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Appendix 8A  
**Water Quality Criteria and Objectives**

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Appendix 8A  
**Water Quality Criteria and Objectives**

3 **Table 8A-1. Numerical Water Quality Objectives for the Sacramento-San Joaquin Delta**

Parameter	California Toxics Rule <sup>1,2,3</sup>						Region 5 Basin Plan (mg/L)	Region 2 Basin Plan					California Drinking Water MCLs (mg/L) <sup>1</sup>	
	Freshwater		Saltwater		Human Health			Freshwater <sup>1</sup>		Marine Water <sup>2</sup>		Agricultural Supply <sup>3</sup>		
	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)	Water and Organisms (µg/L)	Organisms Only (µg/L)		4-day Average (mg/L)	1-hour Average (mg/L)	4-day Average (mg/L)	1-hour Average (mg/L)	Irrigation (mg/L)		Livestock Watering (mg/L)
1,1,1-Trichlorobenzene													0.2	
1,1,1-Trichloroethane					n	n								
1,1,2,2-Tetrachloroethane					0.17 <sup>a,c,s</sup>	11 <sup>a,c,t</sup>							0.001	
1,1,2-Trichloro-1,2,2-Trifluoroethane													0.12	
1,1,2-Trichlorobenzene													0.005	
1,1,2-Trichloroethane					0.60 <sup>a,c,s</sup>	42 <sup>a,c,t</sup>								
1,1-Dichloroethane													0.005	
1,1-Dichloroethylene					0.057 <sup>a,c,s</sup>	3.2 <sup>a,c,t</sup>							0.006	
1,2 Dichlorobenzene					2,700 <sup>a</sup>	17,000 <sup>a</sup>								
1,2,4-Trichlorobenzene													0.005	
1,2-Dichlorobenzene													0.6	
1,2-Dichloroethane					0.38 <sup>a,c,s</sup>	99 <sup>a,c,t</sup>							0.0005	
1,2-Dichloropropene													0.005	
1,2-Dichloropropylene					0.52 <sup>a</sup>	39 <sup>a</sup>								
1,2-Diphenylhydrazine					0.04 <sup>a,c,s</sup>	0.54 <sup>a,c,t</sup>								
1,2-Trans-Dichloroethylene					700 <sup>a</sup>	140,000 <sup>a</sup>								
1,3 Dichlorobenzene					400	2,600								
1,3-Dichloropropene													0.0005	
1,3-Dichloropropylene					10 <sup>a,s</sup>	1,700 <sup>a,t</sup>								
1,4-Dichlorobenzene					400	2,600							0.005	
2,3,7,8-TCDD (Dioxin)					0.000000013 <sup>c</sup>	0.000000014 <sup>c</sup>							3x10 <sup>-8</sup>	
2,4,5-TP (Silvex)													0.05	
2,4,6-Trichlorophenol					2.1 <sup>a,s</sup>	6.5 <sup>a,c</sup>								
2,4-D													0.07	
2,4-Dichlorophenol					93 <sup>a,s</sup>	790 <sup>a,t</sup>								
2,4-Dimethylphenol					540 <sup>a</sup>	2,300 <sup>a</sup>								
2,4-Dinitrophenol					70 <sup>a,s</sup>	14,000 <sup>a,t</sup>								
2,4-Dinitrotoluene					0.11 <sup>c,s</sup>	9.1 <sup>c,t</sup>								
2-Chlorophenol					120 <sup>a</sup>	400 <sup>a</sup>								
2-Chlorophthalene					1,700 <sup>a</sup>	4,300 <sup>a</sup>								
2-Methyl-4,6-Dinitrophenol					13.4 <sup>s</sup>	765 <sup>t</sup>								
3,3'-Dichlorobenzidine					0.04 <sup>a,c,s</sup>	0.077 <sup>a,c,t</sup>								
4,4'-DDD					0.00083 <sup>a,c</sup>	0.00084 <sup>a,c</sup>								
4,4'-DDE					0.00059 <sup>a,c</sup>	0.00059 <sup>a,c</sup>								

