Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan Update

VOLUME 2

Chapter 7. Monitoring Networks

Prepared for:

Salinas Valley Basin Groundwater Sustainability Agency

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7 MONITORING NETWORKS

This chapter describes the networks that will monitor the SMC discussed in Chapter 8. This description of the monitoring network has been prepared in accordance with the GSP Regulations § 354.32 *et seq.* to include monitoring objectives, monitoring protocols, and data reporting requirements.

7.1 Introduction

7.1.1 Monitoring Objectives

SGMA requires monitoring networks to collect data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the Subbasin, and to evaluate changing conditions that occur as the Plan is implemented. The monitoring networks are intended to:

- Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.
- Demonstrate progress toward achieving measurable objectives.
- Monitor impacts to the beneficial uses or users of groundwater.
- Quantify annual changes in water budget components.

7.1.2 Approach to Monitoring Networks

Monitoring networks are developed for each of the 6 sustainability indicators that are relevant to the Subbasin:

- Chronic lowering of groundwater levels
- Reduction in groundwater storage
- Seawater intrusion
- Degraded water quality
- Land subsidence
- Depletion of ISW

Other monitoring networks, such as groundwater extraction, that are necessary to comply with GSP Regulations are also included in this chapter. Representative Monitoring Sites (RMS) are a subset of the monitoring network and are limited to sites with data that are publicly available and not confidential.

The SVBGSA estimated the density of monitoring sites and the frequency of measurements required to demonstrate short-term, seasonal, and long-term trends. If the required monitoring site density does not currently exist, the SVBGSA will expand monitoring networks for some sustainability indicators during GSP implementation. Filling data gaps and developing more extensive and complete monitoring networks will improve the SVBGSA's ability to demonstrate sustainability and refine the existing conceptual and numerical hydrogeologic models. Chapter 10 provides a plan and schedule for resolving data gaps. The SVBGSA will review the monitoring network in each 5-year assessment, including a determination of uncertainty and whether there are remaining data gaps that could affect the ability of the Plan to achieve the sustainability goal for the Subbasin.

7.1.3 Management Areas

No management areas have been defined for the 180/400-Foot Aquifer Subbasin.

7.2 Groundwater Level Monitoring Network

Commented [AO1]: Information on CASGEM program included in Ch 3 under existing monitoring programs

Commented [AO2R1]: The 180/400 GSP noted we would expand the groundwater level monitoring network, so we have done that here. Groundwater level monitoring network expanded from 23 CASGEM wells to 91 wells, and groundwater elevations from a total of 157 wells are used to develop groundwater elevation contours.

The sustainability indicator for chronic lowering of groundwater levels is evaluated by groundwater elevations monitored by MCWRA in designated monitoring wells. The Regulations require a network of monitoring wells sufficient to demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features.

Figure 7-1 shows the 157 wells in the Subbasin monitored for groundwater elevations that are used to develop groundwater elevation contours. The groundwater elevation data for these wells are publicly available data and shown on the SVBGSA Web Map**Error! Reference source not found.**. The wells are shown by principal aquifer on Figure 7-1.

Of the wells shown on Figure 7-1, 91 are selected for inclusion in the groundwater level monitoring network as RMS wells. Out of the 91 RMS wells, 35 are in the 180-Foot Aquifer, 45 in the 400-Foot

Aquifer, and 11 in the Deep Aquifers, as shown on Figure 7-2

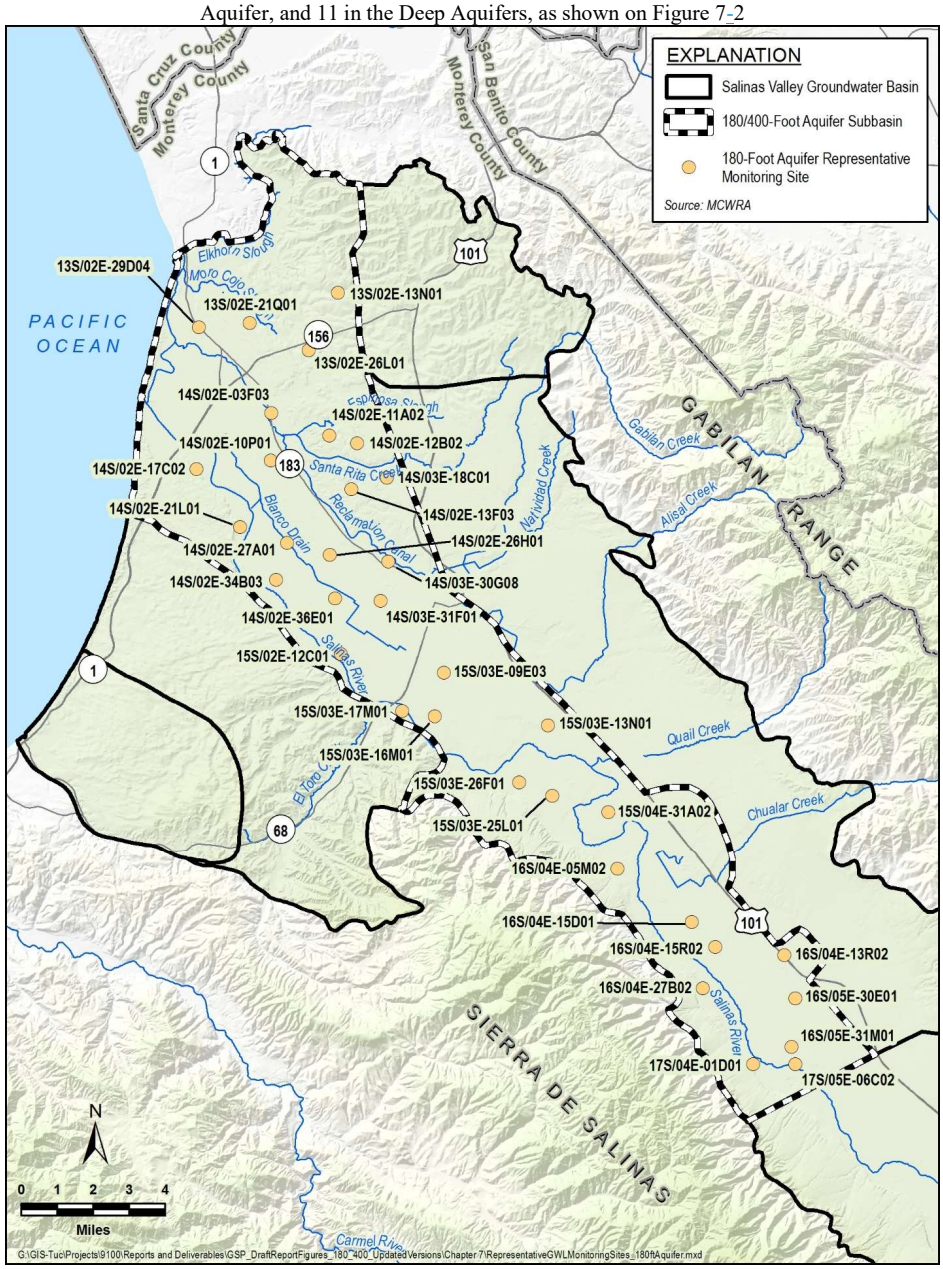

Figure 7-2**Error! Reference source not found.Error! Reference source not found.Error! Reference source not found.**, Figure 7-3, Figure 7-4, respectively. Criteria for selecting wells as part of the RMS network include:

- RMS wells must have known depths and well completion data
- RMS wells should have a relatively long period of historical data
- Hydrographs of RMS wells should be visually representative of the hydrographs from surrounding wells. Appendix 5A includes the hydrograph comparisons used to establish that RMS wells are representative of surrounding wells
- RMS locations must cover the basin and provide data near basin boundaries
- RMS should be selected for each aquifer. There are 3 aquifers in the 180/400-Foot Aquifer Subbasin
- Data from RMS wells are public data and will be used for groundwater elevation maps and analysis. SVBGSA notified well owners of intent to include well in monitoring network.

The RMS wells in the groundwater level monitoring network are listed in Table 7-1. . The need for any additional wells is discussed in Section 7.2.2. Appendix 5A presents well construction information and historical hydrographs for each RMS well.

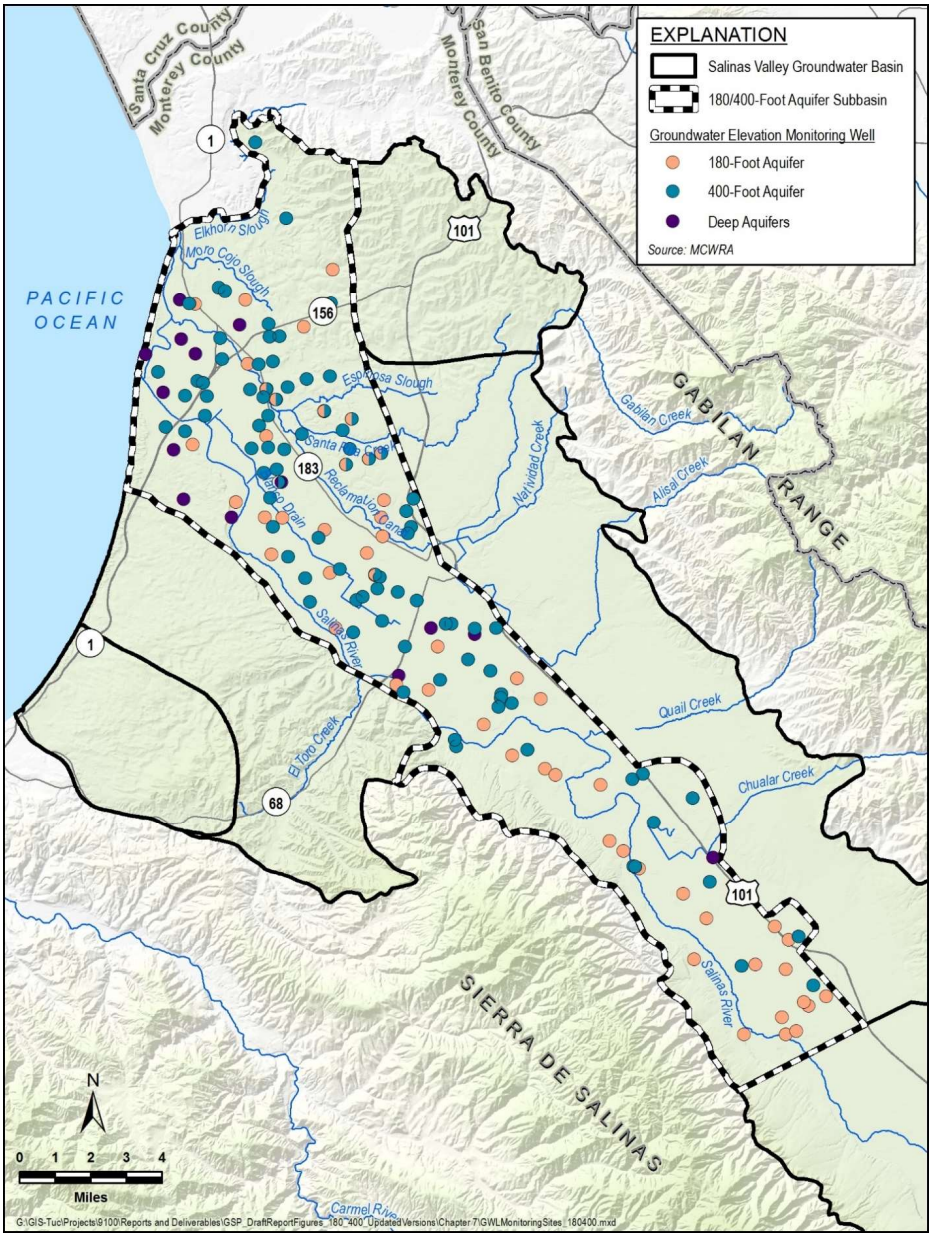

Figure 7-1~~7-1~~. 180/400-Foot Aquifer Subbasin Monitoring Network for Groundwater Levels

