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Municipal Water Quality Investigation

Independent Data at a Variety of CCWD Locations

Date	Rock Slough				Old River (LV Intake)				Old River (LV Intake)				Old River (LV Intake)				Old River (LV Intake)				Old River (LV Intake)			
	Bromide, mg/L		TOC, mg/L		DOC, mg/L				Bromide, mg/L				Chlorides, mg/L				TDS, mg/L				EC, umhos/cm			
	count	mean	count	mean	count	mean	Range max min		count	mean	Range max min		count	mean	Range max min		count	mean	Range max min		count	mean	Range max min	
Jan-1997			1	6.5	1	4.9			1	0.02			1	9							1	136		
Feb-1997	1	0.21	1	7.6	1	3.4			1	0.04			1	16			1	114			1	189		
Mar-1997	1	0.11	1	2.3	2	3.1	3.1 3.0		2	0.05	0.05 0.05		2	16	16 16		2	111	111 111		3	184	184 184	
Apr-1997	1	<0.1	1	2.0	1	3.0			1	0.07			1	25			1	153			1	264		
May-1997	1	0.12	1	7.3	1	3.1			1	0.12			1	44			1	220			3	380	406 357	
Jun-1997	1	<0.1	1	<1.0	1	2.7			1	0.09			1	32			1	162			1	304		
Jul-1997	1	0.13	1	2.2	1	3.2			1	0.08			1	27			1	154			3	246	251 244	
Aug-1997	1	0.11	1	3.3	1	2.6			1	0.10			1	32			1	137			2	248	248 227	
Sep-1997	1	<0.1	1	4.2	1	2.7			1	0.06			1	23			1	140			1	231		
Oct-1997	1	0.36	1	3.0	1	2.5			1	0.37			1	81			1	259			1	481		
Nov-1997	1	0.81	1	<5.0	1	2.6			1	0.46			1	133			1	320			1	628		
Dec-1997	1	0.46	1	4.1	2	3.2	3.2 3.1		1	0.54			1	157			1	383			1	750		
Jan-1998					1	4.5			1	0.24			1	73			1	249			2	541	541 541	
Feb-1998					1	8.4			1	0.19														
Mar-1998					1	3.7			1	0.12														
Apr-1998					1	3.7			1	0.08														
May-1998					1	2.7			1	0.04														
Jun-1998					1	3.1																		
Jul-1998					1	3.1																		
Aug-1998					1	3.0			1	0.06														
Sep-1998					1	2.8			1	0.04														
Oct-1998					1	2.6			1	0.05														
Nov-1998					1	2.4			1	0.05														

Note: Pumping Plant #1 is a raw water sample 3.97 miles from the Delta, through an unlined canal.

Date	Pumping Plant #1 DOC, mg/L				Pumping Plant #1 Bromide, mg/L				Pumping Plant #1 Chloride, mg/L				Pumping Plant #1 TDS, mg/L				Pumping Plant #1 EC, umhos/cm				Mallard Slough Bromide, mg/L	
	count	mean	Range max min		count	mean	Range max min		count	mean	Range max min		count	mean	Range max min		count	mean	Range max min		count	mean
Jan-1997	1	6.6			1	0.15			1	56			1	242			1	497			1.0	7.6
Feb-1997																					1.0	0.1
Mar-1997	1	3.8			1	0.08			1	33			1	170			2	310	310	310		
Apr-1997	1	3.1			1	0.07			1	25			1	148			1	266			1.0	0.0
May-1997	1	3.2			1	0.11			1	41			1	207			4	701	1674	369	1.0	0.0
Jun-1997	1	2.8			1	0.09			1	31			1	164			1	319			1.0	0.0