Parameter	California Toxics Rule <sup>1,2,3</sup>						Region 5 Basin Plan (mg/L)	Region 2 Basin Plan					California Drinking Water MCLs (mg/L) <sup>1</sup>	
	Freshwater		Saltwater		Human Health			Freshwater <sup>1</sup>		Marine Water <sup>2</sup>		Agricultural Supply <sup>3</sup>		
	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)	Water and Organisms (µg/L)	Organisms Only (µg/L)		4-day Average (mg/L)	1-hour Average (mg/L)	4-day Average (mg/L)	1-hour Average (mg/L)	Irrigation (mg/L)		Livestock Watering (mg/L)
4,4'-DDT	1.1 <sup>g</sup>	0.001 <sup>g</sup>	0.13 <sup>g</sup>	0.001 <sup>g</sup>	0.00059 <sup>a,c</sup>	0.00059 <sup>a,c</sup>								
Acenaphthene					1,200 <sup>a</sup>	2,700 <sup>a</sup>								
Acrolein					320 <sup>s</sup>	780 <sup>t</sup>								
Acrylamide													TT <sup>a</sup>	
Acrylonitrile					0.059 <sup>a,c,s</sup>	0.66 <sup>a,c,t</sup>								
Alachlor													0.002	
Aldrin	3 <sup>g</sup>		1.3 <sup>g</sup>		0.00013 <sup>a,c</sup>	0.00014 <sup>a,c</sup>								
alpha-BHC					0.0039 <sup>a,c</sup>	0.013 <sup>a,c</sup>								
alpha-Endosulfan	0.22 <sup>g</sup>	0.056 <sup>g</sup>	0.034 <sup>g</sup>	0.0087 <sup>g</sup>	110 <sup>a</sup>	240 <sup>a</sup>								
Aluminium											20	5	0.2 <sup>b</sup>	
Ammonia (N)								0.025 mg/L N <sup>a</sup>						
Anthracene					9,600 <sup>a</sup>	110,000 <sup>a</sup>								
Antimony					1.4 <sup>a,s</sup>	4,300 <sup>a,t</sup>							0.006	
Arsenic	340 <sup>l,m,w</sup>	150 <sup>l,m,w</sup>	69 <sup>i,m</sup>	36 <sup>i,m</sup>			0.01 <sup>a</sup>				2	0.2	0.01	
Asbestos					7,000,000 fibers/L <sup>k,s</sup>								7 MFL <sup>c</sup>	
Atrazine													0.001	
Barium							0.1 <sup>a</sup>						1	
Bentazon													0.018	
Benzene					1.2 <sup>a,c</sup>	71 <sup>a,c</sup>							0.001	
Benzidine					0.00012 <sup>a,c,s</sup>	0.00054 <sup>a,ct</sup>								
Benzo(a)Pyrene													0.0002	
Benzo(a)Anthracene					0.0044 <sup>a,c</sup>	0.049 <sup>a,c</sup>								
Benzo(a)Pyrene					0.0044 <sup>a,c</sup>	0.049 <sup>a,c</sup>								
Benzo(b)Fluoranthene					0.0044 <sup>a,c</sup>	0.049 <sup>a,c</sup>								
Benzo(k)Fluoranthene					0.0044 <sup>a,c</sup>	0.049 <sup>a,c</sup>								
beta-BHC					0.014 <sup>a,c</sup>	0.046 <sup>a,c</sup>								
beta-Endosulfan	0.22 <sup>g</sup>	0.056 <sup>g</sup>	0.034 <sup>g</sup>	0.0087 <sup>g</sup>	110 <sup>a</sup>	240 <sup>a</sup>								
Beryllium					n	n					0.5		0.004	
Bis(2-Chloroethoxy)Ether					0.031 <sup>a,c,s</sup>	1.4 <sup>a,c,t</sup>								
Bis(2-Chloroisopropyl)Ether					1,400 <sup>a</sup>	170,000 <sup>a,t</sup>								
Bis(2-Ethylhexyl)Phthalate					1.8 <sup>a,c,s</sup>	5.9 <sup>a,c,t</sup>								
Boron							0.8-1.0 <sup>b</sup> / 2.0-2.6 <sup>c</sup>				2	5		
Bromate													0.01	
Bromoform					4.3 <sup>a,c</sup>	360 <sup>a,c</sup>								
Butylbenzyl Phthalate					3,000 <sup>a</sup>	5,200 <sup>a</sup>								
Cadmium	1.3 <sup>e,l,m,w,x</sup>	2.2 <sup>e,l,m,w</sup>	42 <sup>i,m</sup>	9.3 <sup>i,m</sup>	n	n	0.00022 <sup>d</sup>	1.1 <sup>b</sup>	3.9 <sup>b</sup>		0.5	0.05	0.005	
Carbofuran													0.018	
Carbon Tetrachloride					0.25 <sup>a,c,s</sup>	4.4 <sup>a,c,t</sup>							0.0005	