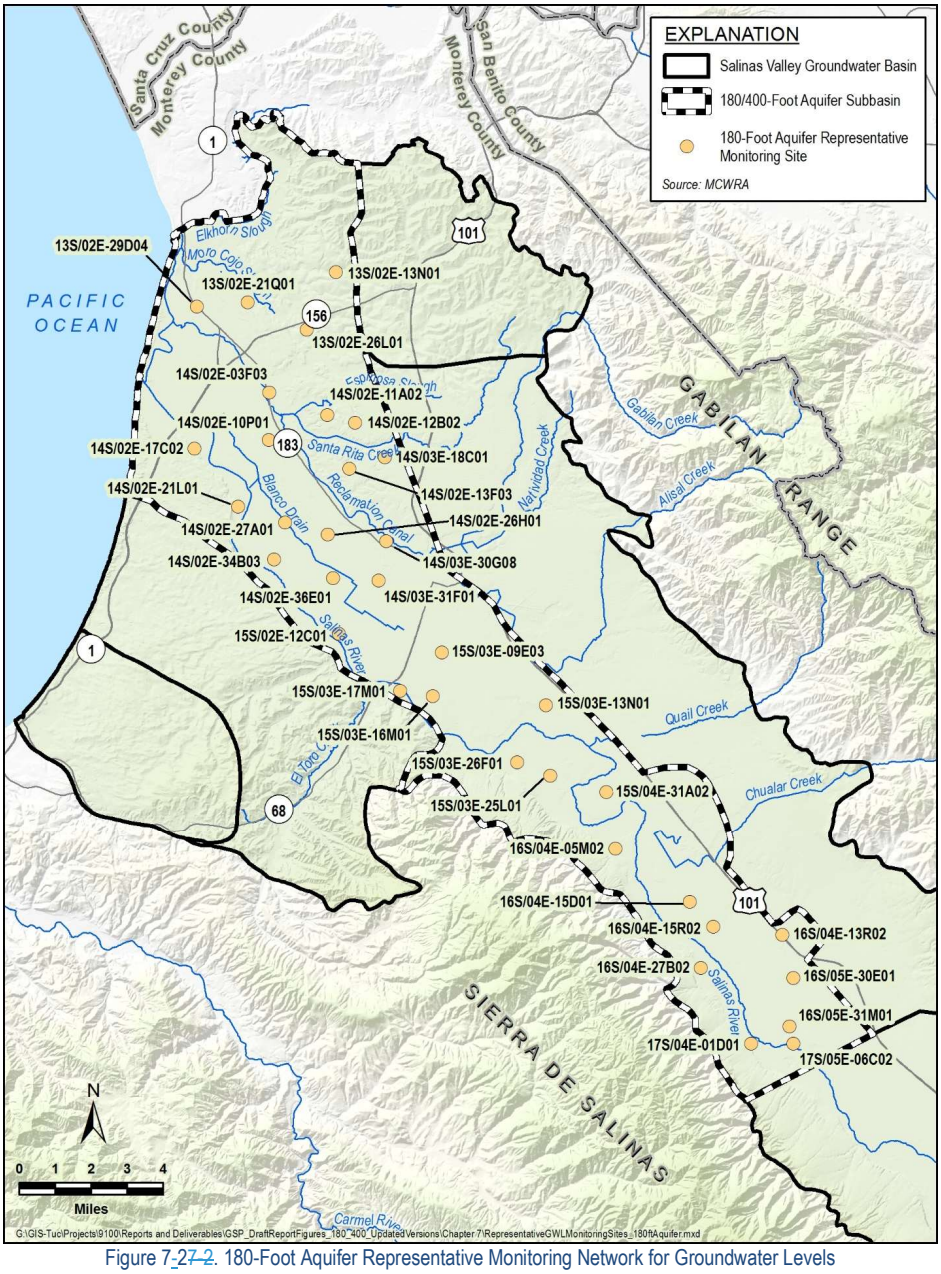

Figure 7-27-2. 180-Foot Aquifer Representative Monitoring Network for Groundwater Levels

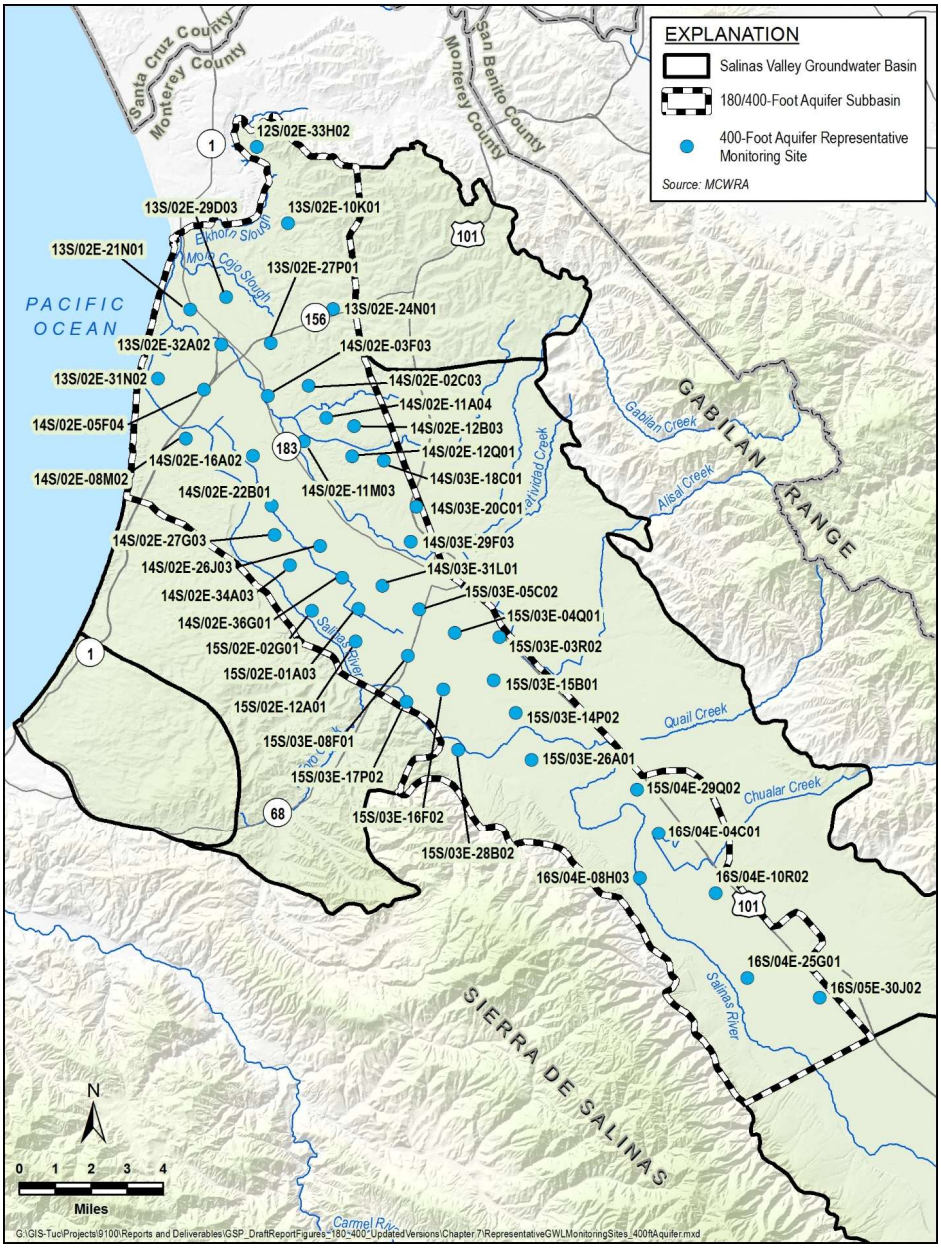

Figure 7-~~37~~ 3. 400-Foot Aquifer Representative Monitoring Network for Groundater Levels

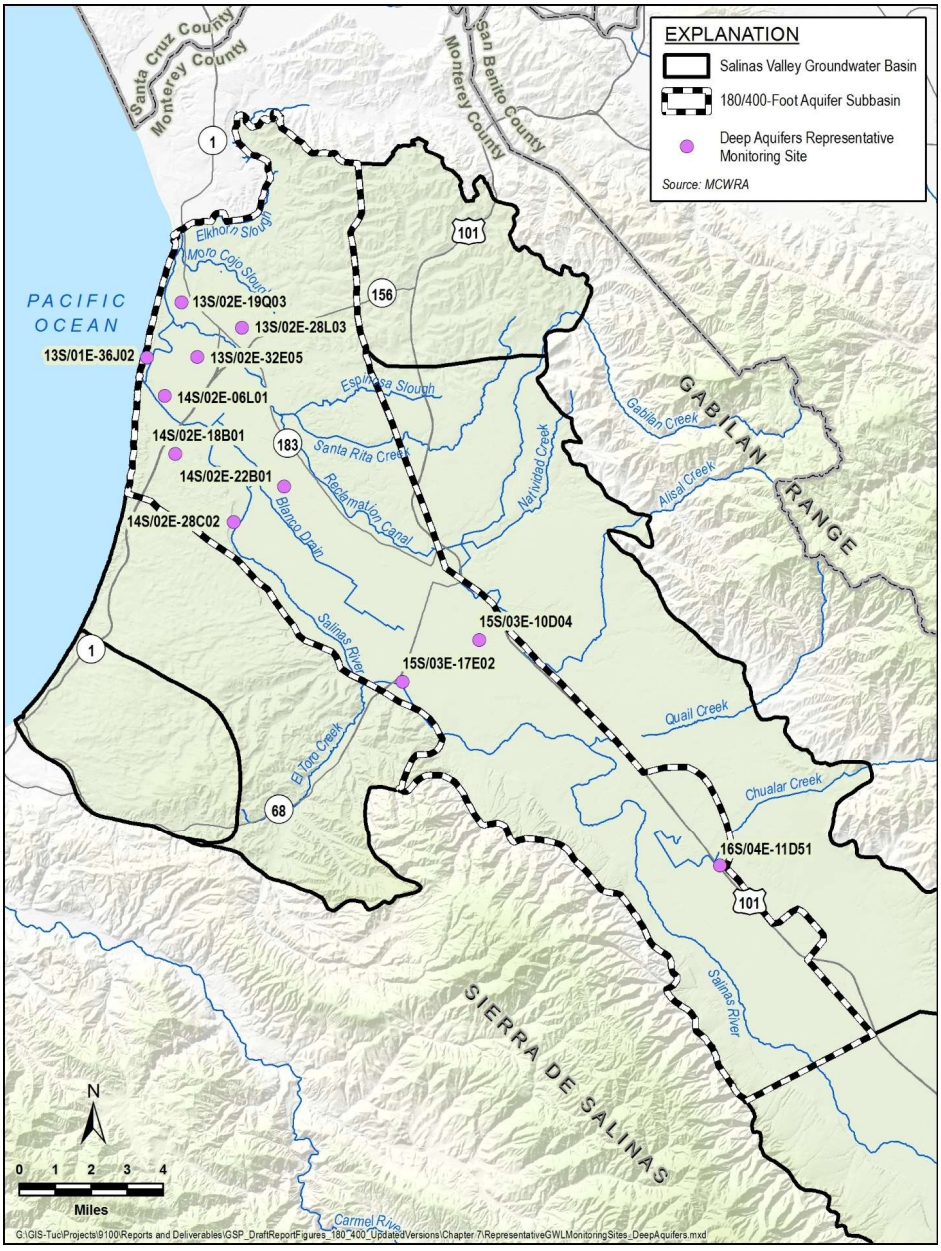

Figure 7-47-4. Deep Aquifers Representative Monitoring Network for Groundwater Levels

