

DCC Early Year Runoff Operations Period  
 Analysis of RiverFlows and Diversion Rates  
 to Assess Changes in Groundwater Recharge by River

**SJC-248**

**DWR Eastern San Joaquin Basin**

Mokelumne Main Stem from Dead Horse to San Joaquin River Analogous to C2VSim Stream Node 197

Flow Rate (cfs)	Length (Miles)	Length (feet)	Bank Top Typical Width	Streambed Conductivity (ft/month)	Max Depth = 32.6 Typical River Bottom for Reach (ft amsl in NAVD88)	Total Depth	Side Slope Length	Bottom Width	Wetted Perimeter for Peak Stage	Projected Area in Flow (sq. ft)	Required Velocity (fps)	
	3.3	13.8	72,739	250	9.5	-17.6	17.7	52	200	304	3,983	0.00
	16.7	13.8	72,739	250	9.5	-17.6	17.8	52	200	304	4,005	0.00
	833.3	13.8	72,739	250	9.5	-17.6	17.9	52	200	305	4,028	0.21
	16666.7	13.8	72,739	250	9.5	-17.6	21.7	63	200	327	4,883	3.41
	30000.0	13.8	72,739	250	9.5	-17.6	23.5	69	200	337	5,288	5.67
	50000.0	13.8	72,739	250	9.5	-17.6	28.5	83	200	367	6,413	7.80

South Fork of the Mokelumne from Dead Horse to Main Stem 15.4 81,169 Analogous to Node 197

Little Potato Slough	4.3	22,584
Potato Slough	5.1	26,884
Little Connection Slough	1.3	6,800

Mokelumne Subtotals 39.8 210,176

	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	Change in Recharge (ac-ft/month)
<b>February</b>												
Mokelumne Base Flow	1,946	1,693	1,252	1,140	735	544	395	286	153	14	(21)	<b>(12.2)</b>
Base Flow Sacramento for Diversions	73,670	68,716	61,782	54,750	48,168	40,135	32,712	24,786	18,656	13,931	12,132	
DCC Rated Diversions	2,673	2,551	2,521	2,392	2,153	1,764	1,279	1,085	781	509	30	
Mokelumne Plus DCC Diversion	-	-	-	-	-	-	-	832	599	390	23	
Change in Flow	-	-	-	-	-	-	-	832	599	390	23	
% Change												
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	303.8	303.8	304.8	304.5	304.3	303.9	
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,927	13,927	13,972	13,959	13,948	13,929	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,393	1,393	1,397	1,396	1,395	696	13,937.11
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	303.8	303.8	303.5	303.7	303.8	303.9	
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,927	13,927	13,912	13,919	13,927	13,928	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,393	1,393	1,391	1,392	1,393	696	13,924.90
Change in Area in Flow	-	-	-	-	-	-	-	274,874	184,987	99,496	588	

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**DWR Eastern San Joaquin Basin**

<b>March</b>	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	<b>Change in Recharge (ac-ft/month)</b>
Mokelumne Base Flow	2,415	1,816	1,298	1,219	899	642	484	362	263	70	(26)	<b>(3.9)</b>
Base Flow Sacramento for Diversions	67,576	62,330	55,972	49,778	43,538	33,700	26,814	24,454	22,116	14,324	13,224	
DCC Rated Diversions	2,416	2,365	2,166	1,867	1,462	915	703	479	320	-	-	
Mokelumne Plus DCC Diversion	-	-	-	-	-	-	-	367	246	-	-	
Change in Flow	-	-	-	-	-	-	-	367	-	-	-	
% Change												
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	303.8	303.8	304.3	304.1	303.8	303.8	
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,927	13,927	13,947	13,940	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,393	1,393	1,395	1,394	1,393	696	13,930.57
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	303.8	303.8	303.4	304.1	303.8	303.8	
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,927	13,927	13,908	13,940	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,393	1,393	1,391	1,394	1,393	696	13,926.66
Change in Area in Flow	-	-	-	-	-	-	-	179,268	-	-	-	
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	<b>Change in Recharge (ac-ft/month)</b>
<b>April</b>												
Mokelumne Base Flow	2,524	2,151	1,604	1,381	1,058	881	698	474	179	56	(51)	<b>(0.6)</b>
Base Flow Sacramento for Diversions	66,924	61,254	44,494	34,294	27,240	21,590	17,788	15,010	13,606	12,348	10,307	
DCC Rated Diversions	1,472	1,416	1,337	1,257	1,175	1,048	726	542	176	82	-	
Mokelumne Plus DCC Diversion	-	-	-	-	-	804	556	416	135	63	-	
Change in Flow	-	-	-	-	-	-	-	-	-	63	-	
% Change												
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	304.8	304.5	304.3	304.0	303.9	303.8	
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,970	13,957	13,950	13,935	13,931	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,397	1,396	1,395	1,393	1,393	696	13,937.86
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	304.8	304.5	304.3	304.0	303.8	303.8	
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,970	13,957	13,950	13,935	13,924	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,397	1,396	1,395	1,393	1,392	696	13,937.23
Change in Area in Flow	-	-	-	-	-	-	-	-	-	29,122	-	