Parameter	California Toxics Rule 1,2,3						Region 5 Basin Plan (mg/L)	Region 2 Basin Plan					California Drinking Water MCLs (mg/L) <sup>1</sup>	
	Freshwater		Saltwater		Human Health			Freshwater <sup>1</sup>		Marine Water <sup>2</sup>		Agricultural Supply <sup>3</sup>		
	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)	Water and Organisms (µg/L)	Organisms Only (µg/L)		4-day Average (mg/L)	1-hour Average (mg/L)	4-day Average (mg/L)	1-hour Average (mg/L)	Irrigation (mg/L)		Livestock Watering (mg/L)
Chlordane	2.4 <sup>g</sup>	0.0043 <sup>g</sup>	0.09 <sup>g</sup>	0.04 <sup>g</sup>	0.00057 <sup>a,c</sup>	0.00059 <sup>a,c</sup>							0.0001	
Chloride												355	250 <sup>b,e</sup>	
Chlorite													1	
Chlorobdibromomethane					0.401 <sup>a,c</sup>	34 <sup>a,c</sup>								
Chlorobenzene					680 <sup>a,s</sup>	21,000 <sup>a,j,t</sup>								
Chloroform					[Reserved]	[Reserved]								
Chlorpyrifos							0.000015/ 0.000025 <sup>e</sup>							
Chromium												1	1	0.05
Chromium (III)	550 <sup>e,l,m,o</sup>	180 <sup>e,l,m,o</sup>			n	n								
Chromium (VI)	16 <sup>l,m,w</sup>	11 <sup>l,m,w</sup>	1100 <sup>i,m</sup>	50 <sup>i,m</sup>	n	n								
Chrysene					0.0044 <sup>a,c</sup>	0.049 <sup>a,c</sup>								
cis-1,2-Dichloroethylene														0.006
Cobalt												5	1	
Combined Radium - 226+228														5 pCi/L
Copper	13 <sup>e,l,m,w,x</sup>	9 <sup>e,l,m,w</sup>	4.8 <sup>i,m</sup>	3.1 <sup>i,m</sup>	1,300		0.01 <sup>a</sup> / 0.0056 <sup>d</sup>					5	0.5	1.0 <sup>b</sup> /1.3 <sup>d</sup>
Cyanide	22 <sup>o</sup>	5.2 <sup>o</sup>	1 <sup>r</sup>	1 <sup>r</sup>	700 <sup>a</sup>	220,000 <sup>a,j</sup>	0.01 <sup>a</sup>							0.15
Dalapon														0.2
Di(2-ethylexyl)adipate														0.4
Di(2-ethylexyl)phthalate														0.004
Diazinon							0.0001/ 0.00016 <sup>e</sup>							
Dibenzo(a,h)Anthracene					0.0044 <sup>a,c</sup>	0.049 <sup>a,c</sup>								
Dibromochloropropane														0.0002
Dichlorobromomethane					0.56 <sup>a,c</sup>	46 <sup>a,c</sup>								
Dichloromethane														0.005
Dieldrin	0.24 <sup>w</sup>	0.05 <sup>w</sup>	0.71 <sup>g</sup>	0.0019 <sup>g</sup>	0.00014 <sup>a,c</sup>	0.00014 <sup>a,c</sup>								
Diethyl Phthalate					23,000 <sup>a,s</sup>	120,000 <sup>a,t</sup>								
Dimethyl Phthalate					313,000 <sup>s</sup>	2,900,000 <sup>t</sup>								
Di-n-Butyl Phthalate					2,700 <sup>a,s</sup>	12,000 <sup>a,t</sup>								
Dinoseb														0.007
Diquat														0.02
Electrical Conductivity (Specific Conductance)												0.2-3.0 µS/cm		0.9 µS/cm <sup>b,e</sup>
Endosulfan Sulfate					110 <sup>a</sup>	240 <sup>a</sup>								
Endothall														0.1
Endrin	0.086 <sup>w</sup>	0.036 <sup>w</sup>	0.037 <sup>g</sup>	0.0023 <sup>g</sup>	0.76 <sup>a</sup>	0.81 <sup>a,j</sup>								0.002
Endrin Aldehyde					0.76 <sup>a</sup>	0.81 <sup>a,j</sup>								
Epichlorohydrin														TT <sup>a</sup>
Ethylbenzene					3,100 <sup>a,s</sup>	29,000 <sup>a,t</sup>								0.3

