget, as reported by MW (1998).

Table ES-1. Water Budget Components by Subarea

Subarea	Average of WY 1958-1994 (from MW, 1998)				2013 Groundwater Pumping (reported by MCWRA)[c]
	Inflow		Outflow		
	Natural Recharge[a]	Subsurface Inflow	Groundwater Pumping[b]	Subsurface Outflow	
Pressure	117,000	17,000	130,000	8,000	118,000
East Side	41,000	17,000	86,000	0	98,000
Forebay	154,000	31,000	160,000	20,000	148,000
Upper Valley	165,000	7,000	153,000	17,000	145,000

Note: All estimates in acre-feet per year (afy).
[a] *Includes agricultural return flow, stream recharge, and precipitation.*
[b] *Groundwater pumping as reported by MW (1998) is presented to provide a complete water budget.*
[c] *The 2013 groundwater pumping totals are provided for comparison.*



Note: The annual precipitation surplus represents the difference between the annual precipitation and the long-term mean.

Brown AND Caldwell	DATE 01/16/15	SITE Salinas River Groundwater Basin Investigation	Figure ES-4
	PROJECT 146430	TITLE Annual and Cumulative Precipitation Surplus at Salinas Municipal Airport	

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Within the Pressure Subarea, inflow is largely made up of subsurface inflow from the Forebay Subarea; prior to development, additional subsurface inflow occurred from the East Side Subarea, but this flow had been reversed by declining groundwater head elevations in the East Side Subarea. An additional inflow to the Pressure Subarea is seawater intrusion, which could account for between about 11,000 and 18,000 afy.

Inflow to the East Side Subarea is made up of a combination of infiltration along the small streams on the west side of the Gabilan Range, direct recharge of precipitation on the valley floor, and subsurface inflow from the Pressure and Forebay Subareas.

Inflow to the Forebay Subarea is made up of infiltration along Arroyo Seco, Reliz Creek, and the Salinas River as well as agricultural return flow, direct recharge of precipitation on the valley floor, subsurface inflow from the Upper Valley Subarea, and mountain front recharge along the eastern and western Subarea boundaries.

Inflow to the Upper Valley Subarea is made up of infiltration along the Salinas River and its tributaries, with lesser amounts entering the subarea via direct recharge of precipitation on the valley floor and agricultural return flow, plus minor quantities entering via subsurface inflow from the Panch Rico Formation to the east and along drainages tributary to the Salinas River.

Outflows

Groundwater pumping is, by far, the largest component of outflow from the Basin. Of an estimated total of 555,000 afy of outflow, about 90 percent is groundwater pumping, with the remainder occurring as evapotranspiration along riparian corridors (Ferriz, 2001). Table ES-1 summarizes the outflow components of the water budget, as reported by MW (1998).

In general, groundwater pumping in the study area increased over the first 14 years of the available period of record (1949 to 2013), from about 380,000 afy in 1949 to about 620,000 afy in 1962, the highest pumping year on record. Pumping began to decline after about 1972, when pumping was about 530,000 afy, and fell to about 430,000 afy by 1982 before averaging about 500,000 afy over the rest of the period of record. Reported pumping for 2013 totaled about 509,000, acre-feet (af).

While annual pumping totals were relatively steady in the Pressure and East Side Subareas after about 1962, pumping in the Forebay and Upper Valley Subareas continued to increase until the early 1970's, then decreased slightly through the mid-1980's. On average, from 1949 to 2013, about 25 percent of basinwide pumping occurred in the Pressure Subarea, 17 percent in the East Side Subarea, 30 percent in the Forebay Subarea, and 28 percent in the Upper Valley Subarea.

Within the Pressure Subarea, outflow occurs as a combination of groundwater pumping and subsurface outflow to the East Side Subarea. In the East Side Subarea, outflow is made up entirely of groundwater pumping, since the reversal of the groundwater head gradient curtailed the natural subsurface outflow to the Pressure Subarea. In the Forebay Subarea, outflow is dominated by groundwater pumping, with a small amount of subsurface outflow to the Pressure and East Side Subareas. Outflow from the Upper Valley Subarea is largely made up of groundwater pumping, with a small amount of subsurface outflow to the Forebay Subarea.

Groundwater Storage

Estimated Basin groundwater storage is summarized in Table ES-2. The reported total stored volume of groundwater in the Basin is about 16.4 million af, and the reported aquifer storage capacity is approximately 19.8 million af (DWR, 2003). These values suggest that there is an unfilled storage capacity of about 3.3 million af.

Storage Change

The estimation of groundwater storage changes in the Basin calculated for this project is a measure of aquifer response to the natural hydrologic cycle (e.g. precipitation) and human-induced effects (e.g. pumping). The analysis of storage change was accomplished by considering subarea-averaged annual groundwater head elevation changes reported by MCWRA from 1944 to 2013. The accuracy of this analysis relies directly on the accuracy of the estimates of head change and of the values of storage coefficient and land area used. For this analysis, the storage coefficients reported by DWR (2003) were used[1]. Figure ES-5 shows a time series of calculated storage change for the Basin, color-coded by subarea. When compared with Figure ES-4, it is clear that there is a strong correlation between the pattern of the cumulative precipitation surplus and that of storage change. The storage change analysis included a statistical comparison between subarea storage change and annual precipitation surplus, reservoir releases, streamflow (at the Salinas River gauge near Bradley), and groundwater pumping. In all four subareas, annual storage change was correlated most strongly to annual precipitation surplus. The results of the storage change analysis are summarized in Table ES-3.

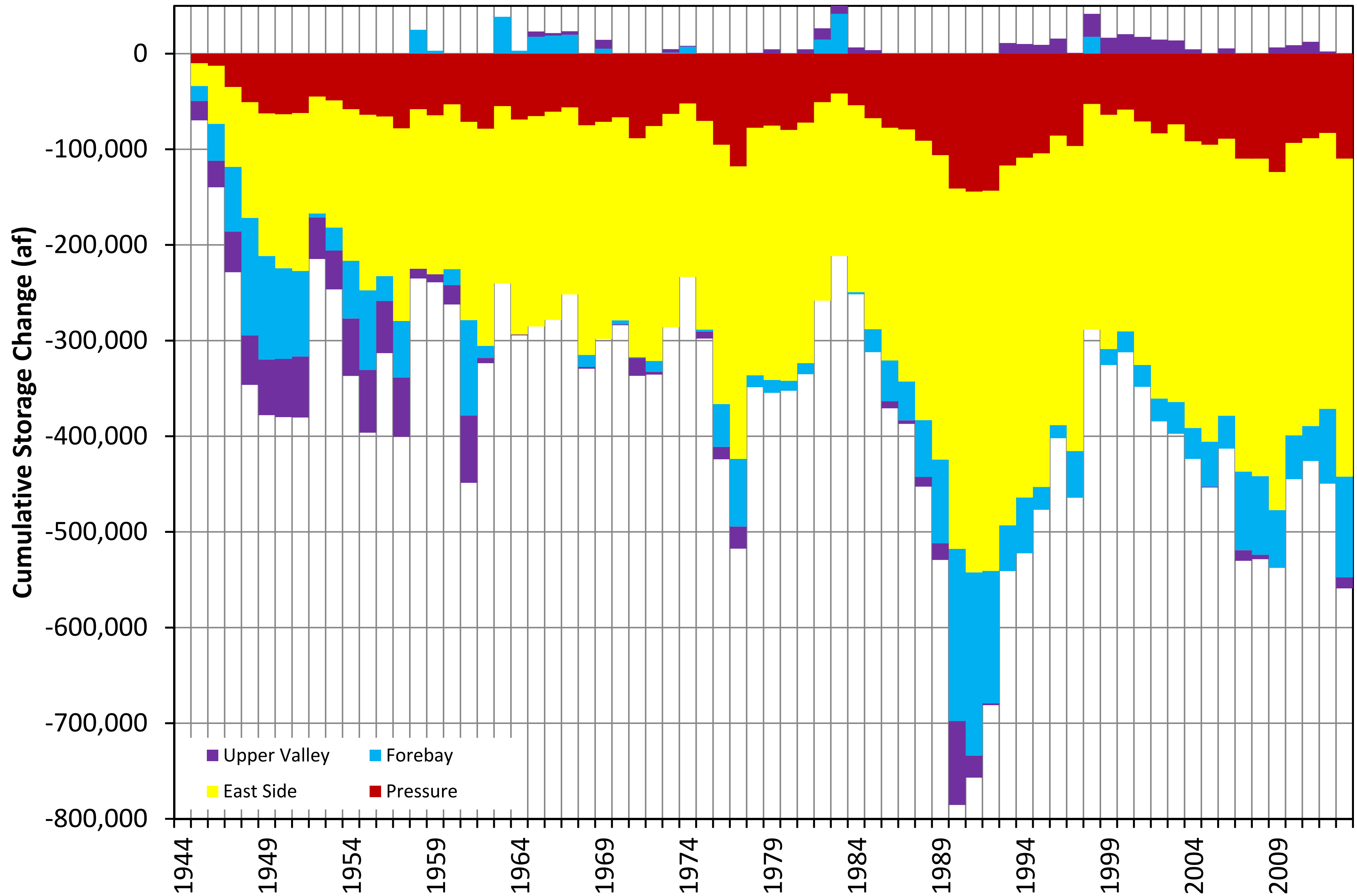
Table ES-2. Groundwater Storage

Subarea	Storage Coefficient (ft^3/ft^3)[a]	Land Area (acres)[b]	Storage Capacity (acre-feet)[a]	Groundwater in Storage (acre-feet)[a]	Available Storage (acre-feet)
Pressure	0.036	126,000	7,240,000	6,860,000	380,000
East Side	0.08	75,000	3,690,000	2,560,000	1,130,000
Forebay	0.12	87,000	5,720,000	4,530,000	1,190,000
Upper Valley	0.10	92,000	3,100,000	2,460,000	640,000
Total	--	380,000	19,750,000	16,410,000	3,340,000

[a] *From DWR (2003).*

[b] *From the Salinas Valley Integrated Ground and Surface Water Model (SVIGSM).*

1 The storage calculation presented in this Executive Summary is based on the storage coefficients published in DWR (2003). In the main body of the Report, the storage calculation is based on the DWR (2003) data and an additional and smaller storage coefficient that could be representative of the confined portions of the Pressure Subarea aquifer system.



Brown AND Caldwell	DATE 01/16/15	SITE Salinas River Groundwater Basin Investigation	Figure ES-5
	PROJECT 146430	TITLE Cumulative Storage Change by Subarea	

Table ES-3. Calculated Storage1 Change by Subarea, 1944 to 2013						
Subarea	Minimum Annual (af)	Maximum Annual (af)	Annual Average (afy)	Minimum Cumulative (af)	2013 Cumulative (af)	Predicted Change If Drought Continues (afy)
Pressure	-35,000	+44,000	-2,000	-144,000 (1991)	-110,000	-10,000 to -20,000
East Side	-58,000	+83,000	-5,000	-398,000 (1991)	-333,000	-25,000 to -35,000
Forebay[a]	-93,000	+98,000	-2,000	-192,000 (1991)	-105,000	-10,000 to -15,000
Forebay[a]	-93,000	+98,000	-2,000	-192,000 (1991)	-105,000	-80,000 to -90,000
Upper Valley[a]	-70,000	+65,000	-200	-88,000 (1990)	-12,000	-5,000 to -15,000
Upper Valley[b]	-70,000	+65,000	-200	-88,000 (1990)	-12,000	-50,000 to -70,000
Zone 2C[a]	-256,000	+217,000	-8,000	-786,000 (1990)	-559,000	-50,000 to -85,000
Zone 2C[b]	-256,000	+217,000	-8,000	-786,000 (1990)	-559,000	-165,000 to -215,000

Note: af = acre-feet; afy = acre-feet per year

[a] Based on calculated storage changes over the extended drought of WY 1984 to 1991

[b] Based on calculated storage changes for years with very low reservoir release (WYs 1961 and 1990)

Pressure Subarea

Using the storage coefficient value of 0.036, as reported by DWR (2003), calculated storage change in the Pressure Subarea from 1944 to 2013 was about -110,000 af, averaging about -2,000 afy. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the Pressure Subarea could be expected to decline by about 10,000 to 20,000 afy under continued dry conditions.

East Side Subarea

Calculated storage change in the East Side Subarea from 1944 to 2013 was about -333,000 af, averaging about -5,000 afy. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the East Side Subarea could be expected to decline by about 25,000 to 35,000 afy under continued dry conditions.

Forebay Subarea

Calculated storage change in the Forebay Subarea from 1944 to 2013 was about -105,000 af, averaging about -2,000 afy. The pattern of storage change in the Forebay Subarea is quite dissimilar to that in the Pressure and East Side Subareas, being much closer to zero storage change over much of the period of record and appearing to be strongly affected by years of very low reservoir releases, which lead to very large storage declines in this Subarea. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the Forebay Subarea could be expected to decline by about 10,000 to 15,000 afy under continued drought conditions. However, if reservoir releases are severely curtailed (as occurred in WYs 1961 and 1990), storage changes may be much greater in magnitude, on the order of 80,000 to 90,000 afy, or about 50 to 60 percent of annual pumping in the Forebay Subarea.

Upper Valley Subarea

Calculated storage change in the Upper Valley Subarea from 1944 to 2013 was about -12,000 af, averaging about -200 afy. The pattern of storage change is similar to that of the Forebay Subarea, with a similar apparent reliance on reservoir releases. Based on storage changes during the extended drought of WY 1984 to 1991, storage in the Upper Valley Subarea could be expected to decline by about 5,000 to 15,000 afy under continued drought conditions. However, if reservoir releases are severely curtailed, storage losses may be much larger, on the order of about 50,000 to 70,000 afy, or about 30 to 50 percent of annual pumping in the Upper Valley Subarea.

Zone 2C

Based on the numbers presented above, calculated storage change from 1944 to 2013 in all of Zone 2C was about -559,000 af, averaging about -8,000 afy. The pattern of storage change follows the pattern of the precipitation surplus, but is also affected by reservoir releases, which typically replenish approximately 35 percent of annual pumping as aquifer recharge. During years of exceptionally low reservoir releases, such as 1991, drought-related aquifer storage depletion is amplified.

Storage under continued dry conditions can be expected to decline by about 50,000 to 85,000 afy, comparable to past dry years. However, if reservoir releases are severely curtailed, as occurred in WYs 1961 and 1990, storage losses could be expected to be much larger, on the order of about 165,000 to 215,000 afy.

Over the period from 1959 to 2013 (the period for which groundwater pumping data are available and the reservoirs have been operating), the average reported annual pumping in Zone 2C was about 523,000 afy. During this same time period, the average annual storage change (calculated using groundwater head changes) was about -6,000 afy. An additional loss of storage due to seawater intrusion has occurred, and has been estimated at between 11,000 and 18,000 afy. This suggests that, overall, Zone 2C is out of groundwater balance by about 17,000 to 24,000 afy. The total calculated storage change over this period (not including seawater intrusion) was about -349,000 af, about 50 percent more than the storage change experienced prior to the beginning of operations of the reservoirs (about -210,000 af from 1944 to 1958), indicating that the reservoirs have greatly slowed storage losses in the Basin. However, the existing storage deficit has continued to grow over the period of record, and must be remedied before the deleterious effects of storage declines, such as seawater intrusion and the drying of wells, can be reversed. In addition, the volume of storage lost due to seawater intrusion must be better quantified.

State of the Basin – Water Supply in Zone 2C

Based on the calculations conducted for this project as discussed above, the Basin is currently out of hydrologic balance by approximately 17,000 to 24,000 afy. However, the estimated volume of groundwater in reserve (i.e. storage) is about 6.8 million acre-feet in the aquifers of the Pressure Subarea (Table ES-2), and the total volume of groundwater stored in Zone 2C is about 16.4 million acre-feet.

The goal of the water supply analyses presented in this report was to provide a postulation of how groundwater supply may change in the future should the current drought conditions continue. This was accomplished by assessing how and why groundwater head elevations and groundwater storage have changed in the past. Independent hydrologic variables (precipitation, groundwater pumping, reservoir releases, and streamflow) were compared with the groundwater head and storage changes to provide insight (or correlations) into which of these factors is driving these changes. Lastly, this study then provides professional opinions on the consequences of using more groundwater than the estimated yield on both the short-term Basin conditions and long-term sustainability.

An analysis of historical groundwater head elevation at a selected set of 25 locations indicated that, overall, groundwater head changes are correlated most strongly to the annual precipitation surplus in the Pressure, East Side, and Forebay Subareas. Head changes in the Upper Valley Subarea are not well-correlated to any independent variable, whereas the storage changes discussed above are statistically correlated to annual precipitation surplus.

Based on statistical correlations and comparison with the extended drought from WY 1984 to WY 1991, representative head changes at the Subarea scale could range from:

- -5.3 to -1.1 feet per year in the Pressure Subarea (for all three aquifers),
- -9.6 to -3.0 feet per year in the East Side Subarea,
- -5.6 to -1.8 feet per year in the Forebay Subarea, and
- -2.0 to +0.2 feet per year[2] in the Upper Valley Subarea.

Storage changes are also strongly affected by the occurrence of very low reservoir releases, which have historically resulted in storage declines. The cumulative storage loss over the period from 1944 to 2013, not including storage volume lost to seawater intrusion, was about 559,000 af for all of Zone 2C. About 40 percent of the storage loss occurred in the 14 years before Nacimiento Reservoir began releasing water, while about 60 percent occurred over the 55 years from 1959 to 2013. Estimates of storage decline in future dry years range from about 50,000 to 215,000 afy (Table ES-3), depending on the level of reservoir releases that occur. This storage loss, added to the existing storage deficit built up over the history of groundwater development in the study area, will exacerbate the problem of seawater intrusion in the Pressure Subarea.

State of the Basin – Seawater Intrusion

The water quality analysis in this study was undertaken to determine the extent of seawater intrusion into the coastal aquifers in 2013 and to analyze how it is likely to evolve in the future, should the current dry conditions continue into the coming years. The extent of seawater intrusion into the Pressure 180-Foot and Pressure 400-Foot Aquifers (Figures ES-6 and ES-7, respectively) in 2013 was not different from the extents mapped in 2011, indicating that the first two years of current drought did not have an apparent effect on the movement of the seawater intrusion front.

In assessing other markers of seawater intrusion, the sodium to chloride (Na/Cl) ratios[3] indicate that numerous wells on the landward side of the seawater intrusion front have likely been affected by seawater intrusion, even though the chloride concentration has not increased to the 500 mg/L level used by MCWRA to delineate seawater intrusion. Wells screened in the Pressure 400-Foot Aquifer that are several miles landward of the mapped seawater intrusion extent may have been impacted by seawater intrusion in the past. The landward seawater mixing with deeper groundwater can possibly be attributed to the vertical movement of groundwater from the Pressure 180-Foot Aquifer into the lower Pressure 400-Foot zone. Possible mechanisms include: a) natural leakage through areas of thin or absent aquitard between the two aquifers, b) via wells screened across both aquifers, and c) along faulty or compromised well casings acting as conduits.

The accelerated rate of seawater intrusion in 1984 can be attributed to the seven-year drought that started in 1984, the extent of which is depicted in Figures ES-6 and ES-7. The apparent rate of seawater intrusion in the period peaked from 1997 to 1999, despite the fact that the groundwater head elevations began to recover before this time from the declines experienced during the WY 1984 to 1991 drought. If this latent response to an extended drought is repeated in the Basin, water quality impacts stemming from the current drought may not manifest for several years. Chloride concentrations in affected wells increased by up to 100 mg/L from the beginning of the extended drought to 1999, and similar concentration changes may be expected in wells near the seawater intrusion front over the coming years.

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2 Positive head changes in individual wells are reflective of increases in head that occurred in select wells during the WY 1984 to 1991 drought, and are not reflective of the average head change in the Upper Valley Subarea during the same period. It is considered unlikely that continued drought conditions will result in an overall increase in head in the Upper Valley Subarea, although individual wells may see head increases, depending on local conditions.

3 Calculated from historical water quality data at selected monitoring wells

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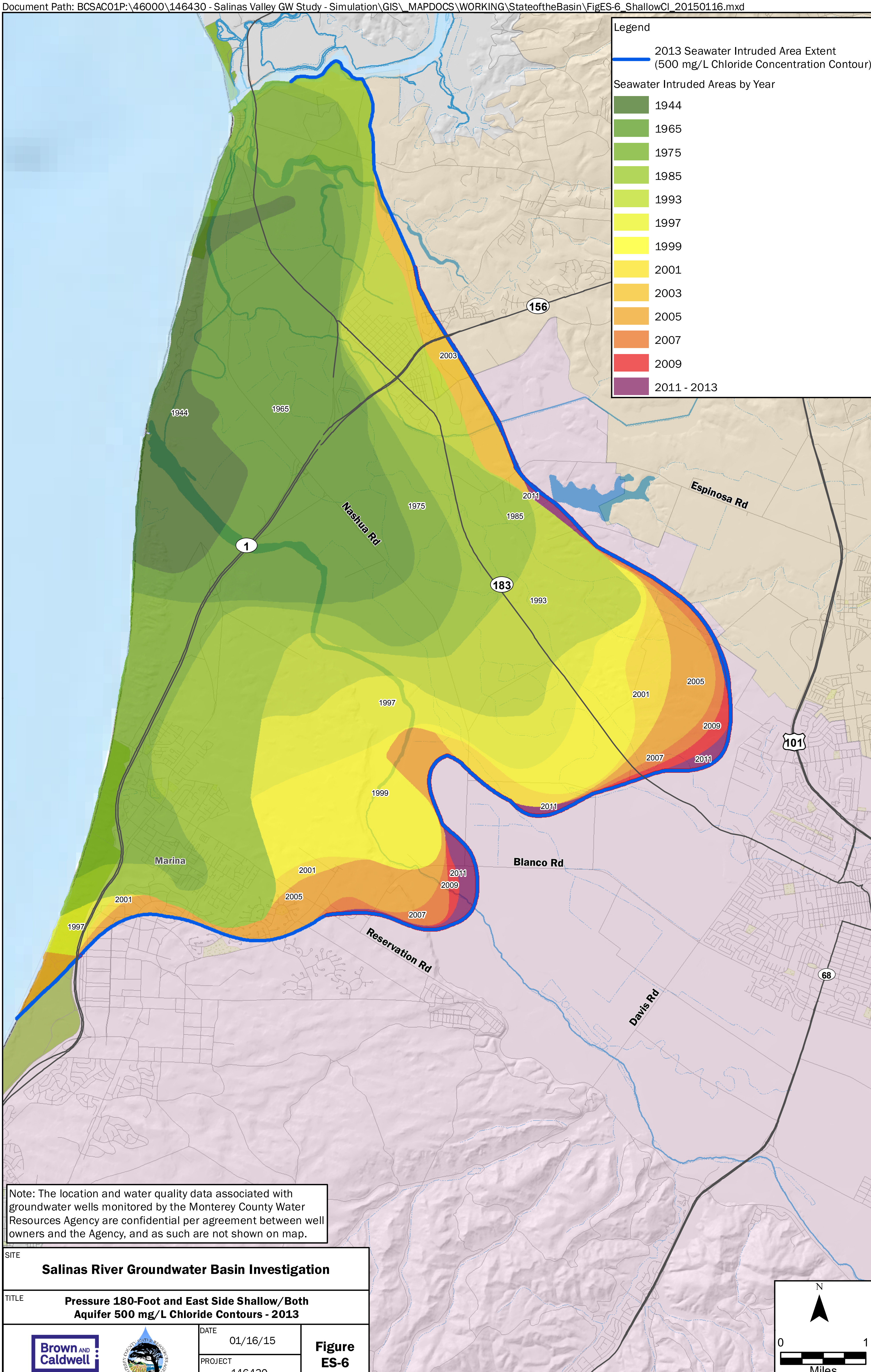


Note: The location and water quality data associated with groundwater wells monitored by the Monterey County Water Resources Agency are confidential per agreement between well owners and the Agency, and as such are not shown on map.

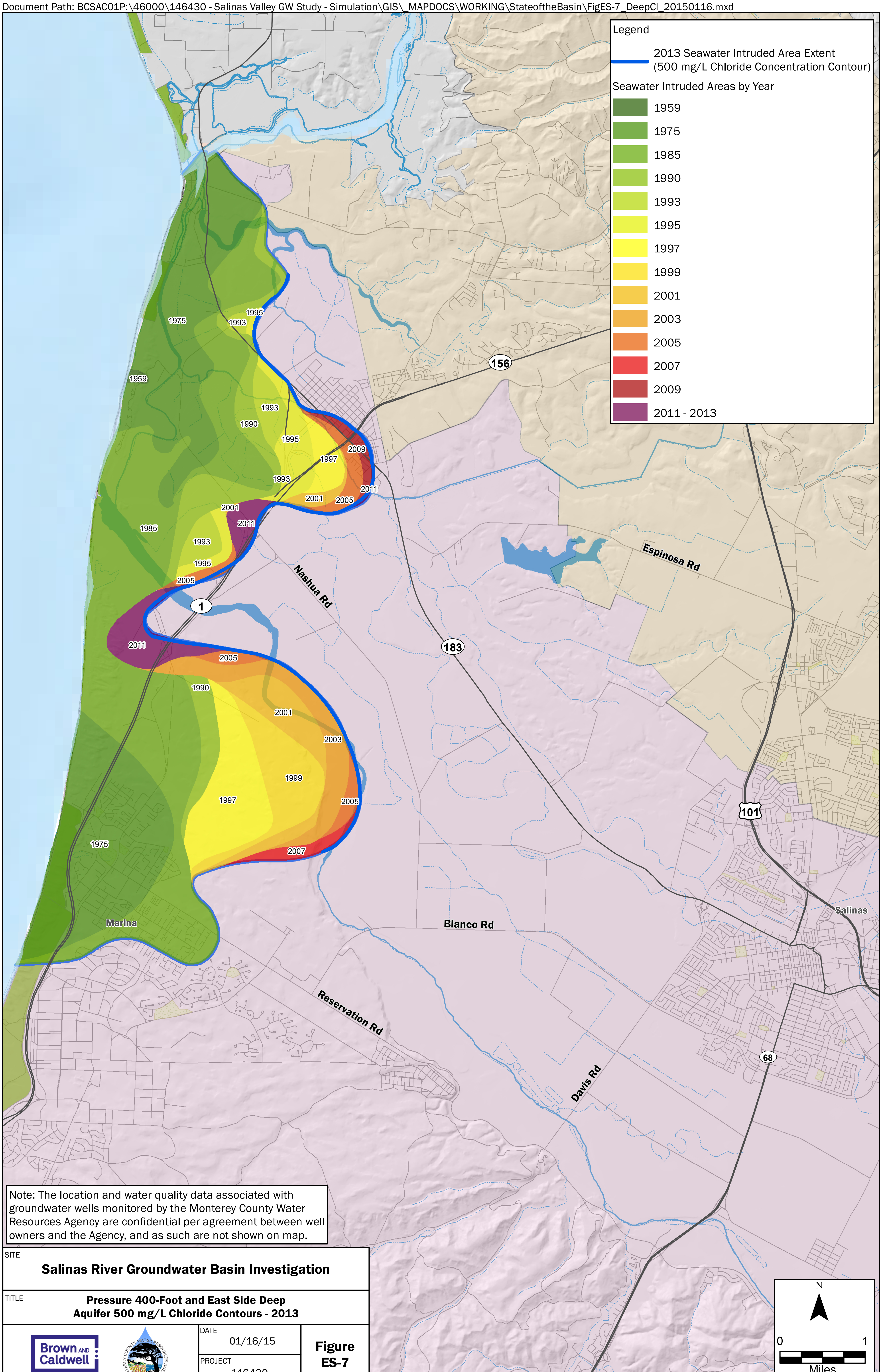
SITE
Salinas River Groundwater Basin Investigation

TITLE
Pressure 180-Foot and East Side Shallow/Both Aquifer 500 mg/L Chloride Contours - 2013

Brown AND Caldwell

DATE	Figure
01/16/15	**ES-6**
PROJECT 146430	

Document Path: BCSAC01P:\46000\146430 - Salinas Valley GW Study - Simulation\GIS_MAPDOCS\WORKING\StateoftheBasin\FigES-7_DeepCl_20150116.mxd



Note: The location and water quality data associated with groundwater wells monitored by the Monterey County Water Resources Agency are confidential per agreement between well owners and the Agency, and as such are not shown on map.

SITE

Salinas River Groundwater Basin Investigation

TITLE

Pressure 400-Foot and East Side Deep Aquifer 500 mg/L Chloride Contours - 2013

Brown AND Caldwell

DATE 01/16/15

PROJECT 146430

Figure ES-7

Options to Address Water Supply under Continued Drought Conditions

Based on the analyses discussed above, the Basin appears to be out of hydrologic balance. The average annual groundwater extraction for the four primary water-producing subareas that compose Zone 2C was about 523,000 afy from 1959 to 2013. The average annual change in storage was about -17,000 to -24,000 afy, including seawater intrusion. This implies that the yield for Zone 2C is on the order of about 501,000 to 508,000 afy; the deficit is essentially the storage change (loss) stated above. It is important to note that the Basin does have an estimated volume of groundwater in storage of about 16 million af (Table ES-2), which could represent a significant groundwater reserve – as compared to the current estimated storage loss of 17,000 to 24,000 afy – and could be used to offset temporary overdraft conditions in the future.

Based on the continued large storage declines in the East Side and Pressure Subareas (and resulting groundwater head declines and seawater intrusion), the current distribution of groundwater extractions is not sustainable. Seawater intrusion can account for up to 18,000 afy of the total storage loss of 24,000 afy. Sustainable use of groundwater can only be achieved by aggressive and cooperative water resources planning to mitigate seawater intrusion and groundwater head declines.

The consequences of no-action under continued drought conditions will be the imminent advancement of seawater intrusion within the next few years and the continued decline of groundwater head. Both of these conditions would necessitate the drilling of deeper groundwater wells to produce the quantity and quality of water needed for consumptive use and irrigation. The installation of deeper wells may not be feasible in some areas because of lower groundwater yield and water quality in the Pressure Deep Aquifer. A more sustainable and long term management practice would encourage a Basin-wide redistribution and reduction of groundwater pumping, which would require cooperative and aggressive resource management. The unsustainability of the current distribution of groundwater extractions has long been recognized by various investigators, and Basin-wide redistribution and reduction of pumping have been recommended previously (e.g. DWR, 1946).

Technical Option 1

The large storage declines that have occurred in the Basin in the past, especially in the East Side Subarea, have created a significant landward groundwater head gradient that must be reversed before seawater intrusion can be halted. Reduction of pumping in the Pressure and East Side Subareas could help mitigate some of the anticipated effects of extended drought on groundwater storage and water quality in the study area. Shifting of pumping to areas farther away from the coast would also be helpful, as long as it is shifted south of the current head trough (Figure ES-3) that exists in the East Side Subarea. While not currently consistent with County Policy, shifting pumping to areas that are both south of the seawater intrusion zone and hydraulically connected to the Salinas River does represent a physical option for addressing seawater intrusion.

DWR (1946) recommended that pumping be curtailed in the Pressure and East Side Subareas and substituted with extraction in the Forebay and Upper Valley Subareas, which are strongly connected to (and interact with) the Salinas River. Yates (1988) performed a numerical modeling analysis of the Basin, with a specific focus on the effect of pumping changes on seawater intrusion, and calculated that seawater intrusion could be cut by more than half (from about 18,000 to 8,000 afy) over a 20-year period by decreasing pumping in the Pressure and East Side Subareas by 30 percent[4]; whereas, reducing pumping in the Forebay and Upper Valley Subareas had minimal to no effect on seawater intrusion.

4 Note that Yates (1988) assumed an agricultural pumping rate of 512,200 afy, based on the results of a land use survey performed in the Salinas Valley in 1976. Recent pumping rates are slightly lower (around 500,000 afy), in part due to the operation of the Monterey County Water Recycling Projects.

Technical Option 2

The shifting of some pumping from the Pressure 180-Foot and Pressure 400-Foot Aquifers to the Pressure Deep Aquifer would reduce the storage deficit in the shallower aquifers; however, this would necessarily lead to head declines in the Pressure Deep Aquifer. Unlike the Pressure 180-Foot and Pressure 400-Foot Aquifers, it is uncertain if the Pressure Deep Aquifer is hydraulically connected to the ocean in Monterey Bay, so it is not known whether this pumping shift would lead to the onset of seawater intrusion into the Pressure Deep Aquifer. Also unknown is the likelihood of localized interaquifer seawater mixing between the Pressure 400-Foot Aquifer and the Pressure Deep Aquifer. Hence, this Management Option requires more investigation to determine its feasibility.

Evaluation of Potential Solutions

The numerical modeling analysis to be performed as the second part of this Basin Investigation will consider the effects of various management decisions on the water supply and water quality in the study area. The primary questions to be assessed for each scenario are: 1) what will be the rate of groundwater head decline; and, 2) what will be the rate of increase in acreage with impaired water quality due to the advancement of the seawater intrusion front. Based on this analysis, an assessment of the economic effects of 1) and 2) due to water supply wells becoming inoperable (i.e. dry), and the further loss of aquifer storage capacity due to the advancement of seawater intrusion can be conducted.

The numerical model should be used to predict groundwater head declines under different management scenarios, including implementing targeted pumping rates and optimizing the distribution of pumping. Future declines in groundwater head must be evaluated by simulated groundwater conditions so that “trigger (groundwater) head levels” can be used as a measure of safe yield and an early alert system as part of Basin Management Objectives. That analysis will extend the discussions and conclusions presented in this report.

EXHIBIT 'B'

MENU

Simulated effects of ground-water management alternatives for the Salinas Valley, California

Water-Resources Investigations Report 87-4066

By: E.B. Yates

https://doi.org/10.3133/wri874066

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Abstract

A two-dimensional digital groundwater flow model was developed to analyze the geohydrology of the groundwater basin in the Salinas Valley. The model was calibrated for steady-state and transient simulations by comparing simulated with measured or estimated inflows, outflows, and water levels for 1970-81. Preliminary estimates of hydraulic properties and some inflows and outflows were adjusted during model calibration. The simulated mean annual water budget for the basin was 559,500 acre-ft/yr each of outflow and inflow. Inflow components consisted of Salinas River recharge (38.3%), percolation of irrigation water (34.0%), small stream and Arroyo Seco recharge (20.9%), seawater intrusion (3.4%), and other sources (3.4%). Outflow components consisted of agricultural pumpage (91.5%), municipal pumpage (4.0%), and riparian phreatophyte evapotranspiration (4.5%). For the steady-state calibration, 70% of the simulated water levels were within 9 ft of measured water levels for 1970-81. A sensitivity analysis determined the overall stability of the model results. The model input variable that probably contributes most to the uncertainty of the results is the quantity of groundwater recharge contributed by irrigation-return flow to the unconfined aquifer. A 15% change in the estimate of this variable causes an 11% change in the simulated river-seepage rate and a 6% change in the simulated seawater intrusion rate. The calibrated model was used to investigate several water resources management alternatives. Projected pumpage increase at a rate of 1%/yr for 20 yr caused declines in mean annual water levels of 10 to 20 ft in some areas and an increase in seawater intrusion from 18,900 to 23 ,600 acre-ft/yr. Pumpage decreases in the coastal area decreased seawater intrusion more effectively than pumpage decreases farther inland. When pumpage was decreased uniformly throughout the valley, the decrease in seawater intrusion was only one-fourteenth the decrease in pumpage. Simulations indicated that replacement of groundwater pumpage with imported surface water in a 9,000 acre service area near the coast would result in a decrease in seawater intrusion equaling nearly one-half the quantity of imported water. (Author 's abstract)

Additional publication details

Publication type	Report
Publication Subtype	USGS Numbered Series
Title	Simulated effects of ground-water management alternatives for the Salinas Valley, California
Series title	Water-Resources Investigations Report
Series number	87-4066
DOI	10.3133/wri874066
Edition	-
Year Published	1988
Language	ENGLISH
Publisher	U.S. Geological Survey,
Description	vii, 79 p. :ill., maps ;28 cm.
Google Analytic Metrics	Metrics page

Part or all of this report is presented in Portable Document Format (PDF). For best results viewing and printing PDF documents, it is recommended that you download the documents to your computer and open them with Adobe Reader. PDF documents opened from your browser may not display or print as intended. Download the latest version of Adobe Reader, free of charge. More information about viewing, downloading, and printing report files can be found here.

Brownstein Hyatt
Farber Schreck

August 12, 2021

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VIA E-MAIL – BOARD@SVBGSA.ORG

Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924

RE: Preliminary Comment on Draft GSPs for the Eastside, Forebay, Langley, Monterey and Upper Valley Subbasins of the Salinas Valley Basin

Dear Chair Pereira and Members of the Board of Directors:

This office represents the Salinas Basin Water Alliance ("Alliance"), a California nonprofit mutual benefit corporation formed to preserve the viability of agriculture and the agricultural community in the greater Salinas Valley. Alliance members include agricultural businesses and families that own and farm more than 80,000 acres within the Salinas Valley. Many Alliance members have been farming in the Salinas Valley for generations. As such, the Alliance has a significant interest in the long-term sustainability of the Salinas Valley Basin.

The Alliance greatly appreciates the difficult work this Board, together with the Salinas Valley Basin Groundwater Sustainability Agency (GSA) staff and consultant team, has undertaken to implement the Sustainable Groundwater Management Act (SGMA) in Monterey County, including the time-consuming but extremely beneficial engagement with all stakeholders. The Alliance applauds the Salinas Valley Basin GSA's recent success in obtaining approval of the Department of Water Resources (DWR) for the first groundwater sustainability plan (GSP) required to be prepared for the six Salinas Valley Subbasins within the jurisdiction of the Salinas Valley Basin GSA. Further, the Alliance acknowledges and wholeheartedly supports the Board's commitment to coordinate and implement all of the GSPs for the Salinas Valley Basin within its jurisdiction in an integrated manner pursuant to the proposed Integrated Sustainability Plan, or as it may otherwise be titled.[1] It is with this objective—integrated groundwater management—in mind that the

[1] See Joint Exercise of Powers Agreement Establishing the Salinas Valley Basin GSA § 2.2 ("The purpose of Agency is to . . . develop[], adopt[], and implement[] a GSP that achieves groundwater sustainability in the Basin."); § 4.1(c) (The JPA has the power to "develop, adopt and implement a GSP for the Basin.); § 4.1(l) (The JPA has the power to "establish and administer projects and programs for the benefit of the Basin."); Salinas Valley Groundwater Basin 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan [180/400 GSP] at 9-10 ("This GSP is part of an integrated plan for managing groundwater in all six subbasins of the Salinas Valley Groundwater Basin that are managed by the SVBGSA. The projects and management actions described in this GSP constitute an integrated management program for the entire Valley."); 180/400 GSP at 10-14 ("The SVBGSA oversees all or part of six subbasins in the Salinas Valley Groundwater Basin. Implementing the 180/400-Foot Aquifer Subbasin GSP must be integrated with the implementation of the five other GSPs in the Salinas Valley Groundwater Basin . . . The implementation

Alliance offers these preliminary comments on the draft GSPs for the Eastside, Forebay, Langley, Monterey and Upper Valley Subbasins.[2]

As this Board well knows, SGMA not only requires the Salinas Valley Basin GSA to develop a GSP for each priority subbasin within its jurisdiction to ensure the long-term sustainability of those subbasins, but it also mandates that the GSA consider the impacts each GSP may have on the ability of adjacent subbasins to achieve their sustainability goal.[3] In enacting SGMA, the legislature intended to provide for the sustainable management of all groundwater basins and expressly provided for the coordination of management between and among basins.[4] Any GSP that interferes with an adjacent basin's sustainability goal cannot satisfy SGMA.[5] Moreover, in the event the GSPs for the subbasins disproportionately allocate the burden of sustainability across the Salinas Valley Basin, they could impair groundwater users' rights in and to the Salinas Valley Basin in violation of SGMA and common law water rights.[6]

The Alliance's preliminary review of the draft GSPs suggests that there are significant data gaps and uncertainty with respect to the quantification of flows between subbasins within the Salinas Valley Basin that should be addressed.[7] Specifically, the Alliance is concerned that the existing water budget analyses in the draft GSPs may not provide a complete picture of the downgradient impacts caused by groundwater pumping. Accordingly, the Alliance requests that the Salinas Valley Basin GSA conduct additional simulations with the Salinas Valley Integrated Hydrologic Model (SVIHM) that are specifically focused on the issue of inter-subbasin groundwater flows, as more specifically described in aquilogic's August 11, 2021 memorandum attached to this letter. In light of the fact that the Integrated Sustainability Plan appears to have been delayed until after completion of the subbasin GSPs, the requested additional simulations should be conducted prior to the Salinas Valley Basin GSA's adoption of the subbasin GSPs.

The requested additional model simulations are consistent with and support SGMA's and DWR's requirements that all GSPs be based on the best available science.[8] They will enable an understanding of

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schedule reflects the significant integration and coordination needed to implement all six GSPs in a unified manner."); see also Salinas Valley Groundwater Basin Draft Upper Valley Aquifer Subbasin Groundwater Sustainability Plan at 10-16; Salinas Valley Groundwater Basin Draft Eastside Aquifer Subbasin Groundwater Sustainability Plan at 9-1, 10-7, 10-8, 10-16; Salinas Valley Groundwater Basin Draft Forebay Aquifer Subbasin Groundwater Sustainability Plan at 2-4, 9-2, 9-4, 10-7, 10-9, 10-17; Salinas Valley Groundwater Basin Draft Langley Aquifer Subbasin Groundwater Sustainability Plan at 2-4, 9-1, 9-4, 10-8, 10-9, 10-16.

[2] Following publication of the final draft GSPs for these subbasins, the Alliance may have additional comments.

[3] Wat. Code § 10733(c).

[4] Wat. Code §§ 10720.1(a); 10727; 10727.6

[5] See Wat. Code § 10733(c); 23 Cal. Code Regs. §§ 350.4, 351(h), 354.8(d), 354.18(b)(3), (c)(2)(B), (e), 354.28(b)(3), 354.44(a)(6), (c), 355.4(b)(7), 356.4(j), 357.2(b)(3); DWR, Monitoring Networks and Identification of Data Gaps BMP at pp. 6, 8, 27; DWR, Water Budget BMP at pp. 7, 12, 16, 17, 36; DWR, Modeling BMP at pp. 21-22; DWR, Sustainable Management Criteria BMP at pp. 9, 31.

[6] Wat. Code 10720.1(b) (declaring legislature's intention to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater); see also Water Code §§ 10720.5(b).

[7] 23 Cal. Code Regs. § 351.

[8] See 23 CCR § 354.18 ("A quantitative assessment of the historical water budget, starting with the most recently available information and extending back a minimum of 10 years, ***or as is sufficient to calibrate and reduce the uncertainty of the tools and methods used*** to estimate and project future water budget information and future aquifer response to proposed sustainable groundwater management practices over the planning and implementation horizon." (emphasis added).)

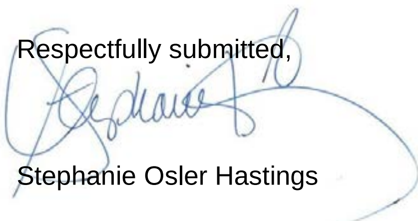
the amount of Basin-wide groundwater discharge that is and has been captured by pumping, which, depending on the results, may require modification of each subbasin's proposed water budget. In the absence of this analysis, there is a significant level of uncertainty in the water budgets that has the potential to undermine the adequacy of the GSPs and also to impair the Salinas Valley Basin GSA's ability to achieve its sustainability goal in each subbasin and throughout the Salinas Valley Basin within its jurisdiction.[9]

The Alliance has endeavored to make this comment and request at the earliest opportunity to allow the Salinas Valley Basin GSA sufficient time to conduct the additional SVIHM simulations. The Alliance does not wish to delay the successful completion and adoption of the subbasin GSPs. Rather, the Alliance anticipates that the additional simulations can feasibly be accomplished and incorporated into the draft GSPs consistent with the Salinas Valley Basin GSA's goal of adopting the subbasin GSPs in accordance with SGMA's deadlines.