Jul-1997	1	2.9			1	0.07			1	26			1	144			2	248	251	244	1.0	0.0
Aug-1997	2	2.35	2.5	2.2	2	0.12	0.12	0.11	2	39	39	39	2	153	156	149	3	262	275	249	1.0	0.2
Sep-1997	1	2.8			1	0.08			1	31			1	146			1	277				
Oct-1997	2	2.5	2.5	2.5	2	0.47	0.49	0.44	2	124	128	119	2	356	370	342	2	723	723	723	1.0	0.9
Nov-1997	2	2.65	2.7	2.6	2.00	0.79	0.80	0.77	2	207	208	205	2	506	508	504	2	1008	1008	###	1.0	2.0
Dec-1997	2	3.10	3.1	2.9	2	0.67	0.67	0.67	2	207	209	204	2	622	638	606	2	112	112	112		
Jan-1998	1	4.0			2	0.53	0.53	0.52	2	168	169	167	2	504	505	503	2	932	932	932		
Feb-1998	1	4.6			1	0.38			1	130			1	507			1	873				
Mar-1998	1	7.3			1	0.39																
Apr-1998																						
May-1998																						
Jun-1998																						
Jul-1998	1	3.5			1	0.06																
Aug-1998	1	2.8			1	0.05																
Sep-1998	1	2.6			1	0.03																
Oct-1998	1	2.5			1	0.04																
Nov-1998	1	2.3			1.00	0.04																

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Date	pH			Alkalinity			Specific Conductance			TDS			TOC			Chloride			Bromide			Total Hardness		
	pH units			mg/L			umhos/cm			mg/L			mg/L			mg/L			mg/L			mg/L as CaCO ₃		
	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min
Jan-1997	1	7.3		1	33.0		1	120.0		1	60.0		1	4.4		1	11.0				1	32.0		
Feb-1997	1	7.6		1	41.0		1	190.0		1	90.0		1	4.0		1	17.0		1	<0.1		1	44.0	
Mar-1997	1	7.5		1	35.0					1	80.0		1	2.4		1	17.0				1	42.0		
Apr-1997	1	7.5		1	58.0		1	280.0		1	140.0		1	1.1		1	30.0		1	<0.1		1	72.0	
May-1997	1	7.6		1	63.0		1	420.0		1	210.0		1	2.4		1	50.0				1	96.0		
Jun-1997	1	7.7		1	56.0		1	320.0		1	160.0		1	1.1		1	36.0				1	76.0		
Jul-1997	1	7.4		1	55.0		1	240.0		1	120.0		1	2.1		1	30.0		1	0.1		1	60.0	
Aug-1997	2	7.7	7.74 7.7	2	54.0	54.0 54.0	2	270.0	270.0 270.0	2	150.0	180.0 120.0	2	4.1	3.0 5.1	2	35.0	36.0 34.0			2	59.0	60 58	
Sep-1997	2	7.7	7.8 7.7	2	63.5	67.0 60.0	2	255.0	260.0 250.0	2	115.0	120.0 110.0	1	3.8		2	27.0	28.0 26.0			2	67.5	68 67	
Oct-1997	1	8.0		1	75.0		1	490.0		1	268.0		1	3.6		1	96.0		1	0.3		1	94.0	
Nov-1997	1	7.7		1	63.0		1	660.0		1	320.0		1	5.9		1	140.0				1	105.0		
Dec-1997	1	7.7		1	65.0		1	650.0		1	310.0		1	12.0		1	160.0				1	110.0		
Jan-1998	1	8.1		1	69.0		1	480.0		1	293.0		1	13.0		1	82.0		1	0.2		1	100.0	
Feb-1998	1	7.6		1	73.0		1	590.0		1	300.0		2	8.9	11.0 6.7	1	79.0				1	136.0		
Mar-1998	2	7.5	7.5 7.4	1	61.0		1	370.0		1	190.0		5	6.9	14.0 <5	1	35.0				1	92.0		
Apr-1998	1	7.6		1	61.0		1	310.0		1	160.0		3	<5	<5 <5	1	30.0		1	<0.1		1	78.0	
May-1998	1	7.4		1	46.0		1	240.0		1	120.0		4	8.6	10.0 <1	1	23.0				1	58.0		
Jun-1998	1	7.5		1	37.0		1	190.0		1	90.0		1	3.6		1	17.0				1	48.0		