DCC Early Year Runoff Operations Period  
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**SJC-248**

**DWR Eastern San Joaquin Basin**

<b>May</b>	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	<b>Change in Recharge (ac-ft/month)</b>
Mokelumne Base Flow	3,674	2,852	2,433	2,075	1,727	1,405	935	300	60	(59)	(142)	<b>(4.6)</b>
Base Flow Sacramento for Diversions	57,084	47,156	40,368	29,554	24,854	17,980	14,248	13,386	11,950	10,077	8,348	
DCC Rated Diversions	1,599	1,350	1,223	1,081	886	733	628	519	125	-	-	
Mokelumne Plus DCC Diversion	-	-	-	-	679	562	482	398	96	-	-	
Change in Flow	-	-	-	-	-	-	-	398	96	-	-	
% Change												
	5% Exceedance	10% Exceedance	20% Exceedance	0.0%	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	304.6	304.5	304.4	304.3	304.0	303.8	303.8	
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,964	13,957	13,953	13,949	13,932	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,396	1,396	1,395	1,395	1,393	1,393	696	13,939.17
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	304.6	304.5	304.4	303.5	303.8	303.8	303.8	
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,964	13,957	13,953	13,911	13,924	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,396	1,396	1,395	1,391	1,392	1,393	696	13,934.59
Change in Area in Flow	-	-	-	-	-	-	-	171,607	38,398	-	-	

<b>Total Change in Recharge for DCC Early Runoff Period (ac-ft)</b>
<b>(19.7)</b>

DCC Late Spring Operations Period  
 Analysis of RiverFlows and Diversion Rates  
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**SJC-248**

**DWR Eastern San Joaquin Basin**

Mokelumne Main Stem from  
 Dead Horse to San Joaquin  
 River

Analogous to C2VSim Stream Node 197

Max Depth = 32.6

Flow Rate (cfs)	Length (Miles)	Length (feet)	Bank Top Typical Width	Streambed Conductivity (ft/month)	Typical River Bottom for Reach		Side Slope Length	Bottom Width	Wetted Perimeter for Peak Stage	Projected Area in Flow (sq. ft)	Required Velocity (fps)	
					(ft amsl in NAVD88)	Total Depth						
	3.3	13.8	72,739	250	9.5	-17.6	17.7	52	200	304	3,983	0.00
	16.7	13.8	72,739	250	9.5	-17.6	17.8	52	200	304	4,005	0.00
	833.3	13.8	72,739	250	9.5	-17.6	17.9	52	200	305	4,028	0.21
	16666.7	13.8	72,739	250	9.5	-17.6	21.7	63	200	327	4,883	3.41
	30000.0	13.8	72,739	250	9.5	-17.6	23.5	69	200	337	5,288	5.67
	50000.0	13.8	72,739	250	9.5	-17.6	28.5	83	200	367	6,413	7.80
South Fork of the Mokelumne from Dead Horse to Main Stem	15.4	81,169										
Little Potato Slough	4.3	22,584										
Potato Slough	5.1	26,884										
Little Connection Slough	1.3	6,800										
<b>Mokelumne Subtotals</b>	<b>39.8</b>	<b>210,176</b>										