Parameter	California Toxics Rule 1,2,3						Region 5 Basin Plan (mg/L)	Region 2 Basin Plan					California Drinking Water MCLs (mg/L) <sup>1</sup>	
	Freshwater		Saltwater		Human Health			Freshwater <sup>1</sup>		Marine Water <sup>2</sup>		Agricultural Supply <sup>3</sup>		
	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)	Water and Organisms (µg/L)	Organisms Only (µg/L)		4-day Average (mg/L)	1-hour Average (mg/L)	4-day Average (mg/L)	1-hour Average (mg/L)	Irrigation (mg/L)		Livestock Watering (mg/L)
Ethylene Dibromide													0.00005	
Fluoranthene					300 <sup>a</sup>	370 <sup>a</sup>								
Fluorene					1,300 <sup>a</sup>	14,000 <sup>at</sup>								
Fluoride											15	2	2	
Foaming agents (MBAS)													0.5 <sup>b</sup>	
gamma-BHC	0.95 <sup>w</sup>		0.16 <sup>g</sup>		0.019 <sup>c</sup>	0.063 <sup>c</sup>								
Glyphosate													0.7	
Gross Alpha particle activity (excluding radon and uranium)													15 pCi/L	
Gross Beta particle activity													4 millirem/yr	
Haloacetic acids (five)													0.06	
Heptachlor	0.52 <sup>g</sup>	0.0038 <sup>g</sup>	0.053 <sup>g</sup>	0.0036 <sup>g</sup>	0.00021 <sup>a,c</sup>	0.00021 <sup>a,c</sup>							0.00001	
Heptachlor Epoxide	0.52 <sup>g</sup>	0.0038 <sup>g</sup>	0.053 <sup>g</sup>	0.0036 <sup>g</sup>	0.00010 <sup>a,c</sup>	0.0001 <sup>a,c</sup>							0.00001	
Hexachlorobenzene					0.00075 <sup>a,c</sup>	0.00077 <sup>a,c</sup>							0.001	
Hexachlorobutadiene					0.44 <sup>a,c,s</sup>	50 <sup>a,c,t</sup>								
Hexachlorocyclopentadiene					240 <sup>a,s</sup>	17,000 <sup>aj,t</sup>							0.05	
Hexachloroethane					1.9 <sup>a,c,s</sup>	8.9 <sup>a,c,t</sup>								
Indeno(1,2,3-cd) Pyrene					0.0044 <sup>a,c</sup>	0.049 <sup>a,c</sup>								
Iron							0.3					20	0.3 <sup>b</sup>	
Isophrone					8.4 <sup>c,s</sup>	600 <sup>c,t</sup>								
Lead	65 <sup>e,l,m</sup>	2.5 <sup>e,l,m</sup>	210 <sup>i,m</sup>	8.1 <sup>i,m</sup>	n	n					10	0.1	0.015 <sup>d</sup>	
Lindane													0.0002	
Lithium											2.5 <sup>c</sup>			
Manganese							0.05				10		0.05 <sup>b</sup>	
Mercury	[Reserved]	[Reserved]	[Reserved]	[Reserved]	0.050 <sup>a</sup>	0.051 <sup>a</sup>		0.025 <sup>d</sup>	2.4 <sup>d</sup>	0.025 <sup>e</sup>	2.1 <sup>e</sup>		0.002	
Methoxychlor													0.03	
Methyl Bromide					48 <sup>a</sup>	4,000 <sup>a</sup>								
Methyl Chloride					n	n								
Methylene Chloride					4.7 <sup>a,c</sup>	1,600 <sup>a,c</sup>								
Methyl-tert-butyl ether (MTBE)													0.013/0.005 <sup>b</sup>	
Molinate													0.02	
Molybdenum							0.010/0.015 <sup>f</sup> 0.019/0.050 <sup>g</sup>					0.05	0.5	
Monochlorobenzene													0.07	
Nickel	470 <sup>e,i,m,w</sup>	52 <sup>e,i,m,w</sup>	74 <sup>i,m</sup>	8.2 <sup>i,m</sup>	610 <sup>a</sup>	4,600 <sup>a</sup>						2	0.1	
Nitrite (as N)													1	
Nitrate (as N)													10	
Nitrate plus Nitrite as N											30 <sup>f</sup>	100		
Nitrobenzene					17 <sup>a,s</sup>	1,900 <sup>aj,t</sup>								
N-Nitrosodimethylamine					0.00069 <sup>a,c,s</sup>	8.1 <sup>a,c,t</sup>								