Table 7-17 1. 180/400-Foot Aquifer Subbasin Groundwater Level Representative Monitoring Site Network

State Well Number	CASGEM Well Number	Local Well Designation	Well Use	Total Well Depth (ft)	Reference Point (ft, NAVD88)	Latitude (NAD 83)	Longitude (NAD 83)	Period of Record (years)
180-Foot Aquifer								
13S/02E-13N01	N/A	12672	Irrigation	200	78.0	36.7947	-121.7076	58
13S/02E-21Q01	367816N1217514W001	SELA22633	Observation	157	9.7	36.7816	-121.7514	16
13S/02E-26L01	N/A	11028	Unknown	250	109.1	36.7712	-121.7215	58
13S/02E-29D04	N/A	13020	Domestic	2190	11.0	36.7793	-121.7768	14
14S/02E-03F04	367454N1217393W001	ESPA22636	Observation	205	21.5	36.7454	-121.7393	16
14S/02E-10P01	N/A	2657	Irrigation	186	19.2	36.7263	-121.7390	37
14S/02E-11A02	N/A	14478	Observation	250	59.0	36.7371	-121.7098	26
14S/02E-12B02	367343N1216958W001	RODA14455	Observation	265	52.8	36.7343	-121.6958	26
14S/02E-13F03	N/A	14469	Observation	280	44.8	36.7156	-121.6980	26
14S/02E-17C02	N/A	21667	Domestic	140	55.5	36.7219	-121.7760	5
14S/02E-21L01	N/A	862	Irrigation	250	28.1	36.6991	-121.7533	58
14S/02E-26H01	366889N1217079W001	AMST22651	Observation	339	35.0	36.6889	-121.7079	16
14S/02E-27A01	366933N1217294W001	MCFD22632	Observation	293	22.0	36.6933	-121.7294	16
14S/02E-34B03	N/A	1212	Irrigation	346	30.7	36.6782	-121.7345	47
14S/02E-36E01	N/A	331	Irrigation	198	32.5	36.6714	-121.7046	74
14S/03E-18C01	367207N1216806W001	BORA15009	Observation	225	52.1	36.7207	-121.6806	26
14S/03E-30G08	366869N1216785W001	MKTC22650	Observation	293	41.6	36.6869	-121.6785	16
14S/03E-31F01	N/A	10280	Domestic	201	37.8	36.6709	-121.6818	88
15S/02E-12C01	N/A	1070	Irrigation	182	38.2	36.6490	-121.7010	74
15S/03E-09E03	N/A	183	Irrigation	249	54.0	36.6426	-121.6492	66
15S/03E-13N01	N/A	147	Irrigation	275	67.0	36.6226	-121.5964	65
15S/03E-16M01	366250N1216532W001	1359	Irrigation	N/A0	59.5	36.6250	-121.6531	89
15S/03E-17M01	366265N1216692W001	1480	Irrigation	271	49.2	36.6268	-121.6695	23
15S/03E-25L01	N/A	656	Irrigation	392	71.6	36.5942	-121.5934	25
15S/03E-26F01	N/A	648	Irrigation	316	62.0	36.5993	-121.6100	63
15S/04E-31A02	N/A	1020	Irrigation	335	77.0	36.5882	-121.5651	57

State Well Number	CASGEM Well Number	Local Well Designation	Well Use	Total Well Depth (ft)	Reference Point (ft, NAVD88)	Latitude (NAD 83)	Longitude (NAD 83)	Period of Record (years)
16S/04E-05M02	N/A	38	Irrigation	261	83.0	36.5652	-121.5597	75
16S/04E-13R02	N/A	447	Irrigation	286	126.3	36.5320	-121.4752	64
16S/04E-15D01	365444N1215220W001	BRME10389	Irrigation	384	99.0	36.5444	-121.5220	67
16S/04E-15R02	N/A	576	Irrigation	300	100.0	36.5346	-121.5100	69
16S/04E-27B02	N/A	204	Irrigation	300	109.0	36.5180	-121.5155	63
16S/05E-30E01	N/A	394	Irrigation	263	118.0	36.5148	-121.4692	103
16S/05E-31M01	N/A	1788	Irrigation	172	121.0	36.4951	-121.4705	88
17S/04E-01D01	N/A	254	Irrigation	310	135.3	36.4878	-121.4894	67
17S/05E-06C02	364883N1214684W001	GZWA21202	Observation	115	116.7	36.4883	-121.4684	24
400-Foot Aquifer								
12S/02E-33H02	N/A	25861	Irrigation	580	55.5	36.8456	-121.7485	3
13S/02E-10K01	N/A	22934	Observation	660	100.0	36.8152	-121.7319	11
13S/02E-21N01	367847N1217618W001	2432	Irrigation	550	17.3	36.7848	-121.7618	67
13S/02E-24N01	N/A	1824	Domestic	600	162.0	36.7812	-121.7080	14
13S/02E-27P01	N/A	1720	Irrigation	606	50.5	36.7667	-121.7387	41
13S/02E-29D03	N/A	2683	Irrigation	632	8.9	36.7793	-121.7797	49
13S/02E-31N02	N/A	1682	Irrigation	576	10.9	36.7512	-121.7946	68
13S/02E-32A02	367653N1217636W001	10161	Irrigation	600	10.6	36.7655	-121.7636	61
14S/02E-02C03	N/A	1716	Irrigation	835	60.4	36.7500	-121.7193	26
14S/02E-03F03	367455N1217395W001	ESPB22635	Observation	455	25.5	36.7455	-121.7395	16
14S/02E-05F04	N/A	1169	Irrigation	582	13.6	36.7472	-121.7715	63
14S/02E-08M02	367275N1217803W001	239	Irrigation	500	14.6	36.7273	-121.7799	88
14S/02E-11A04	N/A	14480	Observation	490	58.9	36.7372	-121.7099	26
14S/02E-11M03	N/A	1705	Irrigation	660	41.5	36.7275	-121.7207	26
14S/02E-12B03	367343N1216959W001	RODB14456	Observation	390	53.2	36.7343	-121.6959	26
14S/02E-12Q01	367221N1216965W001	1707	Domestic/Irrigation	619	64.0	36.7221	-121.6964	88
14S/02E-16A02	N/A	353	Irrigation	669	21.2	36.7211	-121.7461	34
14S/02E-22L01	N/A	1965	Irrigation	700	21.9	36.7013	-121.7359	26
14S/02E-26J03	N/A	113	Irrigation	561	30.5	36.6855	-121.7111	40

State Well Number	CASGEM Well Number	Local Well Designation	Well Use	Total Well Depth (ft)	Reference Point (ft, NAVD88)	Latitude (NAD 83)	Longitude (NAD 83)	Period of Record (years)
14S/02E-27G03	N/A	1861	Irrigation	495	26.0	36.6895	-121.7342	34
14S/02E-34A03	N/A	1060	Irrigation	670	32.5	36.6775	-121.7260	25
14S/02E-36G01	N/A	370	Irrigation	416	35.0	36.6731	-121.6998	58
14S/03E-18C02	367207N1216805W001	BORB15010	Observation	395	52.2	36.7207	-121.6805	26
14S/03E-20C01	N/A	1814	Municipal	701	62.0	36.7026	-121.6635	29
14S/03E-29F03	N/A	1147	Municipal	650	52.0	36.6884	-121.6659	28
14S/03E-31L01	N/A	374	Municipal	640	44.0	36.6702	-121.6794	29
15S/02E-01A03	N/A	1357	Irrigation	480	36.0	36.6608	-121.6910	59
15S/02E-02G01	N/A	888	Irrigation	404	30.0	36.6594	-121.7144	64
15S/02E-12A01	N/A	197	Irrigation	549	43.0	36.6474	-121.6920	59
15S/03E-03R02	N/A	1808	Municipal	635	62.0	36.6508	-121.6201	29
15S/03E-04Q01	N/A	375	Municipal	540	62.0	36.6520	-121.6426	29
15S/03E-05C02	N/A	536	Municipal	614	45.0	36.6612	-121.6605	29
15S/03E-08F01	N/A	1821	Domestic/Irrigation	449	49.0	36.6422	-121.6657	74
15S/03E-14P02	N/A	388	Irrigation	606	62.6	36.6205	-121.6109	27
15S/03E-15B01	N/A	1007	Irrigation	452	63.0	36.6334	-121.6224	54
15S/03E-16F02	366292N1216474W001	1862	Irrigation	592	59.5	36.6291	-121.6474	16
15S/03E-17P02	N/A	1838	Domestic	760	52.0	36.6238	-121.6658	29
15S/03E-26A01	N/A	924	Irrigation	570	56.6	36.6017	-121.6025	28
15S/03E-28B02	N/A	1841	Domestic	490	70.0	36.6050	-121.6393	29
15S/04E-29Q02	N/A	1877	Irrigation	555	82.0	36.5910	-121.5492	26
16S/04E-04C01	N/A	441	Irrigation	466	87.0	36.5733	-121.5378	75
16S/04E-08H03	365550N1215465W001	CHEB21205	Observation	295	88.5	36.5550	-121.5465	24
16S/04E-10R02	N/A	546	Irrigation	484	109.4	36.5496	-121.5086	63
16S/04E-25G01	N/A	1882	Irrigation	560	108.3	36.5157	-121.4916	62
16S/05E-30J02	N/A	1790	Irrigation	443	127.0	36.5086	-121.4552	62
Deep Aquifer								
13S/01E-36J02	N/A	22681	Domestic	1364	23	36.7582	-121.8010	11
13S/02E-19Q03	367808N1217847W001	75	Irrigation	1562	18	36.7808	-121.7846	36

State Well Number	CASGEM Well Number	Local Well Designation	Well Use	Total Well Depth (ft)	Reference Point (ft, NAVD88)	Latitude (NAD 83)	Longitude (NAD 83)	Period of Record (years)
13S/02E-28L03	N/A	22928	Irrigation	1460	12.2	36.7713	-121.7540	2
13S/02E-32E05	N/A	10164	Observation	1650	18.8	36.7589	-121.7757	35
14S/02E-06L01	N/A	1672	Irrigation	1560	8	36.7429	-121.7917	36
14S/02E-18B01	N/A	26393	Irrigation	1700	86.6	36.7196	-121.7854	1
14S/02E-22A03	N/A	24033	Irrigation	1640	29	36.7077	-121.7304	3
14S/02E-28C02	N/A	23135	Irrigation	1160	45	36.6929	-121.7552	11
15S/03E-10D04	N/A	25553	Public	980	63.3	36.6481	-121.6307	1
15S/03E-17E02	N/A	26373	Domestic	700	48	36.6305	-121.6684	1
16S/04E-11D51	N/A	2776	Irrigation	1000	115	36.5594	-121.5074	3

7.2.1 Groundwater Level Monitoring Protocols

Chapter 4 of the MCWRA CASGEM monitoring plan includes a description of existing groundwater elevation monitoring procedures (MCWRA, 2015). The CASGEM groundwater elevation monitoring protocols established by MCWRA are adopted by this GSP and are included in Appendix 7A. Groundwater elevation measurements will be collected at least 2 times per year to represent seasonal low and seasonal high groundwater conditions. The monitoring protocols described in Appendix 7A cover multiple monitoring methods for collecting data by hand and by automated pressure transducers. These protocols are consistent with data and reporting standards described in GSP Regulations § 352.4.

7.2.2 Groundwater Level Monitoring Network Data Gaps

Based on GSP Regulations and BMPs published by DWR on monitoring networks (DWR, 2016b), a visual analysis of the existing monitoring network was performed using professional judgment to evaluate whether there are data gaps in the groundwater level monitoring network.