												Change in Recharge (ac-ft/month)	
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance		
<b>May</b>													
Mokelumne Base Flow	3,674	2,852	2,433	2,075	1,727	1,405	935	300	60	(59)	(142)		
Base Flow Sacramento for Dive	57,084	47,156	40,368	29,554	24,854	17,980	14,248	13,386	11,950	10,077	8,348		
DCC Rated Diversions	1,599	1,350	1,223	1,081	886	733	628	519	125	-	-		
Mokelumne Plus DCC Diversion	-	-	-	-	391	323	277	229	55	-	-		
Change in Flow	-	-	-	-	-	-	-	-	-	-	-	0.0	
% Change													
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance		
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	304.3	304.2	304.2	304.1	303.9	303.8	303.8		
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,948	13,945	13,942	13,940	13,930	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,395	1,394	1,394	1,394	1,393	1,393	696	13,934.12	
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	304.3	304.2	304.2	304.1	303.9	303.8	303.8		
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,948	13,945	13,942	13,940	13,930	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,395	1,394	1,394	1,394	1,393	1,393	696	13,934.12	
Change in Area in Flow	-	-	-	-	-	-	-	-	-	-	-		

DCC Late Spring Operations Period  
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**DWR Eastern San Joaquin Basin**

June	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	Change in Recharge (ac-ft/month)
Mokelumne Base Flow	3,458	2,804	2,318	1,725	1,520	963	516	183	(22)	(80)	(202)	<b>(38.5)</b>
Base Flow Sacramento for Diver	42,420	34,370	25,058	19,598	16,034	13,840	12,346	11,250	10,822	9,680	8,342	
DCC Rated Diversions	1,878	1,802	1,706	1,606	1,407	1,122	642	330	291	190	171	
Mokelumne Plus DCC Diversion	-	-	-	709	621	495	283	146	128	84	38	
Change in Flow	-	-	-	709	621	495	283	146	128	84	38	
% Change												
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	
Wetted Perimeter (ft)	303.8	303.8	303.8	304.7	304.6	304.4	304.2	304.0	304.0	303.9	303.9	
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,965	13,961	13,954	13,942	13,935	13,934	13,932	13,929	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,397	1,396	1,395	1,394	1,394	1,393	1,393	696	13,940.60
Wetted Perimeter (ft)	303.8	303.8	303.8	301.8	302.1	302.7	303.2	303.6	303.9	303.9	304.1	
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,835	13,846	13,876	13,900	13,917	13,928	13,932	13,938	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,383	1,385	1,388	1,390	1,392	1,393	1,393	697	13,902.06
Change in Area in Flow	-	-	-	598,217	526,275	358,398	196,559	80,791	26,118	985	(40,381)	

<b>Total Change in Recharge for DCC Late Spring Period (ac-ft)</b>
<b>(19.3)</b>

DCC Dry Season Operations Period  
Analysis of RiverFlows and Diversion Rates  
to Assess Changes in Groundwater Recharge by River

**SJC-248**

**DWR Eastern San Joaquin Basin**

Mokelumne Main Stem  
from Dead Horse to San  
Joaquin River

Analogous to C2VSim Stream Node 197

Max Depth = 32.6

Flow Rate (cfs)	Length (Miles)	Length (feet)	Bank Top Typical Width	Streambed Conductivity (ft/month)	Typical River Bottom for Reach (ft amsl in NAVD88)	Total Depth	Side Slope Length	Bottom Width	Wetted Perimeter for Peak Stage	Projected Area in Flow (sq. ft)	Required Velocity (fps)
3.3	13.8	72,739	250	9.5	-17.6	17.7	52	200	304	3,983	0.00
16.7	13.8	72,739	250	9.5	-17.6	17.8	52	200	304	4,005	0.00
833.3	13.8	72,739	250	9.5	-17.6	17.9	52	200	305	4,028	0.21
16666.7	13.8	72,739	250	9.5	-17.6	21.7	63	200	327	4,883	3.41
30000.0	13.8	72,739	250	9.5	-17.6	23.5	69	200	337	5,288	5.67
50000.0	13.8	72,739	250	9.5	-17.6	28.5	83	200	367	6,413	7.80