The Alliance appreciates the Board's careful consideration of this issue and urges the Board to direct the Salinas Valley Basin GSA staff and consultant team to undertake the requested further analyses and incorporate the results into the draft GSP for each of the subbasins. The Alliance strongly believes that removing existing uncertainties with respect to inter-subbasin flows is a critical component to ensuring both transparency in the GSP development process and equity in the resulting plans, both of which are essential to promoting healthy Basin-wide dialogue and collaboration in obtaining sustainable groundwater management of the Salinas Valley Basin within the Salinas Valley Basin GSA's jurisdiction.

As the Board may direct, the Alliance would welcome the opportunity to discuss the requested additional consideration of inter-subbasin flows in more detail with the Salinas Valley Basin GSA's staff and consultant team.

Respectfully submitted,



Stephanie Osler Hastings

Attachment: August 11, 2021 aquilogic, inc. memorandum

cc: Donna Meyers, Senior Consultant / General Manager (meyersd@svbgsa.org)
Emily Gardner, Senior Advisor / Deputy General Manager (gardnere@svbgsa.org)
Derrik Williams, Montgomery & Assoc. (dwilliams@elmontgomery.com)
Leslie Girard, Monterey County Counsel (GirardLJ@co.monterey.ca.us)

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[9] DWR's June 3, 2021 determination that it does not appear that the GSP for the 180-400 Aquifer Subbasin will adversely affect the ability of an adjacent basin to implement its GSP or impede achievement of sustainability goals in an adjacent basin does not mean that the Salinas Valley GSA should assume that DWR will reach the same conclusion with respect to the remaining subbasin GSPs.

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August 11, 2021

MEMORANDUM

To: Stephanie Hastings, Brownstein Hyatt Farber Schreck (BHFS)
Sent via email: SHastings@bhfs.com
From: Robert H. Abrams, PhD, PG, CHg, Principal Hydrogeologist, aquilogic, Inc.
Anthony Brown, CEO & Principal Hydrologist, aquilogic, Inc.

Subject: Assessment of Groundwater Flows between Subbasins of the Salinas Valley Groundwater Basin (SVGB)
Project No.: 018-09

Aquilogic, Inc. (**aquilogic**) is pleased to provide this memorandum on behalf of our mutual client, the Salinas Basin Water Alliance (SBWA), outlining the justification and necessity for conducting additional simulations with the Salinas Valley Integrated Hydrologic Model (SVIHM),[1] which is being used by the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) for groundwater sustainability plan (GSP) development.

Aquilogic hypothesizes that pumping has captured significant portions of groundwater discharge that would otherwise migrate as underflow from the Upper Valley Subbasin to the Forebay Subbasin, from the Forebay Subbasin to the 180/400-Ft Aquifer Subbasin and East Side Subbasin, and potentially from the 180/400-Ft Aquifer Subbasin to the Monterey Subbasin and the Salinas River. Our primary concern is that the existing water budget analyses in at least three of the SVBGSA's draft GSPs may not provide a complete picture of the downgradient impacts caused by groundwater pumping.[2]

It should be noted that groundwater sustainability was a pertinent issue for water managers long before the advent of California's Sustainable Groundwater Management Act. There is

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[1] The SVIHM is a provisional, unpublished model not currently available to the general public.

[2] Bredehoeft, J.D., Papadopulos, S.S., and Cooper, H.H. Jr. (1982). The water budget myth. *In* Scientific Basis of Water Resource Management, Studies in Geophysics, 51-57. Washington, D.C. National Academy Press;
Bredehoeft, J.D. (1997). Safe yield and the water budget myth. Ground Water, Vol. 35, No. 6, p. 929;
Bredehoeft, J.D. (2002). The water budget myth revisited: why hydrogeologists model. Ground Water, Vol. 40, No. 4, p. 340-345;
Bredehoeft, J.D. and Durbin, T. (2009). Groundwater development: the time to full capture problem. Ground Water, Vol. 47, No. 4, p. 506-514;
Bredehoeft, J.D. (2011). Monitoring regional groundwater extraction: the problem. Ground Water, Vol. 49, No. 6, p. 808-814.

ample support in the groundwater literature for considering multiple aspects of sustainability and undesirable results, including economic and social impacts and the contravention of water rights.[3]

ADDITIONAL SIMULATIONS

As stated in "SVIHM Frequently Asked Questions,"[4] one of the many questions that can be addressed by a model is: How much groundwater flows between subareas? Clearly, the SVIHM developers recognized the importance of this question and anticipated that it would be asked. On behalf of the SBWA, **aquilogic** requests that the SVBGSA utilize the SVIHM to conduct additional simulations that are specifically focused on the issue of inter-subbasin groundwater flows. The requested simulations will enable an improved understanding of the amount of Valley-wide groundwater discharge that is and has been captured by pumping, which may be needed to ensure the adequacy of the GSPs for each of the subbasins and important to their implementation.

Aquilogic recommends a type of "superposition" analysis, in which the results of two simulations are compared. In such an analysis, the two simulations are identical except for the process under examination, in this case groundwater pumping. Pumping would be selectively turned off in one simulation and left as currently configured in the SVIHM in the other simulation. A similar superposition analysis was done to assess pumping-induced streamflow depletion, as described in Chapter 5 of the GSPs for the Forebay Subbasin and the East Side Subbasin.

The inter-subbasin flows would then be compared, which would semi-quantitatively estimate the impact of pumping, within the limiting assumptions and uncertainties associated with the SVIHM. Ideally, the analysis should be conducted with the initial conditions of the no-pumping scenario representing a "full" SVGB. The analysis would provide an estimate of the impact of pumping on inter-subbasin groundwater flows.

Specifically, using the calibrated SVIHM historical model, **aquilogic** recommends the following outline for conducting simulations, the details of which would be worked out in consultation with the SVBGSA:

1. Develop reasonable initial conditions for the hydraulic head distribution for the no-pumping simulation. This entails turning off all pumping in the model domain while

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[3] Todd, D.K. (1959). Groundwater Hydrology. Wiley, New York, 336 p.;
Domenico, P. (1972). Concepts and Models in Groundwater Hydrology. McGraw-Hill, New York, 405 p.;
Freeze, R.A. and Cherry, J.A. (1979). Groundwater. Prentice-Hall, 604 p.;
Alley, W.M., Reilly, T.E., and Franke, O.L. (1999). Sustainability of ground-water resources. U.S. Geological Survey Circular 1186, 79 p.

[4] https://www.co.monterey.ca.us/home/showdocument?id=31292

leaving all other inflows and outflows unchanged. Because the time for simulated water levels to recover may be longer than the SVIHM simulation period of 51 years (1967-2018), the simulation may have to be run multiple times before an average steady-state condition can be achieved. In this case, the hydraulic head distribution at the last time step of the previous simulation would be used as the initial condition of the subsequent simulation. This process would be repeated until the hydraulic head distribution at the last time step of a subsequent simulation is substantially identical to the last time step of the previous simulation. This would indicate that an average steady-state condition is being simulated. We assume here that the surface water inflows and reservoir releases for the 1967-2018 period would be sufficient to eventually "refill" the SVGB after several model runs.

2. When the average, no-pumping steady-state condition has been achieved with the modified SVIHM, simulated groundwater flow should occur from the East Side Subbasin to the 180/400-Ft Subbasin, and from the 180/400-Ft Subbasin to Monterey Bay, conditions that are now reversed.

3. From the final results of the no-pumping simulation, in which average steady-state conditions have been achieved, compute the inter-subbasin groundwater flows between each adjoining subbasin. Compare these flows with the inter-subbasin flows from the historical, unmodified SVIHM. The differences in inter-subbasin flows and induced recharge from the surface water system represent a semi-quantitative estimate of the impact of Valley-wide pumping.

4. Additional superposition analyses can be conducted to assess the impact of one subbasin's pumping on basin-wide groundwater levels and inter-subbasin groundwater flows, by turning on pumping in one subbasin at a time in the modified SVIHM (and leaving pumping turned off in all other subbasins) and comparing the results to the scenario with no pumping throughout the SVGB. The differences in inter-subbasin flows and groundwater levels represent a semi-quantitative estimate of the impact of one subbasin's pumping on the other subbasins.

Tuesday, August 24, 2021

Salinas Valley Basin Groundwater Sustainability Agency SVBGSA Public Comments Form

Name	Robert Jaques
Organization	Seaside Groundwater Basin Watermaster
Email Address	bobj83@comcast.net
Subbasin	Monterey
Chapter	9
Section	Various
Page Number	Various
Comments	See attached table of comments
File Upload	docx Comments on Draft Chapter 9 8-23-21.docx

Draft Chapter 9 – Comments from Seaside Basin Watermaster 8-23-21

Page	Section	Comment
9-5	9.1	In the next to last sentence in the first para of this Section please insert after the words “Corral de Tierra Management Areas” the words “and the adjacent Seaside Subbasin”.
9-9	Table 9-1	Multi-basin project R3 states that multi-basin benefits have not been quantified. Without some indication of the level of benefit a Project may be able to provide, decision-makers will not know which ones are the most desirable projects to pursue.
9-9 thru 9-15	Table 9-1	General comment and recommendation: Many of the Projects and Management Actions do not have estimated Costs or estimated Unit Costs provided for them. Recognizing that some projects are essentially only conceptual at this point, nevertheless, an effort should be made, even if it is as simple as “rule of thumb,” to estimate what the range of unit costs might be for each project. Without estimated costs it will be impossible for an operating budget for the GSP to be developed, or for fees or water-use related charges to be developed. As was commented on, and I believe correctly so, by some in the SWIG when Derrik presented a summary of the comments received from the TAC for the SWIG when they discussed various projects that would help mitigate seawater intrusion, it is appropriate to do a “reality check” on projects in terms of getting a sense of how financially feasible they may be. Something like a cost-benefit ratio for example. Without sufficient estimated costs and benefits for each project, time and effort will be wasted evaluating projects that have such high cost-to-benefit ratios that they should be dropped out of the Project list early-on. As a corollary, years ago when projects that could help to solve the water-shortage problem of the Monterey Peninsula were being discussed, and no project was supposed to be rejected out-of-hand even if it seemed extremely unlikely, a project to tow icebergs from the Arctic to Monterey Bay so the water could be melted and used as a water supply for the Peninsula was proposed. Time and effort was spent coming to the conclusion that it was simply economically and/or logistically infeasible. The same can be said about a number of the proposed projects which have very high implementation costs and very little water-savings benefit, resulting in very high unit costs. I recommend that a separate table showing just: • P/MA # • Project Name • Quantity of water that will be saved from being pumped • Implementation and O&M costs • Unit Cost

Page	Section	Comment
		• A priority ranking column (which would be filled in by the GSP Committee based on the data in the other columns of this table)
9-12	Table 9-1	The Pumping Allocation and Control Management Action will almost certainly be an action/project that will have to be implemented to achieve Corral de Tierra subbasin sustainability. This Management Action will have to achieve the greatest amount of pumping reduction, since all of the other Projects and Management Actions combined, especially after those that are financially infeasible are eliminated, will fall far short of achieving the necessary pumping reduction. Therefore, instead of saying "Decreased extraction; range of potential benefits" in the "Project Benefits/ Quantification of Benefits" column, an amount of pumping reduction should be shown for this Management Action, so the reader can see clearly the magnitude of pumping allocation and control that will be needed.
9-18	9.3.4	In the last para of this Section it mentions that capital costs were annualized over 25 years. The interest rate for this calculation should be stated, and for what revenue source(s) that rate pertains.
9-27	9.4.2.2	The first sentence of this Section states that 15,000 AFY of desalinated water could be produced for the "Salinas Valley," and the Section goes on to say that a portion of this would go to the Monterey Subbasin. Since the Seaside Subbasin is also part of the Salinas Valley Groundwater Basin, and since this Section is discussing a "Regional Municipal Supply Project," language should be added saying that a portion of the water supply might also go to the Seaside Subbasin which is also in need of a supplemental water source to achieve sustainability.
9-51 through 9-54	9.4.6	This Section discusses the use of recycled water. Thought needs to be given to the limitation on the volume of recycled water that M1W's Salinas Valley Reclamation Plant or its Pure Water Monterey AWT Plant can produce. The feedwater source for both of those plants is M1W's Regional Treatment Plant, and its flow is currently only about 19 MGD. Water conservation and other factors have nearly eliminated increases in wastewater flows to that plant in recent years. With the CSIP being proposed for expansion in the 180/400-foot Aquifer Subbasin's GSP, with a Pure Water Monterey Expansion Project being proposed for the Seaside Subbasin, and now with the Monterey Subbasin GSP proposing obtaining recycled water from M1W, there appears to be a real risk that the amount of recycled water that can be produced may be over-subscribed.
9-52	9.4.6	The PWM Project currently is only sized to deliver 3,500 AFY to the Seaside Subbasin, not 3,700 AFY as stated in the 4^{th} para on this page. Also on this page it states that the AWPF will be expanded. The word "may" should be used in lieu of the word "will" as there are still obstacles to the proposed expansion project.
9-53, 9-54	9.4.6	On these pages it mentions "a MCWD expansion of the AWPF." That should read "a M1W expansion of the AWPF."
9-54	9.4.6	The last para in this Section on this page starts out with "The current operation frequency of MCWD's productions generally ranges from 10% to 40%." Please clarify what this statement means.

Page	Section	Comment
9-60	Figure 9-7	The RUWAP pipeline is shown extending down General Jim Moore Boulevard clear through Del Rey Oaks and then easterly into Ryan Ranch. Please verify that this pipeline has already been constructed that far. I was of the understanding that it only went part of the way down General Jim Moore and not even as far as South Boundary Road.
9-65	9.4.8	The para in the middle of this page states in part "…if pumping needs to be reduced to meet sustainable yield…". It is not "if" but simply "will" need to be reduced. Calculations in earlier GSP chapters identify the estimated sustainable yield, and the amount of overpumping that will have to be eliminated to achieve sustainable yield. In addition, sustainability will also necessitate raising groundwater levels in this Subbasin, not just having extractions equal natural replenishment. The reader should clearly be informed that pumping reductions <u>will</u> be necessary, and not misled into thinking that somehow the other Management Actions and Projects will achieve sustainability. In this Section (or elsewhere in this Chapter) there should be a discussion of how users will be able to achieve the necessary level of pumping reduction and still meet the water demands of their customers. This is a problem already being faced in the Seaside Subbasin, specifically with the City of Seaside's Municipal Water System. That System's only source of water is groundwater from the Seaside Subbasin. If further pumping reductions affecting that Water System were to be imposed, it would be unable to supply its customers water needs.
9-65	9.4.8	In the bottom para on this page it states in part "If the sustainable yield is lower than current extraction…". Earlier chapters in this GSP have clearly shown that current extractions <u>exceed</u> the estimated sustainable yield. So it is not "if" the sustainable yield is lower than current extraction. This sentence should be rewritten to correct this misstatement, and to not leave the reader with the impression that pumping reductions may not be necessary.
9-66	9.4.8.2	The second para in this Section states that the network of monitoring wells is monitored by MCWRA. The Seaside Basin also monitors wells which my earlier comments (on Chapter 8) recommended be included in the monitoring well network for the Corral de Tierra Subbasin. Language should be added here to point this out.
9-67	9.4.8.8	The word "Subbasin" is missing after the word "Monterey" in the first sentence of the para at the bottom of this page.
9-68	9.4.9	I commented at one of the earlier GSP Committee meetings that any reduction in flows in any of the creeks in the Corral de Tierra Subbasin that flow westward toward the Seaside Subbasin might reduce the natural replenishment of the Seaside Subbasin. This needs to be pointed out in this Section, and that a hydrogeological evaluation of the impacts of any such projects be prepared to determine if such reductions would adversely impact the Seaside Subbasin.
9-78	9.4.11	The second sentence in this Section on this page states in part "This water will be disinfected tertiary levels…". It would be clearer and more correctly stated that "This water will be treated to a tertiary level…".

Page	Section	Comment
9-102	9.5.6	The last sentence in the first para on this page mentions effects on groundwater levels in the Monterey Subbasin. Wording should be added to this sentence that effects on groundwater levels in the adjacent Seaside Subbasin should also be evaluated using this model.
9-103	9.5.7	This Section includes a statement that "SGMA does not allow metering of de minimis well users…". SGMA Section 5202 states that the requirement to file an annual report of groundwater extraction does not apply to de minimis extractors. It says nothing about "not allowing metering", nor does it say anything that would prevent a jurisdiction, such as Monterey County or the Monterey County Water Resources Agency, from imposing such a reporting requirement separate from the requirements of SGMA. This language should be corrected to more accurately state what SGMA says. Section 10730(a) of SGMA states in part "A groundwater sustainability agency shall not impose a fee…on a de minimis extractor unless the agency has regulated the users pursuant to this part." It is not clear to me what "regulated the users pursuant to this part" means. It would be good to have a legal review made of the issue of imposing a requirement for de minimis extractors to file annual extraction reports to see if such reporting could be required and not be in conflict with SGMA. This could be very helpful in managing the Subbasin, since there are so many de minimis extractors.

Draft Chapter 6 – Comments from Seaside Basin Watermaster 9-6-21

Page	Section	Comment
6-5	6	Just above the bullet list on this page it states there are Three budget time periods, however the chart below the bullet list shows Four time periods. I did not see the value of showing the "Historical Model" bar in the chart since it seemed like only the 15-Year Historical bar was used. Also, I did not understand footnote number 2 on this page – please clarify what is meant by a "five-year equilibration period".
6-10	6.1	The last bullet on this page discusses pumping from various wells. Wouldn't pumping from wells in the Seaside Basin affect ground water levels, and therefore need to be included in the MBGWFM due to the hydrogeologic interconnection between the Seaside Basin and both subareas of the Monterey Subbasin?
6-11	6.1.1	Same comment as on page 6-10 pertaining to Pumping Records.
6-14	6.2.2	Same comment as on page 6-10 pertaining to Groundwater Pumping.
6-18	6.3.3	Don't understand why there are three bullets shown on this page with each bullet saying the same thing..
6-20	Table 6-1	Footnote (a) would be good to add to each of the tables in the Appendix in which water budgets are shown, to clarify what a positive or negative value means.
6-21 6-32 6-33 6-44 6-46 6-47	Figure 6-4 Figure 6-6 Section 6.4.3.1.3 Table 6-4 Table 6-6 Table 6-7	Under future anticipated pumping conditions, the outflow from the Corral de Tierra subarea into the Laguna Seca Subarea of the Seaside Subbasin shown in these Figures and discussed in these Sections is projected to start reversing in the future as groundwater levels in the Corral de Tierra continue to fall. The reversal would result in water starting to flow out of the Laguna Seca Subarea and into the Corral de Tierra subarea. This was the finding of Watermaster modeling performed by HydroMetrics in 2016 in their Technical Memorandum dated January 27, 2016 titled "Groundwater Flow Divides within and East of the Laguna Seca Subarea." That report is contained in Attachment 12 of the Watermaster's 2016 Annual Report which can be viewed and downloaded at this URL: http://www.seasidebasinwatermaster.org/Other/2016%20Final%20Annual%20Report%2012-8-16a.pdf. This should be discussed and addressed in Chapter 6 of the GSP.
6-22	6.4.1.1.2	In the 2nd para of this Section the typo "and" should be corrected to read "an."
6-23	6.4.1.1.3	In the upper bullet of the group of bullets in the center of this page it mentions an inflow from the Seaside Subbasin into the Monterey Subbasin, the majority of which is between the Seaside Subbasin and the Marina-Ord subarea of the Monterey Subbasin. There is a flow divide between that subarea and the Seaside Subbasin which I understood would prevent this. That should be discussed in this Section. This comment also pertains to Table 6-2, Also in this same para the typo "and" should be corrected to read "an."

Page	Section	Comment
6-33	6.4.3.1.2	In this Section there are typos in the 3rd sentence which does not make sense. The statement in this Section regarding a significant amount of pumping data being missing because de minimis pumpers do not have to report pumping data provides support to my comment made on the Comment website and at the August 25th GSP Committee meeting that a legal look should be made into whether/how de minis pumping reporting could be required.
6-41	6.5.2.2	An explanation is warranted regarding the statement in this Section that "No project scenarios were run for the Corral de Tierra area at this time."
6-42	6.5.3	The top para on this page discusses the potential for expansion of the seawater intrusion front in the Monterey Subbasin. This should be considered a significant concern and should be discussed in the Plan Implementation Chapter 10.
6-55	6.5.5	In the 1st sentence of the 2nd para of this Section the word "scenario" should be inserted after the word "project."
6-60	6.6.1	I concur with the discussion on this page that "…simply reducing pumping to within sustainable yield is not proof of sustainability under SGMA, which must be demonstrated by avoiding undesirable results for all 6 sustainability indicators." I also agree with the statement at the bottom of this page that "…confirmation that these quantities could be extracted without inducing seawater intrusion has to be verified." To augment this discussion it would be good to add some language explaining that in order to prevent inducing seawater intrusion, ground water levels near the coast need to be at or above protective elevations. This may necessitate replenishing a basin in order to raise its groundwater levels, not just pumping at the estimated sustainable yield level to stabilize groundwater levels if they would still be below sea level.
6-61	6.6.2	I concur with the discussion on this page that "…simply reducing pumping to within sustainable yield is not proof of sustainability under SGMA, which must be demonstrated by avoiding undesirable results for all 6 sustainability indicators." I also agree with the statement at the bottom of this page that "Further analysis is necessary to refine estimates of where pumping should be reduced to address all sustainability indicators." To augment this discussion it would be good to add some language explaining that in order to enable the adjacent Seaside Subbasin (specifically the Laguna Seca subarea thereof) to achieve sustainability it will be necessary for ground water levels in the Corral de Tierra subarea to be raised, not just stabilized at 2008 levels. This would necessitate replenishing that subarea of the Monterey Subbasin in order to raise its groundwater levels, not just pumping at the estimated sustainable yield level to stabilize groundwater levels.
6-64	6.7	My comment on page 6-33 also pertains to the discussion in the top bulleted para on this page.
6-64	6.7	With regard to the language in the 2nd bulleted para on this page, my understanding is that the Deep Aquifer is not present in the Seaside Subbasin.
6-65	6.7	In the next-to-last bulleted para on this page there is mention of monitoring network expansion in the Corral de Tierra subarea. In previous comments I have asked that the monitoring network be expanded to include some of the near-boundary monitoring wells in the Laguna Seca subarea of the Seaside Subbasin. Including those wells should be mentioned in this para.

Draft Chapter 10 – Comments from Seaside Basin Watermaster 9-6--21

Page	Section	Comment
10-5	10.2	In the 3rd sentence of the top para on page 10-5 the wording "as well" is repeated. In the 3rd para there is discussion of data collection by other agencies. The Seaside Basin Watermaster should also be listed as it collects monitoring well data that will be useful.
10-6	10.2.2	In the 2nd para of this Section there is discussion of data collection by other agencies. MPWMD and the Seaside Basin Watermaster should also be listed as they collect monitoring well data that will be useful.
10-9	10.2.4.5	There is the statement in this Section that "…monitoring wells outside the Monterey Subbasin cannot be included in the Subbasin's monitoring well network…" I believe this is an incorrect statement. I could find no such prohibition anywhere in SGMA. Also in this Section there is discussion regarding monitoring well FO-9 shallow. That language should be edited to read as follows: *Within the Seaside Subbasin, ~~the Watermaster is proposing to replace~~ monitoring well FO-09 Shallow where casing leakage has been identified is likely to be replaced. The monitoring well is located near the coastline just south of the Seaside-Monterey Subbasin boundary. It is used to (a) monitor groundwater levels relative to seawater intrusion protective groundwater elevations and (b) monitor ~~chloride concentrations~~ water quality in groundwater to detect occurrences of seawater intrusion into both Subbasins*
10-10	10.2.5	In the next-to-last bullet on this page the word "the" should be inserted before the word "boundary."
10-11	10.3	In the first para of this Section "the Seaside Basin Watermaster" should be inserted just before the word "other."
10-12	10.5	At the end of the 3rd para in this Section the words "and the Seaside Basin Watermaster's Seaside Basin Model" should be added. In the 4th para in this Section please clarify what is meant by the words "standing up" as it pertains to the Dry Well Notification System.
10-17	Table 10-1	My comment on page 10-9 about including monitoring wells outside of the Monterey Subbasin seems to be addressed in the line-item titled "Voluntary monitoring of non-RMS wells." Please clarify in the text if that is correct.
10-18	Table 10-1	In the line-item titled "Improving Monitoring Networks" the same language that is contained in Table 10-2 on page 10-21 "Add Seaside Subbasin wells to monitoring GWL network" should be added.
10-25	Figure 10-1	Is there a statutory allowance of 2 years for DWR to review GSPs? This seems inordinately long and could cause problems for the GSAs if DWR took that look to provide its feedback.

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October 8, 2021

Salinas Valley Basin Groundwater Sustainability Agency
Att: Emily Gardner, Deputy General Manager
P.O. Box 1385
Carmel Valley, CA 93924

VIA: E-Mail

RE: Groundwater Sustainability Plans

Dear Ms. Gardner:

On behalf of the Board of Directors of Monterey County Farm Bureau, we express our appreciation for the dedication and diligence of both the SVBGSA's staff and the consultants of Montgomery & Associates for the progress made on the draft groundwater sustainability plans for all sub-basins, due in January 2022. This has been a tremendous lift of a workload, and the transparency provided at all the sub-basin committee meetings has greatly aided in the drafting of these plan documents.

We are encouraged that the draft sustainability plans, in their present form with minor revisions for clarification to be considered as the comments submitted are processed and reviewed, represent a pathway forward for sustainability. While we are not expressing specific language or policy suggestions in this letter, our Board and Committee members have participated in numerous meetings and expressed their comments during those specific chapter reviews.

As the drafts move forward to the SVBGSA Board of final approval, and then submission the Department of Water Resources in January 2022, it is important to keep in mind that the integration of all the collective plan provisions, practices, and projects does not propel harm on neighboring or adjacent sub-basins of the Salinas Valley during long-term implementation. The plans should all work as a cohesive whole, working towards sustainability for the entire groundwater basin regardless of the individual characteristics or status of any individual sub-basin.

In other words, the entire Salinas Valley basin needs to work together through congruent integration of all sub-basin plans to achieve the full groundwater sustainability objectives. Only through this integrated approach can all water users of the basin achieve the success that the individual plans detail.

Indeed, the collective management practices and proposed projects of all the sub-basin plans are a comprehensive and cohesive program that serves to achieve the sustainability of the entire Salinas Valley Groundwater Basin.

Sincerely,

Norman C. Groot
Executive Director

m|r|wolfe
& associates, p.c.
attorneys-at-law

October 14, 2021

Colby Pereira, Chairperson
Members of the Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Via email board@svbgsa.org

Subject: Draft Groundwater Sustainability Plans for the Upper Valley Aquifer Subbasin, Forebay Aquifer Subbasin, Eastside Aquifer Subbasin, Langley Aquifer Subbasin, and Monterey Subbasin

Dear Chair Pereira and Members of the Board of Directors:

LandWatch Monterey County offers the following comments on the draft Groundwater Sustainability Plans (GSPs) for the above referenced subbasins.

A. Selection and funding of proposed projects are not coordinated among subbasins, which is contrary to the 180/400 GSP and DWR's findings approving it. And the five new GSP's fail to provide the evidence SGMA requires that their proposed projects are financially feasible.

1. The GSA represented to DWR in the 180/400 GSP that it will identify a suite of Basin-wide projects needed to attain sustainability, which will be funded through the Basin-wide water charges framework based on pumping allowances, and that this system will be set up by June 30, 2023.

The 180/400-Foot Aquifer Subbasin GSP (180/400 GSP) that was approved by DWR identifies 13 projects that purport to "constitute an integrated management program for the entire Valley," 9 of which are identified as "priority projects." (180/400 GSP, p. 9-25.) The 180/400 GSP states that "[s]ome subset of these priority projects <u>will be implemented</u> as part of the six Salinas Valley Groundwater Subbasin GSPs," although some additional projects may be needed in some basins. (*Id.*) The 180/400 GSP found that the "projects and management actions identified in Chapter 9 are sufficient for attaining sustainability in the 180/400-Foot Aquifer Subbasin <u>as well as the other five subbasins in the Salinas Valley Groundwater Basin</u>." (*Id.* at 10-9.)

The 180/400-Foot Aquifer Subbasin GSP (180/400 GSP) provides that a "water charges framework" (WCF) will be implemented basin-wide in order to fund these projects and to deter pumping in excess of groundwater allowances. (180/400 GSP pp. 9-2 to 9-4.) The WCF is to be based on tiered charges for different levels of groundwater pumping. Tier one charges would be based on a "Sustainable Pumping Allowance," and its revenues would cover just the GSA administration. Tier 2 and 3 charges would be assessed for amounts in excess of a "Transitional Pumping Allowance" and, after the Transitional Pumping Allowances are phased out, for amounts in excess of the Sustainable Pumping Allowance. Tier two and three revenues would be used to fund the new water supply projects. The pumping allowances and fee structures were to be separately determined for each subbasin, so they would not be uniform for each subbasin; but each subbasins tiered charges would be included "in the final water charges framework agreement." (*Id.* at 9-4.)

In approving the 180/400 GSP, DWR relied on the feasibility and likelihood of the integrated set of Basin-wide projects funded by a Basin-wide WCF:

> The projects and management actions designed to eliminate overdraft and prevent seawater intrusion are reasonable and commensurate with the level of understanding of the basin setting, as described in the Plan. The water charges framework, at this time, appears feasible and reasonably likely to mitigate overdraft, which is an important management action to help prevent undesirable results and ensure that the 180/400 Foot Aquifer Subbasin is operated within its sustainable yield.

(DWR, Statement of Findings Regarding The Approval Of The 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan, June 3, 2021, p. 2.) DWR found:

> To achieve sustainability, the Plan proposes to assess fees for groundwater extraction and use these funds to implement other projects or management actions, as needed. The proposal to charge fees for extraction is called the water charges framework and involves a three-tiered system where groundwater users will be charged a series of fees based on the volume of annual groundwater extraction. The proposal includes exemptions for some groundwater pumpers, including de minimis users that will not be included in the fee program. The foundation of the water charges framework is a sustainable pumping allowance that each parcel will be allocated based on the calculated sustainable yield. Groundwater users will be allowed to pump more than their sustainable allocation; however, this additional pumping (supplemental pumping) will be subject to higher extraction fees. The proposed water charges framework is also proposed to be instituted in the other five groundwater subbasins overseen by the SVBGSA, representing a Salinas Valley Basin-wide management action.

(*Id.*, p. 5.) DWR concluded that the "fundamental structure of groundwater management in the Subbasin is a management action called the water charges framework." (*Id.* at 31, emphasis added; see also *id.* at 33.) DWR found that "implementation of projects will depend, fully or partially, on revenue generated by the proposed water charges framework." (*Id.* at 13; see also *id.* at 33, 6.)

The 180/400 GSP requires development of the WCF by January 31, 2023 for all six subbasins:

> Details of the water charges framework for all six subbasins will be developed during the first three years of this GSP's implementation through a facilitated, Valley-wide process. This process will be similar to the successful facilitated process that resulted in the SVBGSA serving as the GSA for some or all parts of all six subbasins. The result of this facilitated process will be an agreement on the financing method approved by the SVBGSA. The facilitation will be complete by January 31, 2023, and the financing method will be implemented in all six subbasins immediately following.

(180/400 GSP at 10-4.) The 180/400 GSP also requires refining the list of projects intended to support the integrated management of the entire Basin on the same schedule:

> An additional benefit of refining the projects during the first three years of implementation is that this approach complements the approach for refining the water charges framework, as outlined in Section 10.2. Refinement of the projects and actions will occur simultaneously with refinement of the funding mechanism that supports the projects and actions. By refining all of these plans simultaneously, the funding mechanism and the projects will all be in place by June 30, 2023. Projects and management actions will then be immediately implemented in a coordinated fashion
> across the entire Salinas Valley Groundwater Basin.

(*Id.* at 10-10.)

Since the WCF is based on pumping allowances, these allowances must be determined on the same schedule:

> This GSP proposes a water charges framework that provides incentives to constrain groundwater pumping to the sustainable yield while generating funds for project implementation. The framework creates sustainable pumping allowances, charging a Tier 1 Sustainable Pumping Charge for pro-rata shares of sustainable yield, Tier 2 Transitional Pumping Charge to help users transition to pumping allowances, and higher Tier 3 Supplementary Pumping Charge for using more water. Pumping allowances are not water rights, but would be established to incentivize pumping reductions.

(*Id.* at ES-14.) The Sustainable Pumping Allowance is the "base amount of groundwater pumping assigned to each non-exempt groundwater pumper. The sum of all sustainable pumping allowances and exempt groundwater pumping is the sustainable yield of the Subbasin." (*Id.* at 9-3.) Pumping allowances "are not water rights. Instead, they are pumping amounts that form the basis of a financial fee structure to both implement the regulatory functions of the SVBGSA and fund new water supply projects." (*Id.*)

In short, determining pumping allowances, setting the tiered rates for the WCF, and selecting the basin-wide projects to be financed is supposed to accomplished simultaneously by January 2023 for all six subbasins.

2. **The five draft GSPs are inconsistent with the 180/400 GSP because they do not rely on, assume, or identify a common set of Basin-wide projects and do not include participation in a Basin-wide Water Charges Framework.**

Each of the five GSPs identify a different set of projects than each other and different than the projects identified in the 180/400 GSP. (See Tables 9-1 in each GSP.) There is little overlap among the projects, and there are no projects that are common to all of the GSPs.

Furthermore, both the UVA and Forebay GSPs expressly reject the Water Charges Framework. (Forebay GSP at 10-15 to 10-16; UVA GSP at 10-15 to 10-16.) The Eastside, Monterey, and Langley GSP's do not mention the water charges framework in their discussions of funding options. (Eastside GSP at 10-15; Monterey GSP at 10-23; Langley GSP at 10-15.)

At this point, the "fundamental structure" on which DWR relied to approve the 180/400 GSP has been set aside because the five new draft GSP no longer propose a Basin-wide Water Charges Framework or a common set of Basin-wide projects to attain sustainability.

If the GSA approves the five new GSPs as written, it must fundamentally revise the 180/400 GSP, which no longer appears viable if other subbasins will not fund a common set of projects. The problem that the GSA must address squarely is that pumping reductions, not just capital projects, are needed to attain sustainability in the 180/400-Foot Aquifer Subbasin. For example, instead of investing in a permanent $100 million+ pumping barrier to hold back seawater intrusion, the GSA should consider investing in a finite period of pumping reductions that would be sufficient to restore groundwater levels to protective elevations. A finite period of pumping reductions that restores protective elevations would obviate and may be less expensive than financing and operating a permanent pumping barrier. Once the protective elevations are restored, the 180/400 could resume pumping the full sustainable yield of the subbasin, which is all that SGMA allows. (The pumping barrier would not allow any more pumping than the sustainable yield.) In any event, pumping reductions are at least feasible, and as discussed below, there is no evidence that a pumping barrier is financially feasible.

3. **The UVA and Forebay GSPs do not require, and presumably will not fund, common Basin-wide projects.**

The only project listed by the UVA GSP and Forebay GSP that is common to some of the other GSPs is the Multi-benefit Stream Channel Improvements, which is included in the

Eastside and Monterey GSPs and which contains as one component the Invasive Species Eradication project described by the 180/400 GSP. But the Multi-benefit Stream Channel Improvements projects are expected to benefit primarily the GSP's along the Salinas River, rather than the Langley or Eastside subbasins, and it is not even included in the Langley GSP. Indeed, the GSPs do not estimate any benefits to the Monterey, Eastside, and Langley Subbasins from this project.

Furthermore, neither the UVA GSP nor the Forebay GSP actually purport to require any projects to attain sustainability. (UVA GSP at 9-1 [projects not necessary to maintain sustainability]; Forebay GSP at 9-1 to 9-2 [subbasin sustainable; only management actions to be pursued].) Both GSPs anticipate ongoing maintenance of sustainability through management actions, not projects. They list projects only in case they might be needed in the future.

At this point, no GSP should assume that the Forebay and UVA water users would agree to provide funding for any large Basin-wide capital projects, either through a water charges framework or a Proposition 218 vote. To the extent that the Eastside, Langley, and Monterey GSPs assume funding contributions or project-participation from the Forebay and UVA subbasins, the five draft GSPs are inconsistent on their faces and cannot be approved. The project discussions in the Eastside, Langley, and Monterey GSPs should be revised to make clear that the proposed projects do not rely on funding contributions or project-participation from the Forebay and UVA subbasins.

4. **The Eastside, Langley, and Monterey GSPs do not propose a commons set of Basin-wide projects and do not provide the evidence required by SGMA that any large capital projects that benefit multiple subbasins are financially feasible.**

Contrary to the expectation set up by the 180/400 GSP, there is no common set of Basin-wide projects proposed by the GSPs. Although there are several large capital projects that are listed by more than one of the GSPs, the GSPs fail to provide evidence that these projects are financially feasible. This failure is because the GSPs do not address the critical question of the willingness to pay for the water these projects might deliver.

For agricultural uses, irrigation water is an input to production, so the maximum value of water is constrained by expected returns. There must be some price beyond which agricultural users will not pay for water projects. Is it $500 AF? $750 AF? $1,000 AF? $1,500 AF? And how much water would be demanded at each of these prices? What does the demand curve for agricultural water supply look line in the Valley? The GSP's simply fail to address these critical questions.

Water markets provide some evidence of willingness to pay. Although some farmers have reportedly paid as much as $2,200 per AF for some amounts of water for high value crops (e.g., on a short term basis to protect investments in permanent crops), the average NASDAQ Veles California Water Index water futures price is now only $686 AF, an extraordinarily high price attained only as a result of a long drought period[1] Agricultural water has reached market prices in the $500 to $1000 range only in times of water stress.[2] Salinas Valley farmers may be willing to pay more for water due to their higher productivity than the average California farmer, but obviously there is a limit.

The analysis of fallowing options in the Eastside GSP provides some indirect evidence of willingness to pay; and since it is based on local land prices, it should reflect the range of agricultural productivities in the Salinas Valley. The Eastside GSP concludes that land could be fallowed to make its water available to other users by paying farmers rent and cover crop expenses. (Eastside GSP, p. 9-67.) Based on these land rents and cover crop expenses, farmers would be willing to forego farming for payments that represent water values of from $590 to $1,730 per AF. If agricultural users would find it more profitable not to use water at all when it is worth more than these values to others, it is not reasonable to suppose that they would vote to assess themselves for a capital project that produces water at higher costs per acre foot.

Despite this, the GSPs propose large capital water projects with unit costs well in excess of $1,000 per AF.[3] For example, the Eastside GSP identifies the Chualar and Soledad diversion projects using the 11043 water rights as costing $55 million and $104 million respectively. The 6,000 AFY provided by these diversion projects would cost $1,280 and $2,110 per AF respectively. The projects would benefit Eastside and 180/400 water users, but there is no analysis in either the Eastside GSP or the 180/400 GSP that would support the assumption that agricultural users would be willing to pay that much for water.

Similarly, both the Monterey and Eastside GSP's identify winter reservoir releases with ASR as a potential project, costing $172 million to provide 12,900 AFY at a unit cost of $1,450 per AF. Both the Monterey and Eastside GSPs say that the distribution of benefits would be determined through a benefits assessment. But there is simply no analysis that supports the assumption that there is a willingness to pay $1,450 per AF for agricultural water, much less to do so through a long term commitment in a Proposition 218 vote or through adoption of a Water Charges Framework.

The Eastside and Monterey GSPs both identify a Regional Municipal Supply project that is based on desalinating brackish water pumped from a seawater intrusion barrier. The unit cost for desalinating this water would come to $2,900 per AF, to which must be

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1 Aquaoso, California Agricultural Water Prices by Water District, June 17, 2021, available at https://aquaoso.com/blog/california-agricultural-water-prices/.

2 *Id.*

3 By contrast, many of the projects that are proposed to benefit only one subbasin are more modest in scale and in price per AF.

added the $1,200 per AF to pump the source water from the seawater intrusion barrier. While municipal users are willing to pay more than agricultural users for water, there is no analysis in the Eastside and Monterey GSPs of how the costs would be allocated between agricultural and urban beneficiaries or whether either group would be willing to pay as much as $4,100 per AF for this water, which they now enjoy for the cost to pump it..

Some proposed large capital projects may make sense financially. The 3,500 acre CSIP expansion, identified in the Langley and Eastside GSPs, and already proposed in the 180/400 GSP, could proceed based on the existing CSIP model if the expanded benefit assessment district is willing to assess itself $630 per AF for this water. Similarly, the direct delivery (as opposed to the aquifer storage and recovery or ASR) of winter release water for MCWD's winter urban demand at $1,100 per AF may make sense given the likely willingness of new urban customers to pay higher rates.

Each of the GSPs should be revised to include a discussion of likely willingness to pay for the proposed capital projects and the likely financial feasibility of proposed projects. The discussion should reflect whether the large capital projects are scalable and whether sufficient numbers of water users would be willing to pay the average cost per AF to actually cover the minimum scale project's entire cost. The willingness of one water user to pay the average cost per AF is not evidence that the entire project can be funded.

Without an analysis of the willingness to pay for large capital projects, especially those projects for which the cost per AF is in excess of $500, the GSP's cannot be approved by DWR. SGMA requires that a GSP include both the estimated cost for each project and "a description of how the Agency plans to meet those costs." (23 CCR § 354.44(b)(8).) DWR must have substantial evidence to support a finding that the projects are "feasible" and that the GSA "has the financial resources necessary to implement the Plan." (23 CCR § 355.4(b)(5),(9).) The GSP's do not provide evidence that funding is actually feasible. Their discussions of project funding merely list the kinds of funding arrangements that are commonly used for large capital projects. (Eastside GSP at 10-15; Monterey GSP at 10-23; Langley GSP at 10-15; UVA GSP at 10-15; Forebay GSP at 10-15.) As noted, the UVA and Forebay GSPs do not propose to provide <u>any</u> project funding because they determine that no projects are actually needed, and they specifically reject participation in the Water Charges Framework. (Forebay GSP at 10-15 to 10-16; UVA GSP at 10-15 to 10-16.) Merely listing the kinds of arrangements that can <u>conceptually</u> be used to fund projects does not explain how the GSA could <u>actually</u> meet their costs, especially where there is substantial uncertainty about willingness to participate in these funding arrangements.

The findings that projects are financially feasible are particularly critical for the Eastside and Monterey Subbasins because they depend on the success of high capital, multi-subbasin projects to address overdraft conditions. (Eastside GSP at 9-103 to 9-104; Monterey GSP at 9-105.)

B. For the Monterey Subbasin GSP, the groundwater level sustainable management criteria and interim milestones fail to support the seawater intrusion criteria.

1. SGMA requires coordination of sustainable management criteria: groundwater level minimum thresholds must support the seawater intrusion minimum threshold.

SGMA requires that each minimum threshold must avoid *each* undesirable result because SGMA requires that "basin conditions at each minimum threshold will avoid undesirable results for *each of* the sustainability indicators." (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be "supported by" the "[p]otential effects on *other* sustainability indicators." (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided. Furthermore, a GSP must not "adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of its sustainability goal." (23 CCR § 355.4(b)(7).)

2. The Monterey Subbasin GSP's proposed seawater intrusion SMCs do not permit any additional intrusion.

The Monterey Subbasin GSP sets the MT and MO for seawater intrusion for the lower 180-Foot Aquifer and the 400-Foot Aquifer at the line of advancement as of 2015. (Monterey GSP, p. 8-51.) The Monterey GSP sets the MT and MO for seawater intrusion to the Deep Aquifers at Highway 1, based on the observation that there is limited intrusion in these aquifers. (*Id.*, pp. 8-51 to 8-52.) In effect, the Monterey GSP commits the GSA not to permit any additional seawater intrusion in these aquifers. This is a proper goal in light of the clear impacts to beneficial users.

3. The Monterey Subbasin GSP's groundwater level SMCs and groundwater level interim milestones are set based on their effects on seawater intrusion.