While there is no definitive requirement on monitoring well density, the BMP cites several studies (Heath, 1976; Sophocleous, 1983; Hopkins and Anderson, 2016) that recommend 0.2 to 10 wells per 100 square miles. 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.

The 180/400-Foot Aquifer Subbasin encompasses 132 square miles. If the BMP guidance recommendations are applied to the Subbasin, the well network should include between 1 and 13 wells in each of the 180-Foot, 400-Foot, and Deep Aquifers. The current network includes 35 wells in the 180-Foot Aquifer, 45 wells in the 400-Foot Aquifer, 11 wells in the Deep Aquifers. The number of groundwater level monitoring wells in each principal aquifer in the Subbasin either exceeds or is within the range of the BMP guidance. Visual inspection of Figure 7-2 and Figure 7-3 shows that wells in the RMS network are adequately distributed across the Subbasin, and there is no significant spatial data gap in the network for the 180-Foot and 400-Foot Aquifers.

However, visual inspection of the geographic distribution of the well network in the Deep Aquifers indicates that additional wells are necessary to adequately characterize the Subbasin. A higher density of monitoring wells is considered in areas of groundwater withdrawal to assess potential variation in groundwater elevations. **Error! Reference source not found.** shows the locations of existing groundwater elevation monitoring wells and the generalized locations where monitoring wells are needed in the Deep Aquifers. Although, the 180-Foot and 400-Foot Aquifers do not have any significant spatial data gaps, the data gaps in the northern part of the Subbasin and along the border with the Eastside Subbasin are locations of potential nested wells to help fill vertical data gaps on the connectivity between aquifers.

The generalized locations for new monitoring wells were based on addressing the criteria listed in the monitoring BMP including:

- Providing adequate data to produce seasonal potentiometric maps
- Providing adequate data to map groundwater depressions and recharge areas
- Providing adequate data to estimate change in groundwater storage
- Demonstrating conditions at Subbasin boundaries

Additionally, groundwater elevation measurements for most of the monitoring wells in the Subbasin occur only once a year. SVBGSA will work with MCWRA to ensure that wells within the groundwater level monitoring network are visited at least twice a year as outlined in Section 7.2.1. Furthermore, some of the wells in the monitoring network have unknown well construction information and that is a data gap that will be addressed during GSP implementation.

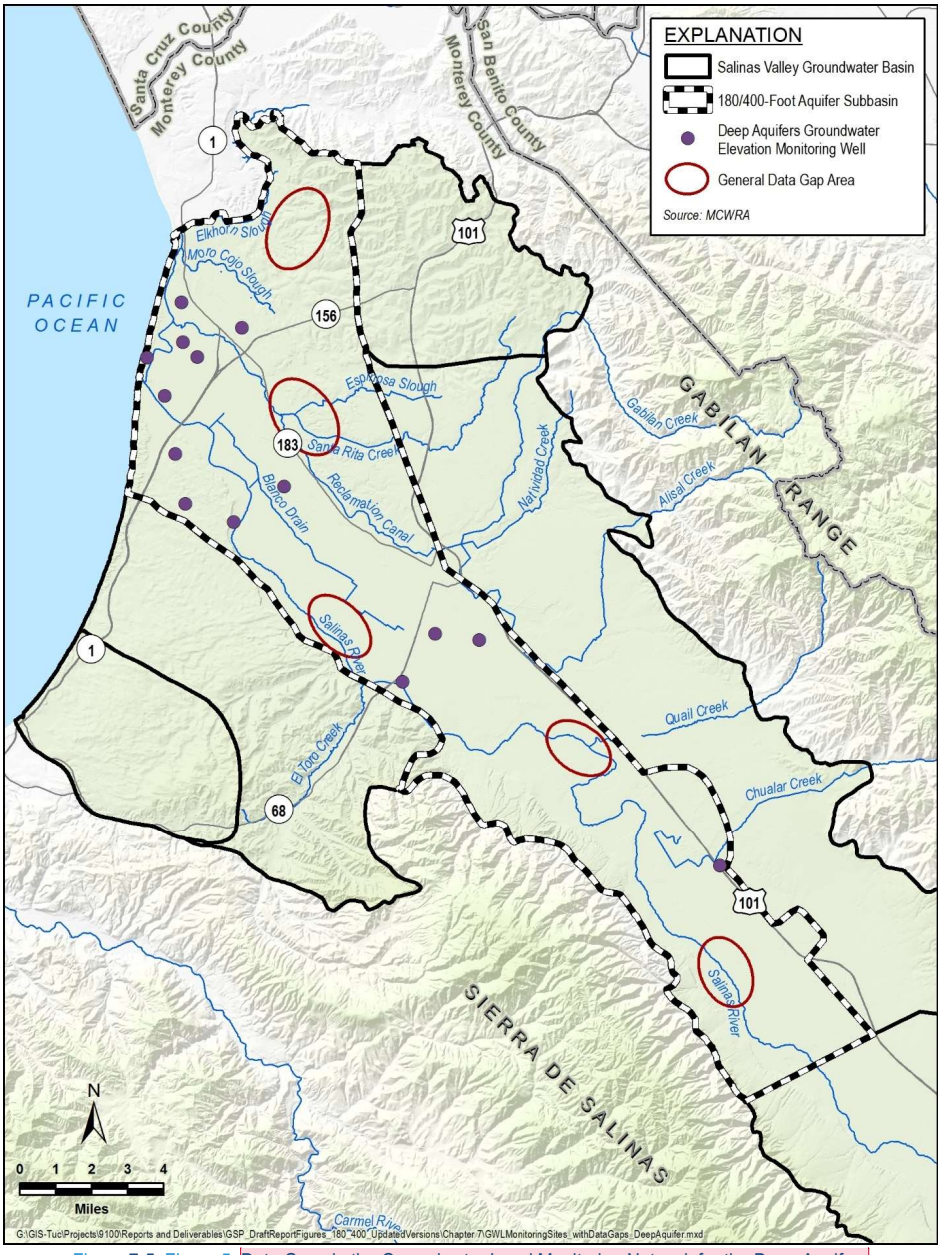

Figure 7-5. ~~Figure 5.~~ Data Gaps in the Groundwater Level Monitoring Network for the Deep Aquifers

Commented [AO3]: refined data gaps based on new, expanded monitoring network

7.3 Groundwater Storage Monitoring Network

Commented [AO4]: Revised to rely on groundwater elevations and seawater intrusion, per the January 2022 meeting decision on the SMC approach

As discussed in Chapter 8, the sustainability indicator for reduction of groundwater storage is measured using groundwater elevations and the advancement of the seawater intrusion front to calculate change in storage. Thus, the groundwater storage monitoring network is the same as the groundwater levels monitoring network and seawater intrusion monitoring network. Separate calculations of change in storage will be done for the area where seawater has intruded and the area where seawater has not intruded.

7.4 Seawater Intrusion Monitoring Network

The sustainability indicator for seawater intrusion is evaluated using the location of a chloride isocontour, based on chloride concentration measured at a network of monitoring wells. MCWRA currently develops annual maps of the 500 mg/L chloride isocontour (Figure 5-25 and Figure 5-26). The seawater intrusion monitoring network includes only wells where the data can be made publicly available. Should seawater intrusion advance beyond the current monitoring network, MCWRA will expand the existing seawater intrusion monitoring network.

Error! Reference source not found. lists the wells currently used by MCWRA to monitor seawater intrusion in the 180/400-Foot Aquifer Subbasin. These wells are shown on Figure 7-6. Although there is seawater intrusion monitoring in the Deep Aquifers, there is currently no seawater intrusion mapping in the Deep Aquifers. This is a data gap that is addressed below. This table and figure also include wells that are not drilled in one of the 3 principal aquifers but are located in the Subbasin.

Table 7-2~~7-2~~. 180/400-Foot Aquifer Seawater Intrusion Well Network

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State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
180-Foot Aquifer			
13S/02E-15R03	205	36.79763	-121.72885
13S/02E-21Q01	157	36.78164	-121.75139
14S/02E-03F04	205	36.74539	-121.73931
14S/02E-11A02	250	36.73713	-121.70981
14S/02E-12B02	265	36.73431	-121.69585
14S/02E-13F03	280	36.71562	-121.69801
14S/02E-15L02	200	36.71176	-121.74017
14S/02E-20B01	350	36.70568	-121.76872
14S/02E-21L01	250	36.69907	-121.75333
14S/02E-22P02	304	36.69326	-121.73829
14S/02E-24Q01	N/A	36.69382	-121.69398
14S/02E-26H01	339	36.68887	-121.70793
14S/02E-26N03	162	36.68155	-121.72537

State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
14S/02E-26N50	336	36.67955	-121.72581
14S/02E-26P01	N/A	36.67908	-121.71880
14S/02E-27A01	293	36.69330	-121.72944
14S/02E-27F02	354	36.68704	-121.73509
14S/02E-34B03	346	36.67822	-121.73449
14S/02E-36E01	198	36.67135	-121.70460
14S/03E-07P02	296	36.72467	-121.68178
14S/03E-18C01	225	36.72072	-121.68056
14S/03E-18E03	260	36.71834	-121.68658
14S/03E-18P51	N/A	36.70528	-121.68057
14S/03E-30F01	1023	36.68833	-121.68128
14S/03E-30G08	293	36.68688	-121.67852
14S/03E-31B01	175	36.67564	-121.67844
15S/02E-02A01	242	36.66245	-121.71090
15S/02E-12C01	182	36.64898	-121.70095
16S/04E-08H01	130	36.55516	-121.54740
16S/04E-08H04	140	36.55502	-121.54656
16S/05E-31P02	115	36.48916	-121.46766
17S/05E-06C02	115	36.48832	-121.46840
400-Foot Aquifer			
13S/02E-15M01	1014	36.79880	-121.74569
13S/02E-15R02	585	36.79763	-121.72880
13S/02E-20J01	600	36.78619	-121.76501
13S/02E-28M02	767	36.77262	-121.75991
13S/02E-34G01	765	36.75682	-121.73652
13S/02E-34G02	N/A	N/A	N/A
13S/02E-34J50	N/A	36.75660	-121.72901
13S/02E-34M01	645	36.75547	-121.74375
13S/02E-35H01	440	36.75967	-121.70933
13S/02E-36F50	660	36.75920	-121.70179
14S/02E-01C01	591	36.75057	-121.69755
14S/02E-02A02	810	36.75136	-121.70754
14S/02E-02C03	835	36.74997	-121.71928
14S/02E-03F03	455	36.74548	-121.73949
14S/02E-03H01	800	36.74656	-121.72881
14S/02E-03M02	587	36.74212	-121.74085
14S/02E-03P01	614	36.74125	-121.73971
14S/02E-03R02	638	36.74009	-121.72778
14S/02E-04H01	512	36.74511	-121.74777
14S/02E-05C03	580	36.74792	-121.77457
14S/02E-05R03	653	36.73862	-121.76228
14S/02E-08C03	556	36.73402	-121.77011