South Fork of the  
Mokelumne from Dead  
Horse to Main Stem

15.4 81,169

Little Potato Slough

4.3 22,584

Potato Slough

5.1 26,884

Little Connection Slough

1.3 6,800

Mokelumne Subtotals 39.8 210,176

June	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	Change in Recharge (ac-ft/month)
Mokelumne Base Flow	3,458	2,804	2,318	1,725	1,520	963	516	183	-	-	-	(29.0)
Base Flow Sacramento for Div	42,420	34,370	25,058	19,598	16,034	13,840	12,346	11,250	10,822	9,680	8,342	
DCC Rated Diversions	1,878	1,802	1,706	1,606	1,407	1,122	642	330	291	190	171	
Mokelumne Plus DCC Diversi	-	-	-	-	124	99	57	29	26	17	8	
Change in Flow	-	-	-	142	124	99	57	29	26	17	8	
% Change												
Wetted Perimeter (ft)	303.8	303.8	303.8	304.0	304.0	304.0	303.9	303.9	303.9	303.9	303.9	
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,935	13,934	13,933	13,930	13,929	13,929	13,928	13,928	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,393	1,393	1,393	1,393	1,393	696	13,929.95
Wetted Perimeter (ft)	303.8	303.8	303.8	301.8	302.1	302.7	303.2	303.6	303.8	303.8	303.8	
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,835	13,846	13,876	13,900	13,917	13,927	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,393	1,393	1,383	1,385	1,388	1,390	1,392	1,393	1,393	696	13,900.97
Change in Area in Flow	-	-	-	458,968	404,295	261,095	140,879	52,183	6,330	4,134	1,860	

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**SJC-248**

**DWR Eastern San Joaquin Basin**

July	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	Change in Recharge (ac-ft/month)	
	Mokelumne Base Flow	1,231	571	360	154	46	-	-	-	-	-		-
Bsse Flow Sacramento for Div	24,178	21,726	20,352	18,160	16,114	14,940	13,442	12,116	10,714	9,366	8,450		
DCC Rated Diversions	3,348	3,217	2,988	2,837	2,381	2,274	2,049	1,825	1,673	987	688		
Mokelumne Plus DCC Diversi	296	285	264	251	211	201	181	162	148	87	30		
Change in Flow	296	285	264	251	211	201	181	162	148	87	30		
% Change													
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance		
Wetted Perimeter (ft)	304.2	304.2	304.2	304.1	304.1	304.1	304.1	304.0	304.0	303.9	303.9		
BaseFlow GW Recharge (ac-ft/month)	13,943	13,943	13,941	13,941	13,939	13,938	13,937	13,936	13,935	13,932	13,929	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	697	1,394	1,394	1,394	1,394	1,394	1,394	1,394	1,394	1,393	696	13,937.76	
Wetted Perimeter (ft)	302.4	303.2	303.4	303.7	303.8	303.8	303.8	303.8	303.8	303.8	303.8		
BaseFlow - Diversions Recharge (ac-ft/month)	13,861	13,897	13,908	13,919	13,925	13,927	13,927	13,927	13,927	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	693	1,390	1,391	1,392	1,392	1,393	1,393	1,393	1,393	1,393	696	13,917.93	
Change in Area in Flow	375,285	210,317	153,363	99,510	63,019	49,461	44,559	39,699	36,397	21,460	7,479		

  