Parameter	California Toxics Rule 1,2,3						Region 5 Basin Plan (mg/L)	Region 2 Basin Plan					California Drinking Water MCLs (mg/L) <sup>1</sup>	
	Freshwater		Saltwater		Human Health			Freshwater <sup>1</sup>		Marine Water <sup>2</sup>		Agricultural Supply <sup>3</sup>		
	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)	Water and Organisms (µg/L)	Organisms Only (µg/L)		4-day Average (mg/L)	1-hour Average (mg/L)	4-day Average (mg/L)	1-hour Average (mg/L)	Irrigation (mg/L)		Livestock Watering (mg/L)
N-Nitrosodi-n-Propylamine					0.005 <sup>a</sup>	1.4 <sup>a,c,t</sup>								
N-Nitrosodiphenylamine					50 <sup>a,c,s</sup>	16 <sup>a,c,t</sup>								
Odor													0.3 units <sup>b</sup>	
Oxamyl													0.05	
PAHs (k)										15 <sup>g</sup>				
Pentachlorophenol	19 <sup>f,w</sup>	15 <sup>f,w</sup>	13	7.9	0.28 <sup>a,c</sup>	8.2 <sup>a,c,j</sup>							0.001	
Perchlorate													0.006	
pH							6.5-8.5					4.5-9.0		
Phenol					21,000 <sup>a</sup>	4,600,000 <sup>a,j,t</sup>								
Picloram													0.5	
Polychlorinated Biphenyls													0.0005	
Polychlorinated Biphenyls (PCBs)		0.014 <sup>u</sup>		0.03 <sup>u</sup>	0.00017 <sup>c,v</sup>	0.00017 <sup>c,v</sup>								
Pyrene					960 <sup>a</sup>	11,000 <sup>a</sup>								
Selenium	[Reserved] <sup>p</sup>	5.0 <sup>q</sup>	290 <sup>i,m</sup>	71 <sup>i,m</sup>	n	n	0.005/0.012 <sup>h</sup> 0.005/0.020 <sup>i</sup> 0.002/0.020 <sup>j</sup>					0.02	0.05	0.05
Silver	3.4 <sup>e,l,m</sup>		1.9 <sup>i,m</sup>				0.01 <sup>a</sup>						0.1 <sup>b</sup>	
Simazine													0.004	
Sodium adsorption ration												9 <sup>h</sup>		
Strontium-90													8 pCi/L <sup>f</sup>	
Styrene													0.1	
Tetrachloroethylene					0.8 <sup>c,s</sup>	8.85 <sup>c,t</sup>							0.005	
Thallium					1.7 <sup>a,s</sup>	6.3 <sup>a,t</sup>							0.002	
Thiobencarb													0.001 <sup>b</sup>	
Toluene					6,800 <sup>a</sup>	200,000 <sup>a</sup>							0.15	
Total Dissolved Solids													10,000	
Total Trihalomethanes													500 <sup>b,e</sup>	
Toxaphene	0.73	0.0002	0.21	0.0002	0.00073 <sup>a,c</sup>	0.00075 <sup>a,c</sup>							0.005	
Toxaphene													0.003	
trans-1,2-Dichloroethylene													0.01	
Trichloroethylene					2.7 <sup>c,s</sup>	71 <sup>c,t</sup>							0.005	
Trichlorofluoromethane													0.15	
Tritium													20,000 pCi/L <sup>f</sup>	
Turbidity													5 NTU <sup>b</sup>	
Uranium													20 pCi/L	
Vanadium												1	0.1	
Vinyl Chloride					2 <sup>c,s</sup>	525 <sup>c,t</sup>							0.0005	
Xylenes													1.75	
Zinc	120 <sup>e,l,m,w,x</sup>	120 <sup>e,l,m,w</sup>	90 <sup>i,m</sup>	81 <sup>i,m</sup>			0.1 <sup>a</sup> / 0.016 <sup>d</sup>					10	25	5.0 <sup>b</sup>

## 1 Notes for Table 8A-1.

Sources: USEPA 2000; USEPA 2001; CVRWQCB 2009; SFBRWQCB 2007; 22 California Code of Regulations 64431–64449

Notes: L = liter, µg/L = micrograms per liter, µS/cm = microsiemens per centimeter, MCL = maximum contaminant level, MFL = million fibers per liter, mg/L = milligrams per liter, NTU = nephelometric turbidity unit, pCi/L = picocuries per liter, TT = treatment technique, yr = year

### Footnotes to Table 8A-1, Numerical Water Quality Objectives for the Sacramento–San Joaquin Delta

#### California Toxics Rule

The cells in this column list all of the U.S. Environmental Protection Agency's (USEPA's) priority toxic pollutants whether or not criteria guidance are available. Blank spaces indicate the absence of national section 304(a) criteria guidance. Because of variations in chemical nomenclature systems, this listing of toxic pollutants does not duplicate the listing in Appendix A to 40 Code of Federal Regulations (CFR) Part 423-126 Priority Pollutants. USEPA has added the Chemical Abstracts Service (CAS) registry numbers, which provide a unique identification for each chemical.