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State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
14S/02E-09D04	785	36.73640	-121.76008
14S/02E-09N02	622	36.72483	-121.76008
14S/02E-10H01	640	36.73142	-121.73097
14S/02E-10M02	585	36.72736	-121.74325
14S/02E-10N51	580	36.72645	-121.74361
14S/02E-11A04	490	36.73717	-121.70989
14S/02E-11B01	822	36.73609	-121.71422
14S/02E-11M03	660	36.72754	-121.72074
14S/02E-12B03	390	36.73428	-121.69586
14S/02E-13E50	596	36.71645	-121.69917
14S/02E-13F02	480	36.71560	-121.69802
14S/02E-14R50	690	36.71195	-121.70974
14S/02E-15A01	623	36.72115	-121.72964
14S/02E-15N01	552	36.71076	-121.74379
14S/02E-15P01	595	36.71150	-121.73957
14S/02E-22L01	680	36.70133	-121.73594
14S/02E-22R01	672	36.69352	-121.72600
14S/02E-24E01	467	36.70348	-121.70666
14S/02E-24P02	454	36.69388	-121.70174
14S/02E-25D51	700	36.69234	-121.70484
14S/02E-26C50	594	36.69292	-121.72025
14S/02E-26J03	561	36.68549	-121.71108
14S/02E-34A03	670	36.67750	-121.72599
14S/02E-34A04	352	36.67886	-121.72921
14S/02E-36F03	602	36.67450	-121.70291
14S/02E-36G01	416	36.67315	-121.69976
14S/03E-07D50	600	36.73549	-121.68474
14S/03E-07K51	600	36.72946	-121.67609
14S/03E-07P50	1140	36.72324	-121.67989
14S/03E-18C02	395	36.72074	-121.68053
14S/03E-18E04	495	36.71833	-121.68655
14S/03E-30E03	430	36.68630	-121.68643
14S/03E-31F02	518	36.67133	-121.68199
15S/02E-01Q50	524	36.65195	-121.69825
15S/02E-03B05	N/A	36.66367	-121.73295
15S/03E-07K01	570	36.64222	-121.68044
15S/03E-08L01	656	36.63956	-121.66396
16S/04E-08H02	295	36.55514	-121.54741
16S/04E-08H03	295	36.55503	-121.54655
16S/04E-11D51	1000	36.55944	-121.50737
16S/05E-31P01	300	36.48916	-121.46768
17S/05E-06C01	N/A	36.48832	-121.46840

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State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
Deep Aquifers			
13S/01E-25R01	1393	36.76814	-121.79767
13S/01E-36J02	1364	36.75821	-121.80101
13S/02E-19Q03	1562	36.78080	-121.78457
13S/02E-28L03	1460	36.77132	-121.75396
13S/02E-31A02	1600	36.76468	-121.78329
14S/02E-07J03	1573	36.72741	-121.78209
14S/02E-14R02	1690	36.71190	-121.70989
14S/02E-18B01	1700	36.71959	-121.78541
14S/02E-19G01	1910	36.70157	-121.78617
14S/02E-20E01	2020	36.69959	-121.77964
14S/02E-21K04	1800	36.69771	-121.74999
14S/02E-21L02	1780	36.69665	-121.75524
14S/02E-22A03	1640	36.70771	-121.73043
14S/02E-22J02	1620	36.69352	-121.72966
14S/02E-23G02	1560	36.70217	-121.71199
14S/02E-23J02	N/A	36.69978	-121.70821
14S/02E-23P02	1620	36.69346	-121.71863
14S/02E-25A03	N/A	36.69004	-121.69111
14S/02E-26A10	N/A	36.69231	-121.70810
14S/02E-26D01	1645	36.69360	-121.72371
14S/02E-26G01	N/A	36.68950	-121.71647
14S/02E-26J04	N/A	36.68585	-121.70770
14S/02E-27J02	N/A	36.68761	-121.72609
14S/02E-27K02	1700	36.68466	-121.73528
14S/02E-28C02	1160	36.69290	-121.75521
14S/02E-28H04	1180	36.68865	-121.74453
14S/02E-29C01	1780	36.69275	-121.77143
14S/02E-34M01	1645	36.66970	-121.74113
14S/02E-35B01	1690	36.67893	-121.71497
14S/03E-19C01	1723	36.70575	-121.68395
15S/03E-03N58	682	36.65329	-121.63142
15S/03E-05R52	840	36.65007	-121.65285
15S/03E-10D04	980	36.64805	-121.63066
16S/04E-03K01	1060	36.56520	-121.51296
Not in a principal aquifer			
13S/02E-28L02	529	36.77122	-121.75436
14S/01E-13J01	N/A	36.71182	-121.80015
14S/02E-11A03	100	36.73712	-121.70972
14S/02E-13G01	676	36.71771	-121.69442
14S/02E-17C02	140	36.72192	-121.77596
14S/02E-27C02	488	36.68954	-121.73565

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~~**State Well Number**~~	~~Total Well Depth (ft)~~	~~Latitude (NAD 83)~~	~~Longitude (NAD 83)~~
~~**180-Foot Aquifer**~~			
~~**13S/02E-15R03**~~	~~205~~	~~36.79763~~	~~-121.72885~~
~~**13S/02E-21Q01**~~	~~157~~	~~36.78164~~	~~-121.75139~~
~~**14S/02E-03F04**~~	~~205~~	~~36.74539~~	~~-121.73931~~
~~**14S/02E-11A02**~~	~~250~~	~~36.73713~~	~~-121.70981~~
~~**14S/02E-12B02**~~	~~265~~	~~36.73432~~	~~-121.69585~~
~~**14S/02E-13F03**~~	~~280~~	~~36.71562~~	~~-121.69801~~
~~**14S/02E-15L02**~~	~~200~~	~~36.71176~~	~~-121.74017~~
~~**14S/02E-20B01**~~	~~350~~	~~36.70568~~	~~-121.76872~~
~~**14S/02E-21L01**~~	~~250~~	~~36.69906~~	~~-121.75333~~
~~**14S/02E-22P02**~~	~~304~~	~~36.69326~~	~~-121.73829~~
~~**14S/02E-24Q01**~~	~~Unknown~~	~~36.69382~~	~~-121.69398~~
~~**14S/02E-26H01**~~	~~339~~	~~36.68888~~	~~-121.70793~~
~~**14S/02E-26N03**~~	~~162~~	~~36.68155~~	~~-121.72537~~
~~**14S/02E-26N50**~~	~~336~~	~~36.67955~~	~~-121.72581~~
~~**14S/02E-26P01**~~	~~Unknown~~	~~36.67908~~	~~-121.71880~~
~~**14S/02E-27A01**~~	~~293~~	~~36.69330~~	~~-121.72944~~
~~**14S/02E-27F02**~~	~~354~~	~~36.68704~~	~~-121.73509~~
~~**14S/02E-34B03**~~	~~346~~	~~36.67822~~	~~-121.73449~~
~~**14S/02E-36E01**~~	~~198~~	~~36.67135~~	~~-121.70460~~
~~**14S/03E-07P02**~~	~~296~~	~~36.72467~~	~~-121.68178~~
~~**14S/03E-18C01**~~	~~225~~	~~36.72072~~	~~-121.68056~~
~~**14S/03E-18E03**~~	~~260~~	~~36.71834~~	~~-121.68658~~
~~**14S/03E-18P51**~~	~~Unknown~~	~~36.70528~~	~~-121.68057~~
~~**14S/03E-30F01**~~	~~1023~~	~~36.68833~~	~~-121.68128~~
~~**14S/03E-30G08**~~	~~293~~	~~36.68688~~	~~-121.67852~~
~~**14S/03E-31B01**~~	~~175~~	~~36.67564~~	~~-121.67844~~
~~**15S/02E-02A01**~~	~~242~~	~~36.66244~~	~~-121.71090~~
~~**15S/02E-12C01**~~	~~182~~	~~36.64898~~	~~-121.70095~~
~~**16S/04E-08H01**~~	~~130~~	~~36.55516~~	~~-121.54740~~
~~**16S/04E-08H04**~~	~~140~~	~~36.55502~~	~~-121.54656~~
~~**16S/05E-31P02**~~	~~115~~	~~36.48916~~	~~-121.46766~~
~~**17S/05E-06C02**~~	~~115~~	~~36.48832~~	~~-121.46840~~
~~**400-Foot Aquifer**~~			
~~**13S/02E-15M01**~~	~~1014~~	~~36.79880~~	~~-121.74569~~
~~**13S/02E-15R02**~~	~~585~~	~~36.79763~~	~~-121.72880~~
~~**13S/02E-20J01**~~	~~600~~	~~36.78619~~	~~-121.76501~~
~~**13S/02E-28M02**~~	~~767~~	~~36.77262~~	~~-121.75991~~
~~**13S/02E-34G01**~~	~~765~~	~~36.75682~~	~~-121.73652~~
~~**13S/02E-34M01**~~	~~645~~	~~36.75547~~	~~-121.74375~~

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State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
13S/02E-35H01	440	36.75967	-121.70933
13S/02E-36F50	660	36.75920	-121.70179
14S/02E-02A02	810	36.75135	-121.70754
14S/02E-02C03	835	36.74997	-121.71928
14S/02E-03F03	455	36.74548	-121.73949
14S/02E-03H01	800	36.74656	-121.72881
14S/02E-03M02	587	36.74212	-121.74085
14S/02E-03P01	614	36.74126	-121.73971
14S/02E-03R02	638	36.74009	-121.72778
14S/02E-04H01	512	36.74511	-121.74777
14S/02E-05C03	580	36.74792	-121.77457
14S/02E-05R03	653	36.73862	-121.76228
14S/02E-08C03	556	36.73402	-121.77011
14S/02E-09D04	785	36.73640	-121.76008
14S/02E-09N02	622	36.72483	-121.76008
14S/02E-10H01	640	36.73142	-121.73097
14S/02E-10M02	585	36.72736	-121.74325
14S/02E-10N51	580	36.72645	-121.74361
14S/02E-11A04	490	36.73716	-121.70989
14S/02E-11B01	822	36.73609	-121.71422
14S/02E-11M03	660	36.72754	-121.72074
14S/02E-12B03	390	36.73428	-121.69586
14S/02E-13E50	596	36.71645	-121.69917
14S/02E-13F02	480	36.71560	-121.69802
14S/02E-14R50	690	36.71195	-121.70974
14S/02E-15A01	623	36.72115	-121.72964
14S/02E-15N01	552	36.71076	-121.74379
14S/02E-15P01	595	36.71150	-121.73957
14S/02E-22L01	680	36.70133	-121.73594
14S/02E-22R01	672	36.69352	-121.72600
14S/02E-24E01	467	36.70348	-121.70666
14S/02E-24P02	454	36.69388	-121.70174
14S/02E-25D51	700	36.69234	-121.70484
14S/02E-26C50	594	36.69292	-121.72025
14S/02E-26J03	561	36.68549	-121.71108
14S/02E-34A03	670	36.67750	-121.72599
14S/02E-34A04	352	36.67886	-121.72921
14S/02E-36F03	602	36.67450	-121.70291
14S/02E-36G01	416	36.67315	-121.69976
14S/03E-07D50	600	36.73549	-121.68474
14S/03E-07K51	600	36.72946	-121.67609
14S/03E-07P50	1140	36.72324	-121.67989

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State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
14S/03E-18C02	395	36.72074	-121.68053
14S/03E-18E04	495	36.71833	-121.68655
14S/03E-30E03	430	36.68630	-121.68643
14S/03E-31F02	518	36.67133	-121.68199
15S/02E-01Q50	524	36.65195	-121.69825
15S/02E-03B05	Unknown	36.66367	-121.73295
15S/03E-07K01	570	36.64222	-121.68044
15S/03E-08L01	656	36.63956	-121.66396
16S/04E-08H02	295	36.55514	-121.54741
16S/04E-08H03	295	36.55503	-121.54655
16S/04E-11D51	1000	36.55944	-121.50737
16S/05E-31P01	300	36.48915	-121.46768
17S/05E-06C01	Unknown	36.48832	-121.46840
Deep Aquifers			
13S/01E-25R01	1393	36.76814	-121.79767
13S/01E-36J02	1364	36.75821	-121.80101
13S/02E-19Q03	1562	36.78080	-121.78457
13S/02E-28L03	1460	36.77132	-121.75396
13S/02E-31A02	1600	36.76468	-121.78329
14S/02E-07J03	1573	36.72741	-121.78209
14S/02E-18B01	1700	36.71959	-121.78541
14S/02E-19G01	1910	36.70157	-121.78617
14S/02E-20E01	2020	36.69959	-121.77964
14S/02E-21K04	1800	36.69771	-121.74999
14S/02E-21L02	1780	36.69665	-121.75524
14S/02E-22A03	1640	36.70771	-121.73043
14S/02E-22J02	1620	36.69352	-121.72966
14S/02E-23G02	1560	36.70217	-121.71199
14S/02E-23P02	1620	36.69346	-121.71863
14S/02E-26A10	Unknown	36.69231	-121.70810
14S/02E-26D01	1645	36.69360	-121.72371
14S/02E-26G01	Unknown	36.68950	-121.71647
14S/02E-26J04	Unknown	36.68585	-121.70770
14S/02E-27J02	Unknown	36.68761	-121.72609
14S/02E-27K02	1700	36.68466	-121.73528
14S/02E-28C02	1160	36.69290	-121.75521
14S/02E-28H04	1180	36.68865	-121.74453
14S/02E-29C01	1780	36.69275	-121.77143
14S/02E-34M01	1645	36.66970	-121.74113
14S/03E-19C01	1723	36.70575	-121.68395
15S/03E-03N58	682	36.65329	-121.63142
15S/03E-05R52	840	36.65007	-121.65285