August	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	Change in Recharge (ac-ft/month)	
	Mokelumne Base Flow	322	264	107	26	(3)	(24)	(51)	(60)	(82)	(145)		(274)
Bsse Flow Sacramento for Div	23,056	20,986	18,720	17,292	15,220	14,450	13,338	12,156	11,458	9,531	8,912		
DCC Rated Diversions	3,172	3,044	2,742	2,606	2,365	2,063	1,742	1,539	1,500	1,500	1,495		
Mokelumne Plus DCC Diversi	281	269	243	231	209	183	154	136	133	133	132		
Change in Flow	281	269	243	231	209	183	154	136	133	133	132		
% Change													
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance		
Wetted Perimeter (ft)	304.2	304.2	304.1	304.1	304.1	304.1	304.0	304.0	304.0	304.0	304.0		
BaseFlow GW Recharge (ac-ft/month)	13,942	13,942	13,940	13,940	13,939	13,937	13,936	13,935	13,934	13,934	13,934	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	697	1,394	1,394	1,394	1,394	1,394	1,394	1,393	1,393	1,393	697	13,937.45	
Wetted Perimeter (ft)	303.5	303.5	303.7	303.8	303.8	303.9	303.9	303.9	303.9	304.0	304.2		
BaseFlow - Diversions Recharge (ac-ft/month)	13,910	13,913	13,922	13,926	13,927	13,929	13,930	13,931	13,932	13,935	13,942	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	696	1,391	1,392	1,393	1,393	1,393	1,393	1,393	1,393	1,394	697	13,926.98	
Change in Area in Flow	148,095	131,147	85,904	63,116	50,793	38,994	25,317	18,715	12,350	(3,043)	(34,744)		

DCC Dry Season Operations Period  
Analysis of RiverFlows and Diversion Rates  
to Assess Changes in Groundwater Recharge by River

**SJC-248**

**DWR Eastern San Joaquin Basin**

<b>September</b>	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	<b>Change in Recharge (ac-ft/month)</b>	
Mokelumne Base Flow	250	151	72	42	20	-	-	-	-	-	-		<b>(9.9)</b>
Bsse Flow Sacramento for Div	24,716	22,820	18,056	16,604	15,830	14,410	13,056	12,134	11,234	9,964	9,763		
DCC Rated Diversions	2,057	1,978	1,789	1,741	1,702	1,507	1,500	1,500	1,500	1,421	1,326		
Mokelumne Plus DCC Diversi	182	175	158	154	151	133	133	133	133	126	117		
Change in Flow	182	175	158	154	151	133	133	133	133	126	117		
% Change													
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance		
Wetted Perimeter (ft)	304.1	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	Time Weighted Monthly Total (ac-ft/month)	
BaseFlow GW Recharge (ac-ft/month)	13,937	13,937	13,936	13,936	13,935	13,934	13,934	13,934	13,934	13,934	13,934	13,934	
Time Weighted Recharge Fractions	697	1,394	1,394	1,394	1,394	1,393	1,393	1,393	1,393	1,393	697	13,935.03	
Wetted Perimeter (ft)	303.5	303.7	303.8	303.8	303.8	303.8	303.8	303.8	303.8	303.8	303.8	303.8	
BaseFlow - Diversions Recharge (ac-ft/month)	13,914	13,919	13,923	13,925	13,926	13,927	13,927	13,927	13,927	13,927	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,392	1,392	1,393	1,393	1,393	1,393	1,393	1,393	1,393	696	13,925.08	
Change in Area in Flow	106,158	80,217	56,649	48,104	41,993	32,773	32,624	32,624	32,624	30,910	28,836		

  