The following chemicals have organoleptic-based criteria recommendations that are not included on this chart: zinc, 3-methyl-4-chlorophenol.

3. This table is arranged with constituents listed alphabetically; however, the footnotes for the California Toxics Rule (CTR) are retained in the alphabetical order as they appear in the CTR criteria document.

- <sup>a</sup> Criteria revised to reflect the Agency q1\* or RfD, as contained in the Integrated Risk Information System as of October 1, 1996. The fish tissue bioconcentration factor from the 1980 documents was retained in each case.
- <sup>b</sup> Criteria apply to California waters except for those waters subject to objectives in Tables III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's (SFBRWQCB) 1986 Basin Plan, adopted by SFBRWQCB and the State Water Resources Control Board, approved by USEPA, and which continue to apply.
- <sup>c</sup> Criteria are based on carcinogenicity of 10(-6) risk.
- <sup>d</sup> Criteria Maximum Concentration (CMC) equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects. Criteria Continuous Concentration (CCC) equals the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. µg/L = microgram per liter.
- <sup>e</sup> Freshwater aquatic life criteria for metals are expressed as a function of total hardness (in microgram per liter [mg/L]) in the water body. The equations are provided in the matrix at paragraph (b)(2) of this section. Values displayed above in the matrix correspond to a total hardness of 100 mg/L.
- <sup>f</sup> Freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Values displayed above in the table correspond to a pH of 7.8.  $CMC = \exp(1.005(pH) - 4.869)$ .  $CCC = \exp(1.005(pH) - 5.134)$ .
- <sup>g</sup> This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an average period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.
- <sup>h</sup> These totals simply sum the criteria in each column. For aquatic life, there are 23 priority toxic pollutants with some type of freshwater or saltwater, acute or chronic criteria. For human health, there are 92 priority toxic pollutants with either "water + organism" or "organism only" criteria. Note that these totals count chromium as one pollutant, even though USEPA has developed criteria based on two valence states. In the matrix, USEPA has assigned numbers 5a and 5b to the criteria for chromium to reflect the fact that the list of 126 priority pollutants includes only a single listing for chromium.
- <sup>i</sup> Criteria for these metals are expressed as a function of the water-effect ratio (WER).  $CMC = \text{column B1 or C1 value} \times \text{WER}$ ;  $CCC = \text{column B2 or C2 value} \times \text{WER}$ .
- <sup>j</sup> No criterion for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even though the results of such a calculation were not shown in the document.
- <sup>k</sup> The Clean Water Act 304(a) criterion for asbestos is the maximum contaminant level (MCL).
- <sup>l</sup> To be determined.
- <sup>m</sup> These freshwater and saltwater criteria for metals are expressed in terms of the dissolved fraction of the metal in the water column. Criterion values were calculated by using USEPA's Clean Water Act 304(a) guidance values (described in the total recoverable fraction) and then applying the conversion factors in #131.36(b)(1) and (2).
- <sup>n</sup> USEPA is not promulgating human health criteria for these contaminants. However, permit authorities should address these contaminants in National Pollutant Discharge Elimination System permit actions using the State's existing narrative criteria for toxics.
- <sup>o</sup> These criteria were promulgated for specific waters in California in the National Toxics Rule (NTR), at #131.36. The specific waters to which the NTR criteria apply include: Waters of the State defined as bays or estuaries and waters of the State not ocean waters. These waters specifically include the San Francisco Bay upstream to and including Suisun Bay and the Sacramento–San Joaquin Delta. This section does not apply instead of the NTR for this criterion.
- <sup>p</sup> A criterion of 20 µg/L was promulgated for specific waters in California in the NTR in the total recoverable form. The specific waters to which the NTR criterion applied include: Waters of the San Francisco Bay upstream to and including Suisun Bay and the Sacramento–San Joaquin Delta; and waters of Salt Slough, Mud Slough (north) and the San Joaquin River, Sack Dam to the mouth of the Merced River. This section does not apply instead of the NTR for the criterion. The State of California adopted and USEPA approved a site-specific criterion for the San Joaquin River, mouth of Merced to Vernalis; therefore, this section does not apply to those waters.
- <sup>q</sup> This criterion is expressed in the total recoverable form. This criterion was promulgated for specific waters in California in the NTR in the total recoverable form. The specific waters to which the NTR criterion applies include: Waters of the San Francisco Bay upstream to and including Suisun Bay and the Sacramento–San Joaquin Delta; and waters of Salt Slough, Mud Slough (north) and the San Joaquin River, Sack Dam to Vernalis. This criterion does not apply instead of the NTR for those waters. This criterion applies to additional waters of the United States in the State of California pursuant to 40 CFR 131.38(c). The State of California adopted and USEPA approved a site-specific criterion for the Grassland Water District, San Luis National Wildlife Refuge, and the Los Banos State Wildlife Refuge; therefore, this criterion does not apply to those waters.
- <sup>r</sup> These criteria were promulgated for specific waters in California in the NTR. The specific waters to which the NTR criteria apply include: Waters of the State defined as bays or estuaries including the San Francisco Bay upstream to and including Suisun Bay and the Sacramento–San Joaquin Delta. This section does not apply instead of the NTR for these criteria.
- <sup>s</sup> These criteria were promulgated for specific waters in California in the NTR. The specific waters to which the NTR criteria apply include: Waters of the Sacramento–San Joaquin Delta and waters of the State defined as inland (i.e., all surface waters of the State, not bays or estuaries or ocean) that include a municipal supply (MUN) use designation. This section does not apply instead of the NTR for these criteria.
- <sup>t</sup> These criteria were promulgated for specific waters in California in the NTR. The specific waters to which the NTR criteria apply include: Waters of the State defined as bays and estuaries including San Francisco Bay upstream to and including Suisun Bay and the Sacramento–San Joaquin Delta, and waters of the State defined as inland (i.e., all surface waters of the State not bays or estuaries or ocean) without a MUN use designation. This section does not apply instead of the NTR for these criteria.
- <sup>u</sup> PCBs are a class of chemical that include aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016, CAS numbers 53469219, 11097691, 11104282, 11141165, 126722966, 11096825, and 12674112, respectively. The aquatic life criteria apply to the sum of this set of seven aroclors.
- <sup>v</sup> This criterion applies to total PCBs, e.g., the sum of all congener or isomer or homolog or aroclor analyses.
- <sup>w</sup> This criterion has been recalculated pursuant to the 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water, Office of Water, EPA-820-B-96-001, September 1996. See also Great Lakes Water Quality Initiative Criteria Documents for the Protection of Aquatic Life in Ambient Water, Office of Water, EPA-80-B-95-004, March 1995.
- <sup>x</sup> The State of California had adopted and USEPA has approved site-specific criteria for the Sacramento River (and tributaries) above Hamilton City; therefore, these criteria do not apply to these waters.

