5 Assimilative Capacity Analysis

As described in **Section 4**, the data period used for the assimilative capacity analysis is from 1996 through 2012, which captures both wet and dry hydrologic conditions. The longer data period was selected to ensure sufficient data were available for analysis and adequate spatial coverage was obtained for the analysis. The surface water and groundwater databases compiled for the study include the primary constituents identified for this study, TDS, chloride, and nitrate as N. The database includes other parameters, including sulfate, boron, and other nitrogen species. While available data for these constituents have been compiled in the databases and are available for use if needed, this analysis focuses on TDS, chloride and nitrate-N.

Assimilative capacity is estimated as the difference between the water quality objectives and the existing groundwater quality for each basin/subarea as described in **Section 4**. A summary of all assimilative capacity estimates is provided in **Table 5-1**. Summary statistics for the well medians used to calculate the existing water quality (area weighted averages of the well medians) are shown in **Table 5-2** through **Table 5-4**.

The only area with no assimilative capacity is the Mound basin where the existing TDS groundwater quality exceeds the water quality objectives. As discussed in previous sections, the lack of assimilative capacity is most likely due to natural causes, such as connate water, and the objectives for the Mound basin may not have based on information that accurately reflected these natural conditions. However, chloride and nitrate-N do have assimilative capacity in the Mound basin. All the other basins and subareas have available assimilative capacity for chloride, TDS, and nitrate-N.

Table 5-1 Available Assimilative Capacity for Lower Santa Clara River Groundwater Basins

Basin	Subarea	TDS, mg/L			Chloride, mg/L			Nitrate-N, mg/L		
		Water Quality Objective	Current Quality	Available Assimilative Capacity	Water Quality Objective	Current Quality	Available Assimilative Capacity	Water Quality Objective	Current Quality	Available Assimilative Capacity
Piru	Upper Area below Lake Piru	1,100	No data	NA	200	No data	NA	10	No data	NA
	Lower Area East of Piru Creek	2,500	1,000	1,500	200	118	82	10	2.6	7.4
	Lower Area West of Piru Creek	1,200	992	208	100	69	31	10	3.6	6.4
Fillmore	Pole Creek Fan Area	2,000	1,101	899	100	59	41	10	2.9	7.1
	South Side of Santa Clara River	1,500	1,411	89	100	74	26	10	5.6	4.4
	Remaining Fillmore	1,000	846	154	50	44	6	10	6.7	3.3
Santa Paula	East of Peck Road	1,200	953	247	100	39	61	10	5.0	5.0
	West of Peck Road	2,000	1,444	556	110	97	13	10	2.0	8.0
Oxnard Forebay		1,200	1,077	123	150	57	93	10	4.5	5.5
Mound		1,200	1,230	-30	150	76	74	10	4.0	6.0

Table 5-2 Assimilative Capacity Summary Statistics for TDS in Lower Santa Clara River Groundwater Basins

Basin	Subarea	TDS, mg/L					
		25th Percentile	50th Percentile	75th Percentile	Interquartile Range[1]	Existing Water Quality (Area Weighted Average)	Average Absolute Deviation[2]
Piru	East of Piru Creek	987	1,060	1,130	144	1,000	98
	West of Piru Creek	885	1,010	1,240	355	992	289
Fillmore	South Fillmore	1,073	1,190	1,590	518	1,411	394
	Remaining Fillmore	770	835	998	228	846	141
	Pole Creek Fan	993	1,090	1,190	197	1,101	162
Santa Paula	East of Peck Rd	940	1,000	1,200	260	953	206
	West of Peck Rd	1,210	1,500	1,785	575	1,444	350
Mound	Mound	971	1,075	1,350	379	1,230	262
Forebay	Forebay	950	1,005	1,090	140	1,077	117

[1]Interquartile range calculated based on well medians in subarea with no areal weighting
[2]Average absolute deviation calculated based on deviation of well medians in subarea from area-weighted existing water quality for subarea.

Table 5-3 Assimilative Capacity Summary Statistics for Chloride in Lower Santa Clara River Groundwater Basins

Basin	Subarea	Chloride, mg/L					
		25th Percentile	50th Percentile	75th Percentile	Interquartile Range[1]	Existing Water Quality (Area Weighted Average)	Average Absolute Deviation[2]
Piru	East of Piru Creek	116	127	133	17	118	13
	West of Piru Creek	56	67	92	36	69	19
Fillmore	South Fillmore	54	59	74	20	74	31
	Remaining Fillmore	34	45	52	18	44	12
	Pole Creek Fan	44	56	63	19	59	10
Santa Paula	East of Peck Rd	42	45	55	13	39	11
	West of Peck Rd	81	99	134	53	97	27
Mound	Mound	62	76	86	23	76	13
Forebay	Forebay	49.0	52.0	57.8	8.8	56.9	8.2

[1]Interquartile range calculated based on well medians in subarea with no areal weighting
[2]Average absolute deviation calculated based on deviation of well medians in subarea from area-weighted existing water quality for subarea.

Table 5-4 Assimilative Capacity Summary Statistics for Nitrate-N in Lower Santa Clara River Groundwater Basins

Basin	Subarea	Nitrate-N, mg/L					
		25th Percentile	50th Percentile	75th Percentile	Interquartile Range[1]	Existing Water Quality (Area Weighted Average)	Average Absolute Deviation[2]
Piru	East of Piru Creek	2.4	3.1	3.7	1.3	2.6	0.9
	West of Piru Creek	2.2	4.3	5.7	3.6	3.6	2.6
Fillmore	South Fillmore	2.8	4.2	7.1	4.4	5.6	2.8
	Remaining Fillmore	2.1	3.3	8.4	6.3	6.7	4.4
	Pole Creek Fan	1.7	2.7	4.1	2.5	2.9	1.5
Santa Paula	East of Peck Rd	1.1	2.1	3.8	2.7	5.0	3.1
	West of Peck Rd	0.3	1.1	4.0	3.7	2.0	2.0
Mound	Mound	0.5	2.2	5.0	4.5	4.0	2.6
Forebay	Forebay	1.2	1.7	2.5	1.3	4.5	2.8

[1]Interquartile range calculated based on well medians in subarea with no areal weighting
[2]Average absolute deviation calculated based on deviation of well medians in subarea from area-weighted existing water quality for subarea.