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State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
15S/03E-10D04	980	36.64805	-121.63066
16S/04E-03K01	1060	36.56520	-121.51296

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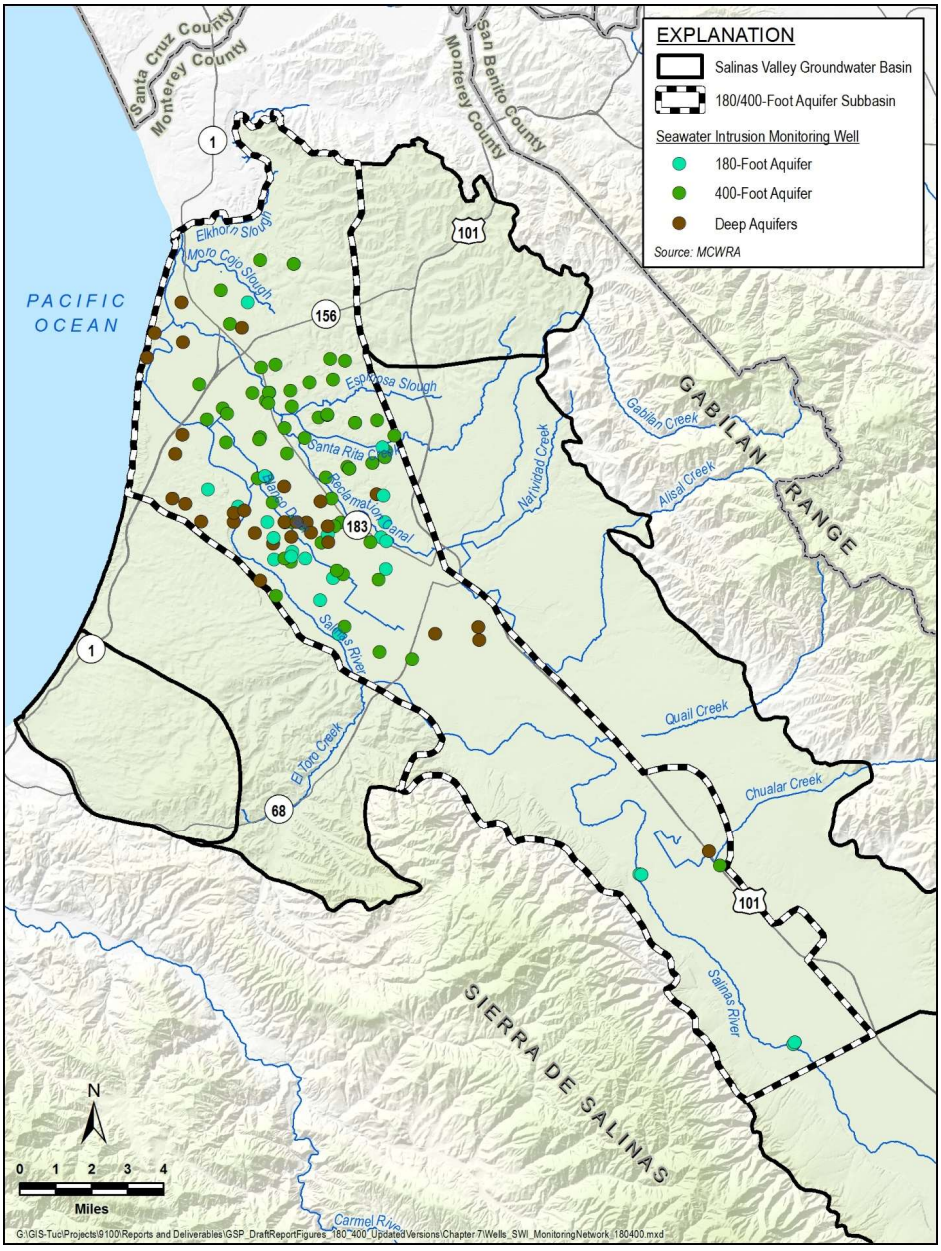
EXPLANATION
Salinas Valley Groundwater Basin
180/400-Foot Aquifer Subbasin
Seawater Intrusion Monitoring Well
180-Foot Aquifer
400-Foot Aquifer
Deep Aquifers
Source: MCWRA
Santa Cruz County
Monterey County
San Benito County
PACIFIC OCEAN
GABILAN RANGE
SIERRA DE SALINAS
Elkhorn Slough
Moro Cojo Slough
Espinosa Slough
Santa Rita Creek
Reclamation Canal
Natividad Creek
Gabilan Creek
Alisal Creek
Salinas River
Quail Creek
Chualar Creek
El Toro Creek
Carmel River
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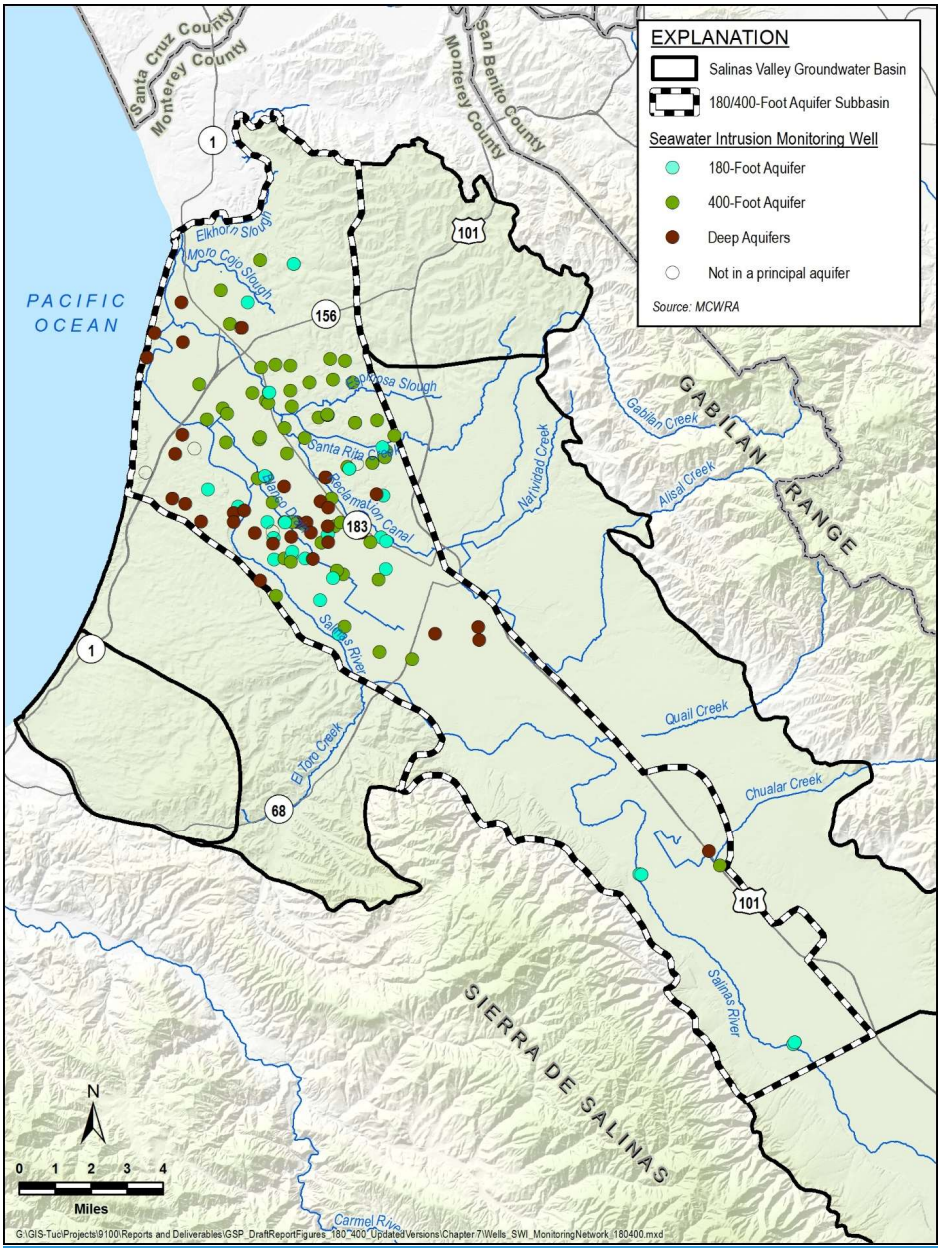

Figure 7-~~6~~7 ~~6~~. 180/400-Foot Aquifer Subbasin Seawater Intrusion Monitoring Network

Commented [AO5]: Updated with MCWRA's current monitoring network

7.4.1 Seawater Intrusion Monitoring Protocols

The protocols established by MCWRA for collecting groundwater quality data from monitoring wells and analyzing those data for seawater intrusion are adopted by this GSP. The groundwater quality data and seawater intrusion monitoring protocols are available in the Monterey County Quality Assurance Project Plan (QAPP) and included in Appendix 7B. MCWRA also established chloride data contouring protocols to establish the isocontour map, provided in Appendix 7C. These protocols are consistent with data and reporting standards described in GSP Regulations § 352.4.

7.4.2 Seawater Intrusion Monitoring Data Gaps

The network of wells with publicly available data for monitoring chloride concentrations includes an adequate number and distribution of wells in the 180-Foot and the 400-Foot Aquifers (Figure 7-6). However, the distribution of wells in the Deep Aquifer is inadequate and considered a data gap. As described in Section 7.2, additional wells will be identified in the Deep Aquifer for groundwater level monitoring. The data gap for seawater intrusion monitoring in the Deep Aquifer will be addressed by using the same set of new monitoring wells identified in the groundwater level monitoring network.

7.5 Groundwater Quality Monitoring Network

Commented [AO6]: Similar to the 180/400 GSP, but small water system wells are no longer planned to be included until the data becomes more readily available. The State is in the process of setting up the SAFER Program to do this.

The sustainability indicator for degraded water quality is evaluated by adopting the SWRCB DDW and CCRWQCB ILRP groundwater quality networks. The water quality monitoring network for the Subbasin is composed of public water system supply wells monitored under DDW, and on-farm domestic wells and irrigation supply wells monitored under ILRP.

As described in Chapter 8, separate minimum thresholds are set for the COC for public water system supply wells, on-farm domestic wells, and irrigation supply wells. Therefore, although there is a single groundwater quality monitoring network, different wells in the network are reviewed for different constituents. COC for drinking water are assessed at public water supply wells and on-farm domestic wells, and COC for crop health are assessed at agricultural supply wells. The COC for the 3 sets of wells are listed in Chapter 5.