**Region 5 Basin Plan**

- <sup>a</sup> Numerical water quality objectives are contained in Table III-1 in the Basin Plan; objectives are stated as dissolved concentrations. Objective is applicable to the maximum concentration in the Sacramento River from Keswick Dam to the I Street Bridge at City of Sacramento (13, 30); American River from Folsom Dam to the Sacramento River (51); Folsom Lake (50); and the Sacramento–San Joaquin Delta.
- <sup>b</sup> Mean monthly boron objective (total recoverable) applicable to the San Joaquin River (mouth of Merced River to Vernalis) for March 15–September 15 (0.8 µg/L) and September 16–March 14 (1.0 µg/L); with relaxation to 1.3 µg/L for all months of a critical dry year.
- <sup>c</sup> Maximum boron objective (total recoverable) applicable to the San Joaquin River (mouth of Merced River to Vernalis) for March 15–September 15 (2.0 µg/L) and September 16–March 14 (2.6 µg/L).
- <sup>d</sup> Hardness-dependent cadmium, copper, and zinc objectives (dissolved) applicable to Sacramento River and its tributaries above State Route 32 Bridge at Hamilton City. Where deviations from 40 mg/L of water hardness occur, the objectives, in mg/L, shall be determined using the following formulas shown in Table III-1.
- <sup>e</sup> Chlorpyrifos and diazinon objectives expressed as (1-hour acute concentration)/(4-day average chronic concentration), not to be exceeded more than once in a 3-year period. Objectives are applicable to the San Joaquin River from Mendota Dam to Vernalis (Reaches include Mendota Dam to Sack Dam, Sack Dam to mouth of Merced River, mouth of Merced River to Vernalis), Delta Waterways, Sacramento River from Shasta Dam to Colusa Basin Drain, Sacramento River from the Colusa Basin Drain to I Street Bridge, and Feather River from Fish Barrier Dam to Sacramento River.
- <sup>f</sup> Molybdenum objective (total recoverable) applicable to San Joaquin River, mouth of the Merced River to Vernalis, expressed as allowable monthly mean/maximum concentration.
- <sup>g</sup> Molybdenum objective (total recoverable) applicable to Salt Slough, Mud Slough (north), and San Joaquin River from Sack Dam to the mouth of Merced River expressed as allowable monthly mean/maximum concentration.
- <sup>h</sup> Selenium objective (total recoverable) applicable to San Joaquin River, mouth of the Merced River to Vernalis, expressed as allowable 4-day average/maximum concentration.
- <sup>i</sup> Selenium objective (total recoverable) applicable to Mud Slough (north), and the San Joaquin River from Sack Dam to the mouth of Merced River, expressed as allowable 4-day average/maximum concentration.
- <sup>j</sup> Selenium objective (total recoverable) applicable to Salt Slough and constructed and re-constructed water supply channels in the Grassland watershed listed in Appendix 40, expressed as allowable monthly mean/maximum concentration.