<b>October</b>	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	<b>Change in Recharge (ac-ft/month)</b>		
Mokelumne Base Flow	366	264	230	200	164	144	132	113	44	-	-		<b>(11.7)</b>	
Bsse Flow Sacramento for Div	19,631	18,061	16,008	14,164	12,682	12,195	10,628	9,714	9,164	7,915	7,379			
DCC Rated Diversions	1,389	1,355	1,327	1,295	1,114	971	814	484	54	-	-			
Mokelumne Plus DCC Diversi	123	120	117	115	99	86	72	43	5	-	-			
Change in Flow	123	120	117	115	99	86	72	43	5	-	-			
% Change														
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance			
Wetted Perimeter (ft)	304.0	304.0	304.0	304.0	304.0	303.9	303.9	303.9	303.8	303.8	303.8	303.8		Time Weighted Monthly Total (ac-ft/month)
BaseFlow GW Recharge (ac-ft/month)	13,934	13,934	13,934	13,933	13,933	13,932	13,931	13,930	13,928	13,927	13,927	13,927		
Time Weighted Recharge Fractions	697	1,393	1,393	1,393	1,393	1,393	1,393	1,393	1,393	1,393	696	13,931.13		
Wetted Perimeter (ft)	303.4	303.5	303.6	303.6	303.6	303.7	303.7	303.7	303.8	303.8	303.8	303.8		
BaseFlow - Diversions Recharge (ac-ft/month)	13,908	13,913	13,915	13,917	13,918	13,920	13,920	13,921	13,925	13,927	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	695	1,391	1,391	1,392	1,392	1,392	1,392	1,392	1,392	1,393	696	13,919.38		
Change in Area in Flow	120,144	94,245	85,511	77,261	64,568	56,514	50,116	38,409	11,906	-	-			

<b>Total Change in Recharge for DCC Dry Period (ac-ft)</b>
<b>(66.5)</b>



DCC Winter Operations Period  
 Analysis of RiverFlows and Diversion Rates  
 to Assess Changes in Groundwater Recharge by River

**SJC-248**

**DWR Eastern San Joaquin Basin**

Mokelumne Main Stem from  
 Dead Horse to San Joaquin  
 River

Analogous to C2VSim Stream Node 197

Max Depth = 32.6

Flow Rate (cfs)	Length (Miles)	Length (feet)	Bank Top Typical Width	Streambed Conductivity (ft/month)	Typical River Bottom for Reach (ft amsl in NAVD88)	Total Depth	Side Slope Length	Bottom Width	Wetted Perimeter for Peak Stage	Projected Area in Flow (sq. ft)	Required Velocity (fps)
3.3	13.8	72,739	250	9.5	-17.6	17.7	52	200	304	3,983	0.00
16.7	13.8	72,739	250	9.5	-17.6	17.8	52	200	304	4,005	0.00
833.3	13.8	72,739	250	9.5	-17.6	17.9	52	200	305	4,028	0.21
16666.7	13.8	72,739	250	9.5	-17.6	21.7	63	200	327	4,883	3.41
30000.0	13.8	72,739	250	9.5	-17.6	23.5	69	200	337	5,288	5.67
50000.0	13.8	72,739	250	9.5	-17.6	28.5	83	200	367	6,413	7.80

South Fork of the Mokelumne  
 from Dead Horse to Main Stem

15.4 81,169

Little Potato Slough

4.3 22,584

Potato Slough

5.1 26,884

Little Connection Slough

1.3 6,800

Mokelumne Subtotals 39.8 210,176

November	Change in Recharge (ac-ft/month)											
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	
Mokelumne Base Flow	616	444	401	369	332	278	248	202	56	-	-	(40.9)
Base Flow Sacramento for Diversions	32,159	23,144	20,772	16,445	14,714	13,725	12,638	11,852	10,434	7,854	7,169	
DCC Rated Diversions	3,227	3,058	2,951	2,427	2,114	1,969	485	2	-	-	-	
Mokelumne Plus DCC Diversion	-	1,260	1,216	1,000	871	811	200	1	-	-	-	
Change in Flow	-	1,260	1,216	1,000	871	811	200	1	-	-	-	
% Change												
Wetted Perimeter (ft)	303.8	305.3	305.3	305.0	304.9	304.8	304.1	303.8	303.8	303.8	303.8	
BaseFlow GW Recharge (ac-ft/month)	13,927	13,995	13,992	13,981	13,974	13,971	13,938	13,927	13,927	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,399	1,399	1,398	1,397	1,397	1,394	1,393	1,393	1,393	696	13,956.00
Wetted Perimeter (ft)	303.8	303.3	303.4	303.4	303.5	303.5	303.6	303.6	303.8	303.8	303.8	
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,903	13,906	13,907	13,909	13,912	13,914	13,916	13,927	13,927	13,927	Time Weighted Monthly Total (ac-ft/month)
Time Weighted Recharge Fractions	696	1,390	1,391	1,391	1,391	1,391	1,391	1,392	1,393	1,393	696	13,915.09
Change in Area in Flow	-	418,728	397,387	336,535	295,590	267,647	110,121	49,772	-	-	-	