The public water system supply wells included in the monitoring network were identified by reviewing data from the SWRCB DDW. The SWRCB collects data for municipal systems; community water systems; non-transient, non-community water systems; and non-community water systems that provide drinking water to at least 15 service connections or serve an average of at least 25 people for at least 60 days a year. The RMS network consists of 98 wells monitored by DDW, as shown on Figure 7-7 and listed in Appendix 7D. The SWRCB is undertaking the SAFER Program to collect their groundwater quality data from small state water systems and

make it readily available. Once that data is readily available, SVBGSA may add small system wells to its groundwater quality monitoring network.

All on-farm domestic wells and irrigation supply wells that have been sampled through the CCRWQCB's IRLP are included in the RMS network. Under the existing, Ag Order, the are 573 ILRP wells, consisting of 335 irrigation supply wells and 238 on-farm domestic wells that are all part of the RMS network. The locations of these wells are shown on Figure 7-8 and listed in Appendix 7D. The SVBGSA assumes that Ag Order 4.0 will have a similar representative geographic distribution of wells within the Subbasin. The agricultural groundwater quality monitoring network will be revisited and revised when the Ag Order 4.0 monitoring network is finalized.

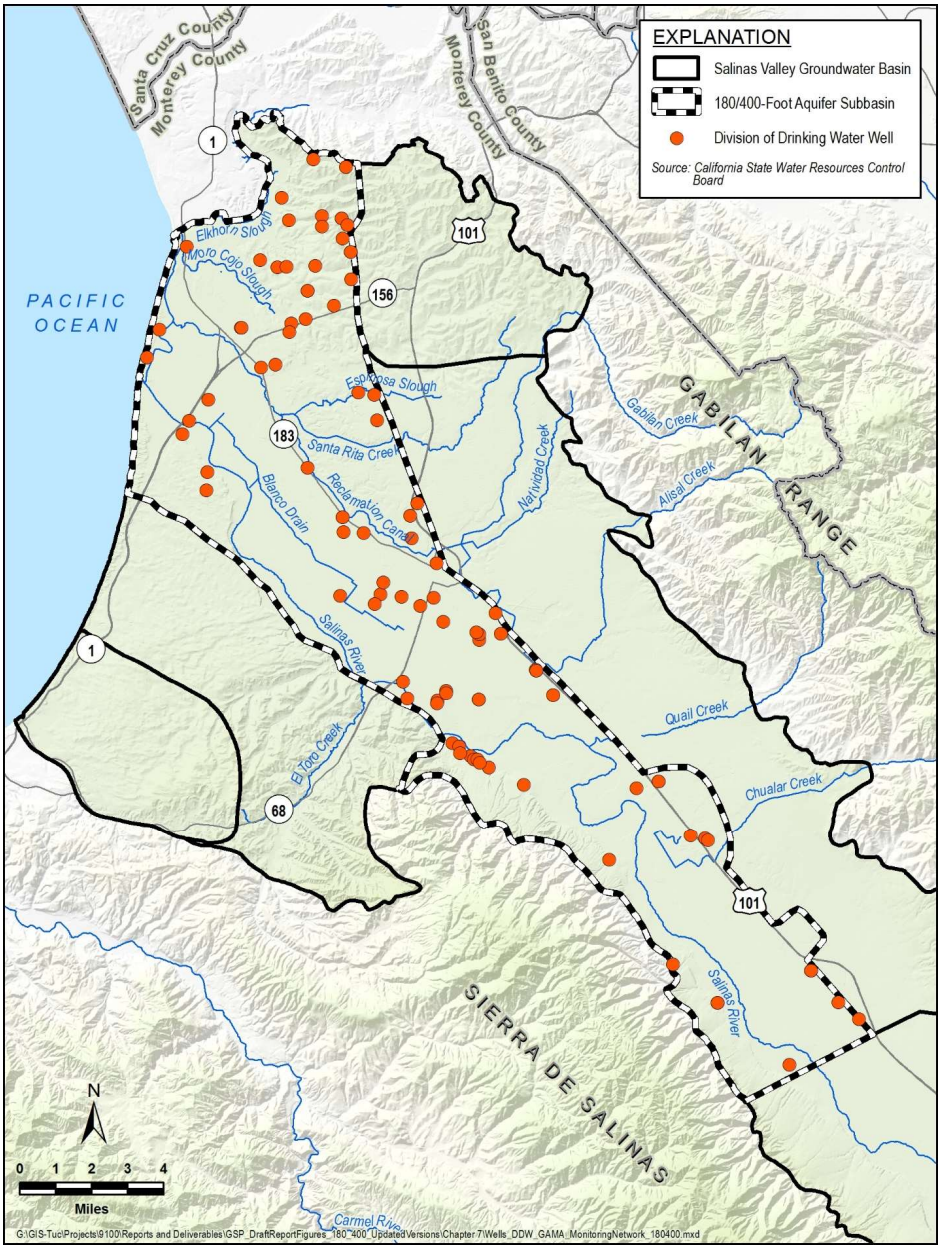

Figure 7-7~~7~~. DDW Public Water System Supply Wells in the Groundwater Quality Monitoring Network

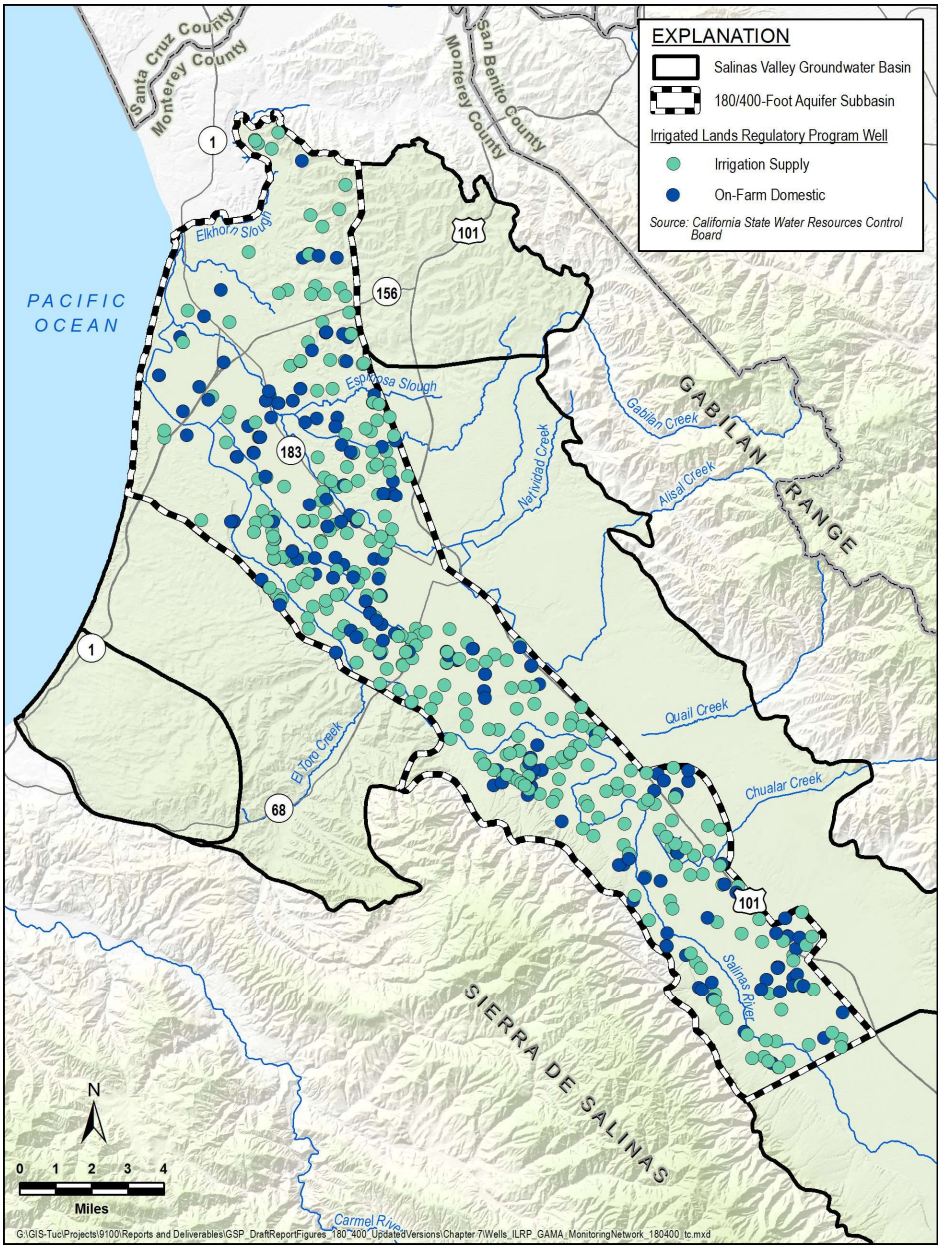

Figure 7-8~~7-8~~. ILRP Wells Monitored under Ag Order 3.0 in the Groundwater Quality Monitoring Network

7.5.1 Groundwater Quality Monitoring Protocols

The SVBGSA does not independently sample wells for any COC. Instead, the GSA analyzes water quality data that are collected through the DDW and ILRP. Therefore, the GSA is dependent on the monitoring density and frequency of DDW and ILRP.

Water quality data from public water systems are collected, analyzed, and reported in accordance with protocols that are reviewed and approved by the SWRCB DDW, in accordance with the state and federal Safe Drinking Water Acts. Monitoring protocols may vary by agency.

ILRP data are currently collected under CCRWQCB Ag Order 3.0. ILRP samples are collected under the Tier 1, Tier 2, or Tier 3 monitoring and reporting programs. Under Ag Order 4.0, ILRP data will be collected in 3 phases and each groundwater basin within the Central Coast Region has been assigned to one or more of these phases. The designated phase for each ILRP well is provided in SWRCB's GeoTracker database and is publicly accessible at: https://geotracker.waterboards.ca.gov/. Ag Order 4.0 will take effect in the Subbasin beginning in 2025. Copies of the Ag Orders 3.0 and 4.0 monitoring and reporting programs are included in Appendix 7E and are incorporated into this GSP. These protocols are consistent with data and reporting standards described in GSP Regulations § 352.4.

7.5.2 Groundwater Quality Monitoring Data Gaps

The DDW and ILRP monitoring network provide sufficient spatial and temporal data to determine groundwater quality trends for water quality indicators to address known water quality issues. Additionally, there is adequate spatial coverage in the water quality monitoring network to assess impacts to beneficial uses and users.

7.6 Land Subsidence Monitoring Network

As described in Section 5.5, DWR collects land subsidence data using InSAR satellite data and makes these data available to GSAs. This subsidence dataset represents the best available science for the 180/400-Foot Subbasin and is therefore used as the subsidence monitoring network.

7.6.1 Land Subsidence Monitoring Protocols

Land Subsidence monitoring protocols are the ones used by DWR for InSAR measurements and interpretation. DWR adapted their methods to measure subsidence on hard surfaces only and interpolate between them to minimize the change in land surface elevation captures in soft surfaces that are likely not true subsidence. The cell size of this interpolated surface is 302 feet by 302 feet. If the annual monitoring indicates subsidence is occurring at a rate greater than the minimum thresholds, then additional investigation and monitoring may be warranted. In

particular, the GSAs will implement a study to assess if the observed subsidence can be correlated to groundwater elevations, and whether a reasonable causality can be established. These protocols are consistent with data and reporting standards described in GSP Regulations § 352.4.

7.6.2 Land Subsidence Data Gaps

There are no data gaps associated with the subsidence monitoring network.

7.7 Interconnected Surface Water Monitoring Network

Commented [AO7]: Changed from relying on the SVIHM to monitoring ISW through shallow groundwater elevations near locations of interconnected surface water, per the January 2022 Subbasin Committee SMC direction.