The Monterey GSP acknowledges that the MT and MO for groundwater levels must support attainment of the seawater intrusion MT and MO because it identifies the primary consideration in setting the groundwater level MT and MO as the effect on seawater intrusion:

> As discussed in Section 3.1.6, groundwater use within the Marina-Ord Area is almost exclusively limited to generation of municipal supplies by MCWD. Groundwater elevations are significantly higher than municipal production well screen elevations in all aquifers in the Marina-Ord Area, and there is limited concern regarding the potential dewatering of groundwater production wells. Therefore, *groundwater levels that could cause undesirable results associated with other locally relevant sustainability indicators, such as the lateral or vertical*

> *expansion of the existing seawater intrusion extent and/or eventual migration of saline water into Deep Aquifer wells, have been used to define groundwater level minimum thresholds in the Marina-Ord Area*.

(Monterey GSP, p. 8-16, emphasis added.) The Monterey GSP also provides that

> . . . undesirable results caused by chronic lowering of groundwater levels in the Marina-Ord Area are primarily associated with the expansion of seawater intrusion and other locally relevant sustainability indicators. *These sustainability indicators have been considered when defining groundwater level minimum thresholds in the Marina-Ord Area*.

(Monterey GSP, p. 8-19, emphasis added.)

4. Setting the Monterey Subbasin GSP's groundwater level SMCs at historic 1995-2015 conditions is purportedly justified by the stability of the lateral extent of seawater intrusion in the Monterey Subbasin during that historic period.

The Monterey GSP contends that setting the groundwater level MT and MO for the 180- and 400-Foot Aquifers on the basis of the 1995 to 2015 groundwater levels is justified because the lateral extent of seawater intrusion in the Monterey Subbasin has been "generally stable" in that period:

> As discussed in the preceding sections, the potential effects of undesirable results caused by chronic lowering of groundwater levels in the Marina-Ord Area are primarily associated with the expansion of seawater intrusion. *The observed lateral extent of seawater intrusion within the Subbasin appears to have been generally stable within the 180- and 400-Foot Aquifers between 1995 and 2015. As such, minimum thresholds have been set based upon minimum groundwater elevations observed between 1995 and 2015 in the 180- and 400 Foot aquifers*. Seawater intrusion is additionally monitored and managed pursuant to seawater intrusion SMCs (Section 8.9 below) to verify seawater intrusion does expand within the Subbasin due to sea-level rise and/or changes in the groundwater gradient.

(Monterey GSP, p. 8-30.) There are several problems with this contention, discussed below.

5. The "stability" rationale for setting the Monterey Subbasin GSP's groundwater level SMC's based on historic conditions is undercut by the Monterey GSP's projections that historic conditions will not continue: groundwater levels will actually continue to decline and remain below historic conditions and the interim milestones permit such declines.

First, the contention that groundwater level SMCs are justified by historic conditions ignores the GSP's own projection that groundwater levels will continue to decline until at least 2033 and will not attain the MO until 2042. The Monterey GSP documents and projects in its "Example Trajectory for Groundwater Elevation Interim Milestones" that groundwater levels for a Marina-Ord well fell below the MT in 2019, will continue to fall until 2033, will not rise above the MT until 2039, and will not attain the MO until 2042. (Monterey GSP, pp. 8-42, Figure 8-12.) The interim milestones for wells in the 400-Foot Aquifer and the Deep Aquifers assume and permit that groundwater levels will remain below historic levels and the MT for most of the next 20 years:

> Within the Monterey Subbasin, for wells in the 400-Foot Aquifer, Deep, and El Toro Primary Aquifer System Aquifers where groundwater levels have been declining, groundwater elevation interim milestones are defined based on a trajectory informed by current (fourth quarter of 2020) groundwater levels, historical groundwater elevation trends [footnote], and measurable objectives. This trajectory allows for and assumes a continuation of historical groundwater elevation trends during the first 5-year period of GSP implementation, a deviation from that trend over the second 5-year period, and a recovery towards the measurable objectives in the third and fourth (last) 5- year period.

(Monterey GSP, p. 8-41.) The proposed interim milestones for wells in the 180-Foot and Deep Aquifers permit substantial declines in groundwater levels from 2020 conditions in the years 2027 and 2032. (*Id.*, p. 8-43 to 8-44, Table 8-3.) For some wells, the interim milestones would not require that the minimum threshold be met until 2037 or later. In short, the Monterey GSP does not expect that groundwater levels will actually remain within historic levels.

Allowing groundwater levels to fall below historic levels is purportedly justified because "there are large volumes of freshwater in the Subbasin that provide additional time and flexibility to reach identified SMCs while projects and management actions are implemented." (*Id.*, p. 8-41.) However, the draft GSP provides no evidence to suggest that groundwater levels that fall and remain below the historic conditions for at least the next ten years in the Marina-Ord area will not induce further seawater intrusion, resulting in a failure to meet the seawater intrusion SMCs. The evidence is to the contrary: lower groundwater levels increase seawater intrusion.[4] Thus, declining groundwater levels

[4] Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, available at https://www.co.monterey.ca.us/home/showdocument?id=19642.

will make it impossible to meet the seawater intrusion minimum threshold and measurable objective, which require a halt to the advancement of seawater intrusion.

In summary, the historic "stability" rationale cannot be extrapolated to claim that groundwater levels well below the historic record will continue to result in a stable areal extent of seawater intrusion. It makes no sense to contend that setting the MT and MO on the basis of historic conditions will halt seawater intrusion when the GSP would effectively fail to maintain those historic conditions.

The historic stability rationale also ignores the fact that Deep Aquifer groundwater levels began dropping in 2014, have continued to drop, and are projected to continue to drop due to increased levels of extractions. MCWRA reported in 2020 that Deep Aquifer groundwater levels have been falling since 2014, are well below sea-level, and that induced vertical migration of contaminated water to the Deep Aquifers themselves is in fact occurring:

> As is the case with the 180-Foot and 400-Foot Aquifers, groundwater levels in the Deep Aquifers are predominantly below sea level. Beginning around 2014, groundwater levels in the Deep Aquifers began declining and are presently at a deeper elevation than groundwater levels in the overlying 400-Foot Aquifer based on comparisons of multiple well sets at selected locations, meaning that there is a downward hydraulic gradient between the impaired 400-Foot Aquifer and the Deep Aquifers (Figure 16 and Figure 17). This decrease in groundwater levels coincides with a noticeable increase in groundwater extractions from the Deep Aquifers (Figure 16 and Figure 17). The potential for inducing additional leakage from overlying impaired aquifers is a legitimate concern documented by previous studies and is something that would be facilitated by the downward hydraulic gradient that has been observed between the 400-Foot Aquifer and Deep Aquifers.
>
> Seawater intrusion has not been observed in the Deep Aquifers. However, the Agency has documented the case of one well, screened in the Deep Aquifers, that is enabling vertical migration of impaired groundwater into the Deep Aquifers. The Agency is working with the well owner on destruction of this well.[5]

In addition to the threat to contaminate the Deep Aquifers, the induced vertical migration of upper aquifer groundwater to the Deep Aquifers aggravates seawater intrusion in those upper aquifers. A 2003 study for MCWD concluded that increasing pumping of the Deep Aquifers from the 2002 baseline level of 2,400 AFY to just 4,000 AFY would (1) induce

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[5] Monterey County Water Resources Agency (MCWRA), Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin: 2020 Update, May 2020, p. 31, https://www.co.monterey.ca.us/home/showdocument?id=90578

further seawater intrusion into the upper aquifers (the 180-Foot and 400-Foot Aquifers), which were vertically connected, and (2) risk contamination of the Deep Aquifers themselves.[6] Deep Aquifer pumping is now in excess of 10,000 AFY.[7]

And, in fact, the Monterey GSP admits that falling groundwater levels in the Deep Aquifer threatens to contaminate the Deep Aquifers and to induce seawater intrusion in the upper aquifers:

> Seawater intrusion has not been observed in the Deep Aquifer to date. However, groundwater elevations have been declining and are significantly below sea level. The declining groundwater elevations in the Deep Aquifer may be causing groundwater elevations to fall within the 400-Foot Aquifer in the southwestern portion of the Marina-Ord Area (i.e., near wells MPMWD#FO-10S and MPMWD#FO-11S). Although there is some uncertainty whether the Deep Aquifer is subject to seawater intrusion from the ocean, continued decline of groundwater elevations in the Deep Aquifers could increase the risk of seawater intrusion and may eventually cause vertical migration of saline water from overlying aquifers into the Deep Aquifers. As such, minimum thresholds for the Deep Aquifers are set to historically observed minimum groundwater elevations between 1995 and 2015, which is equivalent to the groundwater elevations observed in 2015 for most Deep Aquifer wells.

(Monterey GSP, p. 8-30.) Again, setting the groundwater level MT and MO to historic levels but then allowing another ten to twenty years to pass before the interim milestones actually require attainment of these historic levels cannot demonstrably ensure that there is no further advancement of seawater intrusion. However, no further advancement is precisely what is required by the seawater intrusion MT and MO.

In sum, interim milestones cannot be set at a level that permits continued declines in groundwater levels if the Monterey GSP is to find that the groundwater levels are consistent with the seawater intrusion SMCs.

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[6] WRIME, Deep Aquifer Investigative Study, May 2003, pp. 4-7, 4-11 to 4-12, pdf available upon request.

[7] Monterey County Water Resources Agency (MCWRA), Well Permit Application Activities Update, prepared for May 17, 2021 MCWRA Board of Directors meeting, https://monterey.legistar.com/View.ashx?M=F&ID=9381226&GUID=34ED34CD-3A39-4851-87A3-298BE70D383C

6. The Monterey Subbasin GSP fails to assess the effects on <u>other</u> subbasins of setting groundwater level SMCs based on historic conditions or allowing groundwater levels to decline further through relaxed interim milestones.

As the Monterey GSP acknowledges, the interconnectivity between the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin requires coordination of the sustainable management criteria for both subbasins. (Monterey GSP, p. 8-35.) Coordination is required in order to meet SGMA's requirement that the SMC's for one subbasin do not prevent another subbasin from meeting its sustainability goal. (23 CCR § 355.4(b)(7).)

Setting the groundwater level MT and MO at historic levels and then effectively ignoring these criteria through use of relaxed interim guidelines for ten to twenty years may very well impair attainment of the seawater intrusion criteria for the 180/400-Foot Aquifer GSP, which are also set at a level that permits no further advancement of the seawater intrusion front.

However the Monterey GSP provides no analysis of that possibility. Instead, the Monterey GSP proposes to defer the assessment of the impact of the Monterey Subbasin's groundwater level MTs on the Deep Aquifers in the neighboring 180/400-foot Aquifer Subbasin until after completion of the long-delayed Deep Aquifers Study and the eventual establishment of Deep Aquifer SMCs for the 180/400-foot Aquifer Subbasin.

The Deep Aquifer Study, recommended four years ago, has not commenced.

Furthermore, there is no reason that an assessment of the effects of the Monterey Subbasin's groundwater level MTs should be limited to its effects on the Deep Aquifers in the 180/400-Foot Subbasin. The assessment should also include an assessment of the effects of the Monterey Subbasin's groundwater level MTs on seawater intrusion of <u>each</u> of the principal aquifers in that neighboring subbasin. The Monterey Subbasin GSP argues that pumping in the 180/400-Foot Aquifer Subbasin has caused seawater intrusion in the Monterey Subbasin. In turn, the Monterey Subbasin GSP must assess the reciprocal effects of its own pumping, SMCs, and interim milestones on the 180/400-Foot Aquifer Subbasin.

SGMA's mandate to use the best available science is not an invitation to let the perfect be an enemy of the good pending completion of the Deep Aquifer study. The Monterey GSP must use the whatever science is <u>now</u> available to provide <u>some</u> discussion and assessment of the effect on the neighboring subbasins of allowing continued reductions in Monterey Subbasin groundwater levels below historic conditions through relaxed interim thresholds.

Again, it is not reasonable to extrapolate beyond the historic data to assume that lower-than-historic groundwater levels in the Monterey Subbasin will not impair adjacent basins. The purported stability of the lateral extent of seawater intrusion in the Monterey Subbasin from 1995 to 2015 was certainly not matched in the 180/400-Foot Aquifer

Subbasin, where seawater intrusion rapidly advanced during that period. The Monterey GSP provides no evidence to justify the assumption that allowing lower-than-historic groundwater levels in the Monterey Subbasin will not contribute to the continuing seawater intrusion in the neighboring subbasin.

Finally, the Monterey Subbasin GSP must also evaluate and address the effects of reduced groundwater levels in the Corral de Tierra Subarea on the Seaside Subasin. Again, there is no evidence in the record that merely maintaining historic groundwater levels is sufficient to support groundwater levels in the Seaside Subbasin. To the contrary, comments by the Seaside Basin Watermaster indicate that chronic lowering of groundwater levels in the Laguna Seca Subarea of the Seaside Subbasin can only be corrected by reducing existing pumping in the Corral de Tierra, i.e., increasing groundwater levels above historic levels. (Robert Jacques, PE, email to Sarah Hardgrave, et al., March 22, 2021.) Setting Monterey Subbasin groundwater level SMC's at historic levels violates SGMA because it will prevent attainment of groundwater level objectives in the adjacent Seaside Subbasin.

C. For the Eastside Subbasin GSP, the groundwater level sustainable management criteria and interim milestones also fail to support the seawater intrusion criteria.

As discussed above, SGMA requires that each minimum threshold must avoid *each* undesirable result because SGMA requires that "basin conditions at each minimum threshold will avoid undesirable results for *each of* the sustainability indicators." (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be "supported by" the "[p]otential effects on *other* sustainability indicators." (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided.

However, the groundwater level SMCs for the Eastside Subbasin fail to support the seawater intrusion SMC. Although the Eastside Subbasins is not seawater intruded itself, its GSP sets its seawater intrusion minimum threshold to prevent any seawater intrusion over the 500 mg/l threshold in any subbasin, in effect acknowledging that conditions in the Eastside Subbasin can cause seawater intrusion in adjacent subbasins. (Eastside GSP, p. 8-29.) In its discussion of its sustainability indicators for groundwater levels, the Eastside GSP acknowledges that "interference with other sustainability indicators," e.g., the sustainability indicators for seawater intrusion, would be a significant an unreasonable condition. (*Id.*, p. 8-7.) The Eastside GSP states that that the groundwater level minimum threshold is "intended not to exacerbate the rate of seawater intrusion." (*Id.*, p. 8-15.)

Overdraft conditions in the Eastside Subbasin that lower groundwater levels create a gradient causing subsurface flows from the 180/400 Subbasin to the Eastside Subbasin. These subsurface outflows from the 180/400 Subbasin contribute to seawater intrusion by negatively affecting the water budget in the 180/400 Subbbasin. The Eastside GSP acknowledges that the historic groundwater levels in the Eastside Subbasin, including the pumping trough around Salinas, have resulted in net subsurface outflows from the 180/400 Subbasin to the Eastside Subbasin. (*Id.*, p. 6-19.) Figure 6-9 demonstrates that there have been increasing net subsurface outflows from the 180/400 Subbasin to the Eastside Subbain since 1980. (*Id.*) For example, there are substantial net subsurface outflows from the 180/400 Subbasin to the Eastside Subbasin in both 2011 and 2015, and all of the other years after 1980. (*Id.*) Despite this, the Eastside GSP sets the minimum threshold for groundwater levels at the historic 2015 levels and sets the measurable objective at the 2011 level.[8] (*Id.*, pp. 8-7, 8-18.) In short, the Eastside SMC's are set at levels that will continue to induce subsurface outflows from the seawater intruded 180/400 Subbasin.

The Eastside Subbasin GSP fails to analyze the possibility that its minimum thresholds for groundwater levels and storage depletion will contribute to seawater intrusion in the 180/400 Subbasin. Instead, the Eastside GSP simply punts this issue to the future:

> Minimum thresholds for the Eastside Subbasin will be reviewed relative to information developed for the neighboring subbasins' GSPs to ensure that these minimum thresholds will not prevent the neighboring subbasins from achieving sustainability.

(Eastside GSP, p. 8-16.) It is unclear when this review will occur, especially for the 180/400 Subbasin, for which a GSP has already been adopted. Regardless, deferral of the analysis is not sufficient. SGMA requires that the Eastside GSP squarely address whether it "will adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of its sustainability goal." (23 CCR § 355.4(b)(7).) The GSP must support its conclusions with substantial evidence after applying the best science that is available <u>now</u>. (23 CCR § 354.44(c).) It is clear that the groundwater level and storage depletion sustainability indicators for the Eastside Subbasin will continue to contribute to seawater intrusion in the 180/400 GSP by inducing subsurface flows out of the 180/400 Subbasin. Since the 180/400 Subbasin minimum threshold for seawater intrusion requires halting <u>any</u> further seawater intrusion, any further inducement of seawater intrusion will prevent the attainment of sustainability by the 180/400 Subbasin.

The Eastside GSP must be revised to provide minimum thresholds and measureable objectives for groundwater levels that will not prevent attainment of sustainability by the 180/400 Subbasin, and it must provide an analysis based on the best available science to explain why.

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[8] The Eastside GSP also sets the minimum threshold for storage reduction using the groundwater level minimum threshold as a proxy indicator. (Eastside GSP, p. 8-23.)

D. Water quality sustainable management criteria should not be limited to effects caused by "direct GSA action." The GSPs must also regulate extractions that cause undesirable results, and do so through a specific and enforceable management action.

The five new GSPs purport to limit significant and unreasonable conditions related to groundwater quality degradation to just those "[l]ocally defined significant and unreasonable changes in groundwater quality resulting from *direct GSA action*." (Monterey GSP, p. 8-56, italics added; see also, e.g., Eastside GSP, p. 8-34.) Thus, the GSPs claim that the GSA need only address water quality degradation that is a "direct result of projects or management actions conducted pursuant to GSP implementation:"

> For the Subbasin, any groundwater quality degradation that leads to an exceedance of MCLs or SMCLs in potable water supply wells or a reduction in crop production in agricultural wells <u>that is a direct result of GSP implementation</u> is unacceptable. Some groundwater quality changes are expected to occur independent of SGMA activities; because these changes are not related to SGMA activities they do not constitute an undesirable result. Therefore, the degradation of groundwater quality undesirable result is:
>
> > *Any exceedances of minimum thresholds during any one year <u>as a direct result of projects or management actions conducted pursuant to GSP implementation</u> is considered as an undesirable result.*

(Monterey GSP, p. 8-56, underlining added.)

This language does not define what constitutes a "direct result" of GSP implementation or "direct GSA action." However, elsewhere, the GSP's give three examples of conditions that may lead to an undesirable result and that the GSA is presumably prepared to address:

> • Required Changes to Subbasin Pumping. If the location and rates of groundwater pumping change *as a result of projects implemented under the GSP*, these changes could alter hydraulic gradients and associated flow directions, and cause movement of constituents of concern towards a supply well at concentrations that exceed relevant standards.
>
> • Groundwater Recharge. *Active recharge of imported water or captured runoff* could modify groundwater gradients and move constituents of concern towards a supply well in concentrations that exceed relevant limits.
>
> • Recharge of Poor-Quality Water. *Recharging the Subbasin* with water that exceeds an MCL, SMCL, or level that reduces crop production could lead to an undesirable result.

(Monterey GSP, p. 8-58; see also Eastside GSP, p. 8-42 [same].) Significantly, none of these three conditions that might trigger GSA action include excessive pumping or changes in pumping by other parties that may cause water quality degradation; each condition includes only the secondary effects of the GSA's own projects. But the GSA's failure to take management action to regulate other parties, e.g., its failure to restrict excessive extractions or changes in pumping by other parties, may also cause water quality degradation. For example, the Community Water Center (CWC) has documented that for the San Jerardo Cooperative, Inc., increasing levels of nitrate and arsenic correspond to lower groundwater levels.[9] CWC has documented that "contaminants like arsenic, uranium, and chromium (including hexavalent chromium) are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations."[10] It is clear that pumping levels and pumping changes can mobilize, concentrate, or move existing contaminants so as to cause water quality degradation. The GSA has a duty under SGMA to prevent this.

The Monterey GSP contends that because other agencies have authority over groundwater quality, the GSA's role is somehow limited:

> The powers granted to GSAs to effect sustainable groundwater management under SGMA generally revolve around managing the quantity, location, and timing of groundwater pumping. SGMA does not empower GSAs to develop or enforce water quality standards; that authority rests with the SWRCB Division of Drinking Water and Monterey County. Because of the limited purview of GSAs with respect to water quality, and the rightful emphasis on those constituents that may be related to groundwater quantity management activities.
>
> Therefore, this GSP is designed to avoid taking any action that may inadvertently move groundwater constituents already in the Subbasin in such a way that the constituents have a significant and unreasonable impact that would not otherwise occur.

(Monterey GSP, pp. 8-60 to 8-61; see also Eastside GSP, p. 8-35.) The fact that the County *and* the RWQCB also have authority and responsibility to address water quality degradation demonstrates that the statutory scheme does not rely on the regulatory

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[9] Community Water Center, letter to SVGBGSA, April 23, 2021, re Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins, p. 1.

[10] *Id.*, pp. 1-2, citing Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/156 0371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

actions of any single agency. Nothing in SGMA's mandate that the GSP address water quality degradation permits the GSA to ignore water quality degradation that results from third party pumping or to ignore such third party degradation unless the GSA has affirmatively regulated pumping. The GSP must address the effects of its regulatory acts or omissions, including omissions that move, mobilize, or concentrate pollutants by permitting excessive extractions or changes in extractions by groundwater pumpers.

Indeed, DWR has made it clear in its imposition of corrective actions on the 180/400-Foot Aquifer Subbasin GSP that "groundwater management *and extraction*" mustg be addressed because it may result in degraded water quality:

> RECOMMENDED CORRECTIVE ACTION 5 Coordinate with the appropriate groundwater users, including drinking water, environmental, and irrigation users as identified in the Plan, and water quality regulatory agencies and programs in the Subbasin to understand and develop a process for determining if groundwater management *and extraction* is resulting in degraded water quality in the Subbasin.[11]

Accordingly, the GSP cannot limit its concern to the effects of its own projects without taking responsibility for the effects of unregulated, excessive, or changed extractions on water quality degradation.

For example, if there is evidence that arsenic contaminations are mobilized or concentrations increased by new or excessive extractions, then the GSP must manage extractions to avoid undesirable results from mobilized, moved, or concentrated arsenic. The GSP cannot simply state that there "is no clear correlation that can be established between groundwater levels and groundwater quality at this time" as if that disposes of the matter for the GSP planning horizon. (Monterey GSP, p. 8-58.) The GSA must adopt an effective program to investigate, apply the best available science, and manage the resource to prevent undesirable contaminant concentrations caused by excessive or changed extractions, whether those are due to changes the GSA requires in subbaasin pumping or due to the failure of the GSA to regulate existing pumping in the first instance.

In sum, the GSPs fail to propose a coordinated system of meaningful sustainable management criteria and a management action to address water quality degradation. The minimum threshold and measureable objectives should be based on zero exceedances of water quality standards, as in the Eastside GSP so that each and every instance of water quality degradation can be determined and action can be prompted. (Eastside GSP, pp. 8-34, 8-41.) The GSP's should provide for a more robust monitoring program and a self-reporting program so that any exceedance will actually be determined. It is not sufficient to monitor only a small sampling of domestic wells.

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[11] Department of Water Resources, GSP Assessment Staff Report Salinas Valley – 180/400 Foot Aquifer (Basin No. 3-004.01), June 3, 2021, p. 37, emphasis added available at https://sgma.water.ca.gov/portal/gsp/assessments/29.

Most importantly, the proposed "Water Quality Partnership" implementation action needs to be revised so that it is an effective, enforceable commitment to action by the agency with the most direct oversight of the cause of any exceedance. (See, e.g., Eastside GSP, pp. 9-100 to 9-101.) The proposed Water Quality Partnership contains only the flowing proposals for action:

> SVBGSA will coordinate with the appropriate water quality regulatory programs and agencies in the Subbasin to understand and develop a process for determining when groundwater management and extraction are resulting in degraded water quality in the Subbasin. . . . Under this implementation action, SVBGSA will play a convening role by developing and coordinating a water quality partnership (Partnership). . . . The Partnership will review water quality data, identify data gaps, and coordinate agency communication. The Partnership will include the Regional Water Quality Control Board, local agencies and organizations, water providers, domestic well owners, technical experts, and other stakeholders. The Partnership will convene at least annually. The goal of the Partnership will include documenting agency actions to address water quality concerns. An annual update to the SVBGSA Board of Directors will be provided regarding Partnership efforts and convenings.

(Eastside GSP, p. 9-101.) In effect, the Water Quality Partnership calls for holding an annual meeting and writing a report. This is not a sufficient basis to find that the GSA has met its statutory obligation to adopt a plan that will actually address water quality degradation.

At minimum, a management action that addresses water quality degradation should include the following specific steps, which should be negotiated and memorialized in an MOU with the CCRWQCB and the Monterey County Department of Environmental Health:

- The agencies should arrange to monitor a sufficiently representative sampling of domestic wells to reliably determine any instance of a domestic well's failure to meet water quality standards.
- The agencies should accept and verify self-reporting of instances of failures to meet water quality standards.
- For each instance of failure to meet water quality standards, the agencies should ascertain whether the cause includes (1) discharge of pollutants, as determined by the CCRWQCB or the County DEH, and/or (2) pumping activity that has concentrated, mobilized, or moved pollutants, as determined by SVBGSA or the County DEH.
- Where the cause includes pumping activity, the SVBGSA should take action to abate the pumping that is causing the failure to meet water quality standards.

Absent such a program, the GSPs do not meet the statutory obligation to adopt a plan that will actually address water quality degradation.

Yours sincerely,

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October 15, 2021

Via Electronic Mail

Colby Pereira, Chairperson
Members of the Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
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Subject: Comments on Draft Groundwater Sustainability Plans for the Upper Valley Aquifer, Forebay Aquifer Subbasin, Eastside Aquifer Subbasin, Langley Aquifer Subbasin, and Monterey Subbasin

Dear Chair Pereira and Members of the Board of Directors:

Thank you for the opportunity to submit comments. The following comments are offered on behalf of the members of California Coastkeeper Alliance and Monterey Waterkeeper.

Our comments are offered for all subbasin groundwater sustainability plans, including for the Upper Valley Aquifer, Forebay Aquifer Subbasin, Eastside Aquifer Subbasin, Langley Aquifer Subbasin, and Monterey Subbasin (collectively "GSPs"). Given the interdependence of the planning for all subbasins, comments are relevant to all the GSPs and the approach of the Salinas Valley Basin Groundwater Sustainability Agency ("SVBGSA") as applied to every subbasin. There is urgency to begin implementing meaningful projects and management actions which are protective of all beneficial uses of water, and we voice our agreement with the comments Community Water Center and LandWatch Monterey County have provided on plans developed by the SVBGSA and incorporate them here by reference.[1]

1. **Overview of Requirements for Groundwater Sustainability Plans Under the Sustainable Groundwater Management Act.**

The Sustainable Groundwater Management Act ("SGMA") requires the SVBGSA to include findings in the GSPs demonstrating the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and

[1] All comments on the GSPs and the 180/400 Foot Subbasin Plan through October 15, 2021, including comments to the Department of Water Resources.

implementation horizon.[2] Projects and management actions must be sufficient to support a determination that the GSPs will achieve the sustainability goal,[3] including descriptions of "circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation . . . and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred."[4] Time-tables for initiation and completion must be included,[5] along with an explanation of how the project or management action will be accomplished. Sustainability Plans must identify and *cause* the implementation of projects and management actions.[6] Providing concrete triggers and timetables for implementation is a critical and required component for demonstrating the GSPs are likely to meet the sustainability goal.

The GSPs are also required to support decisions with the best available science,[7] while Sustainable Management Criteria ("SMCs") and projects and management actions must be commensurate with the level of understanding of the basin setting.[8]

2. The Disparity Between the Basin-Wide Integrated Management Approach of the 180/400 Aquifer Subbasin GSP, and The Remaining GSPs Must Be Resolved.

The GSPs do not satisfy the SVBGSA's duty under SGMA because of conflicts between the approaches across the numerous GSPs and the 180/400 Foot Aquifer Plan. Plans for adjacent basins must not adversely affect the ability of one another to maintain their sustainability goals over the planning and implementation horizon.[9] We voice our agreement with comments LandWatch Monterey County has provided to the SVBGSA outlining concerns with consistency across the SVBGSA's GSPs, namely that inconsistency undermines the likelihood that any of the SVBGSA's subbasin plans will achieve their sustainability goals.

The groundwater sustainability plan for the 180/400 Ft Aquifer that was approved by the Department of Water Resources ("DWR") identifies 13 projects that "constitute an integrated management program for the entire Valley."[10] However, this basin-wide integrated management program has not been carried forward into the GSPs being drafted now. The GSPs each identify different sets of projects, which are also different from the projects identified in the 180/400 GSP. There is little overlap among the projects, and there are no projects that are common to all of the GSPs. Perhaps the most problematic example relates to the water charges framework. DWR relied on the feasibility and likelihood of the integrated set of basin-wide projects funded by the basin-wide water charges framework:

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[2] 23 CCR § 354.24 (requiring discussion of measures that will be implemented to ensure likely achievement of sustainability goal).
[3] 23 CCR § 354.44(a).
[4] 23 CCR §§ 354.44(b)(1)(A).
[5] 23 CCR §354.44(b)(4).
[6] 10721(u) (emphasis added).
[7] *See* Cal. Water Code § 113; 23 CCR § 355.4.
[8] 23 CCR § 350.4.
[9] 23 CCR §350.4(f),
[10] 180/400 Aquifer plan, p. 9-25.

> The water charges framework, at this time, appears feasible and reasonably likely to mitigate overdraft, which is an important management action to help prevent undesirable results and ensure that the 180/400 Foot Aquifer Subbasin is operated within its sustainable yield.[11]

DWR considers the water charges framework to be the "fundamental structure of groundwater management" for the 180/400 Foot Subbasin.[12] The framework was intended to be implemented across all the SVBGSA basins.[13] However, the Upper Valley and Forebay Plans reject the Water Charges Framework,[14] meanwhile the Eastside, Monterey, and Langley plans do not mention the water charges framework in their discussions of funding options.[15]

The disparity between the basin-wide integrated management approach of the 180/400 Aquifer Subbasin GSP and the lack of integrated approach of the remaining GSPs must be resolved. After undertaking the process of developing and approving plans, a GSP must be implemented.[16] The conflict between the GSPs and the 180/400 Foot Aquifer Plan undermines the likelihood the approved 180/400 Foot Subbasin Plan will achieve its sustainability goal.

3. **Timelines for Implementation of Plans Must Be Concrete and Conservative to Ensure the Sustainability Goal Is Fulfilled.**

The GSPs do not satisfy the SVBGSA's duty to demonstrate a likelihood of achieving the sustainability goal by describing how projects and management actions are sufficiently concrete to be relied upon. The GSPs also fail to adequately address evidence of changing water supplies.

As a result of the passage of time, the SVBGSA forecloses its options to manage the basin sustainably. The SVBGSA is responsible for managing the basin sustainably, including being responsible for its choices *not* to initiate projects in a timely manner. Said differently, the choice to allow the status quo to persist is a management decision, the consequences of which the SVBGSA is responsible for under SGMA.

The urgency to begin implementation and commit to a *viable* strategy cannot be overstated. An increasing body of climate change research shows that drought will continue to intensify. For example, NOAA summarized the updated consensus on drought last month:

> The warm temperatures that have helped make this drought so intense and widespread will continue (and increase) until stringent climate mitigation is pursued and regional warming trends are reversed. As such, continued greenhouse gas warming of the U.S.

[11] DWR, Statement of Findings, 180/400 Foot Aquifer Subbasin, p. 2.
[12] DWR, GSP Assessment Staff Report, 180/400 Foot Aquifer Subbasin (June 3, 2021), p. 31.
[13] DWR, GSP Assessment Staff Report, 180/400 Foot Aquifer Subbasin (June 3, 2021), p. 5 ("Groundwater users will be allowed to pump more than their sustainable allocation; however, this additional pumping (supplemental pumping) will be subject to higher extraction fees. The proposed water charges framework is also proposed to be instituted in the other five groundwater subbasins overseen by the SVBGSA, representing a Salinas Valley Basin-wide management action")
[14] Forebay GSP at 10-15 to 10-16; UVA GSP at 10-15 to 10-16.
[15] Eastside GSP at 10-15; Monterey GSP at 10-23; Langley GSP at 10-15.
[16] Cal. Water Code § 10727(a)

> Southwest will make even randomly-occurring seasons of average- to below-average precipitation a potential drought trigger, and intensify droughts beyond what would be expected from rainfall or snowpack deficits alone.[17]

We concur with Community Water Center's objections to the GSPs relying on the "Central Tendency" scenario in DWR's guidance.[18] Besides the fact that expectations of future drought scenarios have changed since DWR's guidance was published in 2018, the guidance itself encourages groundwater sustainability agencies to analyze the more extreme Dry-Extreme Warming and Wet-Moderate Warming scenarios. There is no reasonable basis for not following DWR guidance and analyzing these scenarios, and choosing not to consider these scenarios constitutes a failure to consider the best available science and information as required by SGMA.

Conservative estimates and plans for water budgeting will protect front line communities from the immediate impacts of groundwater overdraft. The GSPs are expressly required to consider these impacts by SGMA[19] and to ensure consistency with California's Human Right to Water Law[20] which holds up each person's right to have safe, clean, affordable, and accessible water. Overestimating the sustainable yield will undermine the likelihood of maintaining the sustainability goal through the planning and implementation horizon as required under SGMA.[21] Unfortunately, underrepresented communities and ecological and recreational beneficial uses will be the most impacted by the GSPs' failures in the short and long-term.

The SVBGSA's reliance on projects and management actions (such as large infrastructure projects) with uncertain viability due to issues including lack of funding and unpredictable political and permitting regimes that are outside its control does satisfy its legal duties. The SVBGSA must provide concrete triggers and timelines for projects within its control, including pumping restrictions, to demonstrate a likelihood of avoiding undesirable results and meeting the sustainability goal as required under SGMA. Indeed, the State Water Resources Control Board has emphasized to the SVBGSA the importance of establishing specific and reasonable timelines with respect to projects that may be reliant on water rights, including pumping restrictions.[22] Failure to avoid undesirable results, including sea water intrusion impacts, will be devastating, and will create irreversible and expensive impacts for the entire region to deal with once they occur. Management actions that will have an immediate, quantifiable impact, including limiting new wells and taking the necessary steps to initiate pumping restrictions must be included in the GSPs because they provide certainty and therefore are reasonably likely to help meet sustainability goals for the region as SGMA requires.

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17 NOAA Drought Task Force Report on the 2020–2021 Southwestern U.S. Drought, September 21, 2021. Available at https://www.drought.gov/documents/noaa-drought-task-force-report-2020-2021-southwestern-us-drought

18 Community Water Center Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins, April 23, 2021, p. 11-14

19 Cal. Water Code §10723.2.

20 Cal. Water Code § 106.3.

21 *See* 23 Cal Code of Reg ("CCR") § 354.24.

22 State Water Resources Board letter to Craig Altare, Supervising Geologist, SGMA Office, Department of Water Resources, 180/400 Foot Aquifer Groundwater Sustainability Plan (December 8, 2020).

4. The Sustainable Management Criteria and Management Actions for Depletion of Interconnected Surface Waters are Deficient and Violate SGMA and Public Trust and Reasonable Use Doctrines.

Ecological and recreational surface water beneficial uses are not adequately protected under the GSPs.

A. <u>Legal Background and SVBGSA's Duties Related to Depletion of Interconnected Surface Waters.</u>

Plans are required to define sustainable groundwater management by first characterizing undesirable results.[23] Undesirable result number six is defined as "depletions of interconnected surface water that have significant and unreasonable adverse on beneficial uses of the surface water."[24] Plans must include sustainable management criteria ("SMCs") for undesirable results along with sufficiently concrete timelines and commitments for projects and management actions to demonstrate the sustainability goal is likely to be achieved and maintained throughout the planning and implementation horizon.[25] The GSPs' decisions must be supported by the best available science,[26] and SMCs and projects and management actions must be commensurate with the level of understanding of the basin setting.[27]

California's Reasonable Use Doctrine requires the SVBGSA to protect water resources and balance competing beneficial uses consistent with public interest. This doctrine is enshrined in SGMA.[28] Article X, section 2 requires "water resources of the State be put to beneficial use to the fullest extent of which they are capable, and the water or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." The Reasonable Use Doctrine is the principle governing all uses of water resources in California.[29] Section 100 of the Water Code further mandates "that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."[30]

The SVBGSA also has an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible.[31] The SVBGSA must consider public trust resources as they relate to groundwater pumping impacts to surface water beneficial uses.

To summarize, the GSPs must first establish criteria, set out measures in sufficient detail to ensure sustainability according to the criteria, and then implement the plan. The SVBGSA

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[23] *See* 23 CCR 354.22; Cal. Water Code § 10721(u).
[24] *See* Cal. Water Code § 10721(x)(6).
[25] *See* 23 CFR 354.22 et seq.
[26] *See* Cal. Water Code § 100; 23 CCR § 355.4.
[27] 23 CCR § 350.4.
[28] Cal. Water Code § 10720.1.
[29] *Joslin v. Mann Municipal Water Dist.*, (1967) 67 Cal.2d. 132, 137-38.
[30] Cal. Water Code § 100.
[31] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 446 (1983).

must be guided by the Public Trust and Reasonable Use doctrines, especially given the significant interaction between surface water and groundwater in the Salinas Valley. These doctrines are guideposts for developing the SMCs.[32] The GSPs must undertake an analysis of the impacts to public trust resources and ensure the reasonable use of water. Any consideration of reasonableness must include analysis of the costs to public trust resources and the reasonableness of the loss of fish populations, for example. Ecological beneficial uses of the Salinas River are essential to meeting the success and viability of the South Central Southern California Steelhead.[33]

B. The Sustainable Management Criteria for Depletion of Interconnected Surface Waters Fail to Adequately Consider Impacts to Ecological Beneficial Uses Including Habitat for Steelhead Trout.

Prevention of Undesirable Result Number Six requires the SVBGSA to develop SMCs considering all impacts beneficial uses of surface water including Steelhead habitat. The overarching legal doctrine of reasonable use and public trust provide boundaries governing beneficial uses of surface water, and inform the analysis of what constitute "significant and unreasonable adverse impacts" on beneficial uses of the surface water as a result of these depletions under SGMA.

Groundwater pumping will impact surface waters and have an adverse impact on fish and wildlife. Yet the GSPs fail to provide any analysis of the impacts to public trust resources, the first step in the process to satisfy the public trust doctrine.[34] The SVBGSA has not acknowledged, let alone provided any analysis of the damage to Steelhead Trout habitat that will be caused under the proposed SMCs. This failure also violates the Reasonable Use Doctrine.

I. Reliance on the 2007 Biological Opinion Does Not Fulfill the SVBGSA's duties under SGMA, the Public Trust Doctrine, or the Reasonable Use Doctrine.

The SVBGSA has been repeatedly alerted to the damage being caused under the Biological Opinion and Incidental Take Statement for the Salinas Valley Water Project ("2007 Biological Opinion"),[35] and it should not be used to develop SMCs for the preventing of undesirable results related to the depletion of interconnected surface water. The GSPs fail to consider the impacts on Steelhead populations in particular. Steelhead are of particular importance because of their protected status, and their value as an indicator species for the health and sustainability of Salinas River management. Stakeholders, The National Marine Fisheries Service ("NMFS") in particular, have pressed the SVBGSA for changes due to concerns about

[32] Belin, A., Guide to Compliance With California's Sustainable Groundwater Management Act: How to avoid the "undesirable result" of "significant and unreasonable adverse impacts on beneficial uses of surface waters" (2018) (available at https://stacks.stanford.edu/file/druid:kx058kk6484/Woods%20Groundwater%20Mgmt%20Act%20Report%20v06%20WEB.pdf).

[33] *See* NMFS Comment on UVA (May 7, 2021) Appendix A (Role of Salinas River in Meeting NMFS' South-Central California Coast Steelhead Viability/Recovery Criteria.**)**

[34] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 426.

[35] June 21, 2007.

the failure of the SMCs to undertake a meaningful analysis of impacts to ecological beneficial uses, including for Steelhead Trout habitat. The status quo management strategy under the withdrawn 2007 Biological Opinion does not adequately support ecological beneficial uses and constitutes an unauthorized take of steelhead trout under federal law.[36] This amounts to a violation of both the Reasonable Use Doctrine and Public Trust Doctrine. The GSPs, including projects and management actions that depend on the establishment of valid SMCs, must be revised accordingly.

The GSA has not interrogated the question of how recreational and ecological uses, including flows for Steelhead, are impacted under recent activities managing groundwater. NMFS has commented extensively throughout proceedings on the 180/400 and the proceedings on the remaining GSPs, explaining that the current regime does not protect ecological beneficial uses. Importantly, NMFS has explained that implementation of the withdrawn 2007 Biological Opinion should not be relied on by the GSA as evidence that the current regime supports ecological beneficial uses.

The 2007 Biological Opinion was withdrawn because it did not adequately protect Steelhead and was not protective of public trust resources. For example, the Biological Opinion assumed precipitation would follow historical wet and dry year patterns,[37] and the Salinas Valley Water Project would operate as planned. Neither assumption has proved correct, however. California has experienced severe, multi-year droughts that began after NMFS issued the Biological Opinion in 2007. The Flow Prescription only contemplated water releases from the Nacimiento and San Antonio Reservoirs for steelhead flows in the Salinas River when combined water storage is above 150,000 acre-feet for smolt outmigration or 220,000 acre-feet for adult upstream migration and juvenile passage to the lagoon. The Flow Prescription does allow for 2 cfs of flow to the lagoon during dry years where flows for migration are not triggered. Due to the droughts, reservoir storage capacity has not exceeded the migration-flow trigger levels, relieving Monterey County Water Resources Agency from any obligation to provide conservation releases. Due to declining reservoir storage and low rainfall, fish passage has been impossible, effectively precluding steelhead reproduction. As a result, steelhead trout receive essentially no conservation flow benefit from the Biological Opinion that was crafted with the object of protecting the species.

Since the Biological Opinion was withdrawn, federal and state agencies have made clear that the flow regime it proposed was inadequate and must be updated.[38] The SVBGSA has not explained how it can rely on a withdrawn Biological Opinion and comply with SGMA's mandate to use the best available science and information. The SVBGSA maintains that it can wait for a revised flow regime in a yet-to-be developed Habitat Conservation Plan. Meanwhile The

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[36] "Unauthorized take" is defined as "to harass, harm pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19).
[37] *See, e.g.*, 2007 Biological Opinion, p. 12-13.
[38] *See* South-Central California Coast Steelhead Recovery Plan, National Marine Fisheries Service, West Coast Region, California Coastal Area Office, Long Beach, California (2013) (explaining the failures).

California Department of Fish and Game advise conservatism in such situations, where impacts of groundwater-surface water dynamics are either unknown or in the process of being analyzed.[39]

The Biological Opinion does not support ecological beneficial uses, and the SVBGSA has not explained how reliance on it to establish SMCs will protect ecological beneficial uses, protect public trust resources, and reasonably balance beneficial uses of water. NMFS has commented that the using the proposed SMCs are "likely a take," explaining:

> Given that 2015 pumping levels, and the corresponding impact of surface water depletion on beneficial uses, were likely some of the highest on record due to California's historic drought, preventing those impacts from worsening in the future is hardly a "benefit" to ecological users of surface water, and akin to ensuring a dry river channel doesn't get any drier.[40]

The fact that implementation of the proposed SMCs will cause a take to occurr, in and of itself, constitutes a "red light" scenario under Undesirable Result Number Six, and requires remedial steps by the SVBGSA.[41] The SVBGSA has responded to NMFS concerns, not by changing the substance of the GSPs to better protect ecological uses with meaningful action, but merely by explaining the intent to wait for a new Habitat Conservation Plan to establish a new flow regime that will be protective. This strategy does not analyze, much less incorporate the best information or science as required under SGMA. Neither has the SVBGSA provided any discussion or support for how waiting for a new Habitat Conservation Plan, a process completely outside the control of the SVBGSA, satisfies its duties to safeguard public trust resources and ensure the reasonable use of water.

The fact that the current flow regime is inadequate to support ecological beneficial uses has consequences for the GSPs' water budgets as well. The GSPs must consider the best available information and science in establishing the water budget.[42] The GSPs use of the withdrawn Biological Opinion does not satisfy the SVBGSA's duty to use the best available information and science for the purpose of water budgeting.