Jul-1998	1	7.6		1	38.0		1	220.0					1	3.4		1	21.0		1	<0.1		1	62.0	
Aug-1998	1	7.5		1	45.0		1	220.0		1	110.0		1	3.3		1	22.0				1	64.0		
Sep-1998	1	7.5		1	53.0		1	180.0		1	139.0		1	2.8		1	13.0				1	58.0		
Oct-1998	1	7.7		1	58.0		1	290.0		1	148.0		2	2.0	2.0 2.0	1	14.0		1	<0.1		1	70.0	
Nov-1998	1	7.8		1	57.0		1	200.0		1	100.0					1	18.0				1	60.0		
Dec-1998	1	7.8		1	95.0		1	610.0		1	310.0					1	71.0				1	132.0		
Jan-1999	2	7.6	7.8 7.5	1	77.0		1	500.0		1	270.0		1	4.2		1	62.0		1	0.2		1	128.0	
Feb-1999	1	7.7		1	65.0		1	420.0					1	4.8		1	49.0				1	108.0		
Mar-1999	1	7.6		1	47.0		1	300.0		1	150.0		1	2.6		1	32.0				1	76.0		
Apr-1999	1	7.8		1	51.0		1	260.0		1	160.0		1	3.0		1	27.0		1	0.1		1	71.0	
May-1999	1	7.8		1	64.0		1	360.0		1	180.0		1	3.0		1	42.0				1	94.0		
Jun-1999	1	7.7		1	52.0		1	240.0		1	120.0		1	2.3		1	25.0				1	64.0		
Jul-1999	2	7.6	7.7 7.4	1	56.0		1	190.0		2	77.0	90.0 64.0	1	2.9		1	15.0		1	<0.1		1	54.0	
Aug-1999	1	7.6		1	53.0		1	180.0		1	90.0		1	1.7		1	16.0				1	60.0		
Sep-1999	1	8.1		1	66.0		1	460.0					1	1.9		1	88.0				1	86.0		
Oct-1999	1	7.8		1	74.0		1	490.0		1	262.0		1	2.0		2	89.5	90.0 89.0	1	0.3		1	90.0	
Nov-1999													1.00	1.7										
Dec-1999													1	2.3										
Jan-2000	1	7.2		1	70.0		1	410.0		1	210.0		1	2.6		1	69.0		1	0.3		1	86.0	
Feb-2000													1	5.9										
Mar-2000													1	5.6										
Apr-2000	1	7.8		1	61.0		1	250.0		1	130.0					1	23.0		1	<0.1		1	66.0	
May-2000													1	3.4										
Jun-2000													1	3.1										
Jul-2000													1	2.0										
Aug-2000													1	1.8										
Sep-2000													1	2.2										
Oct-2000																								
Nov-2000																								
Dec-2000													1	2.6										

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Manard Slough																								
Date	pH pH units			Alkalinity mg/L			Specific Conductance umhos/cm			TDS mg/L			TOC mg/L			Chloride mg/L			Bromide mg/L			Total Hardness mg/L as CaCO ₃		
	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min	count	mean	Range max min
Jan-1997	1	7.29		1	33.00		1	130.00								1	14.00				1	36.00		
Feb-1997	1	7.50		1	41.00		1	240.00		1	110.00					1	29.00		1	0.11		1	52.00	
Mar-1997	1	7.70		1	44.00											1	21.00				1	56.00		
Apr-1997	1	7.65		1	70.00		1	1100.00		1	530.00					1	270.00		1	1.10		1	140.00	
May-1997	1	7.70		1	66.00		1	840.00								1	190.00				1	122.00		
Jun-1997	1	7.71		1	61.00		1	3740.00								1	1000.00				1	396.00		
Jul-1997	1	7.90		1	65.00		1	5100.00		1	2710.00					1	1500.00		1	5.00		1	530.00	
Aug-1997	1	7.85		1	58.00		1	3600.00								1	410.00				1	340.00		