DCC Winter Operations Period  
Analysis of RiverFlows and Diversion Rates  
to Assess Changes in Groundwater Recharge by River

**SJC-248**

**DWR Eastern San Joaquin Basin**

<b>December</b>	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	<b>Change in Recharge (ac-ft/month)</b>	
Mokelumne Base Flow	1,957	1,165	529	470	384	314	274	242	131	-	-		<b>(51.0)</b>
Base Flow Sacramento for Diversions	61,824	56,582	35,690	28,617	24,218	21,885	17,708	15,851	13,294	12,395	10,118		
DCC Rated Diversions	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,372	3,028	2,036	1,819		
Mokelumne Plus DCC Diversion	-	-	-	-	1,442	1,442	1,442	1,389	1,247	839	749		
Change in Flow	-	-	-	-	1,442	1,442	1,442	1,389	1,247	839	749		
% Change													
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance		
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	305.5	305.5	305.5	305.5	305.3	304.8	304.7		
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	14,005	14,005	14,005	14,002	13,994	13,972	13,967	Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,400	1,400	1,400	1,400	1,399	1,397	698	13,971.11	
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.4	303.5	303.5	303.6	303.7	303.8	303.8		
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,907	13,910	13,913	13,914	13,920	13,927	13,927	Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,391	1,391	1,391	1,391	1,392	1,393	696	13,920.08	
Change in Area in Flow	-	-	-	-	448,753	431,640	421,616	400,890	338,661	206,149	184,217		

  

<b>January</b>	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance	<b>Change in Recharge (ac-ft/month)</b>	
Mokelumne Base Flow	2,381	1,538	1,064	737	531	428	340	214	120	40	-		<b>(10.7)</b>
Base Flow Sacramento for Diversions	72,836	64,488	58,272	50,724	35,680	27,320	22,938	19,332	15,462	12,119	10,490		
DCC Rated Diversions	3,000	2,856	2,675	2,613	2,392	2,144	1,556	710	392	329	287		
Mokelumne Plus DCC Diversion	-	-	-	-	-	-	641	292	161	135	118		
Change in Flow	-	-	-	-	-	-	641	292	161	135	118		
% Change													
	5% Exceedance	10% Exceedance	20% Exceedance	30% Exceedance	40% Exceedance	50% Exceedance	60% Exceedance	70% Exceedance	80% Exceedance	90% Exceedance	95% Exceedance		
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	303.8	304.6	304.2	304.0	304.0	304.0		
BaseFlow GW Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,927	13,962	13,943	13,936	13,935	13,934	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,393	1,396	1,394	1,394	1,393	697	13,934.20	
Wetted Perimeter (ft)	303.8	303.8	303.8	303.8	303.8	303.8	303.4	303.6	303.7	303.8	303.8		
BaseFlow - Diversions Recharge (ac-ft/month)	13,927	13,927	13,927	13,927	13,927	13,927	13,909	13,916	13,921	13,925	13,927	Time Weighted Monthly Total (ac-ft/month)	
Time Weighted Recharge Fractions	696	1,393	1,393	1,393	1,393	1,393	1,391	1,392	1,392	1,393	696	13,923.46	
Change in Area in Flow	-	-	-	-	-	-	241,058	124,499	69,150	43,046	29,064		

<b>Total Change in Recharge for DCC Winter Period (ac-ft)</b>
<b>(102.7)</b>

DWR Eastern San Joaquin Basin

Total Change in Recharge for DCC Early Runoff Period (ac-ft)	Total Change in Recharge for DCC Late Spring Period (ac-ft)	Total Change in Recharge for DCC Dry Period (ac-ft)	Total Change in Recharge for DCC Winter Period (ac-ft)
(19.7)	(19.3)	(66.5)	(102.7)
<b>Annual Depletion to Eastern San Joaquin Basin</b>			<b>(208.1)</b>