II. The Use of Groundwater Levels as a Proxy for Interconnected Surface Water Sustainable Management Criteria is Not Adequately Supported.

Under SGMA, the use of groundwater levels as a proxy in the depletion of interconnected surface water SMCs requires that a "significant correlation exists between groundwater elevations" and undesirable surface water depletion impacts they are designed to measure.[43] However, the GSPs do not establish a significant correlation, ignoring significant and

[39] Fish & Wildlife Groundwater Planning Considerations. California Department of Fish and Wildlife, Groundwater Program. California Department of Fish and Wildlife (2019) p. 14 (available at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=170185&inline)
[40] NMFS Comment to Upper Valley Aquifer GSA, May 7, 2021.
[41] Belin, A., Guide to Compliance With California's Sustainable Groundwater Management Act: How to avoid the "undesirable result" of "significant and unreasonable adverse impacts on beneficial uses of surface waters" (2018).
[42] 23 CCR § 354.18(e).
[43] 23 CCR § 354.36(b).

unreasonable impacts to Steelhead, and by proxy, to the ecological health of the Salinas Basin, that are accruing under the current and projected future levels of groundwater pumping. These local circumstances, including the most relevant and current facts and impacts on recreational and ecological resources must be analyzed to establish any significant correlation. Simply citing to a 2018 Environmental Defense Fund guidance, as the SVBGSA has done, is not adequate to establish the proxy relationship. In fact, that guidance makes clear that local conditions and circumstances must be analyzed, and does not suggest that groundwater levels should be used as a proxy without such analyses.[44]

The SMCs must be reevaluated in light of the body of evidence that ecological and recreational beneficial uses are not adequately being protected. SGMA requires this information be included in the analysis of significant and unreasonable adverse impacts on beneficial uses of surface water. Despite the requirements of the Public Trust and Reasonable Use doctrines, the GSPs fail to use reasonable means available under its authority to analyze, much less limit unreasonable impacts to surface water beneficial uses and public trust resources. The SVBGSA must, as a starting point, acknowledge what those impacts are. Then the SVBGSA must determine the implications for sustainable groundwater management in the Salinas Valley.

C. Projects and Management Actions for Preventing Undesirable Result Number Six Are Not Supported by the Best Available Science.

Projects and management actions to address depletion of interconnected surface waters must consider the best available science.[45] The GSA must support its conclusions with substantial evidence after applying the best science that is available now. As explained above, the proposed SMCs, which are supposedly designed to protect against undesirable result number six, depletion of interconnected surface waters, rely on outdated findings from the 2007 Biological Opinion that has been retracted, and ignore more recent data and information. The GSP ignores ample evidence that has been submitted to the SVBGSA demonstrating the need for increased flows to support ecological beneficial uses. Relying on the Biological Opinion's flow regime while ignoring the reasons it was withdrawn and supplemental information violates SGMA regulations requiring the best available science and information support decisions in plans.

D. The GSPs Do Not Include Reasonable Steps to Develop Protective Sustainable Management Criteria, Projects, and Management Actions.

As with other SMCs, SGMA's mandate that the GSPs address depletion of interconnected surface waters requires that management actions the GSPs proposes are reasonable and supported by the best available science. In addition, the Public Trust places an affirmative duty on the SVBGSA to consider public trust resources and protect them "whenever

[44] *See* Hall, M., Babbitt, C., Environmental Defense Fund, Addressing Regional Surface Water Depletions in California, A proposed approach for compliance with SGMA (2018) p. 7 (available at https://www.edf.org/sites/default/files/documents/edf_california_sgma_surface_water.pdf).
[45] 23 CCR § 354.44(c).

feasible,"[46] and the Reasonable Use Doctrine requires that GSPs provide for "the greatest number of beneficial uses which the supply can yield."[47]

The SVBGSA's plan to "continue to coordinate with NMFS on the effect of pumping on interconnected surface water and steelhead trout" falls well short of these standards. The GSPs must set forth concrete steps that will be taken to establish legally sufficient SMCs, including impacts to Public Trust resources. SGMA requires corresponding projects and management actions, sufficient to support the determination by the SVBGSA that the sustainability goal will be met, be included in the GSP, and then implemented. The SVBGSA must separately demonstrate that it has fulfilled its duties under the Reasonable Use and Public Trust doctrines. Indeed, an attempt to avoid or minimize the harm to public trust uses is the second step required by the Public Trust Doctrine.[48]

5. Sustainable Management Criteria and Management Actions Related to Water Quality Violate SGMA.

The GSPs must analyze how groundwater conditions impact and degrade water quality. While the SVBGSA may not be the only agency with some responsibility over groundwater quality, the fact that other agencies including the County and the Regional Water Quality Board have authority and responsibility to address water quality degradation does not relieve the SVBGSA from its duty to ensure groundwater conditions in the basin do not create undesirable results. DWR rejected the SVBGSA's narrow interpretation of its responsibility to protect against water degradation.[49] The fact that multiple other agencies share responsibility demonstrates that the statutory scheme does not intend to rely on the regulatory actions of any single agency.

SGMA requires the GSPs to address degradation of water quality that accrues after January 1, 2015.[50] SGMA states that a plan "may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015." Thus, the GSPs must address all worsening water quality that results from groundwater use, including instances where water quality may have already violated maximum contaminant levels in 2015.

Nothing in SGMA's mandate that the GSPs address water quality degradation permits the SVBGSA to ignore water quality degradation that results from third party pumping. The GSPs must address the effects of its regulatory acts, and its failures to act.[51]

The State Water Resources Board identified the importance of the SVBGSA sorting out its responsibilities vis-à-vis other agencies in 2020:

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[46] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 446.
[47] *Peabody v. City of Vallejo*, 2 Cal. 3d 351, 368 (1935).
[48] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d. 419, 426.
[49] DWR GSP Assessment Staff Report, Salinas Valley – 180/400 Foot Aquifer (June 3, 2021) p. 27.
[50] Cal. Water Code §§10727.2(b)(4); 10721(x)(4).
[51] *See, e.g.,* Cal. Water Code § 10721(u) (explaining that the plans must achieve the sustainability goal by identifying and causing the implementation of projects and management actions).

> The GSP states that only water quality impacts caused by GSP implementation are unacceptable but does not explain how SGMA-related water quality changes will be distinguished from other water quality changes. The GSP should outline the process the GSAs would use to decide whether or not an exceedance of an MT for water quality degradation was caused by GSP implementation; otherwise, it is difficult to judge how adequately the GSP addresses undesirable results related to water quality degradation. Staff recommends that the GSAs consult with the Central Coast Water Board in developing this process.[52]

Not only does the SVBGSA have responsibility to consider water quality impacts, but the GSPs must also put in place concrete plans for determining which agency will take responsibility under which circumstances, to ensure that water quality issues are dealt with. The State Water Board and DWR have identified the importance of consulting with the Central Coast Water Board to ensure responsibilities are understood and water quality is adequately protected.[53]

The proposed "Water Quality Partnership" project and/or management action in the GSPs[54] does not satisfy SGMA's requirement that he SVBGSA provide findings determining the project and management actions will achieve the sustainability goal,[55] nor do the GSPs include required descriptions of circumstances under which the partnership will be implemented, criteria triggering implementation,[56] time-tables for initiation and completion,[57] or an explanation of how the project or management action will be accomplished. The GSPs must identify and *cause* the implementation of the Water Quality Partnership actions.[58] Providing these details is a critical and required component for demonstrating the GSPs are likely to meet the sustainability goal, as the SVBGSA is required to do.

The Water Quality Partnership needs to be revised to be an effective, enforceable commitment to action by the agencies with the most direct oversight of the cause of any exceedance. At minimum, a management action that addresses water quality degradation should include the following specific details, which should be negotiated and memorialized in a memorandum of understanding ("MOU") to include the SVBGSA, the Regional Water Quality Board, and the Monterey County Department of Environmental Health:

- The agencies must monitor a sufficiently representative sampling of domestic wells to reliably determine any instance of a domestic well's failure to meet water quality standards;

- An approach to reach agreement between the agencies, for each instance of failure to meet the measurable threshold for water quality, about whether the cause includes (1)

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[52] State Water Resources Board letter to Craig Altare, Supervising Geologist, SGMA Office, Department of Water Resources, 180/400 Foot Aquifer Groundwater Sustainability Plan, Groundwater Subbasin No. 3-004.01(December 8, 2020), p. 3.
[53] *Id*; DWR GSP Assessment Staff Report, Salinas Valley – 180/400 Foot Aquifer (June 3, 2021), p. 27.
[54] *See, e.g.*, Eastside Aquifer Plan, pp. 9-100 - 9-101.
[55] 23 CCR § 354.44(a).
[56] 23 CCR § 354.44(b)(1)(A).
[57] 23 CCR §354.44(b)(4).
[58] Cal. Water Code § 10721(u) (emphasis added).

discharge of pollutants and/or (2) pumping activity that has concentrated, mobilized, or moved pollutants. Each instance, there must be public oversight and clear system of accountability for the agency/agencies that are assigned responsibility;

- Where the cause includes pumping activity, the SVBGSA should take action to abate the pumping that is causing the failure to meet water quality standards;

- Adequate funding for all aspects of the project, including financial support for outreach to underrepresented communities;

- Unless and until the Water Quality Partnership approach results in an improvement in the water quality for the impacted well immediately after reporting, the minimum threshold should be set at 75% of the relevant maximum contaminant level to adequately protect public health.

In addition, the MOU for the Water Quality Partnership should be finalized in a timely manner. Further, the agencies should report out to the public on those meetings regularly and the GSPs should establish a concrete timeline for when the respective requirements of the MOU will be complete, and consequences if the timelines are not met.

Lastly, we voice our agreement with the voluminous comments Community Water Center has provided to the SVBGSA on water quality impacts for disadvantaged communities in particular. We implore the SVBGSA to give attention to the robust and detailed contribution of Community Water Center staff on the GSPs.

6. The SVBGSA Should Take Meaningful Steps to Improve Representation of Underrepresented Communities

The SVBGSA must take meaningful steps to remedy the disparity of representation with the SVBGSA and its board, as required by SGMA[59] and to ensure consistency with California's Human Right to Water Law.[60]

The GSPs' discussion of Underrepresented Communities acknowledges that they "have little or no representation in water management and have often been disproportionately less represented in public policy decision making."[61] However, the SVBGSA makes no meaningful commitment to remedy this issue. The GSPs should identify funding for these projects, and provide specifics as to exactly how these plans will be executed. The GSPs should explain what metrics they will use to evaluate and demonstrate the increased "representation" for underrepresented communities. The GSPs should attach specific timelines to these metrics, and also describe binding consequences that will be triggered if the SVBGSA fails to meet its goals.

In addition, to increase the representation of underrepresented communities, we implore the SVBGSA to incorporate the suggestions and direction of organizations such as Community Water Center, an organization that has dedicated significant resources to the ongoing creation of

[59] Cal. Water Code § 10723.2 (expressly requiring SVBGSA to consider interests of all beneficial users).
[60] Cal. Water Code § 106.3.
[61] *E.g.*, Upper Valley Aquifer Subbasin plan, p. 10-8.

SVBGSA GSPs and which has an express mission to represent underrepresented communities on the Central Coast.

Lastly, there is a systemic flaw that underlies the SVBGSA creation of its plans and will surely plague the implementation until it is resolved: the structural over-representation of agricultural interests in decision making for the SVBGSA. In addition to strong agricultural interests intrinsic to seats appointed by municipalities and the County of Monterey, four seats of the eleven-seat board are allocated to "agricultural interests." A super majority of three of those four agricultural votes are required for the most consequential decisions including to impose certain fees and impose pumping limits. To increase "representation" of underrepresented communities who often bear the burdens of unsustainable groundwater use, the SVBGSA should increase the representation of non-agricultural beneficial users, especially underrepresented communities, on the SVBGSA board to allow interests of these other beneficial users to meaningfully participate in decision making. Funding should be set aside for seats designated for underrepresented communities to ensure the seats are accessible for those with limited resources.

Thank you for your consideration, and we look forward to ongoing work with the SVBGSA to ensure our shared groundwater resources are managed sustainably.

Sincerely,

Tyler Sullivan, Staff Attorney
Drevet Hunt, Legal Director
California Coastkeeper Alliance

Sean Bothwell, Board Member
Monterey Waterkeeper

Copy via email to:
Donna Meyers, General Manager, meyersd@svbgsa.org
Emily Gardner, Deputy General Manager, gardnere@svbgsa.org

COMMUNITY WATER CENTER
EL CENTRO COMUNITARIO POR EL AGUA

San Jerardo Cooperative, Inc.

October 15, 2021

Salinas Valley Basin Groundwater Sustainability Agency
Submitted electronically to:
Emily Gardner, Deputy General Manager
Donna Meyers, General Manager

Subject: Comments on the Draft Salinas Valley Subbasin GSPs for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins

Dear Salinas Valley Basin Groundwater Sustainability Agency:

The Community Water Center (CWC) and the San Jerardo Cooperative offer comments and recommendations in response to the draft Groundwater Sustainability Plans (GSPs) for the Langley, East Side, Forebay, and Upper Valley Subbasins as released in the Fall of 2021 by the Salinas Valley Basin Groundwater Sustainability Agency (SVB GSA). Previously, we submitted comments on April 23, 2021 regarding Chapters 1-8, on April 28, 2021 on a preliminary draft of Chapter 9, and on June 17, 2021 regarding Chapters 2, 9, and 10.

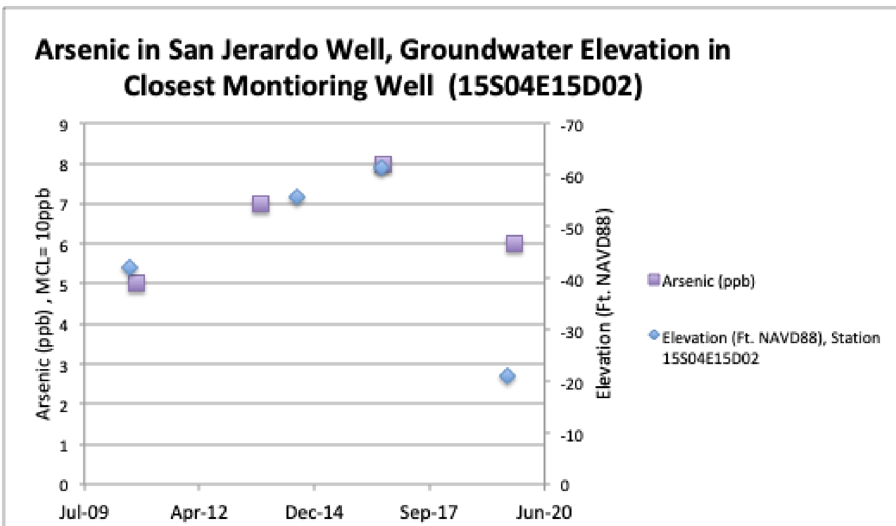
Because the Subbasin GSP drafts are now to be reviewed and voted upon by the SVB GSA Board, we take this opportunity to synthesize many of our comments into one document and provide relevant updates based on SVB GSA Staff responses and our answers in turn. Responses included here from SVB GSA, unless otherwise cited, were published in the Comment Letter Comment Tables responding to public comments made mid-2021 when drafts were prepared for the Subbasin Committees.[1] Additionally, unless otherwise noted, GSP Section numbers refer to the Eastside Subbasin GSP and the comments apply to all SVB GSA subbasins. As always, these comments are intended to add to the public record and are submitted in addition to previous written and spoken comments.

We reiterate the following context for this comment letter and the San Jerardo Cooperative's participation in particular. The challenges facing San Jerardo and similar communities throughout all the Subbasins in the Salinas Valley are the foundation of our comments in this letter. The San Jerardo Cooperative's well is highly vulnerable to changes in groundwater levels and groundwater quality. Over decades of living and working at San Jerardo Cooperative, Advisory Committee Member Horacio Amezquita has observed firsthand how the irrigation practices on properties surrounding the cooperative impact the water quality in their current and former wells. The San Jerardo Cooperative receives drinking water from a small public water system (CA2701904) and is very concerned that

[1] SVB GSA. (2021). *Subbasin GSP Comment Letter Comment Tables*. On file with SVB GSA and available at: svbgsa.org. *See e.g.*, https://svbgsa.org/wp-content/uploads/2021/08/Eastside-Comment-Letters-Responses-081021.pdf.

pumping, irrigation practices, and groundwater management in the East Side Subbasin will cause their drinking water well, which currently meets all drinking water standards, to exceed the maximum contaminant levels for arsenic and/or nitrate. Unfortunately, data from the State Water Board indicates increasing levels of nitrate and arsenic in their well with a high arsenic level of 8 ppb on 8/22/2016 that also corresponds to a low groundwater elevation of -61.5 in Station 15S04E15D02, the closest monitoring well to the San Jerardo Cooperative's well (See CWC Figures 1 and 2).[2] While there are too few monitoring data points to draw significant conclusions, CWC Figure 1 does suggest that arsenic levels are higher when groundwater levels are lower. Scientific studies confirm that contaminants like arsenic, uranium, and chromium (including hexavalent chromium) are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations.[3]

CWC Figure 1: Arsenic in San Jerardo Well, Groundwater Elevation in Closest Monitoring Well
(Note: The groundwater elevation y-axis is reversed to illustrate that lower groundwater elevations are associated with higher arsenic levels.)



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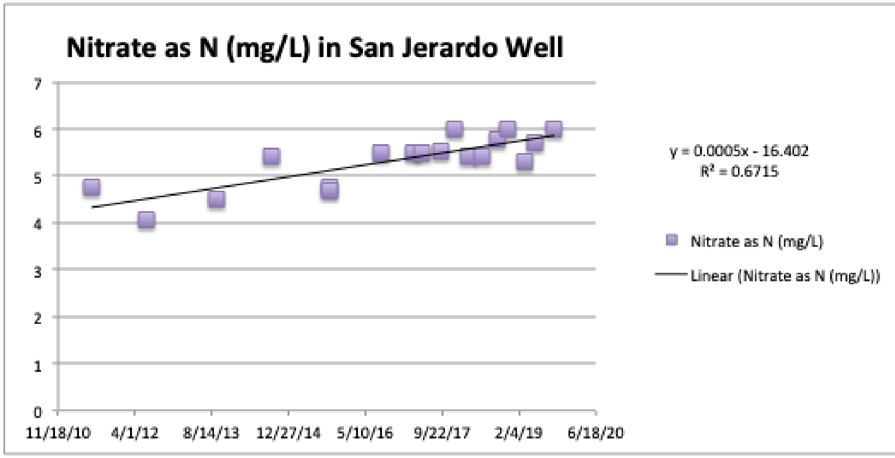
[2] CWC Figure 1 contains all available arsenic data from the State Water Board's Drinking Water Watch online database (https://sdwis.waterboards.ca.gov/PDWW/) which was collected in October 2010, 9/11/13, 8/22/16, and 9/23/19. We then added the monitoring data for Station 15S04E15D02 for the dates most close to the arsenic sampling dates (August 2010, August 2014, August 2016, and August 2019). CWC Figure 2 data was also downloaded from the same online database.

[3] Community Water Center and Stanford University (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

CWC Figure 2: Nitrate in San Jerardo Well.



We provide more specific chapter-by-chapter comments below. We emphasize that the GSP must be revised throughout to further incorporate the best available science[4] showing that groundwater pumping and groundwater level changes can influence water quality, and the GSA has obligations to prevent the significant and unreasonable exacerbation of degraded water quality. We also note that a management decision to *not* regulate pumping and to therefore permit current pumping rates is still a management decision. This recommendation is supported by DWR's 180/400 ft Aquifer GSP Determination on June 3, 2021:

> "**[S]taff find that the approach to focus only on water quality impacts associated with GSP implementation, i.e., GSP-related projects, is inappropriately narrow.** Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. **GSAs are required; however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions.**
> Where natural and other human factors are contributing to water quality degradation, the GSAs may have to confront complex technical and scientific issues regarding the causal role of groundwater extraction and other groundwater management activities, as opposed to other factors, in any continued degradation; but **the analysis should be on whether groundwater extraction is causing the**

[4] 23 CCR § 355.4(b)(1). "When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following:
(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science."

degradation in contrast to only looking at whether a specific project or management activity results in water quality degradation.
Department staff recommend that the SVBGSA coordinate with the appropriate water quality regulatory programs and agencies in the Subbasin to understand and **develop a process for determining when groundwater management and extraction is resulting in degraded water quality in the Subbasin** (see Recommended Corrective Action 5)."[5]

We strongly recommend that the GSPs incorporate a more robust and representative monitoring network and minimum thresholds to protect vulnerable communities like San Jerardo and those dependent on shallow domestic drinking water wells. This network should include state and local small water systems. In tandem, we recommend the incorporation of a Well Impact Mitigation Program, as discussed below.

Thank you for reviewing this letter and for the consideration of our comments on the draft GSP chapters. We look forward to working with the SVB GSA to ensure that the GSPs are protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns. We also look forward to meeting with you in the future to further discuss issues raised in these and past comments.

Sincerely,

Heather Lukacs

Heather Lukacs
Community Water Center

Horacio Amezquita

Horacio Amezquita
General Manager, San Jerardo Cooperative, Inc.

Justine Massey

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Mayra Hernandez

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[5] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 26-27. (Internal citations omitted; emphasis and paragraph breaks added). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

GSP Chapter 2: Communications and Public Engagement

SGMA requires GSAs to consider all beneficial users in groundwater management decisions and specifically names domestic well users and disadvantaged communities (DACs) as beneficial users.[6] SGMA also requires GSAs to "encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin *prior to and during the development and implementation of the groundwater sustainability plan."*[7] The regulations similarly require that a GSP summarize and identify, "opportunities for public engagement and a discussion of how public input and response will be used."[8] The GSA thus must engage, "diverse social, cultural, and economic elements of the population within the basin."[9] SGMA Regulations recognize that failure to engage adequately with a diverse cross-section of the public undermines the likelihood that a GSP will avoid undesirable results and meet its sustainability goal.[10]

Community Water Center appreciates the statement found in Chapter 2 of the Langley, Eastside, Forebay, and Upper Valley subbasins: "[T]he success of the... Subbasin GSP will be determined by the collective action of every groundwater user."[11] Public engagement invites citizens to get involved in deliberation and to take action on public issues that are important to them. More importantly, it helps leaders and decision-makers have a better understanding of the perspectives, opinions, and concerns of citizens and stakeholders, especially those who are traditionally underrepresented. DWR's Guidance for Stakeholder Communication and Engagement acknowledges that public engagement, when done well, goes far beyond the usual participants to include those members of the community whose voices have traditionally been left out of political and policy debates.[12] Additionally, as part of a Strategic Planning Review, SVB GSA has recently recognized an overrepresentation of agricultural interests in its GSP formation process and voiced interest in balancing its representation, however has not yet taken action to do so. In this light, we offer the following recommendations:

- **Fast-track stakeholder outreach efforts in order to meaningfully engage beneficial users throughout the basin in the GSP development process currently underway.**
    - Based on our review of the language in Chapter 2 of the Subbasin GSPs, it appears that the outreach and engagement strategies outlined in Section 2.7, which are specific to the underrepresented communities and disadvantaged communities in the Basin, are to be put in place only after the GSP is submitted in 2022.

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[6] Cal. Water Code § 10723.2.
[7] Water Code § 10727.8. (Emphasis added).
[8] 23 CCR § 354.10(d)(2).
[9] DWR (2018). *Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement.* P. 1. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Assistance-and-Engagement/Files/Guidance-Doc-for-GSP---Stakeholder-Communication-and-Engagement.pdf.
[10] 23 CCR §355.4(b)(4).
[11] SVB GSA (2021). *Subbasin GSPs Draft - Chapter 2: Goals for Communication and Public Engagement.* P. 10 (in all drafts). Available at: https://svbgsa.org/subbasins/.
[12] DWR (2018). *Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement.* Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Assistance-and-Engagement/Files/Guidance-Doc-for-GSP---Stakeholder-Communication-and-Engagement.pdf.

    - This delay results in little to no participation or input from these communities during the GSP development process currently underway.
- Update: While SVB GSA held workshops with DAC representatives to develop a plan for outreach to DACs, **the resulting plan to solicit DAC input regarding the core management decisions in the GSP—including the setting of SMCs and the representative monitoring network—was *not* implemented during GSP development.** Consulting DAC stakeholders solely in regards to outreach strategies is not sufficient engagement. It is likely that due to SVB GSA's lack of implementation of their outreach strategy plan[13] many DAC voices and opinions have been left out of this current GSP because DAC residents have not been made aware of this process. Even if they are aware of the GSP process, many still lack the information and tools they need to participate. It is critical to have DAC stakeholders engaged in the development of the GSP as well as on a continuing basis.
    - Section 2.4 asserts that SVB GSA "deployed… [an] inclusive outreach and education process conducted that best supports the success of a well- prepared GSP that meets SGMA requirements." However, acknowledging that initial steps were taken, the GSA has not provided evidence of carrying out this outreach and fulfilling SGMA requirements.
- **Specify which outreach strategies will be used to reach underrepresented communities and disadvantaged communities.** The proposed goals for communication and engagement actions and strategies in this chapter lack important details to ensure that all beneficial users, especially underrepresented communities and disadvantaged communities, will have access to the resources that are being proposed. It must be noted that underrepresented communities and disadvantaged communities may not have access to the internet, therefore they may not have access to the online resources on either the SVB GSA website or through social media. Additionally, in the case that they do have access to the internet, they may lack knowledge or familiarity regarding how to access the online resources.
- **Provide a strategy for how to reach stakeholders with limited or no SGMA knowledge.** In Subbasin GSPs' Section 2.6.3, SVB GSA acknowledges that there is a "variety of audiences targeted within the Basin whose SGMA knowledge varies from high to little or none." However, no strategy is provided for how those with no knowledge will be reached. This chapter should be modified to include more details on how and what additional strategies will be implemented to ensure that SVB GSA is reaching all beneficial users. We recommend the following approaches:
    - **Include more grassroots-based approaches to request and incorporate DAC and drinking water user feedback in the GSP, which are critical to actually reaching stakeholders and fulfilling the GSA's goal.** One of the goals of the Communications and Public Engagement (CPE) Actions which we strongly support is to "invite input from the public at every step in the decision-making process and provide transparency in outcomes and recommendations." However, based on the communication/ outreach strategies mentioned in the chapter, efforts fall short of inclusivity. The general public

[13] As outlined in February 2021 SVB GSA Staff Report, Available at: https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/820418/Item_5a_-_Staff_Report.pdf.

does not always have access to certain resources like the internet, and even if they do have access they may not know how to use social media, use email, or browse the web.

- **Document and continue the policy of providing translation services at public meetings and of providing bilingual (English and Spanish) information and materials on the website, via email, and paper mail.** The Dymally-Alatorre Bilingual Services Act requires that public agencies serving over 10% of non-English speaking constituents provide appropriate translation services.[14] At a minimum, translated information should be provided during Plan updates and prior to critical decisions. In particular, the submitted GSP released during the formal comment period should include bilingual materials highlighting key summaries of the GSP. Critical decision points also include the adoption of groundwater fees, the approval of new groundwater projects or management actions, and decisions around pumping restrictions.
- **Consider inserting short notices in water bills and/or community newsletters on a monthly basis (notices should include key messages, visuals and information that is relevant to the average water user).** These notices must be translated as described above.
- **Specify how and when the accessible and culturally responsive GSA materials mentioned in Section 2.7 will be developed to communicate impacts of groundwater management on local water conditions and how they will be delivered or made available to URCs and DACs that do not have internet access.** Accessibility includes appropriate visual content and translation.
- **Consider using USPS every door direct mail (EDDM) to send out educational materials and updates to all stakeholders.** This tool can be used to map ZIP Code(s) and neighborhoods, it also has a filter feature that lets you filter by age, income, or household size using U.S. Census data. This tool can be helpful to reach stakeholders that do not have internet access.
- **Clearly identify and utilize existing community venues (on a monthly basis if possible) for community meetings, workshops, and events to provide information**. For example, the GSA could hold educational workshops during water board and school district board meetings, or after church services. Venues should be carefully selected in order to meet the needs of the targeted audience.
- **Clearly identify radio channels, social media avenues, websites, and other media outlets readily accessible to the community**. The submitted GSP should be revised with a policy requiring a broader outreach effort in the near future, with bilingual outlets.
- **Specify a timeline to work with key community leaders or trusted messengers on at least a monthly basis to distribute information and encourage community participation.** Venues for such leaders to share information could include churches, civic groups, clubs, non-profit organizations, and schools.
- **Consider hosting Spanish-only outreach meetings, as they can be more effective in transferring knowledge and receiving feedback.** It can be a challenge to provide

[14] California Government Code §7290.

real-time translation of technical groundwater terms and concepts in a way that is understandable and promotes participation, so it may be appropriate to conduct a meeting entirely in Spanish so that participants can be fully immersed in the discussion.

- **Consider hiring a bilingual Stakeholder and Outreach Communication specialist as part of the SVB GSA staff.** Expanding the GSA's reach to different audiences and maintaining a robust stakeholder list of interested individuals, groups and/or organizations is a good step to ensure that the general public is informed about the GSA's activities. However, it will require substantial time and effort to develop a clear outreach methodology, obtain a representative list of stakeholders (including those who do not engage online), ensure language accessibility, and make sure stakeholders stay informed and engaged. A bilingual Stakeholder and Outreach Communication specialist could support this work.

- **We recognize and appreciate the inclusion of Appendix 2D Disadvantaged Communities in this draft of the subbasin GSPs. We recommend the following corrections / improvements to better represent DACs and their drinking water sources:**
    - **Clarify the number of domestic water systems that Monterey County Department of Environmental Health regulates under its Local Primacy Agency Authority as well as the local small water systems regulated under County Code.** See page 61 of the Eastside Volume 1 Appendices which states "There are approximately 160 such systems in the County regulated under this program."[15] This number is likely referring to the total number of public water systems serving less than 200 connections regulated by Monterey County but does not include state and local small water systems. From Monterey County's webpage on Small Water Systems "The Drinking Water Protection Services regulates Local and State Small Water Systems, which serve 2-14 connections. Many residents and visitors receive their water from these systems. Drinking Water Protection Services currently administers 969 systems, which serve about 4232 connections."[16]
    - Update the maps of **all disadvantaged communities (DACs) currently in Appendix 2D in the following ways:**
        - To reflect more recent census data from 2019 or later (the current map shows data from 2016). Continue to share the DAC/SDAC status of all census block groups, census designated places, and census tracts.
        - Include DAC or SDAC communities according to household income surveys conducted in accordance with state and federal agency guidelines to determine eligibility for state funding programs.
        - More clearly show the location of DACs, their drinking water sources, and their water quality in the subbasin including private wells. Figure 2 in Appendix 2D

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[15] https://svbgsa.org/wp-content/uploads/2021/08/Eastside-Volume-1-Appendices.pdf

[16] https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local

should combine data from GAMA and Monterey County to show the levels of COCs, including but not limited to nitrate, in recent years in drinking water sources in DAC areas. This would also provide data for Figure 2 in the Monterey County Subbasin which currently does not show any water quality data, because the Monterey Subbasin was not part of the geographic scope of the CCGS (2015) information included in the appendix.

- Update Figure 2 to show the entire Salinas Valley and not only the subbasins in the north. The Upper Valley Subbasin Volume 1 Appendices, for example, includes Figure 2 that does not show the Upper Valley subbasin.[17]

GSP Chapter 3: Description of Plan Area

The description of the plan area can be improved by clarifying the descriptions of the drinking water users in the area. In order to develop a GSP that addresses the needs of all beneficial users, it is critical that the location and groundwater needs of Disadvantaged Communities (DACs) and all drinking water users including domestic well communities are explicitly addressed early on in the GSP. In addition to comments previously submitted to the GSA on July 10, 2020, we recommend the following updates to this chapter:

- **Clarify the number and type of public water systems in the subbasins throughout the entire plan.** In each subbasin plan, there are discrepancies between types and numbers of public water systems in different chapters. It is absolutely critical to clearly include the number of public supply wells *currently in use* in the GSPs. For example, the East Side GSP lists the following:
  - Table 3-2 Well Count Summary shows "Public Supply= **24 wells**"
  - Table 5-3 GAMA Water Quality Summary shows "Number of Existing Wells in Monitoring Network Sampled for COC to be **78** for 123-TCP, **89** for Nitrate, and **70** for TDS.
  - Section 7.5 says "**Ninety** DDW wells have been chosen to be part of the RMS network. These wells are shown on Figure 7-4 and listed in Appendix 7D." This table includes all DDW wells that were sampled for COCs between December 1982 to December 2019, yet it is unclear whether all these wells are still active, and after consulting Appendix 7D, it is unclear whether these wells are all public water system wells, as defined in Section 7.5, or whether wells of other types are also included.
  - Table 8-4 Groundwater Quality Minimum Thresholds - **No well count shown**.

  We recognize that different data sources have different limitations and recommend using the best available data consistently throughout the plan.
- Add a clear reference to a **table of all public water systems, their names, locations, number of connections, and number of active wells** in the text that is consistent with the numbers of wells in Table 3-2, Table 5-3, Section 7.5, and other locations where mentioned in the GSPs.

[17] See page 58 of Upper Valley Subbasin Volume 1 Appendices: https://svbgsa.org/wp-content/uploads/2021/08/Upper-Valley-Volume-1-Appendices-1.pdf)

- Appendix 7-D: DDW and ILRP Wells in the Water Quality Monitoring Network should be updated to include the number of connections served by that well and the status of the well as active or inactive according to DDW.

- **Revise Section 3.6.2 on the Agricultural Order to indicate that Agricultural Order 4.0 includes monitoring requirements including on-farm domestic well monitoring of nitrate and 123-trichloropropane (123-TCP).** 123-TCP should also be included in the monitoring network (see comments in Chapter 7).

GSP Chapter 4: Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a key component of the basin setting. The basin setting represents the baseline assumptions that the GSA relies on throughout the GSP when choosing minimum thresholds, measurable objectives, and undesirable results, as well as when planning projects and management actions. We recommend that the GSA:

- **Revise Section 4.6 on Water Quality to acknowledge that "natural groundwater quality in the Subbasin" can be influenced by pumping and the way groundwater is managed.**[18] As indicated in our cover letter, this is of particular importance for the San Jerardo Cooperative who has experienced increases in nitrate and arsenic in their well.
    - SVB GSA response (Section 5.4.3): "Text about the effect of groundwater pumping on groundwater quality was added to Chapter 5 in the "Distribution and Concentrations of Diffuse or Natural Groundwater Constituents" section. A discussion on the effect of lowering groundwater elevation on groundwater quality is included in Chapter 8 in the "Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators" section for groundwater elevations under the degraded water quality bullet."
    - Our response: We appreciate the addition of a paragraph in Section 5.4.3 and recommend that this is also acknowledged in Section 4.6 since the topic of "natural groundwater quality" is being discussed. Furthermore, the release of arsenic into groundwater can be attributed to low dissolved oxygen levels, high rates of pumping, and an increase in pH. These changes can all be attributed to how groundwater is managed.

GSP Chapter 5: Groundwater Conditions

SGMA Regulations require: "Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes the following: … (d) Groundwater quality issues that may affect the

[18] Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes."[19] We do not believe the GSA is meeting this requirement and recommend that the GSA make the following changes to Chapter 5 of all subbasin GSPs (East Side, Langley, Upper Valley, Forebay, and Monterey) to clearly represent current and past water quality conditions in the subbasin in order to inform the monitoring network, sustainable management criteria, planning, management actions, and projects.

Groundwater Quality Distribution and Trends

- **Clearly state in the introduction to Section 5.4 that the amount and location of pumping can impact groundwater quality distribution and trends.** We recommend including the following language in the letter submitted by the State Water Board to DWR regarding the 180/400 foot aquifer GSP (Dec. 2020): "Not all water quality impacts to groundwater must be addressed in the GSP, but significant and unreasonable water quality degradation due to groundwater conditions occurring throughout the subbasin, and that were not present prior to January 1, 2015, must be addressed in the GSP's minimum thresholds."[20] High rates of groundwater pumping can pull in contaminant plumes towards drinking water wells, cause the release of arsenic from the strata in the ground, and when shallow wells go dry or are too contaminated to use, new wells must be drilled into deeper portions of the aquifer where they are more likely to encounter high arsenic levels.[21] As previously mentioned, this is of direct concern to the San Jerardo Cooperative, which has observed increasing arsenic levels in their relatively new drinking water well, which was drilled to replace a more shallow well contaminated with nitrate and 123-trichloropropane.
    - SVB GSA response: "The SVBGSA does not have regulatory authority over groundwater quality and is not charged with improving groundwater quality in the Salinas Valley Groundwater Basin. Projects and actions implemented by the SVBGSA are not required to improve groundwater quality; however, they must not further degrade groundwater quality."[22]
    - Our response: CWC recommendation in this section is not to extend the GSA's responsibility to improving water quality. But if extraction rates that the GSA allows to occur result in water quality degradation, then that is within the GSA's responsibility to address. The GSA has explicit statutory authority and responsibility to prevent significant and unreasonable water quality degradation.[23] In line with this responsibility, DWR has instructed GSAs to map out where water quality issues exist in the basin, and to prevent

[19] Cal. Code of Regulations § 354.16(d)
[20] DWR SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29
[21] Community Water Center and Stanford University, (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://www.communitywatercenter.org/sgmaresources.
[22] Salinas Valley Groundwater Sustainability Agency, Langley Area Subbasin GSP, p. 5-21.
[23] Cal Water Code § 10721, subd. (x)(4).

new impacts from occurring.[24] This includes managing contaminant plumes that may migrate or increase in concentration due to extraction rates and locations.

- **Include trend data for drinking water wells in the subbasins.** In some places, nitrate and other contaminants are increasing in drinking water wells. It is important to understand current contamination values and also whether well water quality is improving, staying the same or declining as well as the relationship of water quality to other sustainability indicators. As indicated by the data provided in this section, Monterey County maintains an exceptional dataset of water quality data for over 900 state and local small water systems serving 2-14 connections that should be utilized throughout the GSPs. Monterey County has sampled many small water systems for decades. CWC Figures 3 and 4 show nitrate concentrations increasing over time in two state small water systems in the East Side sub basin with high levels in one of the systems (Middlefield Rd. Water System #4) in 2015. Figure 5 illustrates arsenic concentrations in the Metz Road Water System #4 in the Forebay Subbasin. In some cases, data shows fluctuations and peaks in concentrations during the 2015-2016 timeframe. This is similar to the San Jerardo example shared previously. Further, the Central Coast Regional Water Board has analyzed data from their Irrigated Lands Regulatory Program to show that many wells across the region are showing increasing levels of nitrate concentrations and recent studies have confirmed that there is a link between decreased water quality and declining groundwater levels observed during times of drought.[25]
    - SVB GSA staff responded: "Nitrate trends are included based on a review of existing studies. The analysis of temporal trends are not required and would entail substantial additional work that would not likely change the management approach. Water quality data for DDW wells and ILRP on-farm domestic and irrigation supply wells were used to make maps showing the spatial distribution of water quality exceedances of Title 22 or Basin Plan standards from 2013 to 2019 are now included in a new Chapter 5 Appendix."
        - Our response: : We maintain our position on the importance of including trend data as previously recommended because the way in which the GSA manages the basin impacts water quality. GSAs are responsible for monitoring water quality conditions in the basin and ensuring that they do not degrade beyond 2015 conditions.[26] The rate, timing, and location of pumping as well as fluctuations in groundwater levels overtime can result in the horizontal and

[24] Dept. of Water Resources, 180/400 Foot Aquifer Groundwater Sustainability Plan Determination, (June 3, 2021), pp. 26-27.

[25] Draft Ag Order, Attachment A, 141-143. Available at: https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order4_renewal/2021april/pao4_att_a_clean.pdf; *see also* U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality.

[26] Cal. Water Code §§ 10721 subd. (x)(4) and 10722.2 subd. (b)(4).

vertical migration of contaminant plumes into drinking water sources, including vulnerable private domestic wells.

- SVB GSA Staff replied: "The relationship between declining water levels and water quality degradation was evaluated for the Eastside Subbasin as presented in the December 2020 Subbasin Planning Committee Meeting. Although there seems to be a relationship between decreasing groundwater elevations and degrading water quality, within the analysis for the Eastside, subbasin-wide data does not show a strong correlation. Thus, the data is not definitive enough to determine if the decline in groundwater quality is due to additional loading of constituents or lowering of groundwater elevations. There may be a correlation within individual wells, like is seen in San Jerardo, however, that could be due to those other factors."
  - Our response: The current best available science[27] clearly links decreasing groundwater levels, including through overpumping of groundwater, to exacerbated degradation of groundwater quality. The U. S. Geological Survey (USGS) analyzed trends of increased pumping in California's Central Valley and further degradation of water quality and concluded that they are interlinked.[28] There is no reason to assume that the Central Coast would be subject to a hydrology so distinct as to negate the applicability of this finding to SVB GSA's groundwater management. Because of this established correlation, in instances of further water quality degradation, particularly when resulting in impacts to drinking water wells, SVB GSA should have the burden of proof to show that exacerbated water quality degradation is *not* linked to pumping practices, and identify the responsible source.
    - This is another example of why a more representative monitoring system for water quality (ie including SSWS and LSWS data from the Monterey County Environmental Health Department) would benefit Salinas Valley groundwater management, so that impacts can be identified and addressed in a highly localized manner. Additionally, even if the Subbasin GSPs plan to maintain current water levels, the GSA should be prepared to respond in case basin conditions do not evolve as planned and water quality degradation is exacerbated by ongoing pumping practices, including if hotspots (highly concentrated areas of

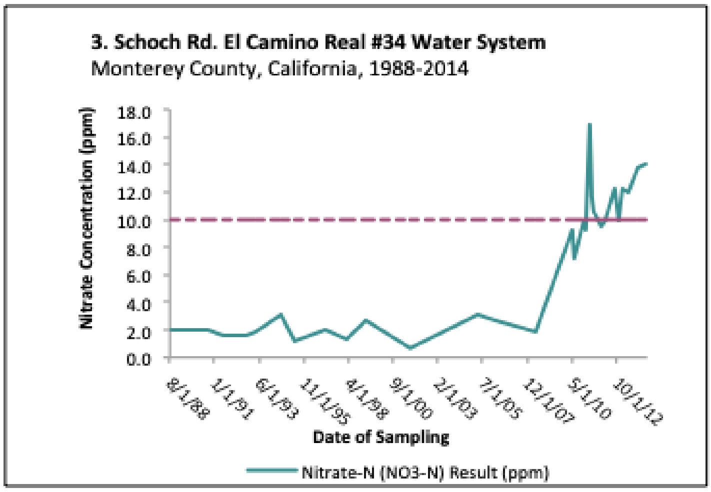
[27] 23 CCR § 355.4(b)(1). "When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following:
(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science."

[28] U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality.

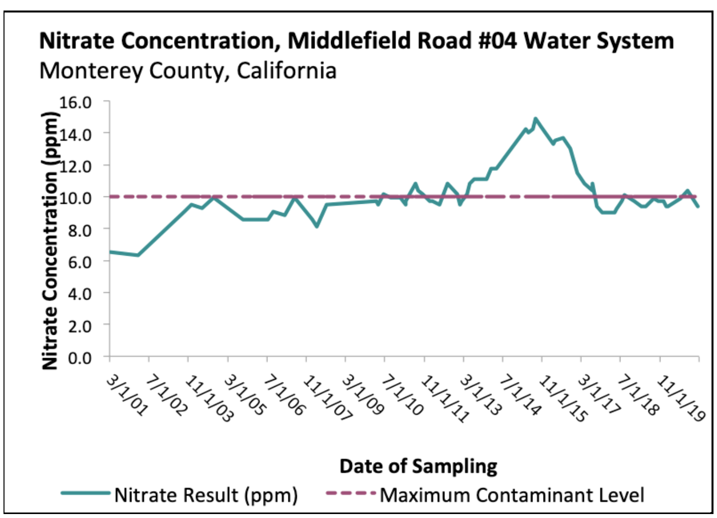
impact) of contamination form which impact drinking water beneficial users.