Sep-1997	1	7.87		1	69.00		1	3390.00								1	980.00				1	360.00		
Oct-1997	1	7.90		1	76.00		1	9550.00		1	5737.00					1	3100.00		1	12.00		1	960.00	
Nov-1997	1	7.67		1	70.00		1	8720.00								1	2600.00				1	960.00		
Dec-1997	1	7.67		1	70.00		1	4550.00								1	1260.00				1	470.00		
Jan-1998	1	7.77		1	77.00		1	3040.00		1	1646.00					1	810.00		1	2.50		1	344.00	
Feb-1998	2	7.85	8.1 7.6	2	84.50	109.0 60.0	2	420.00	470.0 250.0	1	230.00					2	35.00	46.0 24.0				2	91.00	116 66.0
Mar-1998	2	7.42	7.5 7.4	1	61.00		1	330.00					1	5.7		1	38.00				1	72.00		
Apr-1998	1	7.87		1	58.00		1	260.00		1	130.00					1	25.00		1	<0.1		1	74.00	
May-1998	1	7.52		1	54.00		1	210.00		1	100.00		2	3.5 4.3 2.7		1	17.00				1	60.00		
Jun-1998	1	7.80		1	48.00		1	170.00					1	2.1		1	13.00				1	50.00		
Jul-1998	1	7.68		1	46.00		1	170.00					1	<0.50		1	14.00		1	<0.1		1	90.00	
Aug-1998	1	7.78		1	51.00		1	710.00					1	2.1		1	160.00				1	122.00		
Sep-1998	1	7.98		1	57.00		1	420.00		1	245.00		1	2.9		1	86.00				1	80.00		
Oct-1998	1	7.20		1	103.00		2	480.00	560.0 400.0	1	355.00		2	1.9 1.9 1.9		2	59.00	69.0 49.0	1	<0.1		1	154.00	
Nov-1998				1	57.00		1	2320.00		1	1190.00					1	620.00				1	250.00		
Dec-1998				1	56.00		1	210.00		1	100.00		1	<0.5		1	19.00				1	56.00		
Jan-1999	2	7.39	7.7 7.1	1	66.00		1	290.00		1	150.00		2	2.2 2.2 2.2		1	40.00		1	0.19		1	80.00	
Feb-1999	1	7.61		1	53.00		1	220.00		1	100.00		1	2.9		1	23.00				1	66.00		
Mar-1999	1	8.04		1	48.00		1	190.00		1	90.00		1	2.7		1	16.00				1	56.00		
Apr-1999	1	7.80		1	63.00		1	200.00		1	130.00					1	13.00		1	<0.1		1	72.00	
May-1999	1	7.94		1	59.00		1	220.00		1	110.00		1	2.1		1	20.00				1	64.00		
Jun-1999	1	7.73		1	55.00		1	250.00		1	130.00		1	2.5		1	33.00				1	58.00		
Jul-1999	1	7.12	8.0 6.2	1	22.00		1	3260.00		1	1750.00		2	2.7 2.7 2.7		1	960.00		1	2.90		1	350.00	
Aug-1999	1	7.79		1	58.00		1	3150.00		1	1690.00		1	0.8		1	860.00				1	222.00		
Sep-1999	1	7.85		1	69.00		1	7900.00		1	4530.00		1	0.3		1	280.00							
Oct-1999	1	7.90		1	75.00		1	6990.00		1	3930.00		1	0.5		1	2220.00		1	7.00		1	740.00	
Nov-1999																								
Dec-1999																								
Jan-2000	1	7.41		1	77.00		1	5100.00		1	2810.00					1	1540.00		1	4.70		1	460.00	
Feb-2000													1	3.5										
Mar-2000													1	3.7										
Apr-2000	1	7.99		1	72.00		1	440.00		1	229.00		1	2.2		1	74.00		1	0.20		1	86.00	
May-2000													1	2.4										
Jun-2000													1	1.2										
Jul-2000													1	0.5										
Aug-2000													1	0.2										
Sep-2000													1	1.1										
Oct-2000																								
Nov-2000																								
Dec-2000																								