The primary tool for assessing depletion of ISW due to pumping will be shallow monitoring wells adjacent to the Salinas River in the Subbasin. Table 7-3 lists and Figure 7-9 shows the existing wells from MCWRA's groundwater monitoring programs that will be added to the ISW monitoring network. ~~and~~ Figure 7-9 also shows the proposed locations of 2 new monitoring wells. Existing wells are chosen based on the locations of ISW determined by the preliminary SVIHM, well depth, and proximity to the Salinas River. Furthermore, the wells are also located in vicinity of a USGS stream gauge or MCWRA River Series measurement site shown on Figure 7-9. This allows for monitoring of groundwater elevations near the rivers in the Subbasin and may provide insight on the relationship between streamflow and groundwater elevations. Additionally, the combined use of groundwater elevation and streamflow data will allow SVBGSA to assess temporal changes in conditions due to variations in stream discharge and regional groundwater extraction, as well as other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water as discussed in Chapter 8. All ISW monitoring wells are RMS. More information on the development of the ISW monitoring network is provided in Appendix 7F.

Table 7-3. Shallow Wells in the Interconnected Surface Water Monitoring Network

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State Well Number	Total Well Depth (ft)	Latitude (NAD 83)	Longitude (NAD 83)
16S/04E-08H02	295	36.55514	-121.54741
16S/05E-31P02	115	36.48916	-121.46768

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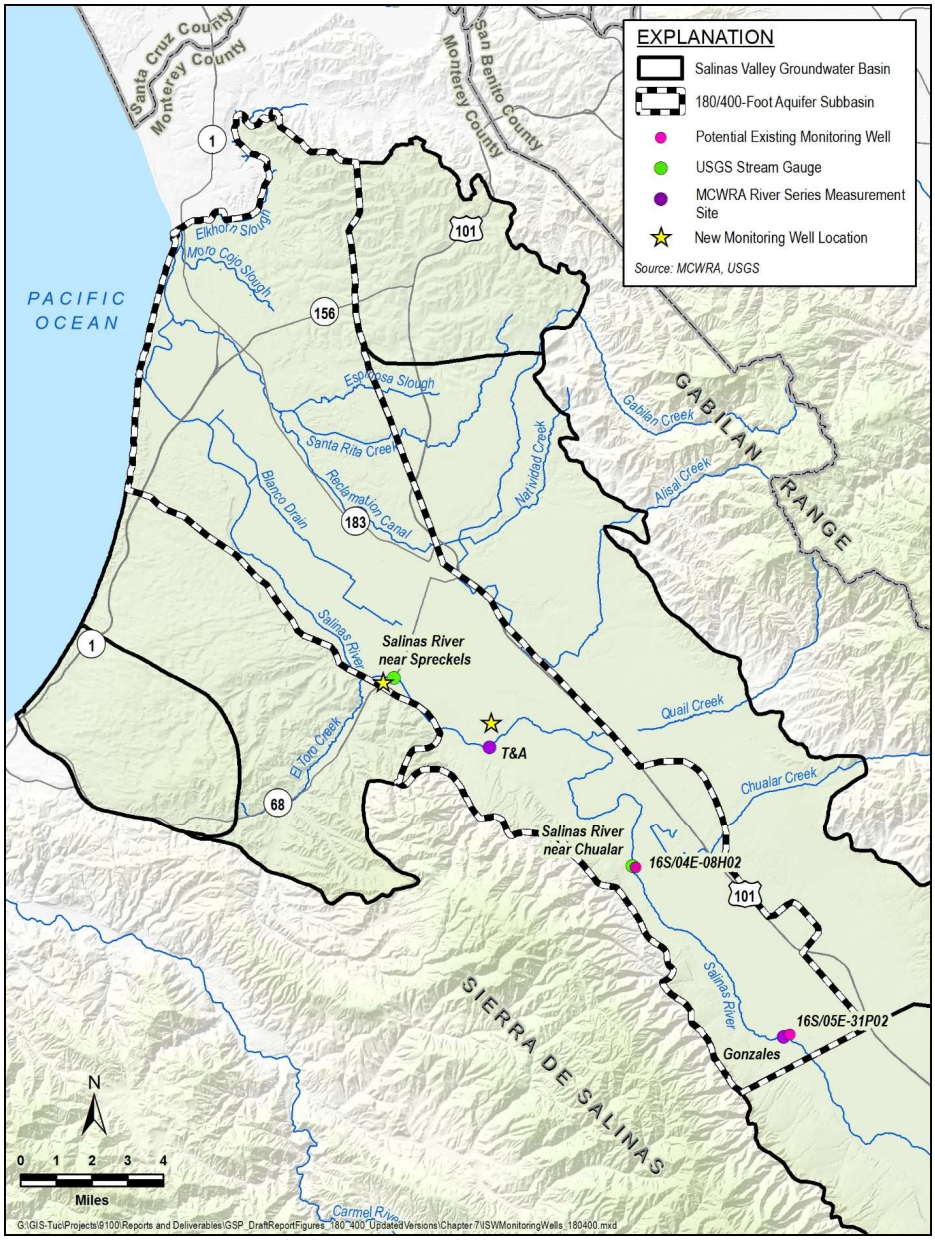

Figure 7-~~97~~ 9. Interconnected Surface Water Monitoring Network

7.7.1 Interconnected Surface Water Monitoring Protocols

Monitoring protocols for shallow wells monitoring interconnected surface water will be identical to MCWRA's current groundwater elevation monitoring protocols, included in Appendix 7A. These protocols are consistent with data and reporting standards described in GSP Regulations § 352.4. Additionally, if possible, each well that is added to the monitoring network will be equipped with a data logger that will allow SVBGSA to assess if seasonal pumping is resulting in streamflow depletions.

7.7.2 Interconnected Surface Water Data Gaps

As shown in Figure 7-9, the data gaps in the ISW monitoring network will be filled with 2 new wells added along the Salinas River, as discussed in Chapter 10. The new shallow wells will be added to MCWRA's groundwater elevation monitoring program.

7.8 Other Monitoring Networks

Commented [AO8]: New section added because these monitoring networks are not directly used to monitor SMC, but we report on the data from them in the annual reports.

7.8.1 Groundwater Extraction Monitoring Network

SGMA requires that annual reports include annual groundwater extraction for the Subbasin. MCWRA's Groundwater Extraction Monitoring System (GEMS) will be used to monitor urban and agricultural extraction in the Subbasin. Under Monterey County Ordinance No. 3717, public water systems and agricultural pumpers using wells with an internal discharge pipe greater than 3 inches within Zones 2, 2A, and 2B report extractions annually to GEMS. Extraction is self-reported by well owners or operators. Agricultural wells report their data based on MCWRA's reporting year that runs from November 1 through October 31. Urban and industrial wells report extraction on a calendar year basis. When extraction data is summarized annually, MCWRA combines industrial and urban extractions into a single urban water use. As depicted on Figure 3-3, these zones provide sufficient coverage of the 180/400-Foot Aquifer Subbasin.

SVBGSA will work with MCWRA to obtain the GEMS data through a coordinated reporting program such that wells owners can provide a single annual reporting to fulfill the requirements of both the GSP and the existing County Ordinance No. 3717.

7.8.1.1 Groundwater Extraction Monitoring Protocols

Groundwater extraction monitoring will be accomplished using the GEMS data provided by MCWRA. Existing GEMS protocols are consistent with data and reporting standards described in GSP Regulations § 352.4.

7.8.1.2 Groundwater Storage Monitoring Data Gaps

Accurate assessment of the amount of pumping requires an accurate count of the number of municipal, agricultural, and domestic wells in the GSP area. As proposed in Chapter 9, SVBGSA will undertake well registration during implementation to develop a database of existing and active groundwater wells. This database will draw from the existing MCWRA database, DWR's OSWCR database, and the Monterey County Health Department database of state small and local small water systems. As part of the assessment, the SVBGSA will verify well completion information and location, and whether the well is active, abandoned, or destroyed as is discussed further in Chapter 9.

A potential data gap is the accuracy and reliability of groundwater pumping reported through GEMS. SVBGSA will work with MCWRA to evaluate methods currently in place to assure data reliability. Based on the results of that evaluation, the protocols for monitoring may be revised and a protocol for well meter calibration may be developed. SVBGSA will work with MCWRA to consider the value of developing protocols for flowmeter calibration and other potential enhancements to the GEMS programs that are discussed in Chapter 9.

7.8.2 Salinas River Watershed Diversions

Salinas River watershed monthly diversion data are collected annually in the SWRCB's Electronic Water Rights Information Management System (eWRIMS). eWRIMS is used track information of water rights in the state and is publicly accessible at: https://ciwqs.waterboards.ca.gov/ciwqs/ewrims/reportingDiversionDownloadPublicSetup.do. These data include diversions from tributaries of the Salinas River.

7.8.2.1 Salinas River Watershed Diversions Monitoring Protocols

Salinas River watershed diversion monitoring protocols are those that the SWRCB has established for the collection of water right information. These protocols are consistent with data and reporting standards described in GSP Regulations § 352.4.

7.8.2.2 Salinas River Watershed Diversions Monitoring Data Gaps

These data are lagged by a year because the reporting period does not begin until February of the following year.

7.9 Data Management System and Data Reporting

The SVBGSA has developed a DMS in adherence to GSP Regulations § 352.6 and § 354.40 that is used to store, review, and upload data collected as part of the GSP development and implementation.

The SVBGSA DMS consists of 2 SQL databases. The HydroSQL database stores information about each well and water level and extraction time-series data. Fields in the HydroSQL database include:

- Subbasin
- Cadastral coordinates
- Planar coordinates
- Well owner
- Well name
- Well status
- Well depth
- Screened interval top and bottom
- Well type
- Water level elevation
- Annual pumping volume

Well owner and annual well-specific pumping information will be stored in HydroSQL; however, neither will be publicly accessible due to confidentiality requirements. Streamflow gauge data from the USGS will be stored in the HydroSQL similarly to the well water level information.

Water quality data are stored in the EnviroData SQL database, which is linked to the HydroSQL for data management purposes. EnviroData SQL contains fields such as:

- Station
- Parameter
- Sample Date
- Detection (detect or non-detect)
- Value
- Unit

The data used to populate the SVBGSA DMS are listed in ~~Table 7-3~~Table 7-4. Categories marked with an X indicate datasets that were used in populating the DMS, including data that are publicly accessible or that are available to SVBGSA from MCWRA. Some data, such as groundwater extraction are confidential, and cannot be made publicly accessible by SVBGSA unless aggregated. Additional datasets will be added in the future as appropriate, such as recharge or diversion data.

Table 7-~~47~~ 3. Datasets Available for Use in Populating the DMS

Data Sets	Data Category					
	Well and Site Information	Well Construction	Water Level	Groundwater Extraction[1]	Streamflow	Water Quality
DWR (CASGEM)	X	X				
MCWRA	X	X	X	X		
GAMA Groundwater Information System	X					X
USGS Gauge Station					X	

[1] Pumping data not publicly accessible

Data are compiled and reviewed to comply with quality objectives. The review included the following checks:

- Removing or flagging questionable data being uploaded in the DMS. This includes identifying outliers that may have been introduced during the original data entry process and plotting each well hydrograph to identify and remove anomalous data points.
- Loading into the database and checking for errors and missing data.

In the future, well log information will be entered for selected wells and other information will be added as needed to satisfy the requirements of the SGMA regulations.

The DMS also includes a publicly accessible web-map hosted on the SVBGSA website; accessible at https://svbgsa.org/gsp-web-map-and-data/. This web-map gives interested parties access to non-confidential technical information used in the development of the GSP and annual reports, and includes public well data and analysis such as water level contour maps and seawater intrusion, as well as various local administrative boundaries. In addition, the web-map has functionalities to graph time series of water levels and search for specific wells in the database. This web-map will be regularly updated as new information is made available to the SVBGSA.

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