- We further request additional information be added to the GSP about the analysis conducted by the SVB GSA to understand the relationship between groundwater quality and groundwater levels. It is not sufficient to say this analysis was conducted without also providing the public information about the data sources, methods, and findings.

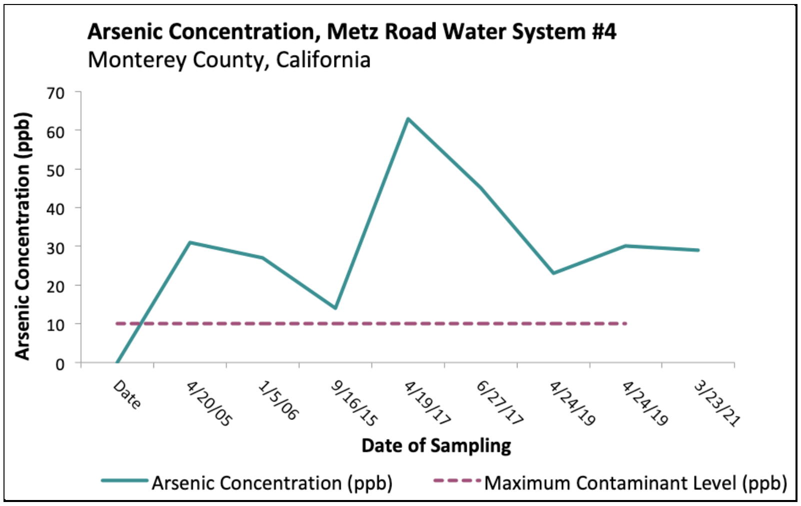
CWC Figure 3: El Camino Real WS #34 - Nitrate as N, East Side Subbasin



CWC Figure 4: Middlefield Road WS #4 - Nitrate as N, East Side Subbasin



CWC Figure 5: Metz Road Water System #4, Arsenic, Forebay Subbasin



- **Revise Section 5.4 to include a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, **nitrate, 123-trichloropropane, hexavalent chromium,[29] arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells.** It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.
  - **Present maps and supporting data for all constituents of concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and limited analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)).
  - We reiterate the request made in previous comment letters and acknowledge the inclusion of Appendix 5-B, Figure 1: Water Quality Exceedances for DDW Wells which shows DDW wells that have had a COC exceedance between 1986-2019. This new appendix has significant limitations. For example, San Jerardo Cooperative's well is

[29] The maximum contaminant level for hexavalent chromium should be reinstated in 2021. Data is available from the State Water Resources Control Board and Monterey County Environmental Health Bureau (public water system data, state/local small water system data) as well as on GAMA from the Central Coast Regional Water Quality Control Board's private well testing program.

shown to have multiple exceedances of COCs during the time period shown (between 1986-2019). Yet, the well that had these exceedances is no longer active. Instead, San Jerardo's new well is showing increased trends of nitrate and arsenic. CWC's Figures in this comment letter illustrate the importance of presenting trend data for San Jerardo Cooperative's well and others throughout the Salinas Valley Basin. It is also important to include COC data for wells that are not yet in violation of drinking water standards. In addition, *CWC Figure 6: Arsenic Concentrations in Public Water System Wells, Monterey, Langley East Side Subbasins (Red dots = >10 ppb, Orange = 5-9.9 ppb, Yellow = 0.6-5.9 ppb, Green= non-detect)* illustrates hot spots for arsenic and also areas in orange (5-9.9 ppb arsenic), like San Jerardo, that are at risk if business-as-usual groundwater management continues.

- **Augment and clarify data presented in Table 5-3 GAMA Water Quality Data Summary and Section 5.4.1 in the following ways:**
    - **Add all state and local small water systems data.** Table 5-3 should include all state and local small water system data for nitrate, arsenic, hexavalent chromium, and any other contaminants that Monterey County monitors in the subbasin.
    - **Include additional contaminants that have been detected in the subbasin(s) to be consistent with Tables 8-5 and 8-6.** Our review of publicly available data on drinking water wells of all types (private domestic wells, state/local small water systems, and public water systems) indicate that there are additional constituents of concern beyond those currently listed. We included CWC Figure 6 (page 9) to highlight the spatial distribution of arsenic in public water system wells in the **East Side, Langley and Monterey Subbasins**, and CWC Figure 7 (page 10) to highlight the spatial distribution of hexavalent chromium in public water system wells in the **Langley Subbasin**. We recommend a more comprehensive analysis of all other constituents in the subbasins, including, but not limited to the following[30]:
        - **East Side Subbasin:** Table 5-3 presents data on two primary contaminants in drinking water: nitrate and 123-trichloropropane, but arsenic is also of particular concern to San Jerardo Cooperative and others in the subbasin. GAMA shows that four public water system wells have exceedances of the arsenic MCL in the past three years (CWC Figure 8), and state/local small water system out of compliance lists from the Monterey County Health Department (2021) show that both Old Stage Rd WS #6 and Old Stage Rd WS #7 are out of compliance for arsenic and that at least five other state or local small water systems have between 6-8 ppb of arsenic, which means they are similar to San Jerardo

[30] All Monterey County data shared in this section was collected by the small water system program.
https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local
It was downloaded from the Greater Monterey County Community Water Tool on April 22, 2021:
http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/

Cooperative in terms of their vulnerability to water level fluctuations or other changes.

- **Forebay Subbasin:** While arsenic is less common in the Forebay than in the Langley, Monterey, and East Side Subbasins, our review of the Monterey County Health Department data indicates that 17 state or local smalls had arsenic at levels above 1 ppb in the 2015-2017 time period, and at least two of these had levels above the MCL. See CWC Figure 5 (page 8) which illustrates trends in one of the out-of-compliance small water systems, Metz Road Water System #4. In addition, three systems monitored by Monterey County as part of their Local Primacy Program for public water systems serving 15-199 connections had hexavalent chromium detections of 2.8 ppb, 3.4 ppb, and 2.1 ppb in the 2014-2017 timeframe.
- **Upper Valley Subbasin:** Although arsenic is not as common in the Upper Valley as other subbasins, it has been detected in levels between 3.2 and 5 ppb in six small water systems monitored by Monterey County.

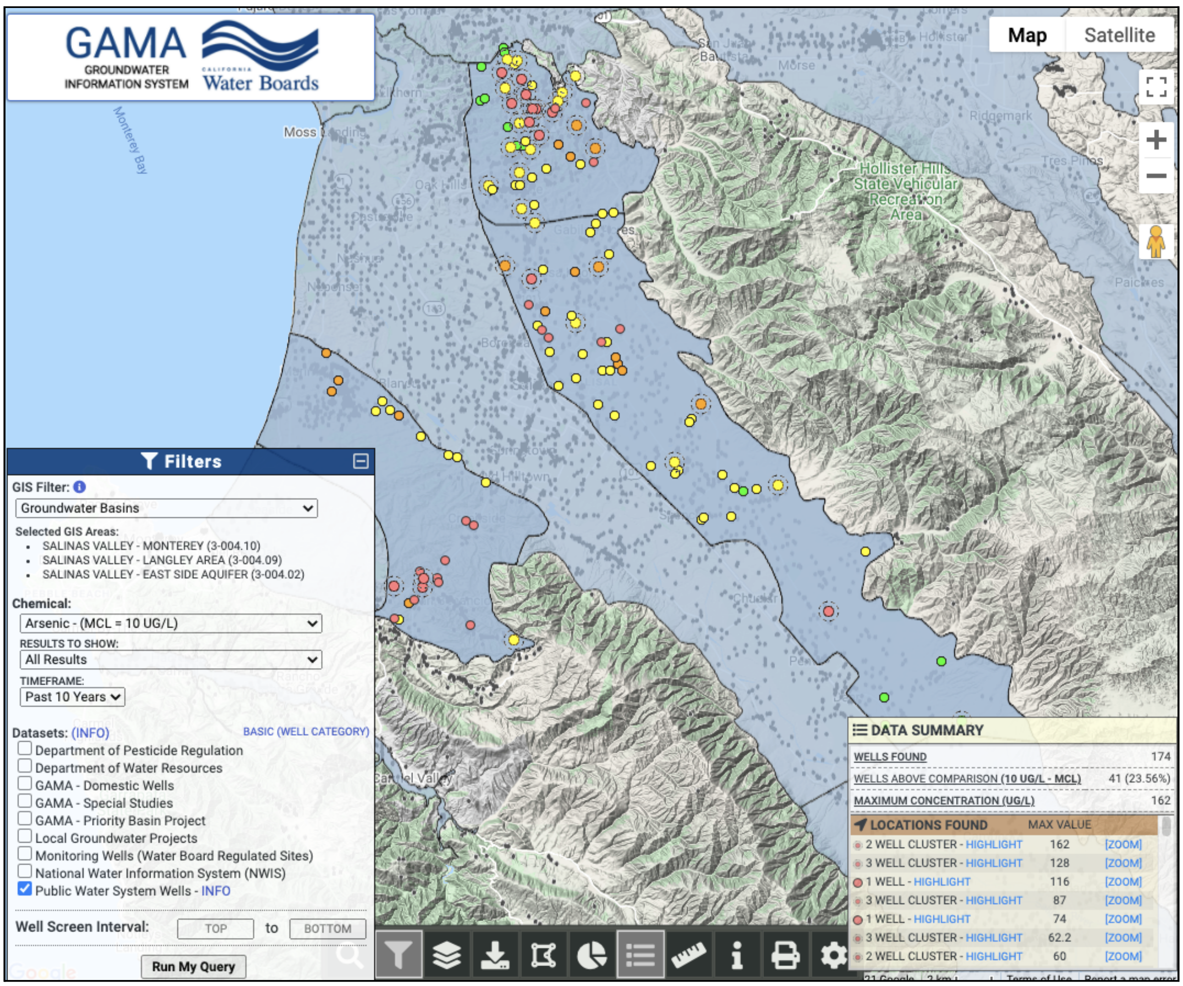
- SVB GSA Response: "The water quality analysis was redone for V2 to include both current and historic groundwater quality data, and arsenic is now a constituent of concern in the Eastside Subbasin. Section 5.4.3 and 5.4.4 text was also revised to provide more specificity about the constituents and wells sampled."
    - Our Response: We acknowledge that the SVB GSA added arsenic as a constituent of concern in the Eastside Subbasin GSP. We reiterate these comments to ensure that all subbasin GSPs include all contaminants detected in the subbasins as COCs. It is important to include all contaminants detected in the subbasins as COCs and not only those greater than the MCLs because many contaminants, such as arsenic and hexavalent chromium, pose a risk to public health at levels much lower than the MCL. The Office of Environmental Health Hazard Assessment (OEHHA) sets a public health goal (PHG) for each chemical. PHGs are levels of a contaminant in drinking water that do not pose a significant risk to health. The public health goal for Arsenic is 0.004 ppb and hexavalent chromium is 0.02 ppb.[31]
    - SVB GSA Staff replied: “Table 5-3 list the constituents of concern (COC) with exceedances in the latest sample for each COC in each well that has not been destroyed or abandoned, and it has been updated to be consistent with Table 8-5 that lists the minimum thresholds and measurable objectives for these constituents only. Table 8-6 list all the constituents for which data is available for the 3 types of wells in the monitoring network (DDW wells, ILRP on-farm domestic, and ILRP irrigation supply wells). Table 5-3 and Table 8-5 do not list all the constituents that have had an the exceedance in these 3 sets of wells, it only includes exceedances that occured in the latest sample, while Table 8-6 includes

[31] https://oehha.ca.gov/water/public-health-goals-phgs

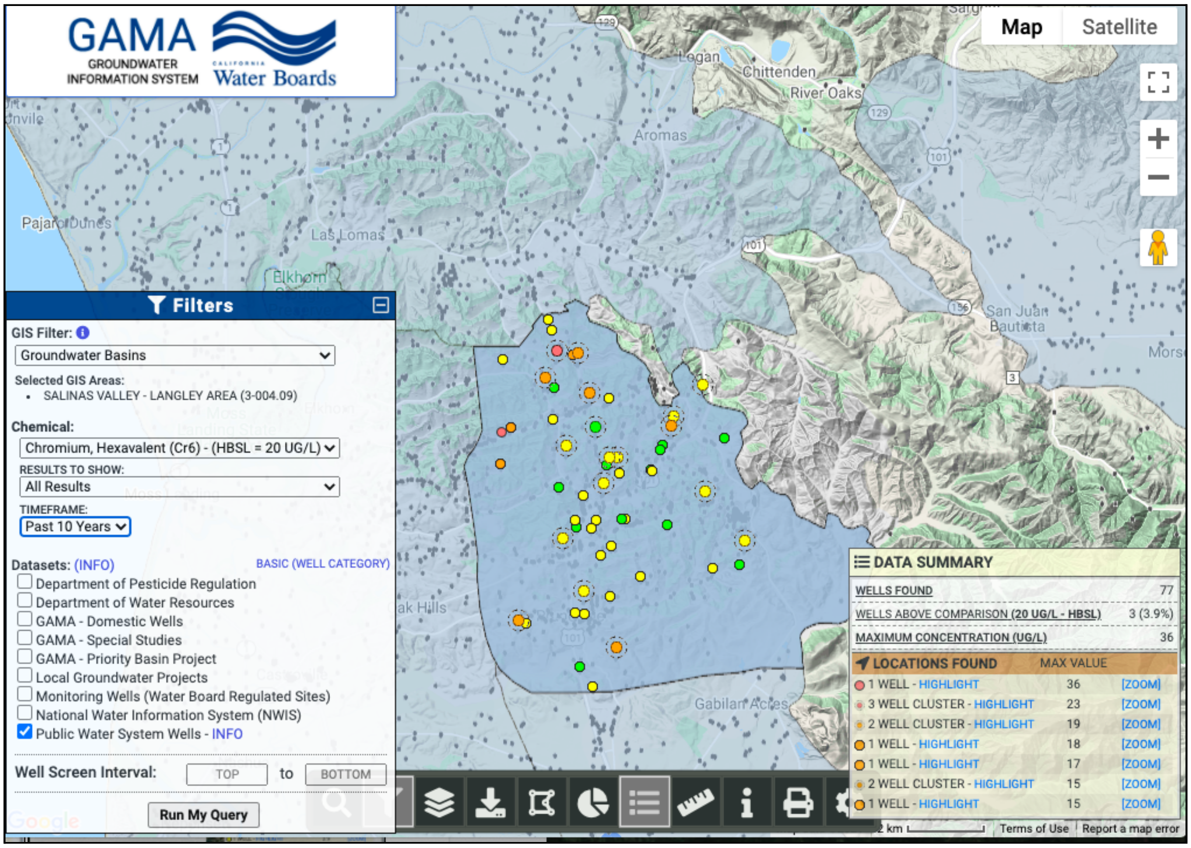
all the constituents that were included in the analysis that have been sampled for historically in each set of wells."

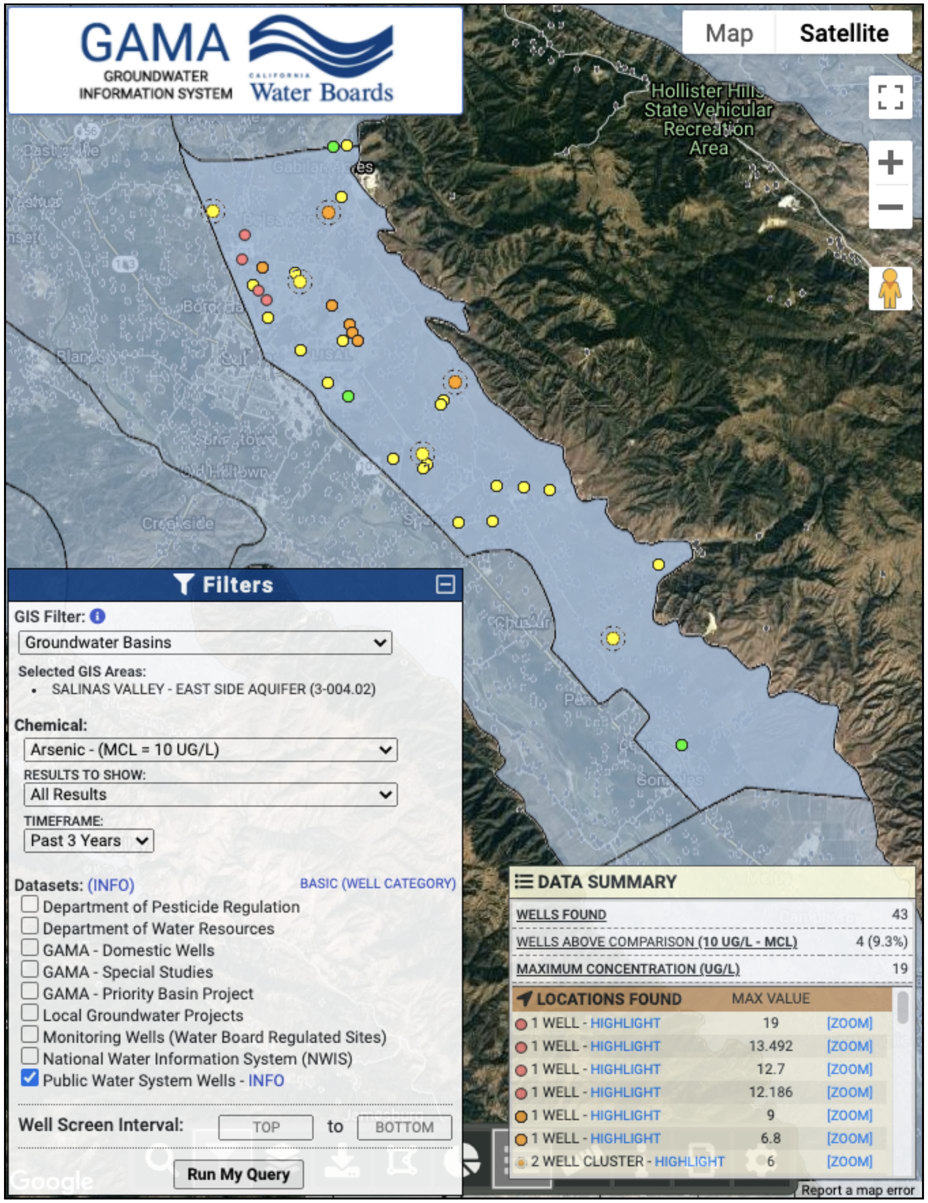
- Our response: We acknowledge the updates to Table 5-3 and request clarity on whether the DDW wells are all public water system wells, as defined in Section 7.5, or whether wells of other types are also included. Also, please add text explaining why two different time periods of data used in this table for DDW and ILRP wells. This table includes DDW wells sampled for COCs between December 1982 to December 2019, and ILRP Wells sampled from May 2013-December 2019.

CWC Figure 6: Arsenic Concentrations in Public Water System Wells, Monterey, Langley East Side Subbasins (Red dots = >10 ppb, Orange = 5-9.9 ppb, Yellow = 0.6-5.9 ppb, Green= non-detect)

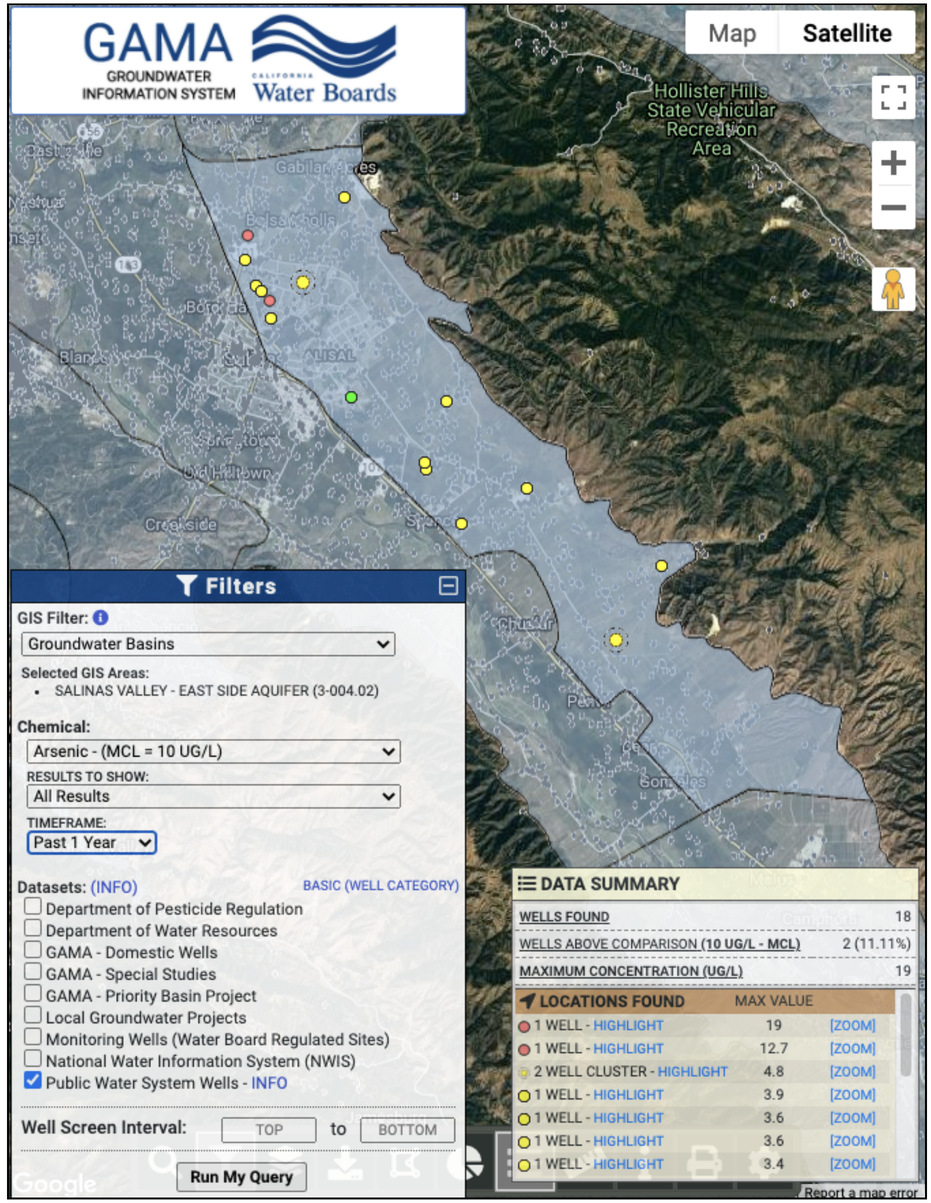


CWC FIgure 7: Hexavalent Chromium Concentrations in Public Water System Wells, Langley Subbasin





CWC Figure 8: 43 Public Water System Wells have arsenic data in the past 3 years. One well at San Jerardo Cooperative appears orange on this map.



CWC Figure 9: Only 18 Public Water Systems Wells have arsenic data in the past year. San Jerardo Cooperative's wells are not shown on this map.

GSP Chapter 6: Water Budgets

SGMA requires a GSP to quantify the water budget in sufficient detail in order to build local understanding of how historic changes have affected the six sustainability indicators in the basin.[32] Ultimately, this information is intended to be used to predict how these same variables may affect or guide future management actions.[33] GSAs must provide adequate water budget information to demonstrate that the GSP adheres to all SGMA and GSP regulation requirements, that the GSA will be able to achieve the sustainability goal within 20 years, and be able to maintain sustainability over the 50 year planning and implementation horizon.[34]

The calculations of sustainable yield and the water budget in this chapter may *overestimate the actual sustainable yield and water availability of the subbasins*. We highlight points of concern below and recommended changes.

6.4 Projected Water Budgets

The SVB GSA Subbasin GSPs explain that "[p]rojected water budgets are extracted from the SVOM, which simulates future hydrologic conditions with assumed climate change. Two projected water budgets are presented, one incorporating estimated 2030 climate change projections and one incorporating estimated 2070 climate change projections. … The climate change projections are based on data provided by DWR (2018)."[35] Including climate change scenarios in water planning is an important step for California's increased resiliency. However, which scenarios to include is a critical question.

Climate change is affecting when, where, and how the state receives precipitation.[36] Impacts to water supply, particularly drinking water supply, could be devastating if planning is inadequate or too optimistic. GSAs must adequately incorporate climate change scenarios in water budgets. As such, the DWR Climate Change Guidance[37] makes recommendations to GSAs for how to conduct their climate change analysis while preparing water budgets. DWR also provides climate data for a 2030 Central Tendency scenario and 2070 Central Tendency, 2070 Dry-Extreme Warming (DEW), and 2070 Wet-Moderate Warming (WMW) scenarios. While DWR's Guidance should be improved with more specific guidelines and requirements, the current Guidance specifically encourages GSAs to analyze the more extreme DEW and WMW projections for 2070 to plan for likely events that may have costly outcomes. Therefore, we recommend that the SVB GSA subbasin GSPs:

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[32] 23 CCR § 354.18.

[33] California Department of Water Resources (DWR), 2016. Best Management Practices for the Sustainable Management of Groundwater, Modeling (BMP #5), December 2016.

[34] 23 CCR § 354.24.

[35] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True.

[36] Union of Concerned Scientists. Troubled Waters: Preparing for Climate Threats to California's Water System, 2020. https://www.ucsusa.org/resources/troubled-waters#top.

[37] See DWR (2018) reference above.

- **Include water budget analyses based on DWR's 2070 DEW and WMW scenarios in order to analyze the full range of likely scenarios[38] that the region faces.**
    - Currently, the SVB GSA's exclusive use of the "central tendency" climate scenario predicts an increase in surface water availability, as represented in the tables in Section 6.4.3 of the subbasin GSPs. The Projected Groundwater Budgets show increases in deep percolation of stream flow, deep percolation of precipitation, and irrigation. The subbasin GSPs are relying on this presumed increase for their water budgets. However, the 2070 DEW scenario provided by DWR could likely result in a significant decrease in precipitation and increase in evapotranspiration, which would have substantial effects on the subbasin water budgets. By analyzing only the central tendency scenario and not other likely scenarios such as the extremely dry and wet scenarios provided by DWR, the SVB GSA is ignoring the specific 2070 DEW and WMW scenarios provided by DWR as well as an increasing trend in drought frequency. In doing so, the GSP could be overestimating groundwater recharge or underestimating water demands, inadequately planning, and jeopardizing groundwater sustainability. This will waste precious time to prepare and reduce the vulnerability of the basin's agriculture and already vulnerable communities.
    - DWR's guidance (2018) states that the central tendency scenarios *might* be considered most likely future conditions -- that is not a clear endorsement of a higher statistical probability. It appears that they are calling it the central tendency merely because it falls in the middle of the other two projections, not because it is significantly more probable.
    - DWR (2018) explicitly encourages GSAs to plan for more stressful future conditions:
        - "GSAs should understand the uncertainty involved in projecting future conditions. The recommended 2030 and 2070 central tendency scenarios describe what might be considered most likely future conditions; there is an approximately equal likelihood that actual future conditions will be more stressful or less stressful than those described by the recommended scenarios. Therefore, GSAs are encouraged to plan for future conditions that are more stressful than those evaluated in the recommended scenarios by analyzing the 2070 DEW and 2070 WMW scenarios.."[39]

[38] Terminology used in the California Climate Change Assessment, 2019. (Table 3). https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf.

[39] California Department of Water Resources (DWR), 2018. Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. Section 4.7.1. https://data.cnra.ca.gov/dataset/sgma-climate-change-resources/resource/f824eb68-1751-4f37-9a15-d9edbc854e1f?inner_span=True. (In red is a statement about the central tendency scenarios referenced in SVB GSA public meetings and email communications by the GSA's engineering consultant, and in blue is the important text accompanying it, urging GSAs to analyze the more extreme scenarios. CWC staff cited this complete paragraph in email communications with the consultant and GSA staff on April 8, 2021. CWC also raised this point at Forebay and Upper Valley Subbasin Committee meetings in March and at the April SVB GSA Board Meeting.)

- Including the DEW and WMW climate scenarios as part of the 2070 water budget analysis is necessary to meet the statutory requirement to use the "best available information and best available science."[40] Sustainable planning must include planning for foreseeable negative and challenging scenarios. The extreme scenarios provided by DWR are certainly foreseeable, as they have been modeled and made available to the GSA for analysis.
- It is important for the SVB GSA to include the 2070 DEW and WMW scenarios, because shallow drinking water wells in the area are particularly vulnerable to various extreme conditions, especially drought.

- **Share water budget results based on the 2070 central tendency, DEW and WMW scenarios that DWR has provided with the Subbasin committees, the Advisory Committee, and the GSA board**. This should be done at a *minimum* to see what the difference in outcomes could be, and to provide a transparent process for selecting the preferred scenario. This analysis is particularly important because of the drastic differences between the dry and wet scenarios for this region. Drought and/or intensified rainfall (more water falling over a shorter period of time) would pose severe challenges[41] to the Subbasins' plans for recharge, which is a critical component of their plans to reach sustainability.
- **Plan for potential adverse climate conditions when determining Projects and Management Actions.** The results of limited-scope planning will be detrimental to beneficial users throughout the SVB GSA. "If water planning continues to fail to account for the full range of likely climate impacts, California risks wasted water investments, unmet sustainability goals, and increased water supply shortfalls."[42] This is true not just generally across California, but also specifically on the Central Coast. "Without effective adaptations, projected future extreme droughts will challenge the management of the Central Coast region's already stressed water supplies, including existing local surface storage and groundwater recharge as well as imported surface water supplies from the State Water Project which will become less reliable, and more expensive."[43]

GSP Chapter 7: Monitoring Network

Robust monitoring networks are critical to ensuring that the GSP is on track to meet sustainability goals. GSAs undertaking recharge, significant changes in pumping volume or location, conjunctive management or other forms of active management as part of GSP implementation must consider the interests of all

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[40] See 23 CCR § 355.4(b)(1).

[41] Union of Concerned Scientists. Inter-model agreement on projected shifts in California hydroclimate characteristics critical to water management. 2020, p. 13. https://link.springer.com/content/pdf/10.1007/s10584-020-02882-4.pdf.

[42] See Union of Concerned Scientists. Troubled Waters (2020) cited above.

[43] Regional Climate Change Assessment for the Central Coast, 2019. (Discussing drought pp. 21-23. Internal citations omitted). https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf.

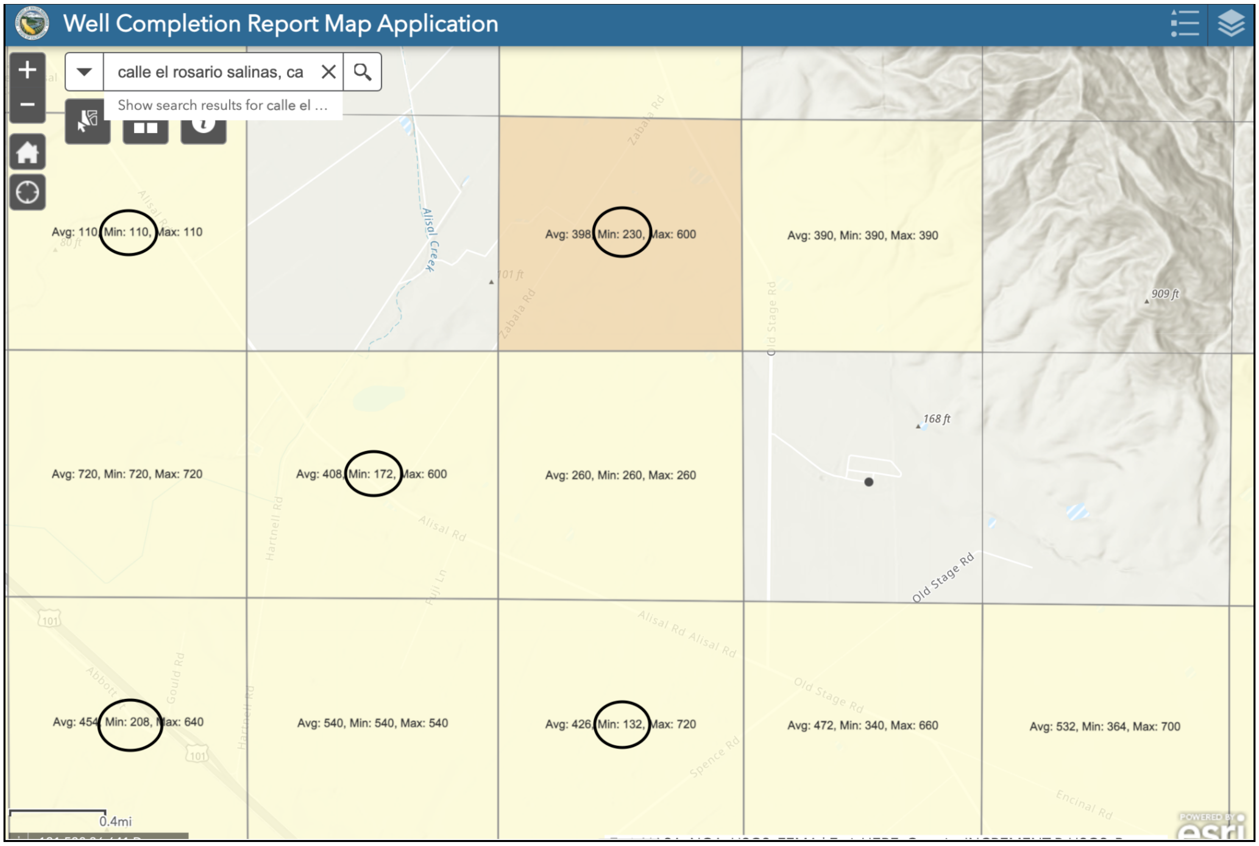
beneficial users, including domestic well owners and S/DACs. We have the following overarching recommendations for this chapter and provide more details for sub-sections below:

- **Require well registration and metering for all wells in the Salinas Valley, and begin implementation of a well registration and metering program in early 2022 with a dedicated budget.** We voice our strong support, with modifications indicated in our comments below, for proposed "Implementation Action 12: Well Registration" in Section 9.1 of Chapter 9 released in April 2021 and recommend that this action be updated and moved to Chapter 7. We agree with the SVB GSA's statement in Section 7.3.2 Groundwater Storage Monitoring Data Gaps that: "Accurate assessment of the amount of pumping requires an accurate count of the number of municipal, agricultural, and domestic wells in the GSP area. During implementation, the SVB GSA will finalize a database of existing and active groundwater wells in the Eastside Aquifer Subbasin." This is essential for the plan to achieve sustainability for all beneficial users and influences many different chapters including:
    - Monitoring networks: In order to develop a monitoring network that is representative, it will be essential to understand the number, location, well construction, and type (domestic, irrigation, other) of all wells located in the subbasins.
    - Water budget and minimum thresholds: Understanding the amount and location of pumping of all water users will be essential for creating an accurate water budget and minimum thresholds consistent with achieving sustainability.
    - Projects and management actions: Section 9.2.1 Well Registration and Metering is a key management action and component of the Water Charges Framework (in the 180/400 foot aquifer) and forthcoming subbasin GSPs. This will underpin the funding structure for many future projects.
- **Require flowmeter calibration to ensure consistent and fair monitoring among all agricultural groundwater users (Section 7.3.1).** Rather than "consider the value of developing protocols for flowmeter calibration," the GSPs should require flowmeter calibration. The water budget and sustainable yield calculation depend on reliable and fair monitoring and reporting of pumping.
- **Provide a plan and schedule for data gap resolution in Chapter 10 of the subbasin GSPs.** In the 180/400 foot aquifer GSP, there was not a clear plan or schedule for the resolution of data gaps in Chapter 7 even though it indicated that this would be included in Chapter 10.
- **Revise GSP monitoring chapters such that monitoring networks for groundwater storage (pumping), groundwater elevation, and groundwater quality adequately monitor how groundwater management actions could impact vulnerable communities including those reliant on domestic wells and shallow portions of the aquifers** (see more detail below).

7.2 Groundwater Elevation Monitoring Network

- **Include groundwater elevation monitoring sites in the network that are representative in terms of the depth and geographic distribution of private domestic wells, and that take into account areas of high agricultural pumping and wells vulnerable to groundwater decline.**
    - The draft East Side Subbasin GSP Table 7-1 of “Eastside Aquifer Groundwater Elevation Representative Monitoring Site Network” shows all irrigation and observation wells (and no domestic wells) which range in depth from 299 to 1122 feet.[44] Yet, the DWR Well Completion Report Map Application[45] shows that 1 mile by 1 mile square sections near San Jerardo Cooperative include private domestic wells with the following minimum depths: 110 ft, 210 ft, 172 ft, 208 ft, and 132 ft which are more shallow than all the wells in the current monitoring network (See CWC Figure 10).
- **Overlay the private well density map (Figure 3-7), the DWR Well Completion Report Map Application (with minimum, average, and maximum depths), the water level monitoring network (with well depths), and available pumping data to better illustrate if and how representative the proposed groundwater elevation monitoring network is of private domestic wells and which areas are vulnerable to water elevation changes.** The GSPs state: "The BMP notes that professional judgment should be used to design the monitoring network to account for high-pumping areas, proposed projects, and other subbasin-specific factors." This will also help to better visualize where there are gaps in the monitoring network which the GSAs can address.

[44] One well shows "0" depth but that must be an error or missing value.
[45] https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports



CWC Figure 10: Screenshot of DWR Well Completion Report Map application in the area near San Jerardo Cooperative highlighting that several 1 mi. by 1 mi. square sections include private domestic wells less than 250 feet deep.

7.5 Water Quality Monitoring Network

- **Clarify the number of public water system wells that will be included in the water quality monitoring network.** As indicated in Chapter 3 and Chapter 5 comments, the GSPs should also clearly identify the total number of public supply wells as well as the number of public supply wells that are out of compliance and at risk in each subbasin. Section 7.5 currently states that "Ninety DDW wells have been chosen to be part of the RMS network. These wells are shown on Figure 7-4 and listed in Appendix 7D." This section and appendix should be consistent with the total number of wells represented in Table 8-4 which includes groundwater quality minimum thresholds. As previously noted, we also recommend clearly presenting the number of public water system wells and state and local small water system wells located in each subbasin. A review of Appendix 7D indicates that perhaps not all wells listed are public water system wells.
- **Representative Water Quality Monitoring Wells for the shallow aquifer should be established in the GSPs based on all currently available data sources with direct agreements with landowners or public entities established.**

- **Develop long-term access agreements for Representative Monitoring Wells (RMWs) that use private wells.** It is currently difficult to reliably collect data from private wells due to access challenges, lack of well construction information, and unreliable accounting of pumping or non-pumping measurements. The GSPs should specifically identify the RMW owners and operators, include signed long-term access agreements, and identify a plan to obtain adequate monitoring data, if for any reason the well owners decide to not grant access to the wells or provide associated data to the SVB GSA. In order to maintain consistency for future sustainability analyses, the SVB GSA should also consider conducting its own water quality analysis of wells where access agreements have already been established to water quality RMWs.
- **Clarify that state and local small water systems will be added to the water quality monitoring network and that well construction information is no longer needed in order to fill this data gap.** Monterey County Environmental Health Bureau permits and monitors over 900 state and local small water systems in the County and have managed the data collected for decades. This dataset has advantages over the ILRP domestic well dataset in that it includes data on contaminants like arsenic and hexavalent chromium in addition to nitrate. Local small water systems serve 2-4 households and are much more similar to private domestic wells than public water systems in terms of depth, well construction, age, size, and maintenance - thus this data would provide a broader representation of shallow drinking water wells. State and local small water systems are located in areas of irrigated agricultural lands as well as rural residential and other land uses. This dataset should complement and not replace ILRP domestic well data.
    - **Clearly add state and local small water system data as a data gap in Section 7.5.2.** In Section 7.5 Water Quality Monitoring Network, the draft GSPs state: “These [state and local small] wells are not in the current monitoring system because well location coordinates and construction information are currently missing. SVB GSA will work with the County to fill this data gap. When location and well construction data become available, these wells will be added to the monitoring network and included in Appendix 7E and Figure 7-4." However Section 7.5.2 Groundwater Quality Monitoring Data Gaps states: "There is adequate spatial coverage to assess impacts to beneficial uses and users."
- SVB response: Small public water systems wells, regulated by Monterey County Health Department, include both state small water systems that serve 5 to 14 connections and local water systems that serve 2 to 4 service connections. SVBGSA had originally planned to work with the County to add data from small and local water systems into the monitoring network. These wells are not in the current proposed monitoring system because well location coordinates, construction information and quality data are not easily accessible. The Monterey County Health Department monitors water quality in the state small and local water systems and their data is not readily transferable. In addition, there is sufficient other available data to characterize the basin. There were no water quality data gaps identified per SGMA requirements for GSPs as there is adequate

spatial coverage to assess impacts to beneficial uses and users. As stated above, the water quality monitoring approach has been updated in V2 to include last time any well was sampled, not just the most current year.

- Our response: We reaffirm our previous comments, requests, and arguments in support of including the SSWS and LSWS data. We would also like additional clarity on what the barriers are to including this important dataset and to explore how they can be resolved. SVB GSA has successfully incorporated the GIS data for the SSWS/LSWS boundaries into its dataviewer and now also into Chapter 3's recent updates. The water quality data was also included in the 180/400 foot aquifer GSP in Chapter 8 in a table indicating exceedances of nitrate and arsenic. CWC, San Jerardo Cooperative and the Greater Monterey County Regional WAter Management Group have also utilized this data successfully in past projects. The value of the full dataset, particularly that it more accurately represents domestic well conditions than any of the other current components of the water quality monitoring network, should outweigh any administrative burden to transfer the data.
- **Do not rely solely on ILRP well data to represent private domestic wells (which are often more shallow than public water system wells).** Similar to CASGEM, the current groundwater quality monitoring network includes monitoring points on private property including ILRP domestic and irrigation wells, but it should not be restricted to ILRP sites only. While on-farm domestic and irrigation wells monitored through the ILRP provide a potentially useful, though limited, source of water quality information, additional representative monitoring wells in the shallow aquifer are important to include for several reasons: (1) The ILRP network only includes wells located on agricultural irrigated lands, and not all ILRP properties include domestic wells. Agricultural land use is not the primary land use in the Langley and Monterey Subbasins so this monitoring network offers very limited coverage. While agricultural land use is the primary land use in the East Side, Upper Valley, and Forebay Subbasins, there are private domestic wells in areas with different primary land uses (e.g. rural), and SGMA requires that monitoring networks are geographically representative. Monitoring network wells must also be sufficiently representative to cover all uses and users in the basin, (2) There are other, more robust networks established by USGS, GAMA, and Monterey County that could be drawn on and included to make the groundwater quality monitoring network more comprehensive and representative of conditions in the shallow aquifer, (3) Ag Order 4.0 was adopted on April 15, 2021, which means the first year of monitoring data will not be available until late 2022, (4) The GSA has no authority to determine the robustness or enforcement of monitoring in the irrigated lands network, and (5) while Ag Order 4.0 proposes to require testing for 1,2,3-TCP as well as nitrate, the current ILRP domestic well data only samples for nitrate, and neither Order tests for other contaminants found in the region. In our experience, not all growers are consistent with their water quality and other reporting, despite the regulatory requirements in place.

- SVB GSA response: "Section 7.5 text was revised to specify that the groundwater quality monitoring network is dependent on the existing samping and well density of the ILRP and DDW monitoring programs. Chapter 5 and 8 text include the constituents of concern that will be monitored in each type of well. SGMA Regulations only require "spatial and temporal coverage." Furthermore, the vertical coverage of the monitoring system cannot be further determined because ILRP well data do not include well depths or screen intervals, which would make it difficult to map vertical water quality."

- Our response: SGMA Regulations instruct GSAs to “[c]ollect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.”[46] Sufficient “spatial” data would include appropriate well depths in order to adequately capture potential groundwater quality trends, particularly those that would affect domestic well owners and DACs.

GSP Chapter 8: Sustainable Management Criteria

SGMA requires a GSA to define existing conditions within the basin and characterize undesirable results, including minimum thresholds and measurable objectives to determine a sustainability goal as sustainable management criteria.[47] We have grouped our comments in this section into general recommendations related to all sustainable management criteria (SMCs) followed by a section specific to the water quality SMCs.

General Recommendations

- **Undertake a drinking water well impact analysis that adequately quantifies and captures well impacts at the minimum thresholds, proposed undesirable results, and potential interim conditions.** Include this analysis during the annual reporting process. We disagree with the assumption included in all draft GSPs that the exact location of wells needs to be known in order to include them in a drinking water well impact analysis. In the 180/400 Foot Aquifer Subbasin GSP, the SVB GSA included a domestic well impact analysis. Although the SVB GSA did not describe the methods used in this analysis,[48] it is CWC’s understanding that the analysis was based on Public Land Survey System (PLSS) section location data, demonstrating that such an analysis is feasible. Similar analyses in the Water Foundation Whitepaper (June 2020)[49] and in the Kings River East GSP[50] were completed using the same PLSS section location data for private domestic wells that is available to the SVB GSA. The current analysis is incomplete as it includes

[46] 23 CCR § 354.34(c)(4).
[47] 23 CCR §§ 354.22-354.30.
[48] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020.
https://sgma.water.ca.gov/portal/service/gspdocument/download/4012
[49] The Water Foundation Whitepaper, April 2020: “Estimated Numbers of Californians Reliant on Domestic Wells Impacted as a Result of the Sustainability Criteria Defined in Selected San Joaquin Valley Groundwater Sustainability Plans and Associated Costs to Mitigate Those Impacts.” April 9, 2020.
http://waterfdn.org/wp-content/uploads/2020/05/Domestic-Well-Impacts_White-Paper_2020-04-09.pdf
[50] Kings River East Groundwater Sustainability Agency. Groundwater Sustainability Plan. Adopted December 13, 2019.

very few wells in all subbasins. The current analysis is also substantially inaccurate as it relies on the “average computed depth of domestic wells in the Subbasin,” and groundwater elevations vary significantly across the subbasin and also on an annual basis. For example, only 8 of the 154 domestic wells in the Forebay GSP with an average depth of 292.45 feet, and only 20 of 2016 domestic wells in the East Side GSP with an average depth of 365.5 feet were included. CWC Figure 10 illustrates that the average computive depth is not representative of conditions in shallow domestic wells. Therefore, we recommend revising Section 8.6.2.2 Minimum Threshold Impact on Domestic wells following the process explained below:

- **Include a map of potentially impacted wells so the public can better assess well impacts specific to DACs, small water systems, or other beneficial users of water.**
- **Quantify impacts for all drinking water wells in the subbasin for which approximate location (PLSS section) and well depth are available.** Similar analyses based on the PLSS section location of private domestic wells have been completed by Water Foundation (June 2020)[51] and in the Kings River East GSP[52].
- **Account for well screen and pump depth when available.** When not available, well screen and pump depth should be estimated conservatively to capture potential impacts to well operability under water scarcity conditions.
- **Quantify impacts for potential unfavorable interim conditions, such as droughts and short-term lowering of groundwater levels while implementation measures are put in effect.**
- **Quantify the elevation difference (in feet) between current groundwater levels and well bottoms, screens, and pumps.** If current groundwater levels are nearing well bottoms, screens or pumps, that indicates that the wells are vulnerable to interim lowering of groundwater levels.
- **Quantify the elevation difference (in feet) between the minimum threshold groundwater levels and well bottoms, screens, and pumps.** If the minimum threshold is near the well bottom, screen or pump, that well will be impacted if groundwater levels in the vicinity drop below the minimum threshold (even if minimum thresholds are met at 90 percent of monitoring wells and an undesirable result has not technically occurred).
- **Quantify the number of potentially impacted wells of each well type (irrigation, domestic, state/local small water system, public water system) for water quality, water levels, and sea water intrusion MTs.**
- **Quantify the costs associated with impacted wells including desalinization/treatment, lowering pumps, well replacement and increased pumping costs associated with the increased lift at the projected water levels.**

[51] *Id.*
[52] *Id.*

- SVB GSA's response: Domestic well analyses were conducted for the minimum thresholds and measurable objectives. Wells that did not have accurate locations were not included, because water levels vary greatly throughout the Subbasin, thus, it is unlikely that the water level for the centroid of a PLSS section can accurately represent all wells that have the centroid of the section as their location.
- Our response: We reiterate that including the centroid of the section is a reasonable and feasible way of conducting this analysis and has been used by other GSAs and researchers. As noted, we believe that SVB GSA itself used PLSS data to conduct the well impact analysis for the 1800/400 Foot Aquifer GSP. Including such a disproportionately low number of wells in the studies is likely to produce unrepresentative results.

Groundwater Quality

We are pleased that the Salinas Valley Subbasin GSPs establish minimum thresholds based on maximum contaminant levels (MCLs) for contaminants of concern for drinking water supply systems. However, there are other areas in regards to groundwater quality sustainable management criteria that are not clear and could cause significant impacts to drinking water users if not adequately addressed. Therefore, we recommend the following revisions:

- **Add state and local small water systems to the monitoring network with the same water quality minimum thresholds and measurable objectives for reasons stated in Chapter 7 comments.** A table for state and local small water system minimum thresholds was included in the 180/400 foot aquifer GSP, but in the draft subbasin GSPs, there is no such table and Table 8-1 only mentions public supply and on-farm domestic wells.
- **If a contaminant was already above the MCL as of January 1, 2015, subbasin GSPs should set a MT to prevent further degradation or aim to improve groundwater quality conditions where possible.** Increased contamination levels can require water systems to utilize more expensive treatment methods and/or to purchase additional alternative supplies as blending may become more difficult or impossible. Communities reliant on domestic wells who are aware of contamination in their water and use point-of-use/point-of-entry (POU/POE) treatment systems may no longer be able to use their devices if contaminate levels rise too high. Higher contaminant levels can also result in higher costs of waste disposal from certain types of treatment systems. Further, residents who rely upon domestic wells, state small water systems, or local small water systems may not even know what contaminants are in their water and at what levels. Users of these drinking water sources are not required to conduct testing, and many times do not have the resources necessary to conduct regular testing. Rising contaminant levels put these users and their health at serious risk. Increased contamination levels result in unreasonable impacts to access to safe and affordable water and are, thus, inconsistent with SGMA and the Human Right to Water. This recommendation is consistent with the State Water Board's recommendations regarding this topic in their letter to DWR regarding the 180/400 foot aquifer GSP in which they state: "Increasing concentrations of nitrate, arsenic, and other constituents at monitoring wells with existing exceedances may represent worsening of existing

conditions due to groundwater pumping. Staff recommend setting concentration threshold levels for these wells in order to determine if impacts due to pumping are occurring."[53]

  - **Develop management areas to protect areas where drinking water wells have water quality that are vulnerable, including the San Jerardo area.**

- **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSPs should set MOs at 75% of the MCLs.** Subbasin GSPs should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold exceedance at a representative monitoring well. This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. If the GSA waits until the minimum threshold is exceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded. We also recommend that groundwater quality and trigger levels at 75% are added to the Water Quality Partnership plans and/or a Well Impact Mitigation Program
  - SVB GSA response: The GSA is not responsible for improving water quality and 75% of MCLs would require remediation.
  - Our response: To clarify, our recommendation is, where water quality is currently below 75% of MCLs, to maintain levels below that mark instead of allowing them to progress up to the MCL. The objective should not be to allow water quality to degrade up to just below the MCL. Many contaminants, such as 123-TCP and arsenic, have public health goals far below the MCL. The MCL is not an established safe level, but rather is a legal limit that also takes into account the economic and technical feasibility of compliance for public water systems. For those contaminants, increasing from 50% to 75% of the MCL represents an increase in health risk.
- **Clearly identify and describe past and present levels of contamination and salinity at each representative monitoring well (RMW) and attribute specific numeric values for MTs/MOs at each RMW for each contaminant of concern.** Quantitative values need to be established for MTs/MOs for each applicable sustainability indicator at each RMW as required by 23 CCR § 354.28 and 23 CCR § 354.30. The GSPs should include a map and tables that include each individual RMW along with water quality data for each RMW (this data is currently summarized in Table 8-4 and Table 8-5). This information should be presented clearly so that the public can determine how the proposed monitoring network and sustainable management criteria (SMCs) relate to their own drinking water well or water supply system.
- **Include hexavalent chromium as a contaminant of concern and plan to add contaminants of emerging concern to the monitoring network.** While there is currently not a Maximum Contaminant Level for hexavalent chromium, there is still a Public Health Goal and public health

[53] State Water Resources Control Board. (Dec. 2020). Comments to DWR regarding 180/400 Foot Aquifer GSP. Downloaded from SGMA GSP Portal. Available under the tab "Submitted After Public Comment Period" at: https://sgma.water.ca.gov/portal/gsp/comments/29.

threat posed by this contaminant in drinking water. The State is required to adopt an MCL for chromium-6 again and is in the process of updating the MCL. In addition to including hexavalent chromium, the GSPs must explain how the Plans will be updated to align groundwater monitoring efforts and the sustainable management criteria with any contaminants of emerging concern in the basin and any future new MCLs.

- The text in Section 8.6.2.3 now acknowledges that groundwater pumping can not only cause the movement of contaminant plumes, but can also cause the release of naturally occurring contaminants such as arsenic and chromium. It states:
    - 1. Changes in groundwater elevation could change groundwater gradients, which could cause poor quality groundwater to flow toward production and domestic wells that would not have otherwise been impacted. These groundwater gradients, however, are only dependent on differences between groundwater elevations, not on the groundwater elevations themselves. Therefore, the minimum threshold groundwater levels do not directly lead to a significant and unreasonable degradation of groundwater quality in production and domestic wells.
    - 2. Decreasing groundwater elevations can mobilize constituents of concern that are concentrated at depth, such as arsenic. The groundwater level minimum thresholds are near or above historical lows. Therefore, any depth dependent constituents have previously been mobilized by historical groundwater levels. Maintaining groundwater elevations above the minimum thresholds assures that no new depth dependent constituents of concern are mobilized, and are therefore protective of beneficial uses and users.
- **Include an analysis of the relationship between changes in groundwater levels and groundwater quality concentrations.** In order to clearly evaluate the relationship between changes in groundwater levels and groundwater quality, SVB GSA should undertake an analysis of the change in water quality constituent concentrations relative to change in water levels,[54] particularly over drought periods, to evaluate the potential relationship between water quality

[54] *See* P.A.M. Bachand et. al. Technical Report: Modeling Nitrate Leaching Risk from Specialty Crop Fields During On-Farm Managed Floodwater Recharge in the Kings Groundwater Basin and the Potential for its Management https://suscon.org/wp-content/uploads/2018/10/Nitrate_Report_FInal.pdf. *See also,* Groundwater Recharge Assessment Tool, created by Sustainable Conservation to help groundwater managers make smart decisions in recharging overdrafted basins, including modeling whether a particular recharge project would result in short or long term benefits or harms to water quality, http://www.groundwaterrecharge.org/.

and groundwater management activities.[55] It is our understanding that groundwater quality issues in the Salinas Valley Basin did, in fact, worsen and continue to do so during low groundwater elevations years.[56] Arsenic in the San Jerardo well was at its highest during the lowest groundwater elevation measurement (See CWC Figure 1).

- **Add the total number of wells in each category that will be included in the water quality monitoring network and have SMCs evaluated to Table 8-4. For each constituent of concern, add the number of wells included in the chart and the number exceeding the MT/MO based on the latest sample.** This comment has the same goal as the comment we provided in Chapter 7. SMCs should be set at every public drinking water well and a representative network of drinking water wells that rely on more shallow aquifers. It is essential to track the same wells each year in the monitoring network. If a well is no longer active, it should be removed from the network. In the current representation, it is not clear which wells are included in the monitoring network, which wells have data for each constituent, and which wells are exceeding the regulatory standard.
    - We acknowledge that new information was provided in Chapter 5 that partially addresses this comment, yet we still recommend that the GSP clarify the total number wells in the water quality monitoring network in each category (DDW and ILRP) and that this information be added to Table 8-4.
- **Engage stakeholders and scientists in a transparent discussion regarding "the process the GSAs would use to decide whether or not an exceedance of an MT for water quality degradation was caused by GSP implementation."**[57] The State Water Board recommended that the 180/400 foot aquifer GSP outline this process "otherwise, it is difficult to judge how adequately the GSP addresses undesirable results related to water quality degradation." This relates to the

[55] More information about groundwater quality and the relationship between changes in groundwater levels can be found in the following resources:
U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality. *See also,* Stanford, Community Water Center (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium.* Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896. *See also,* Community Water Center. (2019). *Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act*. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[56] U.S. Geological Survey (USGS). (Sept 2021). *Increased Pumping in California's Central Valley During Drought Worsens Groundwater Quality.* California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA). Available at: https://www.usgs.gov/news/increased-pumping-california-s-central-valley-during-drought-worsens-groundwater-quality.

[57] State Water Board comments to DWR on 180/400 Foot Aquifer GSP (Dec. 2020). Downloaded from SGMA GSP Portal: https://sgma.water.ca.gov/portal/gsp/comments/29. .

undesirable result for water quality which currently reads: "There shall be no additional minimum threshold exceedances beyond existing groundwater quality conditions during any one year as a direct result of projects or management actions taken as part of GSP implementation."

Chapter 9 Projects and Management Actions

Projects and Management Actions should benefit the basin and all beneficial users.[58] Drinking water users and DACs, who are protected as beneficial users of water under SGMA,[59] can be adversely impacted by either groundwater levels or water quality degradation. Thus, projects and management actions outlined in the GSP, including those currently referred to as implementation actions, should address sustainability issues facing drinking water and other domestic water uses, hold those who cause impacts accountable for remedying them, and address secondary impacts of the projects in order to ensure continued drinking water availability.

While determining how such benefits will be distributed based on the nature of different projects and actions, and who should bear the associated costs, the SVB GSA should keep in mind the **"polluters pay" principle.** Drinking water users should not be put into the position of shouldering additional costs to protect their basic Human Right to Water. Domestic water use has not led to overdraft conditions, as evidenced by the statutory designation of "de minimis" use. Nor should benefits be distributed based on which interested parties can most easily fund a project, but rather towards the overall sustainability of the basin and equity of benefits among beneficial users.

The SVB GSA Subbasin GSPs should (1) clearly identify potential impacts to water quality from all projects and management actions, (2) include management actions that respond to immediate needs and (3) develop a more robust implementation schedule and funding plan for projects and management actions. We acknowledge that the implementation actions are currently in the beginning stages of design but encourage incorporating these elements as soon as possible so that the public and DWR can accurately assess their benefits and feasibility.

Further, because SVB GSA defines its sustainability criteria in a way that potentially allows for drinking water well impacts and because there is so much uncertainty regarding potential domestic well impacts, we recommend incorporating a **Robust Drinking Water Well Mitigation Program.** This program should include the Dry Well Notification System as well as (1) a plan to prevent impacts to drinking water users from dewatering, increases in contaminant levels and increases in salinity, and (2) a plan to mitigate the drinking water impacts that occur even when precautions are taken.

- This type of adaptive management implementation action is crucial to ensuring that all beneficial users within the basin are protected under the GSP. As we have highlighted in previous comments[60]:

[58] As outlined in the Eastside and Upper Valley April 7 meeting materials, soliciting feedback, "[p]rojects implement the GSP and enable the subbasin to reach sustainability by 2042, then maintain sustainability for another 30 years."
[59] Cal. Water Code § 10723.2.
[60] Community Water Center and San Jerardo Cooperative, Inc. Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan. May 15, 2020. Available at: https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

- A GSP that lacks a mitigation program to curtail the effects of projects and management actions as to the safety, quality, affordability, or availability of domestic water, violates both SGMA itself and the Human Right to Water (HR2W).[61] The California legislature has recognized that water used for domestic purposes has priority over all other uses since 1913[62] in Water Code § 106, which declares it, "established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation."[63]
- The passage of the Safe and Affordable Drinking Water Fund by Governor Newsom indicates a clear State-level commitment to provide safe and affordable drinking water to California's most vulnerable residents.[64] To ensure compliance with the Legislature's long established position, the HR2W requires that state agencies, including the Department of Water Resources and the State Water Board, must consider the effects on domestic water users when reviewing and approving GSPs.[65] Therefore, GSPs that cause disparate impacts to domestic water use are in violation of the HR2W, and cannot be approved in a manner that meets DWR's requirements under SGMA, and Water Code § 106.3.
- It is important to note that SAFER should not be counted on to remedy impacts to domestic wells that result from GSA management. In order for the state to uphold the HR2W, SAFER funds need to be reserved for issues where there are currently no other responsible regulatory authorities to cover the costs. This is not the case where GSAs are managing the groundwater in their basin in a way that allows domestic wells to go dry or degrade water quality. Local prioritization of continued pumping should not be subsidized by the SAFER fund when the demand for those funds already outstrips the available funds nearly 10-fold.[66]
- The SAFER Needs Assessment Executive Summary highlights: "$10.25 billion represents the total estimated cost of implementing interim and long-term solutions for HR2W list systems, At-Risk water systems and well owners."[67]

- In order to effectively protect drinking water users during GSP implementation, we recommend that the GSA's **Drinking Water Well Impact Mitigation Program Implementation Action,** in line with and expanding upon the currently proposed Dry Well Notification System and potentially incorporated into actions carried out under the Water Quality Partnership, should include the following components:

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[61] WAT § 106.3 (a).
[62] Senate Floor Analysis, AB 685, 08/23/2012.
[63] This policy is also noted in the Legislative Counsel's Digest for AB 685.
[64] SB 200 (Monning, 2019).
[65] WAT § 106.3 (b).
[66] SWB. *SAFER Needs Assessment*. Available at: https://www.waterboards.ca.gov/drinking_water/programs/safer_drinking_water/docs/draft_white_paper_indicators_for_risk_assessment_07_15_2020_final.pdf.
[67] SWB. *SAFER Needs Assessment: Executive Summary.* P. 23 Available at: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/executive_summary.pdf

- **Include a vulnerability analysis of Disadvantaged Communities (DACs) and drinking water supplies in order to protect drinking water for these vulnerable beneficial uses and users.** Although rural domestic and small water system demand does not contribute substantially to the overdraft conditions, drinking water users could face significant impacts, particularly if the region faces another drought. Without a clear commitment and timeline for actions regarding establishing groundwater allocations or reductions in groundwater pumping, the SVB GSA may create disparate impacts on already vulnerable communities. See comments submitted by CWC and San Jerardo Cooperative on April 23, 2021 regarding Chapter 8 of SVB GSA Subbasin GSPs for further recommendations for conducting well impact analyses.
- **Develop a trigger system for both groundwater levels and quality in collaboration with stakeholders, in particular groups that are more susceptible to groundwater elevation and quality changes. Stakeholder recommendations provided back to the GSA should be incorporated into quantifiable measures, such as the GSP measurable objectives, MCLs, and numbers of partially or fully dry drinking water wells.**[68]
- **Ensure that the monitoring network is representative of conditions in all aquifers in general, including the shallow aquifer upon which domestic wells rely.**
- **Routinely monitor for all contaminants that could impact public health, including those with established MCLs, such as nitrates, and contaminants of emerging concern,through the representative water quality monitoring network.** Contaminated drinking water can cause both acute and long-term health impacts and can affect the long-term viability of impacted regions.[69] Among other causes, groundwater contamination can result through the use of man-made chemicals, fertilizers, or naturally-occurring elements in soils and sediments.[70] Routinely monitoring for contaminants will allow the GSA to accurately monitor for impacts on the most vulnerable beneficial users, and protect DACs' and domestic well owners' access to safe and affordable drinking water.[71]
    - **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSP should set MOs at 75% of the MCLs.** The GSP should include MOs as action triggers at 75% of MCL for each constituent of concern so that groundwater can be managed in that area to prevent a minimum threshold

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[68] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

[69] Community Water Center. (2019). Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[70] See previous Community Water Center (2019) reference.

[71] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

exceedance at a representative monitoring well.[72] This buffer is particularly critical with contaminants like nitrate that can cause acute health effects. As discussed in previous submitted comments, water quality impacts can intensify as water levels decrease.[73] If the GSA waits until a minimum threshold set at an MCL is exceeded, it may be too late or difficult for actions to be protective of public health and prevent undesirable results. Actions to prevent minimum threshold exceedances should also be clearly explained in this Chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded.

- **Include a combination of different strategies for mitigation including: replacing impacted wells with new, deeper wells, connecting domestic well users to a nearby public water system, or providing interim bottled water.**
- **Include an implementation timeframe, budget, and funding source**.[74] As currently written, the Dry Well Notification System suggests convening "a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold." We support emergency response if one or more wells are impacted, and also request that this section be updated to include strategies to prevent impacts from occuring in the first place. Additionally, plans to address and mitigate those impacts should be solidified beforehand so resources can be mobilized in a timely manner. Drinking water users cannot afford to wait for interim plans to be developed once their primary sources of water for drinking, cooking and hygiene are compromised.

In response to our previous comments, the SVB GSA stated:

> "Thanks for support of the program (now titled Dry Well Notification System). This program focuses on access, not quality. A robust drinking water well mitigation program falls within the responsibilities of other agencies; however, the GSA may consider supporting such a program. The text has been revised to explicitly include it as a potential program that the GSA can collaborate with other agencies on through the Water Quality Partnership. To set MOs at 75% of the MCLs for drinking water, the GSA would need to take on responsibility for cleaning up groundwater contamination present prior to 2015, which would take significant effort and is not the GSA's responsibility. The GSA does acknowledge the need for action on water quality, and will work with other agencies to determine what the GSA's role in that is."

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[72] This recommendation was also made previously in a comment letter to SVB GSA from CWC and San Jerardo Cooperative regarding Chapter 8 of the 180/400 ft Aquifer GSP on November 25, 2020, as well as in our comments to the SVB GSA on April 23, 2021 regarding Chapter 8 of drafts for the SVB GSA Subbasin GSPs.

[73] Community Water Center and Stanford University. Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium. (2019). https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

[74] See previous reference for *Framework for a Drinking Water Well Impact Mitigation Program.*

Our response:

A drinking water well mitigation program deals with more than just water quality. Such a program also protects wells from becoming dewatered due to lowering groundwater levels. As both pertain to the GSA's mandate to manage pumping in the basin in a way to avoid undesirable results, a drinking water well impact mitigation programs would be appropriate and should be required in the SVB GSA Subbasins.

- In regard to water quality, the GSA has responsibilities, mandated by statute, to prevent significant and unreasonable degradation of water quality.[75] DWR has clarified that water quality is a meaningful component of GSA management and has specifically given corrective instructions to SVB GSA, as cited in our prior comments and above. As this is such a critical point of contention with the GSA, we again quote this section from DWR's 180/400 foot Aquifer Determination:
    - "[S]taff find that the approach to focus only on water quality impacts associated with GSP implementation, i.e., GSP-related projects, is **inappropriately narrow.** Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. **GSAs are required; however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions."**[76]
    - DWR clearly identifies the responsibility of the GSA to manage future groundwater extraction in order to prevent significant and unreasonable degradation of water quality conditions. DWR does not limit this duty to merely apply when the GSA regulates groundwater pumping for the purpose of maintaining sustainable groundwater levels, but rather posits an affirmative duty for the GSA to manage extraction in order to avoid exacerbating existing degraded water quality conditions. SVB GSA's jurisdiction does not hinge on whether or not a Subbasin Committee decides to instate allocations or pumping restrictions. SVB GSA does not have the power to discard this authority by opting against regulating pumping. Instead, SVB GSA is exercising its authority as an affirmative action to continue to allow pumping at current rates.
- DWR clarifies further:
    - "Where natural and other human factors are contributing to water quality degradation, the GSAs may have to confront complex technical and scientific issues regarding the **causal role of groundwater extraction and other groundwater management activities**, as opposed to other factors, in any continued degradation; but **the analysis should be on whether groundwater extraction is causing the degradation**

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[75] Cal. Water Code § 10721(x)(4).

[76] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 26-27. (Internal citations omitted; emphasis added). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

- **in contrast to only looking at whether a specific project or management activity results in water quality degradation.**"[77]
  - SVB GSA must establish a viable plan to prevent the exacerbation of degraded water quality conditions in the basin. In response to previous comments, SVB GSA asserted, "Groundwater quality is included within the purview of the SMC TAC, so it can make recommendations of projects that mitigate groundwater quality degradation for drinking water users, including impacts due to pumping."

Recharge Projects (Direct or Indirect)

We offer the following overarching comments regarding Recharge Projects in the Subbasin GSPs:

- **Assess constituents in the ground before using land for recharge, to avoid further contamination.** Reference the Groundwater Recharge Assessment Tool (GRAT) developed by Sustainable Conservation.[78]
  - On-farm recharge has the potential to further spread contaminants. Soil contaminants should be measured before dedicating the land to recharge purposes. "Short-term" impacts on domestic wells due to recharge efforts, which can include increased leaching of certain contaminants such as uranium, or displacement of contaminant plumes, should be mitigated in order to minimize the harm to beneficial drinking water users, and to replace water sources if compromised.[79]
- **In order to achieve successful recharge management, the GSA must identify where groundwater contaminant plumes are currently located, in order to then assess whether recharge projects could cause problematic movement of plumes. Implement recommendations from our previous comment letters regarding Section 5.4:**
  - "**[I]nclude a specific discussion, supported by maps and charts, of the spatial or temporal water quality trends for all constituents that have been detected in the subbasin and may affect drinking water beneficial users, as required under 23 CCR § 354.16(d).** This section should include water quality data (both in map and tabular form) for all constituents (where available) with primary drinking water standards that have been detected in the subbasin including, but not limited to, nitrate, 123-trichloropropane, hexavalent chromium, arsenic, uranium, and perchlorate for all public drinking water wells, state and local small water system wells, and private domestic wells. It is especially important for all groundwater stakeholders to be able to understand and visualize the location of contaminant hotspots throughout each subbasin.

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[77] *Id.*

[78] Sustainable Conservation. *Groundwater Recharge Assessment Tool.* Available at: https://suscon.org/wp-content/uploads/2016/08/GRAT-Summary-8-2017.pdf.

[79] Community Water Center and Stanford University (2019). *Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium*. Available at: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896.

- **Present maps and supporting data for all constituents of emerging concern.** The review of water quality data in the groundwater conditions section of the draft Section 5.4 in the subbasin GSPs is focused primarily on nitrate. The GSPs identify numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, do not present this data spatially. Even though the subbasin GSPs set water quality minimum thresholds for additional constituents (See Tables 8-4 and 8-5), the supporting data is not all presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)).”[80]

- We appreciate the identification of multi-benefit improvements to streams, and agree that slowing the speed of groundwater in its course of movement is a useful way to increase recharge. Such improvements to multi-benefit streams are a cost-effective and low-harm recharge method.

Reoperation of Reservoirs

We offer the following overarching comments regarding Reoperation of Reservoirs projects:

- **Conduct holistic cost-benefit analyses for large-scale infrastructure projects such as the MCWRA Interlake Tunnel and Spillway Modification, taking into account the specific benefits that projects will or will not confer on underrepresented communities and DACs, including the San Jerardo Cooperative in the Eastside Subbasin.**
  - Benefits should be equitable and take into account how different climate projections would impact the potential benefits from such a project in the case of little to no rainfall.
  - Cost-benefit analyses should also consider alternatives that could provide affordable long-term benefits.
- **The MCWRA Drought TAC should ensure that all beneficial water users are considered, and that drinking water needs are particularly protected from harm during current and future droughts, in line with the Human Right to Water.**

Management Actions

<u>Conservation and Agricultural BMPs</u>

- **Best Management Practices (BMPs) should utilize the latest technologies and take advantage of opportunities to modify agricultural pumping needs in order to provide overall groundwater basin benefits for all beneficial users.**

[80] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins.* (April 2021). P. 7. On file with SVB GSA and available at: https://drive.google.com/file/d/1wH7wvCMmQd4bu_PIri5o66_y5caW9ti7/view.

- **BMPs should also be used as a mechanism to improve or stabilize groundwater quality by using evapotranspiration (ET) data with soil moisture sensors and soil nutrient data to promote efficient irrigation practices and limit the application of synthetic fertilizers.**
- **BMPs should include best available science, including climate-smart approaches and nature-based solutions which have been recognized on state, national, and international levels.** For example, while written with the Central Valley in mind, FoodFirst's *Healthy Soils, Healthy Communities* outlines the following strategies and benefits which can also be applied to the Central Coast:
    - **Soil organic matter can reduce soil fumigant emissions** – Pesticides applied directly to soils form short-lived climate pollutants, and contribute to air and water pollution. Increased soil organic matter can reduce fumigant emissions and reduce the need for fumigants in the first place.
    - **Soil organic matter slows water contamination** – Synthetic fertilizer and pesticides have contaminated drinking water in the Central Valley over the last 70 years. Soils higher in organic matter leach fewer pollutants, including nitrates and pesticides. Soils high in organic matter also require less synthetic fertilizer to produce a crop. Using compost instead of synthetic fertilizer can reduce nitrogen loads in the area. Over time, increased soil organic matter and riparian restoration could help reduce groundwater contamination.
    - **Composted manure from dairies could be a source of soil organic matter** – Concentrated manure from industrial dairies is a major local air quality and water quality issue. If that manure were properly composted, it could become a source of valuable nutrients and soil organic matter instead of a pollutant, and help displace the use and manufacture of synthetic fertilizers.[81]
    - **Composting farm waste could prevent black carbon emissions** – Instead of burning orchard waste, another local air pollutant, mulches and composted farm waste could be a source of soil organic matter for farms and rangelands.
    - **BMPs are an opportunity for rural workforce development and wildfire management** – From the Conservation Corps, to ecological restoration, nursery stock production, wetland management and fire prevention, there is a lot of work to do to conserve and increase terrestrial carbon on public and private lands. This is an opportunity to both train and employ young people with low-to-moderate incomes and in communities of color in natural resource and agricultural management.
    - **Carbon-friendly practices can support small-scale and immigrant farmers** – Public support for carbon-friendly practices could help make small to mid-scale and immigrant farmers more resilient and boost their bottom line through a combination of financial support for carbon-friendly practices and more stable land access. These programs will

[81] USDA. *Manure in Organic Production Systems.* Available at: https://www.ams.usda.gov/sites/default/files/media/Manure%20in%20Organic%20Production%20Systems_FINAL.pdf. (Citation added).

have to be accessible to small-scale farmers and take into account chronic issues around access to land, credit and technical assistance.

Fallowing, Fallow Bank, and Agricultural Land Retirement

- **Dewatered drinking water wells or migration of contamination plumes should be considered as factors when deciding where to incentivize targeted agricultural fallowing or land retirement, and should trigger pumping restrictions in affected areas as necessary.**
    - This approach is further elaborated in the Drinking Water Well Impact Mitigation Framework.[82]

SMC Technical Advisory Committee (TAC)

- **Ensure that this TAC functions as a public decision-making space and not a consultative committee.** Discussions regarding SMCs and how or whether to intervene when conditions approach MTs should be fully public and held under Brown Act rules. These discussions are core to the management of the basin and necessarily must be informed by stakeholder input.
    - Additionally, plans to prevent and/or mitigate potential undesirable results should be finalized *prior* to the emergence of such conditions. We note that the formerly proposed Forebay Drought/Pumping TAC has been adapted to mirror the Upper Valley's SMC TAC and emphasize that planning for drought conditions must be done before those conditions arise, not as an improvised reaction in the moment. Such a delay in planning would be counter to the spirit and letter of SGMA.
- **Create management zones with pumping restrictions in areas with vulnerable drinking water wells.**
- **The SMC TAC should consider and recommend projects and management actions that mitigate groundwater quality degradation for drinking water users due to GSA actions, including impacts resulting from over-extraction under GSA management, as was clarified in DWR's 180/400ft Aquifer Determination Letter on pages 26 and 27.**

Pumping Allocations and Control

- **Quantify the demand reductions (pumping restrictions) necessary to meet all minimum thresholds in the short and long term, including in dry conditions.** Designing a feasible and effective allocation structure requires thorough groundwater elevation data as well as a comprehensive, ongoing assessment of the interrelated effects of SMCs on one another. Pumping allocations must be responsive to groundwater conditions throughout the basin and avoid undesirable results.
- **Parameters for pumping restrictions in times of widespread water shortages should be decided ahead of time as part of a publicly-informed, adaptive management approach.** Decisions around pumping regulation should be made as part of GSP development and not relegated to a later decision-making body which will be inherently less accountable to the public than SVB GSA's current Committees and Board. It will not be sufficient to solely bring pumping

[82] Self-Help Enterprises, Leadership Counsel for Justice and Accountability, Community Water Center. (2020). *Framework for a Drinking Water Well Impact Mitigation Program*. Available at: https://static1.squarespace.com/static/5e83c5f78f0db40cb837cfb5/t/5f3ca9389712b732279e5296/1597811008129/Well_Mitigation_English.pdf.

decisions to the public after actions have already been designed and are at the point of being approved. Lack of public input for such a critical component of the GSA's management is especially troubling in the negative—if action is not being taken.

- **As part of an adaptive management approach, pumping restrictions should be implemented by the GSA in a timely way so as to prevent harm to beneficial users, particularly vulnerable drinking water users and DACs.**
- **Consider hybrid allocation systems which account for de minimis users, regardless of homeownership status, to ensure sustainable yields for all beneficial users.** Langley GSP proposes such a hybrid allocation system in which de minimis users are included within the estimated sustainable yield. This approach will provide a more complete picture of groundwater use within the basin, to inform groundwater management decisions.

Implementation Projects

CWC and San Jerardo see value in the projects listed in this section, though we point out insufficiencies below and offer recommendations for how these proposed projects should be adjusted so that they will support SVB GSA in coming into compliance with SGMA. We also note that "Implementation Projects" is a separate category of GSA management activities that SGMA does not specify, and believe these projects should be integrated into either the Projects or the Management Actions sections.[83] GSA activities that are necessary to meet SGMA requirements, such as those intended to prevent a water quality UR, should fit within either Projects or Management Actions.

Groundwater Elevation Management System (GEMS) Expansion

- **Include data from more drinking water wells, including small water system wells and domestic wells, in order to have a sufficiently representative monitoring program.**

Water Quality Partnership (formerly Domestic Water Partnership)

CWC would like to voice conditional support for the Water Quality Partnership, as a step towards coordinating local and regional responses to water quality issues. However, the GSA remains directly responsible for recognizing and resolving water quality degradation that results from its policies and projects.

- The GSA must clarify the role that it will play in this partnership in dealing with water quality issues. Water quality is an integral part of SGMA, one of the six Undesirable Results that GSAs are tasked with preventing while achieving sustainability.[84] Impacts from extraction, including due to overdraft and projects and management actions undertaken by the GSA, fall under the purview of the GSA and should be tracked and remedied according to the GSP. Thus, the GSP must include plans to respond to problems should they arise. If, for example, a contaminant plume were to begin migrating based on pumping patterns or a project/MA, the GSA is not permitted to allow that problem to progress unchecked. If the GSA wishes to collaborate with

[83] 23 CCR § 354.44
[84] Cal. Water Code § 10721, subd. (x)(4). "Undesirable result" means one or more of the following effects caused by groundwater conditions occurring throughout the basin: ...(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

other regulatory agencies who also deal with water quality issues as a way to fulfill its obligations, the GSA should enter into a Joint Powers Agreement (JPA) or a formal Memorandum of Understanding (MOU) in order to formalize the roles and responsibilities. Otherwise, DWR cannot determine whether the plan is sustainable.[85]

- As currently drafted, the Water Quality Partnership only guarantees one meeting per year, and a review of water quality conditions resulting in a report. These proposed actions are not sufficient to ensure that the GSA is equipped to prevent or react to exacerbated water quality should those impacts occur.
- **The GSA should work with local and regional water agencies or the county to implement groundwater quality remediation projects to prevent degradation and potentially improve both groundwater quality as well as groundwater levels to ensure groundwater management does not cause further degradation of groundwater quality.[86]** The strategic governance structure of GSAs can uniquely leverage resources, provide local empowerment, centralize information, and help define a regional approach to groundwater quality management, unlike any other regional organization. When implemented effectively, GSPs have the potential to be instrumental in reducing levels of contaminants in their regions, thus reducing the cost of providing safe drinking water to residents. GSAs are the regional agency that can best comprehensively monitor and minimize negative impacts of declining groundwater levels and degraded groundwater quality that would directly impact rural domestic well users and DACs within their jurisdictions. When potential projects are proposed, SVB GSA should consider how projects could potentially both positively and negatively impact groundwater quality conditions and should take leadership in coordinating regional solutions.
- **Include - without delay - Monterey County water quality data for state and local small water systems.** This data is readily available and would add significantly to the proposed water quality monitoring network in draft subbasin Chapters 7. We do not want this potential partnership implementation/management action to delay the incorporation of this important data source. This action can and should, however, integrate this County data into current draft subbasin plans in order to identify potentially vulnerable populations and create management actions to protect them.
- **Integrate key components of a Drinking Water Well Mitigation Program Framework in order to protect drinking water users from losing access to their drinking water during GSP implementation.** CWC was informed by SVB GSA Staff that concepts from the Mitigation Framework were being incorporated into the Water Quality Partnership language in the GSP, but we do not see evidence of this in the current draft. CWC would like to coordinate with SVB GSA Staff to incorporate this item into the agenda of one or more of the remaining 2021 Advisory and Board meetings in order to present on the Framework to the Committees and Board.

[85] Cal. Water Code §§ 10721, subd.(x)(4) and 10723.6.
[86] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* May 15, 2020. On file with SVB GSA and available at: https://sgma.water.ca.gov/portal/service/gspdocument/download/4012.

- **Integrate water quality considerations across planning and implementation.** As now acknowledged in the GSPs, groundwater quality in the Subbasins can be influenced by pumping and the way groundwater is managed. This is of particular importance for the San Jerardo Cooperative which has experienced increases in nitrate and arsenic in their well, as highlighted in our cover letter and previous comments.[87] This relationship between groundwater levels and groundwater quality should be reflected throughout planning and implementation so that the GSA can manage the basin in a way that does not exacerbate water quality degradation.
    - Support for this recommendation is evidenced by Recommendation #5 of DWR's 180/400 GSP Determination.
- **Fill previously identified water quality data gaps in baseline information and the monitoring network.**
    - DWR assessed water quality monitoring in the 180/400 Foot Aquifer as follows: "The monitoring network to evaluate degradation of groundwater water quality is based on three existing water quality regulatory programs operating in the Subbasin: Monterey County's small community water system wells program, the State Water Resources Control Board's public supply well program, and the Central Coast Water Board's Irrigated Lands Regulatory Program. The Plan proposes to use four sets of wells that are routinely sampled under these programs. Within each set of wells, a specific set of constituents of concern will be monitored. In total, the monitoring network consists of 136 small community water system wells, 51 public supply wells, and a currently unknown number of domestic and agricultural wells from the Irrigated Lands Regulatory Program. The specific number of Irrigated Lands Regulatory Program wells will be finalized when the Central Coast Water Board adopts Agricultural Order 4.0 (anticipated in 2020). The Plan identifies the lack of well construction information (e.g., the depth of well screens or the total depth of the well) for many groundwater quality monitoring wells as a data gap. The implementation chapter of the Plan simply states that "[d]uring implementation, the SVBGSA will obtain any missing well information, select wells to include in monitoring network, and finalize the water quality network." Department staff recommend the SVBGSA provide updates on the progress toward filling this data gap in its annual reports and that more details be provided in the first five-year assessment of the Plan."[88] The remaining SVB GSA Subbasins should match a similar standard for their monitoring systems, and anticipate the need to show progress on filling data gaps in annual reports and at the five year update.

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[87] Community Water Center and San Jerardo Cooperative, Inc. *Comments on the Draft Salinas Valley GSP Chapters 1-8 for the Langley, East Side, Forebay, Upper Valley and Monterey Subbasins.* (April 2020). Pp. 4-5. On file with SVB GSA and available at: https://drive.google.com/file/d/1wH7wvCMmQd4bu_PIri5o66_y5caW9ti7/view.

[88] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* Pp. 30-31. (Internal citations omitted). Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

Dry Well Notification System (Previously Localized Groundwater Elevation Triggers)

The Dry Well Notification System, which is designed to "assist well owners (domestic or state small and local small water systems) whose wells go dry due to declining groundwater elevations" is an important potential component of the Subbasin GSPs, for tracking and responding to impacts due to droughts and overdraft. We support the inclusion of a "notification system whereby well owners can notify the GSA or relevant partner agency if their well goes dry," particularly linking them to DWR's reporting website. We also support the proposal that the GSA "could set up a trigger system whereby it would convene a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold. A smaller area trigger system would initiate action independent of monitoring related to the groundwater level SMC." We encourage SVB GSA to commit to incorporating this project into implementation. Implementation of the Dry Well Notification System would significantly increase the GSA's ability to track and address impacts to domestic wells. To further improve upon the program's efficacy, we recommend:

- **Integrate technical assistance into this program, facilitate access to resources through a collaboration with state agencies and/or directly administer impact mitigation funding.**
  - Tracking instances of dry or depleted wells and linking impacted beneficial users to information about potential available resources is a positive step, however services such as directing DACs and other impacted drinking water users to apply for funding would only be minimally helpful while those households are experiencing a water shortage crisis. The GSA's efforts to respond to impacts due to low groundwater elevations should go further in order to be effective. Such services should include reducing pumping in areas where groundwater supply shortages are being exacerbated by over extraction, actively facilitating coordination between residents and assistance programs, and potentially providing a conduit to state funds directed towards water resiliency—a multi-billion dollar drought & water resiliency package was recently passed by the State Legislature.

Well Registration

- **We recommend that SVB GSA require all wells that pump over two acre-feet per year to be metered and charge fees based on the amount of water pumped, to pay for future projects and incentivize voluntary reductions.**

Support Protection of Areas of High Recharge

- **Develop criteria for recharge projects that prevent unintended impacts to drinking water.**
- **As with all recharge projects, evaluate whether recharge could have any unintended consequences such as moving contaminant plumes toward wells, thus degrading the water quality, and closely monitor water quality in all areas affected by recharge.** The GSP states that "[t]hese areas are typically identified using soils and soil classification maps but would need additional investigation and data to confirm." Accurate mapping of water quality issues in the basin is also crucial in order to prevent unintended water quality impacts.
- **Where applicable, encourage use of low-impact cover crops where water is captured at the site of precipitation or flooding.** Roots in the soil help to capture more water, clean the water source, and maintain healthy soils so that less fertilizer/pesticide is used, as evidenced in organic

and regenerative agricultural practices. Cover crops and compost cycles, as well as chicken manures or natural organic-matter fertilizers can also keep nitrogen in the soil longer, providing benefits to crops and keeping nitrate out of groundwater.

Deep Aquifers Study

- We support the Deep Aquifers Study due to the influence that hydrogeologic interconnections between aquifers in the Salinas Valley Basin would necessarily have on influencing better sustainable management of the basins.

New Water Supply Projects

- **Quantify which combinations of projects could address projected overdraft and what the costs of those combinations would be.** With high costs, permitting and other challenges, there is a high degree of uncertainty whether each project can be implemented. As written, it is difficult to evaluate how feasible it is to address overdraft via the options provided.
    - For example, in the Eastside GSP draft, Table 6-15 in Chapter 6 projects 20,400 AF/yr overdraft in 2030 and 20,500 AF/yr overdraft in 2070. Table 9-8 in Chapter 9 lists projects that could mitigate overdraft. However, Table 9-8 only quantifies benefits for some of the projects, and often for the Salinas Valley basin as a whole as opposed to the Eastside Subbasin. The table also omits costs. This information will be critical for planning and implementing projects to address overdraft.
- **Factor in known uncertainties when determining which projects to prioritize in implementation.** At the top of pg 9-24 for 11043 Diversion at Chualar, and also for 11043 Diversion of Soledad, the GSP states that the groundwater model used to estimate Salinas River flows "does not account for the uncertainty surrounding greater variations in precipitation, timing, intensities and subsequent flows." The model should provide a sensitivity analysis for potential conditions, particularly in light of large variations between climate change predictions in the region.
    - This recommendation is also in line with DWR's 180/400 Determination which instructs SVB GSA to determine how they will define "average hydrogeological conditions," in Section 4.3.3.2 and the overarching statutory requirement to continually update the GSP to meet the statutory requirement to use the "best available information and best available science."[89]
- **Where projects overlap between subbasins, clarify what effects the project will have across subbasins.** For example, provide clarity around what effects the Eastside Irrigation Water Supply Project (or Somavia Road Project) will have on the 180/400 Foot Aquifer Subbasin where water will be pumped from. Account for any effects in the 180/400-Foot GSP in ongoing updates, including pertinent sections of Annual Reports.

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[89] 23 CCR § 355.4(b)(1). "When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following:
(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science."

- **Quantify what the sustainable yield is for the entire basin.** This calculation should be done to ensure that the water budgets balance across all the Subbasin Plans.

GSP Chapter 10: Groundwater Sustainability Plan Implementation

Our overarching recommendations for GSP Implementation and Updates are as follows:

- **Take interim actions while working toward long-term sustainability.**
- **Address missing data for domestic wells as recommended by DWR:**
    - "[T]he GSA should inventory and better define the location of active wells in the Basin and document known impacts to drinking water users caused by groundwater management … in subsequent annual reports and periodic updates."[90]
- **Continue to include the small water system data from the County as a data gap in the subbasin GSPs, as it was in the 180/400 foot Aquifer GSP.** As Tom Berg, a DWR representative, indicated at the SVB GSA Advisory Committee meeting on June 17, 2021, the specific decisions made during the formation of the 180/400 foot Aquifer GSP allowed for it to receive DWR's approval. Mr. Berg recommended that the SVB GSA review the three other letters that DWR released on June 3, 2021, to better understand the parameters of what is required for a GSP to receive approval.
- **Engage underrepresented communities immediately.** As this section acknowledges, underrepresented communities have little or no representation in water management and have often been disproportionately less represented in public policy decision making. It is important to note that their engagement and input around their main concerns must be noted and considered during routine GSA proceedings. Their input should be (or rather should have been) solicited and received while the GSP formation process is/was still active.
- **Continually update the GSP and Implementation strategy as best available science[91] evolves.** Meaningful updates to data sources and interpretation should occur at a minimum on a yearly basis, timed with the Annual Reports.

[90] Department of Water Resources. (2021). *Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan.* P. 24. Available for download at: https://sgma.water.ca.gov/portal/gsp/status.

[91] 23 CCR § 355.4(b)(1).

Friday, October 15, 2021

SVBGSA Public Comments Form

Salinas Valley Basin Groundwater Sustainability Agency

Name	Douglas Deitch
Organization	Monterey Bay Conservancy (MBC)
Email Address	siddhartha1002@gmail.com
Subbasin	Langley, Eastside, Forebay, Upper Valley, Monterey, Whole Basin, 180/400
Chapter	Salinas Valley Basin GSA (entire)

Comments

https://twitter.com/DouglasDeitch/status/1375814806364594178/photo/1

Part I-General comments on balkanized/"sub basined" and too many Monterey Bay GSAs, our ground water commons, our Water Berry (and other similar) Ponzi Schemes (MBC @ CCC 2009 @ http://www.begentlewiththeearth.org , http://ourinconvenienttruth.net http://ourinconvenienttruth.org http://ourinconvenienttruth.com & 2011 @ http://douglasdeitch.com http://douglasdeitch.net & MBC @ http://dougforassembly.com @ SWRCB requesting SWRCB Monterey Bay Regional "Intervention" for the first time in 2016 @ 11:21 @ http://thebestthatmoneycantbuy.org), and their ongoing and worsening (terminal?) tragedy ... and our Alternatives

1. "Those who cannot remember the past are condemned to repeat it." :
"Toolittle/toolatefortheCentralValley (and Monterey Bay's $5 billion+ annual production) &it'sAG?
Those who cannot remember the past are condemned to repeat it, like we have forgotten in the Monterey Bay w/ berries&Driscolls/Reiter (et al) instead of cotton&Boswells@ http://youtube.com/watch?v=I5uloOJ5m1o&feature=youtu.be
http://santacruzfoods.com

https://twitter.com/DouglasDeitch/status/1448627629557354500

Alternative#1 @ Living within our means @ http://dougdeitch.info , 1995 Zmudowsky Beach 43 acre Pilot Project @ http://dougdeitch.com & @ MBC @ CCC in 2011 @ https://www.youtube.com/watch?v=ija6HUdP-eY

2. "VAST majority of the water/food/RE resources of World's 5th biggest economy/Community are inextricably tied to SFBay/Delta/Sierra-Snowpak&CentralValleyag. CCC predicts 3.5ftSLR in 30 years@ http://documents.coastal.ca.gov/assets/slr/CCCendorsement_SLRPrinciples.pdf .
5:42@ http://pebblebeachrealestate.com Dr.Mount sez what 1 foot will do!"
https://twitter.com/DouglasDeitch/status/1374672809163550720

Question #1: If one foot of SLR will "salt up" the Delta, as Dr. Mount tells us in 2015, how, for example will this same one foot SLR affect our already overuse/critically overstressed local ground water commons? How is this above referenced projected CCC 3.5 feet SLR in next 30 years accounted for, if at all, in any current Monterey Bay GSA, particularly the only and first two and already approved ones in this or your, my, and GM/Santa Cruz Mayor Meyer's neighbor's and partner's "Mid County Ground Water Agency" and the sustainability of each's respective ground water basins and "sub basins"? Here's my recent comment to the CCC on this exact issue:

"Good Afternoon Dear Chair and Commissioners,

Please find my four (4) comments (in reverse order) I tendered last Friday, as described in the "Subject" of this email, and various attached images/articles/etc. w/ some repetition? (please excuse)

I hope you will have the opportunity to review them and watch the 12 minute VICE video @ I suggested you please review @ www.sandiegorealestate.com (and elsewhere) at the last real public in person meeting you had in March 12 of 2020, so long ago,

... @ minute/second 12:12 @ https://cal-span.org/unipage/?site=cal-span&owner=CCC&date=2020-03-12&mode=large&fbclid=IwAR1Fh5WDXG7kaFHIj0NvpnIe58Ry8zsMXnsOAd3cgJZ9poK5LjQjXQPqW-E

Best/health/tikkun olam,

Respectfully,

Douglas Deitch

MBC

831.476.7662

http://sipodemos.democrat

http://lomejorqueeldineronopuedecomprar.com

www.dougdeitch.info

-------- Forwarded Message --------
Subject: Fwd: Please add Additional Comment 4. + attached image (Fwd: Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone")
Date: Fri, 24 Sep 2021 15:17:27 -0700
From: ddeitch@pogonip.org
To: StatewidePlanning@coastal.ca.gov, Ddeitch

4. continued: Here is the MC Weekly 2018 article mentioned below @ https://www.montereycountyweekly.com/news/local_news/as-seawater-intrusion-advances-new-farmland-puts-marina-s-water-supply-in-peril/article_b35ca7e0-f66e-11e7-b541-57771b472126.html

"As seawater intrusion advances, new farmland puts Marina’s water
supply in peril.

* David Schmalz

* Jan 11, 2018
* Along Highway 1 just north of Marina, what has been grassland for
decades is turning into row crops. A look at satellite images on
Google, stretching back to 1984, shows that farming on the property,
known as Armstrong Ranch, started in 2014 just south of the Marina
landfill.

Expect that trend to continue: On Nov. 21, 2017, Valle Del Sol Properties LLC bought 1,784 acres of Armstrong Ranch for $81.5 million. (Monterey County Assessor Steve Vagnini says the price per-acre, just over $45,000, is in keeping with local agricultural land values.)

Three new ag wells have been drilled on the property since 2015, and an application for another is currently being processed by the county. But here’s the rub: The wells are pumping from an ancient, finite water source. It’s the same water source that residents of Marina and the former Fort aquifers, named for their respective depths – is impaired by seawater intrusion, a process that occurs when excessive pumping creates a pressure differential that draws seawater into the aquifers, fouling their water with salt.

The only groundwater available to irrigate the property is in the so-called deep aquifer, an ancient groundwater supply 900-plus-feet underground that is not recharging through natural mechanisms. Scientists believe the water is probably more than 20,000 years old.

The only recharge to the deep aquifer, hydrologists say, comes from leakage from overlying aquifers. In the coastal area around Marina, those aquifers are already compromised by seawater intrusion, making them unusable as municipal or irrigation water supplies.

Pumping from the deep aquifer is considered “water mining,” and has long been viewed as a last-ditch water supply that is both expensive to tap – it costs upwards of $1 million to drill a well into it – and risky to rely on because its quantity is unknown. Yet Marina Coast Water District, which supplies the city of Marina and the former Fort Ord, pumps roughly 50 percent of its water from the deep aquifer. (In 2017, that came out to 1,587 acre-feet of 3,239-acre feet.)

In October, Howard Franklin, senior hydrologist with the Monterey County Water Resources Agency, presented six recommendations to the County Board of Supervisors to help combat worsening seawater intrusion.

Among those recommendations was a moratorium on new wells in the deep aquifer until a study determines its viability as a water supply..."

“All wells in the deep aquifer are of concern with respect to the recommendations,” Franklin says. “This is an urgent situation. This is imminent.”

According to Michael Cahn, an irrigation water resources adviser with UC Cooperative Extension in Salinas, an acre of strawberries requires about 2.5 to 3 acre-feet of water annually.

That means if the entire 1,784 acres were converted to strawberries, it would require in excess of 4,000 acre-feet of water annually – more than Marina Coast’s current annual production.

Franklin, when articulating the urgency of the situation for Marina Coast, and others that rely on the deep aquifer, says the human-caused mechanism of recharge for the deep aquifer – leakage from overlying aquifers – does not happen easily, or quickly, but that it will happen in a matter of years.

“The damage is being done now, and the impact of that damage could be 10 years from now, but if you [pump the deep aquifer] today, the damage will occur,” Franklin says.

Marina Coast does not have jurisdiction over new agricultural wells on Armstrong Ranch.

“It’s on our radar, and we’re concerned about it, but we’re not necessarily in the loop,” Marina Coast General Manager Keith Van Der Maaten says. “Unfortunately, I don’t think we’re as involved as we should be. We should have a more active role.”

The county’s Environmental Health Bureau processes applications for new wells, but while projects for residential water supplies face a gauntlet of bureaucratic hurdles, wells for agriculture are typically approved without any pushback.

That may change in the coming years with the formation of the Salinas Valley Groundwater Sustainability Agency, but ag wells in the region have so far have faced minimal regulation.

Marina Coast is currently exploring new potential water supplies, other than desalination. The agency is vying for up to $1 million in state grant funds – the grants will be awarded in February – to study water storage options in the aquifers around Armstrong Ranch.

The project would potentially seek to store excess winter flows in the Salinas River, which would make it similar to the Monterey Peninsula’s aquifer storage and recovery project in the Seaside Basin, where winter flows are pumped from Carmel River and injected underground.

Theoretically, Van Der Maaten says, Marina Coast could produce between 2,000-8,000 acre-feet of water annually with the project, and even send some of the water north to Castroville.

But he says there are still many unknowns, including whether it is technically feasible, whether Marina Coast could secure the water rights to those flows, and whether it would be economically feasible for Marina Coast to supply Armstrong Ranch farmland with water so that they stop pumping from the deep.

Van Der Maaten knows it won’t be easy, but the mission is clear: “We absolutely need to get into this deeper, and get people off the deep aquifer.”

---------- Forwarded Message --------

Subject: Please add Additional Comment 4. + attached images (Fwd: Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone")
Date: Fri, 24 Sep 2021 14:48:18 -0700
From: ddeitch@pogonip.org
To: Ddeitch , StatewidePlanning@coastal.ca.gov

4. The recent September 20, 2021 presentation by USGS and CCC staff (see attached images) on ground water and Sea Level Rise underlines and emphasizes the unadvisability and inherent risks and unknowns involved with our too many recent non DPR recycled water supply projects like Pure Water Monterey, Soquel, San Diego caused by sea level rise invading our ground waters despite our best efforts and intentions to prevent this.

At minute/second 5:41 @ the 12 minute VICE video at http://www.sanfranciscorealesatate.com , Dr. Jeff Mount in 2015 explains what just one foot of SLR will do to the Delta and the CCC plans for 3.5 feet SLR by 2050 (@ https://documents.coastal.ca.gov/assets/slr/CCCendorsement_SLRPrinciples.pdf) . So, just imagine what that same 1 foot of SLR will do to our coastal ground water, particularly in our already critically overdrafted coastal ground water basins and related new water supply infrastructure.

Now add to this uncontrolled and unplanned for increased ag coastal well pumping for new ag, such as is presEnt in the Pure Water Monterey area described in this Monterey Weekly article from a couple of years ago which will, at 5400 acre feet per year, completely offset the cleaned injected recycled water in the Monterey Pure Water expanded project.

-------- Forwarded Message --------
Subject: Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone"
Date: Fri, 24 Sep 2021 06:33:31 -0700
From: Douglas Deitch
To: StatewidePlanning@coastal.ca.gov, Ddeitch

"Thosewhocannotrememberthepast https://youtu.be/I5uIoOJ5m1o can't adapt to 3.5' in30yrSLR? @ https://twitter.com/DouglasDeitch/status/1374672809163550720 toprotectvastmajoritywater/food/re assets w/o 1. http://sipodemos.democrat 2. http://dougdeitch.info : https://t.co/2L1RYOqKrI http://dougforassembly.com ?" (https://twitter.com/DouglasDeitch/status/1426946751336914944)

Comments on "public review draft of Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone : "This Guidance focuses on adaptation of transportation infrastructure (Chapter 5) and water infrastructure (Chapter 6), including highways, roads, railroads, wastewater, stormwater, and water supply infrastructure."

1. "VAST majority of the water/food/RE resources of World's 5th biggest economy/Community are inextricably tied to

nt_SLRPrinciples.pdf . 5:42@ http://sandiegorealestate.com Dr.Mount sez what 1 foot will do!" @ https://twitter.com/DouglasDeitch/status/1374672809163550720 :

Analysis & Conclusions: Due to this 2020 3.5 ft. SLR by 2050 "planning guideline/projection" (and other reasons like possible COVID19 and other possible contamination of our waste waters which cannot be cleaned (@ https://twitter.com/DouglasDeitch/status/1426593026571313152)

Additionally, this is why we must immediately begin investigation of feasibility and advisability of damming the Golden Gate run down @ http://sipodemos.democrat @ Linkedin:

CA - DWR

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Fair&Balanced! @ MakeCaliforniaGreatAgain.DEMOCRAT @DouglasDeitch

Replying to
@CA_DWR
#CaWaterBoards
https://twitter.com/DouglasDeitch/status/1401916742541013000

DPRisbest! like @ my "NAUTURAL SOLUTION" @ http://dougdeitch.info and 21000 acre Monterey Bay Estuarine Nat'l Monument in the Monterey Bay, which will include up to 31k/a/f/yr from Castroville Reclamation Plant repurposed to urban, recharge, and conservation uses from ag use in perpetuity, to wit:

https://twitter.com/DouglasDeitch/status/1411648137878380551

*"Douglas Deitch, Balanced Law and Order Liberal Democrat for State
Senator*

September 14, 2019 ·
WELCOME TO www.DOUGDEITCH.info !!! ... Best SUSTAINABLE Monterey Bay region "SLR" (Sea Level Rise) water solution?
lomejorqueeldineroNOpuedecomprar.com /
lawandorderliberal.org
My 21,000 acre "Monterey Bay Estuarine National Monument" , etc. 'Water Fix" ..., of course.
The Castroville reclamation plant/project, run down @

1998 for around $75 million in Castroville.
This 31,000 acre feet/yr of water will be repurposed to urban use, further cleaned, processed, and distributed regionally and will easily supply and service all current and future Montrey Bay regionally urban water needs.
This will be accomplished by using the 12000 acres of land associated with this 31000 a/f/yr of water to it's highest and best use.
At present, this water is dedicated to exclusively ag use on 12,000 coastal ag acres at the mouth of the Salinas Valley to use instead of well water pumped at this location to protect the Salinas Valley from further salt water intrusion.
As farmland, this land is FMV worth around $50,000 per acre as farmland (https://www.santacruzsentinel.com/.../retired-federal.../). However, this 12,000 acres highest and best use is not as farmland but instead as a ground water conservation/aquifer recharge/ and estuarine habitat conservation/rehabilitation project, which actually doubles the FMV of this land to $100,000 per acre or $1.2 billion.
This land comprises roughly something under 5% (?) of irrigated farmland in the "Salinas Valley"
If this 12000 acres was publicly acquired and fallowed/or all well pumping ceased, along with another tract of 9000 acres of irrigated farmland at the mouth of the Pajaro Valley running from approximately Elkhorn Slough to Manresa Beach on the ocean side of Highway One in Santa Cruz County for 21000 acres in total to protect the Pajaro Valley from salt water intrusion in the same way, ag well pumping would stop on this 21000 acres and, @ 3 a/f/yr per acre for ag water, 63,000 a/f/yr of ground water, would be CONSERVED annually per year in perpetuity. Additionally, wouldn't this 63,000 a/f/yr be also de facto RECHARGED at these two most hydrologically critically important locations with the highest quality recharge water possibly available with the lowest cost and best "GREEN tech" water available possible anywhere, in perpetuity as well, ... the recharge water produced and recharged naturally by our best water purveyor named Ms. Mother Nature?
Correct.
This is what I call the "Monterey Bay Estuarine National Monument", and it is truly a national monument with the highest concentration of critically threatened critical estuarine resources and habitat of ANY LOCATION ANYWHERE IN THIS COUNTRY !!! Here's my already successful 25 year old "Pilot Project" @ "Willoughby Ranch" @ Zmudowski Beach @ to check out @ www.dougdeitch.com & www.dougdeitch.info (this page)... "Farmlands back to wetlands"
Query: Where's the $2.1 billion?
Response: Reallocated rail bond money billions to "water/habitat/environmental projects" aka "OPM" (...other people's money) and INFRASTRUCTURE FUNDING.

2. "I wonder what the latest SCIENCE is today re:"Removing the novel coronavirus from the water cycle"& our ground water injection of "cleaned"? recycled/injection water projects like "Pure Water Soquel"? Monterey San Diego etc? @
https://twitter.com/DouglasDeitch/status/14265930265713

3152/photo/1 ?

3. SWRCB must intervene in Monterey Bay immediately to achieve sustainability and proper, legal, and responsible water management in the entire Monterey Bay @ https://twitter.com/DouglasDeitch/status/1375814806364594178/photo/1

Respectfully submitted,
Douglas Deitch

ED/Monterey Bay Conservancy

540 Hudson Lane, Aptos, Ca., 95003

831.476.7662"

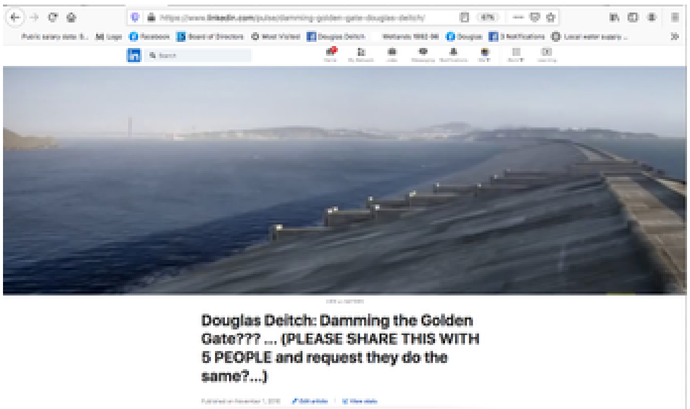
Question #2:This 2018 Monterey County Weekly article @ https://www.montereycountyweekly.com/news/local_news/as-seawater-intrusion-advances-new-farmland-puts-marina-s-water-supply-in-peril/article_b35ca7e0-f66e-11e7-b541-57771b472126.html#comments cites around 1800+/- new acres of ag & new well pumping @ 5400 a/f/yr which seems to approximately cancel/use up all the new Monterey One ASR water? ... Any unanticipated problems, present or future conflicts/miscalculations, etc in this regard here or not?

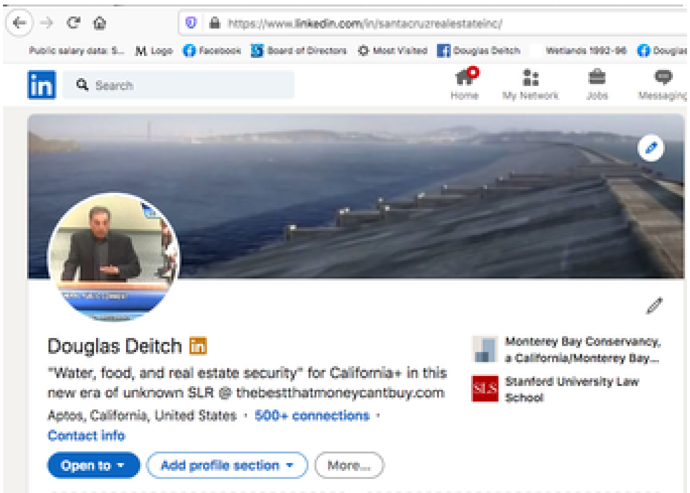
Please watch my most recent and 5th request for SWRCB INTERVENTION IN THE ENTIRE MONTEREY BAY water management and "control" just on August 3, 2021 @ 9:48 @ https://www.youtube.com/watch?v=A9KTIa0RDu8&t=919s and @ https://twitter.com/DouglasDeitch/status/1422889479061196803, my first request @ 11:21 @ www.thebestthatmoneycantbuy.org pictured below from April/2015, over SIX years ago, and please REVIEW the documents I am holding in my hand I presented and went through w/ SWRCB 4/16/15 during my presentation and first request for SWRCB INTERVENTION then @ http://www.dougforassembly.com , which only ONE current SWRCB board MEMBER then, Ms. Doreen D'Adamo, was present for?

... to be continued.
Respectfully,
Douglas Deitch/MBC
siddhartha1002@gmail.com

File Upload


Douglas Deitch 8-10-2011...California Coastal Commission Public Comment Ground Water
CAL-SPAN.ORG
08-10-2011
3. GENERAL PUBLIC COMMENT
CALIFORNIA COASTAL COMMISSION


Douglas Deitch: Damming the Golden Gate??? ... (PLEASE SHARE THIS WITH 5 PEOPLE and request they do the same?...)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Stanford University Law School

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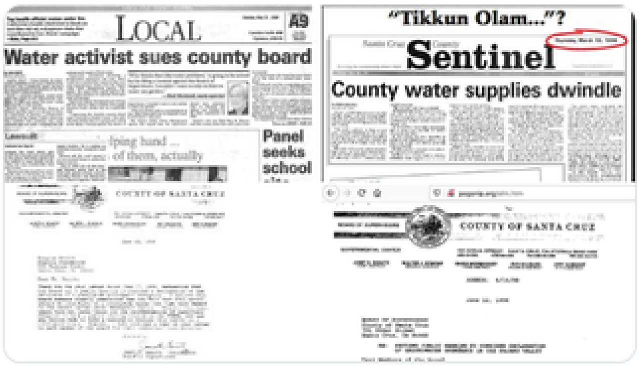

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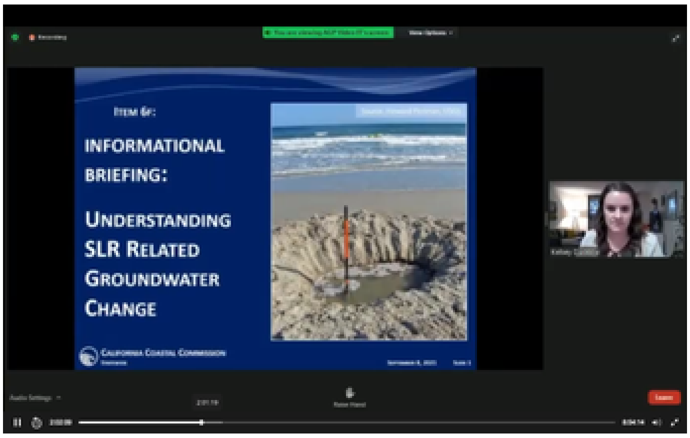

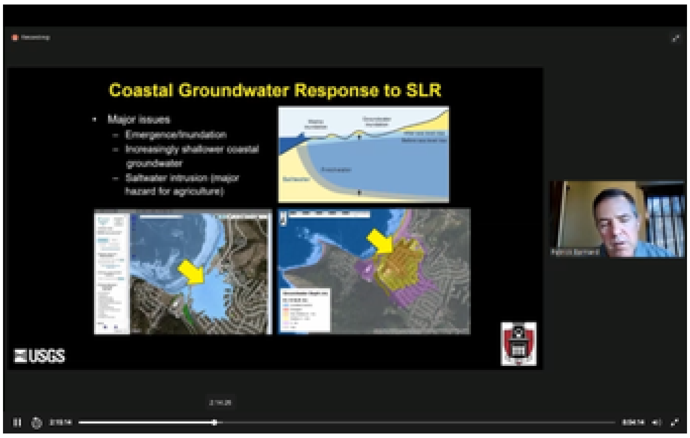
Coastal Groundwater Response to SLR
Major issues
Emergence/inundation
Increasingly shallower coastal groundwater
Saltwater intrusion (major hazard for agriculture)
USGS


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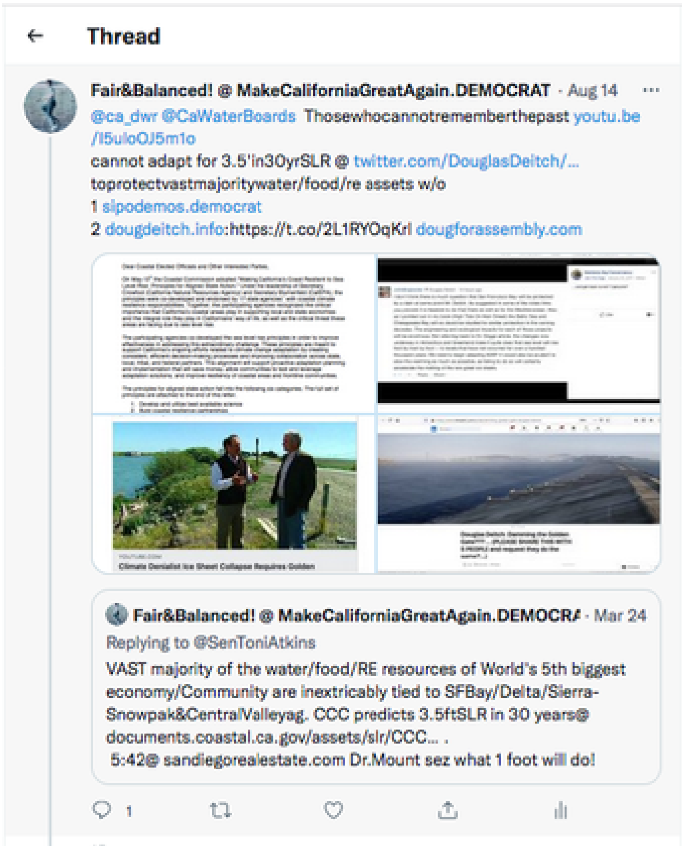
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1 sipodemos.democrat
2 dougdeitch.info:https://t.co/2L1RYOqKrl dougforassembly.com
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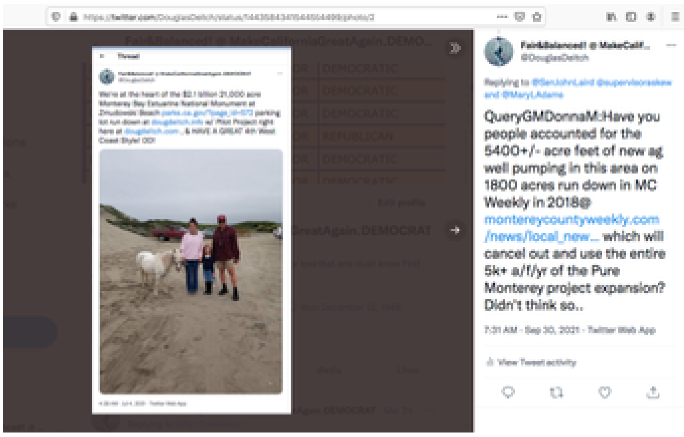
1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QueryGMDonnaM:Have you people accounted for the 5400+/- acre feet of new ag well pumping in this area on 1800 acres run down in MC Weekly in 2018@ montereycountyweekly.com/news/local_new... which will cancel out and use the entire 5k+ a/f/yr of the Pure Monterey project expansion? Didn't think so..
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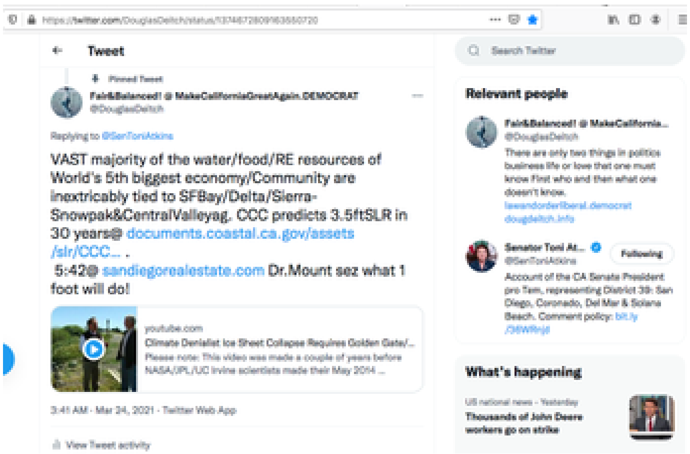
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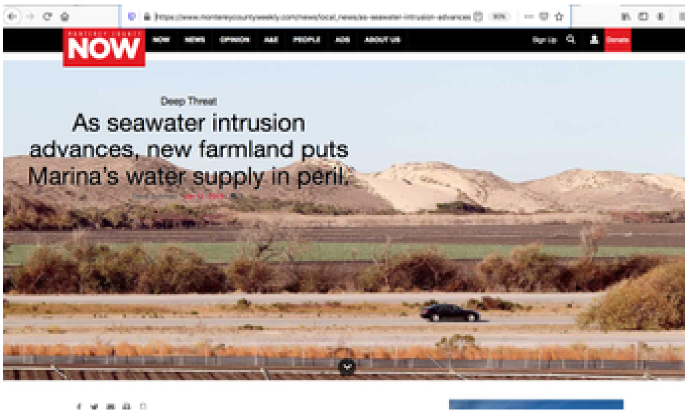
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Monterey Bay Conservancy
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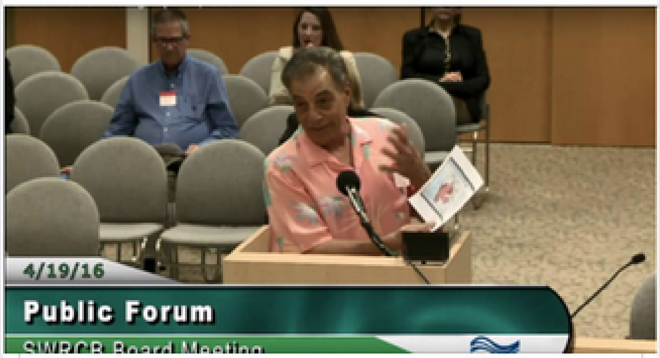
August 6 ·

Please watch my most recent and 5th request for SWRCB INTERVENTION IN THE ENTIRE MONTEREY BAY water management and "control" just on August 3, 2021 @ 9:48 @ https://www.youtube.com/watch?v=A9KTIa0RDu8&t=919s and @ https://twitter.com/DouglasDeitch/status/1422889479061196803, my first request @ 11:21 @ www.thebestthatmoneycantbuy.org pictured below from April/2015, over SIX years ago, and please REVIEW the documents I am holding in my hand I presented and went through w/ SWRCB 4/16/15 during my presentation and first request for SWRCB INTERVENTION then @ www.dougforassembly.com , which only ONE current SWRCB board MEMBER then, Ms. Doreen D'Adamo, was present for?



Monterey Bay Conservancy

August 27, 2018 ·

"It's past time for the State Water Resources Control Board to take control of our now predominantly below sea level Monterey Bay ground water commons..." https://www.linkedin.com/.../its-

nFRwxZIzGSPuoFx5b6R_jsixz-IB5meE6-tz-ScLicdi_RupVKolXxw-cqFX2DyZFouT

STATE OF CALIFORNIA - NATURAL RESOURCES AGENCY GAVIN NEWSOM, Governor

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400

May 22, 2020

Dear Coastal Elected Officials and Other Interested Parties,

On May 13th the Coastal Commission adopted "Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action." Under the leadership of Secretary Crowfoot (California Natural Resources Agency) and Secretary Blumenfeld (CalEPA), the principles were co-developed and endorsed by 17 state agencies[1] with coastal climate resilience responsibilities. Together, the participating agencies recognized the critical importance that California's coastal areas play in supporting local and state economies and the integral role they play in Californians' way of life, as well as the critical threat these areas are facing due to sea level rise.

The participating agencies co-developed the sea level rise principles in order to improve effectiveness in addressing this extraordinary challenge. These principles are meant to support California's ongoing efforts related to climate change adaptation by creating consistent, efficient decision-making processes and improving collaboration across state, local, tribal, and federal partners. This alignment will support proactive adaptation planning and implementation that will save money, allow communities to test and leverage adaptation solutions, and improve resiliency of coastal areas and frontline communities.

The principles for aligned state action fall into the following six categories. The full set of principles are attached to the end of this letter.

1. Develop and utilize best available science
2. Build coastal resilience partnerships
3. Improve coastal resilience communications
4. Support local leadership and address local conditions
5. Strengthen alignment around coastal resilience
6. Implement and learn from coastal resilience projects

Among other important goals, the Principles include an ambitious target for the year 2050 of preparing for 3.5 feet of sea level rise. Although this is not a new sea level rise projection, this planning target will help encourage state agencies and others to begin now to proactively prepare for the sea level rise that is anticipated to occur over short-, medium-, and long-term time horizons.

MONTEREY COUNTY

WATER RESOURCES AGENCY

PO BOX 930
SALINAS, CA 93902
(P): 831-755-4860
(F): 831-424-7935

BRENT BUCHE
GENERAL MANAGER

STREET ADDRESS
1441 SCHILLING PLACE, NORTH BUILDING
SALINAS, CA 93901

October 15, 2021

Donna Meyers, General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Schilling Place
Salinas, CA 93901

Re: Draft Monterey Subbasin Aquifer Groundwater Sustainability Plan

Dear Ms. Meyers:

Monterey County Water Resources Agency (Agency) appreciates the opportunity to comment on the draft Monterey Aquifer Subbasin Groundwater Sustainability Plan (GSP). As you know, Agency staff has been involved in reviewing this GSP in a technical role to assure that the data collected and curated by the Agency is utilized and described in an accurate manner.

What the Agency has been unable to do is to review most of management actions and projects in this document for feasibility and to verify the claims of benefits to groundwater sustainability. The management actions and projects that involve modifying many of the Agency's operations, projects, programs and/or permits have not been vetted by the Agency to ensure that Agency's goals and objectives will continue to be met if implemented. This document does not contain enough detail for an in-depth review which would be required before the Agency could provide support for these activities. Therefore, the Agency considers most of these management actions and projects as conceptual ideas that provide the Salinas Valley Groundwater Basin Sustainability Agency (SVGBSA) with a menu of options to move forward in this planning phase. What moves forward to implementation has yet to be decided. The Agency understands that feasibility studies will be conducted by the SVBGSA before any considerations for implementation of management actions or projects that utilize Agency facilities, operations or permits will proceed. Coordination and discussions between the Agency and SVBGSA are pertinent to this being successful.

SVGBSA staff has characterized this GSP as a starter document that will be revised in an iterative process and does not commit the Agency to any specific actions. The Agency looks forward to those revisions and updates that contain feasibility studies for the management actions and programs that include a complete project description that outlines specific tasks, identifies the benefits to the entire Salinas Valley Groundwater Basin and determines costs along with a sustainable funding mechanism for implementation.

MCWRA staff has reviewed the draft GSP, except for Chapter 9 – Projects & Management Actions, released by the SVGBSA on August 18, 2021 and provide the following comments for consideration:

Comments on Chapter 1 – Introduction

- **Section 1.3.3, page 9** – Still lists Keith Van Der Matten as a plan manager
- **Section 1.3.4.2, page 11** –First bullet point: Correct 180/400-Foot Aquifer Subbasin to Monterey Subbasin

Comments on Chapter 3 – Plan Area

- **Section 3.2.2.4, page 55** – Clarify date of Marina Coast Water District Urban Water Management Plan. Both 2020 and 2021 are used in this section.
- **Section 3.2.2.8, page 59** – Last bullet point: Clearly note that this ordinance has expired and is no longer in effect.
- **Section 3.5.4.3, page 74** – Correct expiration date of ordinance from March 2021 to May 2021. Consider adding text describing current CEQA role in ministerial vs. discretionary well permit application process.

Comments on Chapter 4 – Hydrogeologic Conceptual Model

- **Section 4.2.2, page 31** – Consider changing text to "The following set of principal aquifers [and aquitards] are defined…", as all the layers listed are not only aquifers.
- **Section 4.2.5.1, page 40** – Consider updating information of the "Study of the Deep Aquifers Underlying the 180/400-Foot Aquifer Subbasin in the Salinas Valley" as a RFQ has been released for bid and SVBGSA is now taking point on this study.

Comments on Chapter 5 – Groundwater Conditions

- **Section 5.1.3.1, page 21** – Information in the subsection **400-Foot Aquifer** seems to contain information on both the 400-Foot Aquifer and the Deep Aquifers. Consider clearly organizing this information into two subsections labeled **400-Foot Aquifer** and the **Deep Aquifers.**

MCWRA appreciates the opportunity to comment on the draft GSP for the Monterey Subbasin. If you have any questions regarding the enclosed comments, please contact MCWRA at 831-755-4860.

Sincerely,

Elizabeth Krafft
Deputy General Manager

Friday, October 15, 2021

Salinas Valley Basin
Groundwater Sustainability Agency

SVBGSA Public Comments Form

Name	Stephanie Hastings
Organization	Brownstein Hyatt Farber Schreck, LLP
Email Address	SHastings@bhfs.com
Subbasin	Langley, Eastside, Forebay, Upper Valley, Monterey, Whole Basin
Comments	Please see the attached correspondence submitted on behalf of the Salinas Basin Water Alliance. The exhibits are available on our sharefile at: https://bhfs.sharefile.com/d-scb50238ba04e4b4294bdf73ac89d25ee
File Upload	pdf 2021.10.15 Comment Letter to SVBGSA re Dr...

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October 15, 2021

VIA E-MAIL – MEYERSD@SVBGSA.ORG; BOARD@SVBGSA.ORG; PRISO@MCWD.ORG; CITYCLERK@CI.GREENFIELD.CA.US

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Arroyo Seco Groundwater Sustainability Agency
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RE: Draft Groundwater Sustainability Plans for the Upper Valley, Forebay, Eastside, Langley, and Monterey Subbasins of the Salinas Valley Groundwater Basin

Dear Ms. Meyers, Mr. Scherzinger, and Mr. Weeks:

This office represents the Salinas Basin Water Alliance (*Alliance*), a California nonprofit mutual benefit corporation formed to preserve the viability of agriculture and the agricultural community in the greater Salinas Valley. *Alliance* members include agricultural businesses and families that own and farm more than 80,000 acres within the Salinas Valley. Many *Alliance* members have been farming in the Salinas Valley for generations. As such, the *Alliance* has a significant interest in the long-term sustainability of the water supplies in the Salinas Valley. As mentioned in our preliminary comment letter on the draft Groundwater Sustainability Plans (GSP) for the Upper Valley, Forebay, Eastside, Langley, and Monterey Subbasins dated August 12, 2021, the *Alliance* greatly appreciates the Salinas Valley Basin Groundwater Sustainability

Agency (SVBGSA) staff and consultant team's efforts to implement the Sustainable Groundwater Management Act (SGMA) in the Salinas Valley Groundwater Basin (Basin) and in each of the six subbasins within the jurisdiction of the SVBGSA. The *Alliance* likewise appreciates the efforts undertaken by the Marina Coast Water District Groundwater Sustainability Agency (MCWDGSA) and the Arroyo Seco Groundwater Sustainability Agency (ASGSA) to implement SGMA in the Monterey and Forebay Subbasins, respectively.

The *Alliance* offers these comments, as well as the comments of aquilogic, Inc. attached hereto as **Exhibit A**, on the draft GSPs for the Upper Valley, Forebay, Eastside, Langley, and Monterey Subbasins.[1] These comments are submitted to the SVBGSA as the exclusive groundwater sustainability agency for the Upper, Eastside, and Langley Subbasins, and one of the groundwater sustainability agencies that will adopt the GSPs for the Forebay and Monterey Subbasins. These comments are also submitted to the MCWDGSA and the ASGSA as groundwater sustainability agencies that will adopt the GSPs for the Monterey Subbasin and Forebay Subbasin, respectively. Please include this letter, the aquilogic, Inc. memorandum ("aquilogic Memo"), and the other attachments hereto in the record of proceedings for the GSP of each of these subbasins.

I. <u>THE DRAFT GSPS MUST BE INTEGRATED TO SATISFY SGMA</u>

SGMA's goal is to provide for the sustainable management of priority groundwater basins throughout the State.[2] "Sustainable management" is defined as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results"—e.g., chronic lowering of groundwater levels, significant and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.[3] In order to achieve this goal, groundwater sustainability agencies must coordinate groundwater management within each basin[4] and with each adjacent basin.[5]

Coordination requires GSPs to maintain consistency or analyze inconsistencies in the data and modeling used to develop the GSPs, the minimum thresholds and measurable objectives set in the GSPs, and the

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[1] The *Alliance* notes that several of the draft GSPs are being revised by the GSA during the public review process. An additional public comment period must be provided once the draft GSPs have been finalized for adoption. Informed public input cannot be provided on documents that are still subject to change.
[2] Wat. Code, § 10720.1.
[3] Wat. Code, § 10721(v), (x).
[4] SGMA defines "basin" as "a groundwater basin or subbasin identified and defined in Bulletin 118." (Wat. Code, § 10721(b); see also 23 Code Regs. ("GSP Regs."), § 341(g) ["The term 'basin' shall refer to an area specifically defined as a basin or 'groundwater basin' in Bulletin 118, and shall refer generally to an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom, as further defined or characterized in Bulletin 118"; "The term 'subbasin' shall refer to an area specifically defined as a subbasin or 'groundwater subbasin' in Bulletin 118, and shall refer generally to any subdivision of a basin based on geologic and hydrologic barriers or institutional boundaries, as further described or defined in Bulletin 118."].)
[5] Wat. Code, §§ 10727, 10727.6.

projects and management actions proposed in the GSPs.[6] DWR will review each GSP to ensure it satisfies this requirement—i.e., that the GSP does not adversely affect the "ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin."[7] Any GSP that cannot meet this standard will not satisfy SGMA.[8]

The consultant that prepared the draft GSPs for the Upper, Forebay, Eastside, and Langley Subbasins has acknowledged the importance of integrated management of surface water and groundwater throughout the Basin:

> It has long been acknowledged that the water resources of the Salinas Valley consist of an integrated surface water and groundwater system . . . This acknowledged surface water/groundwater integration underpins the approach the SVBGSA is taking to achieving groundwater sustainability throughout the Valley; the Salinas River is an integral part of groundwater management and managing groundwater cannot be divorced from the Salinas River's operations. Similarly, groundwater management plays an important role in maintaining Salinas River flows. Larger areas of low groundwater levels in the Salinas Valley will induce more leakage from the Salinas River – reducing Salinas River flows. Maintaining adequately high groundwater levels will help maintain Salinas River flows. These higher groundwater levels that help maintain Salinas River flows is one of the desired outcomes of our groundwater management and is a benefit to surface water users. Groundwater sustainability can lead to long-term reliability in surface water supplies . . .
>
> The Salinas River operations, Salinas River flows, and ability to use water from the River will be clearly influenced by the decisions made during GSP development and implementation. Balanced groundwater management that

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[6] See e.g., Wat. Code, § 10727.6; GSP Regs., § 354.28(b) ("The description of minimum thresholds shall include the following: . . . (3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals."); see also *id.* at §§ 350.4(b), 354.28(b), 354.34(i), 354.38(e), 354.44(b)(6)-(7), 357.2; Department of Water Resources (DWR) Sustainable Management Criteria BMP, pp. 12-17 (Considerations when establishing minimum thresholds for each sustainability indicator includes the adjacent basin's minimum thresholds); DWR Modeling BMP, pp. 21-22; DWR Water Budget BMP, pp. 12, 16, 17, 36.
[7] Wat. Code, § 10733(c).
[8] *Ibid.*; GSP Regs., §§ 350.4, 354.8(d), 354.14, 354.18, 354.28(b)(3), 354.44(b)(6), 354.44(c), 355.4(b), 356.4(j), 357.2(b)(3); DWR Monitoring Networks and Identification of Data Gaps BMP, pp. 6, 8, 27; DWR Water Budget BMP, pp. 7, 12, 16, 17, 36; DWR Modeling BMP, pp. 21-22; DWR Sustainable Management Criteria BMP, pp. 9, 31.

> maintains consistent groundwater levels will provide surface water reliability for the Valley's surface water users.[9]

A Senior Hydrologist with the Monterey County Water Resources Agency (MCWRA) similarly commented:

> Additionally, as was experienced and monitored throughout the Basin during the most recent drought period, lowering of the groundwater table has a significant impact on the Agency's ability to operate the reservoirs to a controlled range of flows at the Salinas River Diversion Facility. As such, overdraft of the groundwater basin, resulting in a reduction in groundwater levels significantly impacted surface water flows, depleting the availability of surface water to riparian water uses.[10]

Close coordination of the draft GSPs for the subbasins is critical as each of the GSPs acknowledge a significant hydrologic and hydraulic connection with adjacent subbasins.[11] In other words, groundwater management in the Upper Valley impacts groundwater management in the Forebay Subbasin, which impacts groundwater management in the 180/400-Foot Aquifer, Eastside, Langley, and Monterey Subbasins, and there is a direct link between groundwater in the Basin and surface water in the Salinas River.

Given the integration of the Basin's surface and groundwater supplies (e.g., that pumping in one subbasin impacts surface and subsurface flows to an adjacent subbasin), SGMA mandates the coordination and integration of the GSPs for the subbasins within SVBGSA's jurisdiction—the GSPs must be integrated in their planning, development, and implementation to ensure the objectives of SGMA are satisfied, the interests of all beneficial users throughout the Basin are considered, and the burden of sustainability is equitably allocated across the Basin.[12] Indeed, the SVBGSA has acknowledged this obligation in its Joint Exercise of Powers Agreement[13] and, as the groundwater sustainability agency for the 180/400-Foot Aquifer, Monterey,

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[9] Feb. 26, 2019 Letter from Derrik Williams to Leslie Girard, attached hereto as **Exhibit B**.

[10] March 4, 2019 Memorandum from Howard Franklin to Leslie Girard and Gary Petersen, attached hereto as **Exhibit C**.

[11] Draft Upper Valley Subbasin GSP, § 4.3.1.1; Draft Forebay Subbasin GSP, § 4.3.1.1; Draft Eastside Subbasin GSP, § 4.3.1.1; Draft Langley Subbasin GSP, § 4.3.1.1; Draft Monterey Subbasin GSP, § 4.2.3; aquilogic Memo, pp. 2-3, attached hereto as **Exhibit A**.

[12] Wat. Code, § 10723.2; see also DWR Water Budget BMP, pp. 16-17 ("For many basins within the . . . Salinas Valley . . . not all lateral boundaries for contiguous basins serve as a barrier to groundwater or surface water flow . . . In situations where a basin is adjacent or contiguous to one or more additional basins, or when a stream or river serves as the lateral boundary between two basins, it is necessary to coordinate and share water budget data and assumptions. This is to ensure compatible sustainability goals and accounting of groundwater flows across basins, as described in § 357.2 (Interbasin Agreements) of the GSP Regulations."

[13] See Joint Exercise of Powers Agreement Establishing the Salinas Valley Basin GSA, § 2.2 ("The purpose of Agency is to . . . develop[], adopt[], and implement[] a GSP that achieves groundwater sustainability in the Basin."); § 4.1(c) (The JPA has the power to "develop, adopt and implement a GSP for the Basin."); *id.* at § 4.1(l) (The JPA has the power to "establish and administer projects and programs for the benefit of the Basin."); *id.* at § 4.3 ("As set forth in Water Code section 10723.3, the GSA shall consider the interests of all beneficial uses and users of groundwater in the Basin, as well as those responsible for implementing the

Eastside, Langley, Forebay, and Upper Subbasins, the SVBGSA is uniquely qualified to ensure coordination and integration among these subbasins. The SVBGSA previously proposed an integrated GSP that would incorporate the GSPs for each of the six subbasins, but appears to have abandoned or significantly delayed that commitment. As a result, the draft GSPs do not adequately coordinate and integrate their data, minimum thresholds and measurable objectives, and projects and management actions and do not analyze potential impacts on the adjacent subbasins. The draft GSPs must analyze and address these issues before they can be adopted, or delineate a plan for adding this information to the GSPs as soon as possible.

II. THE DRAFT GSPs DO NOT SUFFICIENTLY ANALYZE AND ADDRESS SUSTAINABLE GROUNDWATER MANAGEMENT THROUGHOUT THE BASIN

The *Alliance* supports integrated groundwater management throughout the Basin—such management is critical to the sustainable and equitable management of the integrated water resources throughout the Basin. In accordance with SGMA, this management should utilize consistent data and modeling, analyze impacts of groundwater production on adjacent subbasins, estimate sustainable yields and set minimum thresholds in consideration of impacts to adjacent subbasins, and coordinate projects and management actions throughout the Basin. As described further below, the draft GSPs as currently presented do not meet these thresholds dictated by SGMA.

A. Each Draft GSP Fails to Analyze Inconsistencies in the Data and Modeling Utilized By the Draft GSPs for Adjacent Subbasins

As an initial matter, the draft GSPs for the subbasins utilize differing modeling/estimation techniques that produce inconsistent data throughout the Basin and prevent integration of groundwater management absent additional analysis.

For example, the 180/400-Foot Aquifer Subbasin GSP's historical and current water budgets were created "by aggregating data and analyses from previous reports and publicly available sources" while the future

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GSP. Additionally, as set forth in Water Code section 10720.5(a) any GSP adopted pursuant to this Agreement shall be consistent with Section 2 of Article X of the California Constitution and nothing in this Agreement modifies the rights or priorities to use or store groundwater consistent with Section 2 of Article X of the California Constitution . . . Likewise, as set forth in Water Code section 10720.5(b) nothing in this Agreement or any GSP adopted pursuant to this Agreement determines or alters surface water rights or groundwater rights under common law or ay provision of law that determines or grants surface water rights."); 180/400-Foot Aquifer Subbasin GSP, p. 9-10 ("This GSP is part of an integrated plan for managing groundwater in all six subbasins of the Salinas Valley Groundwater Basin that are managed by the SVBGSA. The projects and management actions described in this GSP constitute an integrated management program for the entire Valley."); *id.* at 10-14 ("The SVBGSA oversees all or part of six subbasins in the Salinas Valley Groundwater Basin. Implementing the 180/400-Foot Aquifer Subbasin GSP must be integrated with the implementation of the five other GSPs in the Salinas Valley Groundwater Basin . . . The implementation schedule reflects the significant integration and coordination needed to implement all six GSPs in a unified manner."); see also Draft Upper Valley GSP, p. 10-16; Draft Eastside Subbasin GSP, pp. 9-1, 10-7, 10-8, 10-16; Draft Forebay Subbasin GSP, pp. 2-4, 9-2, 9-4, 10-7, 10-9, 10-17; Draft Langley Subbasin GSP, pp. 2-4, 9-1, 9-4, 10-8, 10-9, 10-16.

water budget was created using the Salinas Valley Integrated Hydrologic Model (SVIHM).[14] The draft GSPs for the Eastside, Langley, Forebay, and Upper Valley Subbasins take a different approach—the historical and current water budgets were developed using a "provisional version" of the SVIHM, while future water budgets were developed using "an evaluation version" of the Salinas Valley Operational Model (SVOM).[15] And the draft Monterey Subbasin GSP utilizes a third approach—employing the Monterey Subbasin Groundwater Flow Model for the historic, current, and projected water budgets.[16]

What is more, each of these approaches uses different time periods: (1) the 180/400-Foot Aquifer Subbasin GSP analyzes a historical period of 1995 to 2014 and a current period of 2015 to 2017[17]; (2) the draft GSPs for the Langley, Eastside, Forebay, and Upper Valley Subbasins analyze a historical period of 1980 through 2016 and a current period of 2016[18]; and, (3) the draft Monterey Subbasin GSP analyzes a historical period of 2004 to 2018 and a current period of 2015 to 2018.[19]

The inconsistency in the water-budget approaches for each subbasin must be addressed in the draft GSPs. Absent such an analysis, the draft GSPs cannot adequately analyze a subbasin's potential to impact an adjacent subbasin or foster integrated groundwater management throughout the Basin.[20] Further, this absence of analysis prevents informed input on the draft GSPs by interested parties.[21]

This issue is best exemplified in the inconsistencies between the 180/400-Foot Aquifer Subbasin GSP and the draft Forebay Subbasin GSP. The 180/400-Foot Aquifer Subbasin GSP estimates that the 180/400-Foot Aquifer Subbasin receives (historically and currently) 17,000 acre-feet per year (AFY) of subsurface flow from the Forebay Subbasin.[22] However, the draft Forebay Subbasin GSP estimates that this amount was 3,100 AFY historically and 2,900 AFY currently. These numbers in the draft Forebay GSP are likely

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[14] 180/400-Foot Aquifer Subbasin GSP, p. 6-1.
[15] See each referenced draft GSP, pp. 6-1-2. The GSA's use of the SVIHM and SVOM models for the draft GSPs does not satisfy the modeling requirements in the GSP Regulations. Section 352.4(f) of the GSP Regulations state that the models used to develop GSPs must "include publicly available supporting documentation" and "consist of public domain open-source software." The GSPs acknowledge that these requirements are not satisfied, and the draft GSPs state that "[d]etails regarding source data, model construction and calibration, and results for future budgets will be summarized in more detail once the model and associated documentation are available." (See, e.g., Draft Upper Valley Aquifer Subbasin GSP, pp. 6-1-2.) Interested parties cannot provide informed comments and input on the draft GSPs until the GSAs incorporate use of models that satisfy the GSP Regulations.
[16] Draft Monterey Subbasin GSP, p. 6-7.
[17] 180/400-Foot Aquifer Subbasin GSP, p. 6-1.
[18] See each referenced draft GSP, pp. 6-7-8.
[19] Draft Monterey Subbasin GSP, p. 6-5.
[20] See DWR, Water Budget BMP, p. 9 ("Building a coordinated understanding of the interrelationship between changing water budget components and aquifer response will allow local water resource managers to effectively identify future management actions and projects most likely to achieve and maintain the sustainability goal for the basin.").
[21] The draft GSPs also do not explain why different years are used to set minimum thresholds and measurable objectives in each subbasin, or how those inconsistencies impact sustainable groundwater management. (See aguilogic, Inc. Memo, p. 3, attached hereto as **Exhibit A**.)
[22] 180/400-Foot Aquifer Subbasin GSP, p. 6-16.

overestimates (i.e., the 180/400-Foot Aquifer is estimated to receive less subsurface flow from the Forebay Subbasin than the stated numbers) as the SVIHM utilized to provide the estimates in the draft Forebay Subbasin GSP only accounted for approximately 65% of the groundwater pumping in the Forebay Subbasin.[23] The discrepancy in interbasin flow needs to be addressed in the draft Forebay Subbasin GSP, or identified as a data gap that will be addressed through additional modeling as soon as possible. Without such information, the draft GSP cannot analyze how its implementation will impact the implementation of the 180/400-Foot Aquifer Subbasin GSP.

In sum, the draft GSPs must identify and analyze the inconsistencies in the modeling simulations and the time periods used for the water budgets in each of the GSPs in order to satisfy SGMA.[24] The *Alliance* identified a potential solution to this issue in its correspondence to the SVBGSA dated August 12, 2021, wherein the *Alliance* requested that the GSA conduct additional simulations with the SVIHM that are specifically focused on the issue of interbasin groundwater flows in order to understand the amount of Basin-wide groundwater discharge that is and has been captured by pumping. After adjusting the modelling simulations with GEMS data, the SVBGSA could integrate the data into the draft GSPs and provide an informed analysis of how each draft GSP will impact adjacent subbasins. Based upon the text of the draft GSPs, it appears that this modelling has already been completed in some capacity. In each of the draft GSPs for the Langley, Eastside, Forebay, and Upper Valley Subbasins, the GSPs state a "model simulation without any groundwater pumping in the model . . . was compared to the model simulation with groundwater pumping" to understand depletion of interconnected surface water.[25] However, the draft GSPs do not extrapolate this data to analyze impacts on surface or subsurface interbasin flows or adjacent subbasins. The *Alliance* understands that the SVBGSA is undertaking additional modeling for an update to the draft GSPs and strongly recommends that the SVBGSA incorporate the *Alliance's* requested modeling simulations into the update. If not, the *Alliance* urges the SVBGSA to commit to adding this information prior to adoption of the draft GSPs or committing to a timeline in which it will be added shortly thereafter. Without this information, the GSPs cannot not analyze each of the issues required to be addressed by SGMA.

B. The Draft GSPs Do Not Adequately Analyze Impacts to Adjacent Subbasins

As discussed above, a GSP must not adversely affect "the ability of an adjacent basin to implement their [GSP] or impede[] achievement of sustainability goals in an adjacent basin."[26] The GSP Regulations specify that minimum thresholds should be selected to "avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals."[27] And the GSP Regulations require DWR to evaluate a GSP to ensure it satisfies these objectives.[28] The draft GSPs as currently presented do not satisfy these requirements.

[23] Draft Forebay Subbasin GSP, pp. 6-19, 21.
[24] See, e.g., DWR Water Budget BMP, pp. 16-17.
[25] See, e.g., Draft Forebay Subbasin GSP, p. 5-30.
[26] Wat. Code, § 10733.
[27] GSP Regs., § 354.28(b)(3).
[28] GSP Regs., § 355.4(b)(7).

1. The Draft Eastside Subbasin and Langley Subbasin GSPs

The Eastside Subbasin and Langley Subbasin GSPs largely require similar analysis and information to satisfy SGMA. The GSPs do not account for impacts to adjacent subbasins in defining sustainable yields or setting minimum thresholds and measurable objectives. Each of these issues is addressed in detail below.

a. *The GSPs do not account for impacts to adjacent subbasins in defining sustainable yields*

SGMA defines "sustainable yield" as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result."[29] Further, the sustainable yield must be defined in a manner that will not result in undesirable results in adjacent subbasins.[30] Here, the sustainable yields in the draft GSPs for both the Eastside and Langley Subbasins do not account for impacts on interbasin flow to the 180/400-Foot Aquifer Subbasin.

For example, the draft Eastside Subbasin GSP states that a pumping depression east of the City of Salinas creates a hydraulic gradient towards the depression, with groundwater flowing towards the pumping depression and away from the boundary with the 180/400-Foot Aquifer Subbasin.[31] This depression has reversed the natural downgradient groundwater flow from the Eastside Subbasin to the 180/400-Foot Aquifer Subbasin, drawing 3,600 AFY historically and 5,400 AFY currently of groundwater from the 180/400-Foot Aquifer Subbasin.[32] This amount is likely substantially underestimated as the SVIHM only accounts for 81% of groundwater pumping in the Subbasin.[33] Despite this unnatural hydraulic gradient and the pull of groundwater from the 180/400-Foot Aquifer Subbasin, the draft Eastside Subbasin GSP includes this interbasin flow in its calculation of sustainable yield,[34] but the draft GSP does not analyze how estimated sustainable yield will impact groundwater management in the 180/400-Foot Aquifer Subbasin.

Similarly, the draft Langley Subbasin GSP states that a pumping depression has formed in the center of the Langley Subbasin as a result of a pumping trough.[35] Groundwater is drawn towards the pumping depression and away from the 180/400-Foot Aquifer Subbasin despite the natural downward gradient flow towards the 180/400-Foot Aquifer and Eastside Subbasins.[36] The draft Langley Subbasin GSP then estimates that,

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[29] Wat. Code, § 10721(w).
[30] See Wat. Code, § 10733.
[31] Draft Eastside Subbasin GSP, p. 5-11.
[32] *Id.* at pp. 6-19-20 ("Groundwater pumping near the [C]ity of Salinas has created a cone of depression . . . that draws in groundwater into the Eastside Aquifer Subbasin from the 180/400-Foot Aquifer Subbasin, which is naturally slightly downgradient in the Salinas area. Estimated groundwater inflows from the 180/400-Foot Aquifer Subbasin have slightly increased since 1980.").
[33] *Id.* at p. 6-17. The 180/400-Foot Aquifer Subbasin GSP estimates the outflow to the Eastside and Langley Subbasins amounts to 8,000 AFY. (*Id.* at p. 6-19.)
[34] *Id.* at pp. 6-22-24, Table 6-10.
[35] Draft Langley Subbasin GSP, p. 5-7.
[36] *Id.* at p. 5-18, Figure 5-11.

despite this reversal in groundwater elevations, the 180/400-Foot Aquifer Subbasin has historically received 3,700 AFY and currently receives 2,900 AFY in interbasin flow from the Langley Subbasin, while the Eastside Subbasin has historically received 1,100 AFY and currently receives 1,700 AFY in interbasin flow from the Langley Subbasin.[37] However, the draft Langley Subbasin GSP fails to analyze how the pumping depression in the Langley Subbasin has impacted and will continue to impact these interbasin flows—e.g., what are the outflows to the 180/400-Foot Aquifer and Eastside Subbasins if the pumping depression were ameliorated? Again, the draft GSP includes these unnatural interbasin flows in its calculation of the sustainable yield without analyzing the impacts on adjacent subbasins.[38]

Without understanding how groundwater production impacts interbasin flows, the draft GSPs cannot accurately estimate the sustainable yield of the subbasins and their impact on adjacent subbasins.[39] As discussed above, this issue can be addressed by undertaking the additional modeling simulations requested by the *Alliance* and revising the draft GSPs accordingly. This additional information should be added prior to the adoption of the draft GSPs, or the draft GSPs should commit to a timeline under which this information will be added as soon as possible after adoption of the draft GSPs.

b. *The GSPs do not analyze how their minimum thresholds and measurable objectives will impact adjacent subbasins*

The draft GSPs also do not consider impacts to adjacent subbasins in their setting of minimum thresholds and measurable objectives, as required by SGMA.[40]

For example, the draft Eastside Subbasin GSP sets the minimum threshold for groundwater elevations at 2015 levels.[41] As shown in Figure 8-1, these levels are only nominally above historic lows (approximately 6 feet higher) and barely above the lowest elevation since the introduction of the CSIP and Salinas Valley Water Project.[42] Consequently, these groundwater elevations will still produce a significant pumping

[37] *Id.* at p. 6-19.
[38] *Id.* at pp. 6-21-23.
[39] See DWR Water Budget BMP, p. 17 (To evaluate the impact on adjacent basin, "this will necessitate GSA coordination and sharing of water budget data, methodologies, and assumptions between contiguous basins including: • Accurate accounting and forecasting of surface water and groundwater flows across the basin boundaries.").
[40] GSP Regs., § 354.28(b)(3) ("The description of minimum thresholds shall include the following: . . . (3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals."); see also GSP Regs., § 355.4(b)(7); DWR Sustainable Management Criteria BMP, p. 9; DWR Sustainable Management Criteria BMP, p. 10 ("The purpose of the specific requirements is to ensure consistency within groundwater basins and between adjacent groundwater basins.").
[41] Draft Eastside Subbasin GSP, p. 8-7.
[42] *Id.* at p. 8-13.

depression east of the City of Salinas that will draw water away from the boundary with the 180/400-Foot Aquifer Subbasin.[43]

Similarly, the draft Langley Subbasin GSP sets the minimum threshold for groundwater elevations at 2019 levels—the lowest elevations since the introduction of the CSIP and Salinas Valley Water Project and only nominally above the historic lows in the Subbasin.[44] These levels will continue to produce a significant pumping depression east of the City of Salinas that will draw water away from the boundary with the 180/400-Foot Aquifer Subbasin.[45] Despite the maintenance of these unnatural gradients, neither draft GSP analyzes how these minimum thresholds will impact adjacent subbasins (e.g., the 180/400-Foot Aquifer Subbasin).

The draft GSPs for the Eastside and Langley Subbasins merely include the statement that: "Minimum thresholds for the [subbasins] will be reviewed relative to information developed for the neighboring subbasins' GSPs to ensure that these minimum thresholds will not prevent the neighboring subbasins from achieving sustainability."[46] This statement is not evidence and it does not ensure the management of the subbasins will avoid impacts to adjacent subbasins.[47] As discussed above, this issue can be addressed by undertaking the additional modeling simulations requested by the *Alliance* and revising the draft GSPs accordingly.

The lack of analysis is concerning as both draft GSPs acknowledge that low groundwater elevations within the Langley and Eastside Subbasins may exacerbate seawater intrusion in the 180/400-Foot Aquifer Subbasin.[48] But the draft GSPs only mention this issue in concluding: "The chronic lowering of groundwater

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[43] *Id.* at p. 8-10, Figure 8-3. The same issue applies to the draft Eastside Subbasin GSP's measurable objective for groundwater elevations—it maintains a pumping depression that reverses the natural hydraulic gradient towards the 180/400-Foot Aquifer Subbasin but fails to explain how the measurable objective will not impact the 180/400-Foot Aquifer Subbasin. (See e.g., Draft Eastside Subbasin GSP, p. 8-19.)
[44] Draft Langley Subbasin GSP, pp. 8-8, 8-13.
[45] *Id.* at p. 8-10. Again, the same issue applies to the draft Langley Subbasin GSP's measurable objective for groundwater elevations—it maintains a pumping depression that reverses the natural hydraulic gradient towards the 180/400-Foot Aquifer Subbasin but fails to explain how the measurable objective will not impact the 180/400-Foot Aquifer Subbasin. (See e.g., Draft Langley Subbasin GSP, p. 8-19.)
[46] *Id.* at p. 8-6; Draft Eastside Subbasin GSP, p. 8-16.
[47] See Joint Exercise of Powers Agreement Establishing the SVBGSA, § 4.3 ("As set forth in Water Code section 10723.3, the GSA shall consider the interests of all beneficial uses and users of groundwater in the Basin, as well as those responsible for implementing the GSP. Additionally, as set forth in Water Code section 10720.5(a) any GSP adopted pursuant to this Agreement shall be consistent with Section 2 of Article X of the California Constitution and nothing in this Agreement modifies the rights or priorities to use or store groundwater consistent with Section 2 of Article X of the California Constitution . . . Likewise, as set forth in Water Code section 10720.5(b) nothing in this Agreement or any GSP adopted pursuant to this Agreement determines or alters surface water rights or groundwater rights under common law or ay provision of law that determines or grants surface water rights.").
[48] See Draft Langley Subbasin GSP, pp. 3-18, 4-32, 5-18 (Figure 5-11 "shows the groundwater elevations that are persistently below sea levels that, when paired with a pathway, enable seawater intrusion. The groundwater elevation contours show that groundwater is drawn toward the depression at the northern end of the Eastside Aquifer Subbasin. If the magnitude of this depression increases, it could potentially draw seawater intrusion into the Langley Subbasin."), 5-20 (Figure 5-11); Draft Eastside Subbasin GSP, pp. 3-17,

level minimum thresholds are set above historic lows. Therefore, the groundwater elevation minimum thresholds are intended to not exacerbate, and may help control, the rate of seawater intrusion."[49] That statement must be revised to acknowledge that the pumping depressions in the Langley and Eastside Subbasins will remain even if the groundwater elevation minimum thresholds and measurable objectives are achieved, and the seawater minimum thresholds set by the draft Langley and Eastside Subbasin GSPs only protect against seawater intrusion in their respective subbasins, not against seawater intrusion in adjacent subbasins like the 18/400-Foot Aquifer Subbasin.[50]

In sum, the draft Langley and Eastside Subbasin GSPs in their current form do not account for potential impacts to adjacent subbasins in setting their minimum thresholds and measurable objectives. As a result, the draft GSPs cannot provide any evidence that their implementation will not impair implementation of a GSP in an adjacent subbasin—e.g., the 180/400-Foot Aquifer Subbasin GSP's seawater intrusion minimum threshold, which requires seawater intrusion to be maintained at 2017 levels, and measurable objective, which requires the seawater intrusion isocontour to be pushed back to Highway 1.[51] This analysis should be added to the draft GSPs prior to adoption by the SVBGSA, or the draft GSPs should provide a commitment to incorporating this information within a time certain.[52]

c. *There is no support for using groundwater elevations as a proxy for groundwater storage minimum thresholds*

As mentioned above, the sustainable yield of the basin is the amount of water that can be withdrawn annually without causing an undesirable result, such as the "significant and unreasonable reduction of groundwater storage."[53] The GSP Regulations permit a minimum threshold for groundwater elevations to be used as the minimum threshold for other sustainability indicators, "where the Agency can demonstrate that the representative value is a reasonably proxy . . . as supported by adequate evidence."[54] Here, both the draft Eastside Subbasin GSP and the Langley Subbasin GSP utilize groundwater elevation minimum thresholds

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4-35 ("the groundwater elevations in the northwestern portion of the Eastside Subbasin (near the City of Salinas) are below sea level, creating a groundwater gradient away from the coast and towards the Eastside Subbasin"), 5-26-29 .

[49] Draft Langley Subbasin GSP, p. 8-15; Draft Eastside Subbasin GSP, p. 8-15.

[50] Draft Langley Subbasin GSP, p. 8-28; Draft Eastside Subbasin GSP, p. 8-29.

[51] See 180/400-Foot Aquifer Subbasin GSP, pp. 8-32-37.

[52] A report prepared for MCWRA has highlighted the significant impact pumping in the Eastside and Langley Subbasins has on seawater intrusion in the 180/400-Foot Aquifer Subbasin. (See November 19, 2013, Technical Memorandum, Protective Elevations to Control Sea Water Intrusion in the Salinas Valley, attached hereto as **Exhibit D**.) The report states: "At one time (before excessive pumping), the East Side Subarea was one of the natural sources of recharge to the adjacent Pressure Subarea with ground water flowing from the northeast to the southwest. However, historical groundwater level declines have resulted in a reversal of the gradient." (*Id.* at p. 3.) The report then states that: "Artificial recharge in the East Side Subarea would reduce subsurface inflow from the Pressure Subarea and eventually restore the historical northeast to southwest recharge. Both northwest underflow from the Forebay Subarea as well as southwest recharge from the East Side Subarea would help control seawater intrusion." (*Id.* at pp. 6-7.) See also aquilogic Memo, pp. 8-12, attached hereto as **Exhibit A**.

[53] Wat. Code, § 10721(w), (x).

[54] GSP Regs., § 354.28(d); DWR Sustainable Management Criteria BMP, pp. 17-18.

as proxies for groundwater storage minimum thresholds.[55] However, there is insufficient evidence to support that approach.

In particular, each of the draft GSPs sets groundwater elevations at near historic lows, and show a substantial trend in declining groundwater storage over the historic period.[56] The minimum threshold groundwater elevations, in other words, have resulted in overdraft of the subbasins.[57] And by setting the minimum thresholds at historic low groundwater elevations, the draft GSPs will facilitate continued decline in groundwater storage.[58] In fact, because there is no commitment to pump at the sustainable yield of the subbasins, it is possible that production in the subbasins could increase over historic and current amounts so long as the subbasins do not experience another significant drought and still comply with the groundwater elevation minimum thresholds. The SVBGSA's prior actions seem to imply that utilizing groundwater elevations as a proxy in this scenario is improper—the 180/400-Foot Aquifer Subbasin GSP set the groundwater storage minimum threshold to production at the projected sustainable yield.[59] The draft GSP must explain why this different approach will suffice now.

2. The Draft Forebay and Upper Valley Subbasin GSPs

The draft Forebay and Upper Valley Subbasin GSPs lack the same analysis as the draft GSPs for the Eastside and Langley Subbasins—they do not adequately consider impacts to adjacent subbasins. These issues begin with the draft GSPs' water budget and estimate of sustainable yield, and cascade through the minimum thresholds, measurable objectives, and projects and management actions.

As discussed above, SGMA requires GSPs to define a sustainable yield for each basin that will avoid undesirable results and impacts to adjacent basins. The sustainable yields defined in the draft GSPs for the Forebay and Upper Valley Subbasins do not meet this threshold. Both draft GSPs conclude that the subbasins have not been in overdraft historically, but they do not analyze how groundwater pumping within the subbasins (151,100 to 174,500 AFY in the Forebay Subbasin and 108,500 to 129,600 AFY in the Upper Valley) impacts surface and subsurface flows to adjacent subbasins.[60]

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[55] Draft Eastside Subbasin GSP, p. 8-23; Draft Langley Subbasin GSP, p. 8-22.
[56] See discussion *supra;* Draft Eastside Subbasin GSP, p. 5-21; Draft Langley Subbasin GSP, p. 5-16.
[57] *Ibid.*
[58] See, e.g., Wat. Code, § 10721(x)(1) ("Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.").
[59] 180/400-Foot Aquifer Subbasin GSP, p. 8-25 ("The total volume of groundwater that can be annually withdrawn from the Subbasin without leading to a long-term reduction in groundwater storage or interfering with other sustainability indicators is the calculated sustainable yield of the Subbasin."); see also DWR GSP Assessment Staff Report, p. 25 ("The Plan describes how setting the minimum threshold as the long-term sustainable yield for the Subbasin is a reasonable, protective approach against overdraft and the long-term reduction of groundwater storage.").
[60] Draft Forebay Subbasin GSP, pp. 6-45-46; Draft Upper Valley Subbasin GSP, pp. 6-22-23.

For example, the draft Forebay Subbasin GSP states that the SVIHM, which undercounts groundwater pumping by 35%, estimates the Forebay Subbasin received 90,300 AFY historically through stream exchange, currently receives 77,800 AFY, and 31,800 AFY of that stream exchange on average is caused by groundwater pumping.[61] Similarly, the draft Upper Valley Subbasin GSP states that the SVIHM, which under counts groundwater pumping by 24%, estimates the Upper Valley Subbasin received 89,100 AFY historically through stream exchange, currently receives 65,500 AFY, and 1,100 AFY of that stream exchange on average is caused by groundwater pumping.[62] This recharge is substantially induced by the operation of the Nacimiento and San Antonio Reservoirs; prior to that time groundwater storage was significantly decreasing in the subbasins.[63] However, neither draft GSP analyzes: (a) how streamflow recharges the subbasins during drought years, offering instead averages over the historical period, and (b) how groundwater pumping impacts natural surface or subsurface flows to adjacent subbasins—i.e., without pumping, how much groundwater would flow to the downgradient subbasin? Instead, the draft GSPs use the average stream exchange amounts to facilitate a "finding" that the subbasins are presently managed within their sustainable yield. Without understanding how pumping impacts streamflow during drought years and interbasin surface and subsurface flow, the draft GSPs cannot reasonably estimate sustainable yield in the subbasins or analyze how implementation of the draft GSPs will impact adjacent subbasins' GSPs.

The failure to analyze impacts to adjacent subbasins becomes more apparent in the draft GSPs' discussion of minimum thresholds. The draft Forebay Subbasin GSP sets the minimum threshold for groundwater elevations at 2015 groundwater levels, only a few feet above the historic low, while the draft Upper Valley Subbasin GSP sets the minimum threshold for groundwater elevations at "5 feet <u>below</u> the lowest ground elevation between 2012 and 2016," significantly below the historic low.[64] These minimum thresholds are not reasonable—set at levels experienced at the bottom of a historic drought, or even lower—and cannot be qualified as sustainable groundwater management.[65] The draft Upper Valley GSP admits as much, stating: "The groundwater elevations during the 2012 to 2016 drought in the Upper Valley Aquifer Subbasin are the lowest groundwater elevations seen in the Subbasin and are considered <u>significant and unreasonable</u>."[66]

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[61] Draft Forebay Subbasin GSP, pp. 5-30, 6-23. Note that the draft GSPs may also underestimate streamflow depletion by only analyzing stream cells that are connected to groundwater more than 50% of the time. (See aquilogic Memo, p. 5, attached hereto as **Exhibit A**.)
[62] Draft Upper Valley Subbasin GSP, pp. 5-31, 6-22.
[63] Draft Upper Valley Subbasin GSP, p. 5-18; Draft Forebay Subbasin GSP, p. 5-17; see also Hydrogeology and Water Supply of Salinas Valley, pp. 15-16, attached hereto as **Exhibit D**.
[64] Draft Forebay Subbasin GSP, pp. 8-8, 8-14; Draft Upper Valley Subbasin GSP, pp. 8-7, 8-12 (emphasis added).
[65] Wat. Code, § 10720.1 ("In enacting this part, it is the intent of the Legislature to do all of the following: (a) To provide for the sustainable management of groundwater basins. . . . (c) To establish minimum standards for sustainable groundwater management."]; GSP Regs., § 355.4(b) ("When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following: (1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science. . . .").
[66] Draft Upper Valley Subbasin GSP, p. 8-10 (emphasis added).

Moreover, the draft GSPs do not analyze how the minimum thresholds will impact flows in the Salinas River or adjacent subbasins. Rather, this analysis appears to be deferred to the future. The draft GSPs state that: "Minimum thresholds . . . will be reviewed relative to information developed for neighboring subbasins' GSPs to ensure that these minimum thresholds will not prevent the neighboring subbasin from achieving sustainability."[67] As discussed above, this issue can be addressed by undertaking the additional modeling simulations requested by the *Alliance* and revising the draft GSPs accordingly. This additional information should be added prior to the adoption of the draft GSPs, or the draft GSPs should commit to a timeline under which this information will be added as soon as possible after adoption of the draft GSPs.

These same concerns are raised with respect to the groundwater storage minimum thresholds. The draft Upper Valley Subbasin GSP uses the groundwater elevation minimum threshold as a proxy, which is permitted, as discussed above, as long as it is supported by adequate evidence.[68] However, there is no evidence supporting that approach as the groundwater elevation minimum threshold suffers the flaws discussed above, and evidence in the draft GSP relating groundwater elevations to groundwater storage shows groundwater storage at historic lows by a wide margin when groundwater levels were 5 feet above the groundwater elevation minimum threshold in 2016.[69] Similarly, the draft Forebay Subbasin GSP sets the minimum threshold for groundwater storage based upon the groundwater elevation minimum threshold: "The minimum threshold groundwater elevation contours . . . were used to estimate the amount of groundwater in storage when groundwater elevations are held at the minimum threshold levels."[70] Again, there is no evidence supporting that approach as the groundwater elevation minimum threshold is flawed as discussed above, and evidence in the draft GSP shows the groundwater elevation minimum threshold results in historic lows in groundwater storage.[71] In fact, the groundwater elevation minimum thresholds allow for additional production in the subbasins over historic and current amounts so long as the subbasins do not experience another significant drought. There is no commitment in the draft GSPs that the production in the subbasins will be restricted to the estimated sustainable yield in the subbasins, and there is no model simulation showing the minimum threshold for groundwater elevations will prevent continued decline in groundwater storage.

Finally, the draft GSPs also utilize groundwater elevations as proxies to set the minimum thresholds for depletion of interconnected surface water.[72] But again, there is no evidence supporting this approach. These groundwater elevation proxies are at or near historic lows, and there is no evidence proving these elevations will prevent the depletion of interconnected surface water that would have a significant and unreasonable impact on beneficial uses. Rather, the draft GSPs merely state that these levels will not impact beneficial uses because there is not currently any litigation over surface water uses, and due to the operation of the Nacimiento Reservoir.[73] However, this statement does not acknowledge that decreased groundwater

[67] Draft Upper Valley Subbasin GSP, p. 8-14; Draft Forebay Subbasin GSP, p. 8-17.
[68] Draft Upper Valley Subbasin GSP, p. 8-20.
[69] Draft Upper Valley Subbasin GSP, pp. 5-13, 5-18.
[70] Draft Forebay Subbasin GSP, p. 8-24.
[71] Draft Forebay Subbasin GSP, p. 5-17.
[72] See Draft Upper Valley Subbasin GSP, p. 8-39; Draft Forebay Subbasin GSP 8-42.
[73] Draft Forebay Subbasin GSP, pp. 8-44-45; Draft Upper Valley Subbasin GSP, pp. 8-41-42.

elevations will increase depletion of the Salinas River, and reduce flow to downstream uses, including those uses in adjacent subbasins.[74] Lastly, the draft GSPs do not analyze how these minimum thresholds for depletion of interconnected surface water will impact adjacent subbasins.

In sum, the draft Forebay and Upper Valley GSPs require additional data and analysis to satisfy SGMA. These issues must be addressed before the GSPs are adopted, or the draft GSPs must be provide for their provision by a date certain.[75]

3. The Inadequacies in the Draft GSPs Addressed Above Threaten to Impinge Upon Water Rights

As stated previously, each of the groundwater sustainability agencies has an obligation to consider the interests of all beneficial users of the Basin[76] when implementing SGMA. Moreover, SGMA does not "determine[] or alter[] surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights."[77]

By not analyzing potential impacts to adjacent subbasins in each draft GSP, the groundwater sustainability agencies disproportionately allocate the burden of sustainability across the Basin and threaten to impair groundwater users' rights in and to the Basin. This approach violates SGMA and must be addressed before the groundwater sustainability agencies adopt the draft GSPs or, as discussed above, through a commitment in the draft GSPs to modify or update their contents within a time certain.

III. THE DRAFT GSPS MUST INCORPORATE PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY

The GSP Regulations require each GSP to "include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin."[78] Because the draft GSPs are lacking the data and analysis described in Section II above, the draft GSPs cannot meet this requirement (e.g., the draft GSPs' lack of analysis of impacts to adjacent basins prevents an adequate proposal of projects and management actions to achieve sustainability). Further, without understanding impacts on interbasin surface and subsurface flow and how implementation of the draft GSPs will impact adjacent subbasins, the groundwater sustainability agencies will be unable to properly assess the benefits associated with any future projects or management actions—e.g., if they propose projects involving dam operations, how can the groundwater sustainability agencies assess the benefits of those projects to the Lower Valley? Accordingly,

[74] aquilogic Memo, pp. 3-8, attached hereto as **Exhibit A**; DWR Water Budget BMP, pp. 4-5.
[75] See also aquilogic Memo, pp. 3-8, attached hereto as **Exhibit A**.
[76] Wat. Code, § 10723.2
[77] Wat. Code, § 10720.5(b); see also Wat. Code, § 10720.1(a) and (b).
[78] GSP Regs., § 354.44(a).

the *Alliance* reserves the right to comment on the draft GSPs' proposed projects and management actions once the issues described above have been addressed.

However, as a preliminary note, the draft GSPs as currently presented do not include sufficient projects or management actions to achieve sustainable groundwater management Basin-wide. Rather, the draft GSPs appear to foist the burden of sustainable groundwater management on the Eastside, Langley, 180/400-Foot Aquifer, and Monterey Subbasins, while avoiding consequential projects and management actions in the Forebay and Upper Valley Subbasins. Indeed, the draft GSPs for the Eastside, Langley, and Monterey Subbasins each include a management action for pumping allocations and controls, but no such management action is included in the draft Forebay Subbasin or Upper Valley Subbasin GSPs.[79] Instead, the draft Forebay Subbasin and Upper Valley Subbasin GSPs include management actions that only superficially impact the subbasins—e.g., the proposed Subbasin "Sustainable Management Criteria Technical Advisory Committees," which require the formation of a "TAC for each Subbasin" that will "develop recommendations to correct negative trends in groundwater conditions and continue to meet the measurable objectives."[80] This issue must be addressed in the next draft of the GSPs.

The *Alliance* also notes that the draft GSPs do not mention the project proposed in the Hydrogeology and Water Supply of Salinas Valley White Paper prepared by the Salinas Valley Groundwater Basin Hydrology Conference for MCWRA in 1995 ("Salinas Valley White Paper"), which is attached hereto as **Exhibit E**. The "Conference" was a "panel of 10 geologists, hydrogeologists, and engineers familiar with Salinas Valley ground water basin" that was convened to "reach agreement on the basic physical characteristics of the basin, and the surface and ground water flow within the basin."[81] The Conference had a "remarkable unanimity of opinion" on the understanding of the "physical characteristics of the basin, the hydrologic system, the interaction between surface water and ground water, and definition of the specific ground water problems in the basin."[82] The Conference agreed that this understanding pointed "compellingly toward an already identified *regional* solution to the Valley's groundwater water resources problem" and recommended pursuing that solution.[83]

> The need for conjunctive operation of surface water and ground water storage was recognized as early as 1946. In 1946, the California Department of Water Resources published a report on Salinas Valley that described the occurrence of seawater intrusion and declining ground water levels. The report recommended a project to eliminate these problems that included development of surface water and ground water storage. Surface water storage was to be accomplished by the construction of dams on tributaries to Salinas River, and ground water storage was to be accomplished by ground water transfers from the Forebay Area to the Pressure Area and East [S]ide Area. The Department

[79] See Draft Eastside Subbasin GSP, § 9.4.12; Draft Langley Subbasin GSP, § 9.4.5; Draft Monterey Subbasin GSP, § 9.4.8; see also 180/400-Foot Aquifer Subbasin GSP, § 9.2 [water charges framework].
[80] Draft Upper Valley Subbasin GSP, § 9.4.1; Draft Forebay Subbasin GSP, § 9.4.1.
[81] *Id.* at p. 5.
[82] *Ibid.*
[83] *Ibid.*

> recommended transfer facilities that include wells in the Forebay Area, conveyance facilities from the Forebay Area to the Pressure and East Side Areas, and distribution facilities within the Pressure and East Side Areas. In such a conjunctive operation, the increased extraction in the Forebay Area and conveyance of water to the Pressure and East Side Areas would vacate ground water storage in the Forebay Area. This empty storage space would be refilled by additional infiltration from Salinas River . . . Part of the recommended facilities for surface water and ground water storage have been completed by the construction of the dams for San Antonio and Nacimiento reservoirs, but the facilities for the effective use of groundwater storage have not been completed. The operation of San Antonio and Nacimiento reservoirs has produced benefits to [S]alinas Valley, but the ultimate benefits that would result from the construction and operation of transfer facilities have not been realized. **The panel concluded that the facilities recommended in 1946 by the California Department of Water Resources should be completed immediately** . . . The result of partially completing the project has been an uneven distribution of benefits throughout the Valley. The Forebay Area and Upper Valley Areas have enjoyed relatively large benefits from San Antonio and Nacimiento reservoirs that would have been shared equally with the Pressure and East Side Areas if the intended transfer facilities had been built. In the absence of the transfer facilities, seawater intrusion into the Pressure Area and water-level declines within the East Side Area have not been mitigated.[84]

The Conference noted that this solution is practical as the "water resources problem in Salinas Valley is not a water supply problem. It is a water distribution problem. The basin has enough surface and ground water to meet existing and projected future average annual agricultural, and municipal and industrial water demand through the year 2030. The problem lies in managing those supplies to meet water demands at all locations in the Valley at all times."[85] This project is an example of integrated groundwater management for the Basin as a whole and should be included in the list of projects and management actions in each of the draft GSPs.[86]

IV. CONCLUSION

The *Alliance* appreciates the opportunity to provide these comments on the draft GSPs, as well as the groundwater sustainability agencies' consideration of the *Alliance*'s input. At present, the draft GSPs do not provide a sufficient basis for integrated management of the Basin given their inconsistent analytical approaches and inadequate analysis of impacts on adjacent subbasins. The *Alliance* makes these comments with the hope that these issues can be addressed through additional engagement prior to the adoption of the GSPs. It is critical that the groundwater sustainability agencies lay the foundation now for the integrated sustainable management of the Basin; without such a foundation, the agencies will not be able to satisfy their obligations under SGMA.

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[84] Salinas Valley White Paper, pp. 15-16, attached hereto as **Exhibit E (**emphasis added).
[85] *Id.* at p. 7.
[86] See aquilogic Memo, pp. 12-13, attached hereto as **Exhibit A**.

Respectfully submitted,

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Exhibits:

A. October 15, 2021 aquilogic, inc. memorandum
B. February 26, 2019 Letter from Derrik Williams to Les Girard
C. March 4, 2019 Memorandum from Howard Franklin to Gary Petersen & Les Girard
D. November 19, 2013 Technical Memorandum re Protective Elevations to Control Sea Water Intrusion in the Salinas Valley
E. June 1995 Salinas Valley Ground Water Basin Hydrology Conference White Paper re Hydrogeology and Water Supply of Salinas Valley

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