**Region 2 Basin Plan**

- <sup>1</sup> Numerical freshwater quality objectives contained in Table 3-4 in the Basin Plan.
- <sup>2</sup> Numerical marine water quality objectives contained in Table 3-3 in the Basin Plan. Marine waters are those in which the salinity is equal to or greater than 10 parts per thousand 95 percent of the time.
- <sup>3</sup> Numerical water quality objectives for agriculture based on the “Limit” and “Limit for Livestock Watering” values contained in Table 3-6 in the Basin Plan.
- <sup>a</sup> Annual median unionized ammonia objective in mg/L-N.
- <sup>b</sup> The objectives for cadmium and other noted metals are expressed by formulas where  $H = \ln(\text{hardness})$  as calcium carbonate ( $\text{CaCO}_3$ ) in mg/L. Values displayed above in the matrix correspond to a total hardness of 100 mg/L  $\text{CaCO}_3$ . The 4-day average objective for cadmium is  $e^{(0.7852 H - 3.490)}$ . The 1-hour average objective for cadmium is  $e^{(1.128 H - 3.828)}$ . Criteria for are expressed as a function of the WER.
- <sup>c</sup> For citrus irrigation, maximum is 0.075 mg/L.
- <sup>d</sup> Source: USEPA Quality Criteria for Water 1986 (EPA 440/5-86-001), which established a mercury criterion of 0.012 µg/L. The Basin Plan set the objective at 0.025 based on considerations of the level of detection attainable at that time.
- <sup>e</sup> Source: USEPA Ambient Water Quality Criteria for Mercury (1984).
- <sup>f</sup> For sensitive crops. Values are actually for  $\text{NO}_3\text{-N} + \text{NH}_4\text{-N}$ .
- <sup>g</sup> Objective for polycyclic aromatic hydrocarbons (PAHs) specified as a 24-hour concentration.
- <sup>h</sup> Adjusted SAR =  $\text{Na}/[(\text{Ca} + \text{Mg})+2]0.5\{1 + [8.4 - \text{pHc}]\}$ , where pHc is a calculated value based on total cations, Ca + Mg, and  $\text{CO}_3 + \text{HCO}_3$ , in milliequivalents per liter. Exact calculations of pHc can be found in Guidelines for Interpretation of Water Quality for Agriculture prepared by the University of California Cooperative Extension.

**California Maximum Contaminant Levels**

- <sup>1</sup> The Basin Plans for the Central Valley Regional Water Quality Control Board and SFBRWQCB incorporate by reference the primary drinking water MCLs and secondary MCLs specified in Title 22 of the California Code of Regulations. Surface waters designated for use as domestic or MUN shall not contain concentrations of constituents in excess of the MCLs in Table 64431-A (Inorganic Chemicals), Table 64433.2-A (Fluoride), Table 64444-A (Organic Chemicals), and Table 64449-A (Consumer Acceptance Limits) and 64449-B (Ranges) of Title 22. Values displayed above in the table are primary MCLs unless specified.
- <sup>a</sup> TT = treatment technique, because an MCL is not feasible.
- <sup>b</sup> Secondary MCL
- <sup>c</sup> MFL = million fibers per liter; with fiber length  $>10 \mu$  (microns)
- <sup>d</sup> Regulatory Action Level; if system exceeds, it must take certain actions such as additional monitoring, corrosion control studies and treatment and, for lead, a public education program; replaces MCL.
- <sup>e</sup> Secondary MCLs for salinity parameters established as a range consisting of 0.9–2.2 µS/cm electrical conductivity, 250–600 mg/L chloride, 250–600 mg/L sulfate, and 500–1,500 mg/L total dissolved solids.
- <sup>f</sup> Gross beta MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ; Sr-90 MCL = 4 millirem/year to bone marrow; tritium MCL = 4 millirem/year to total body.



1 Table 8A-2. Water Quality Objectives in the 2006 Bay Delta Water Quality Control Plan

Location	Interagency Station Number (RKI <sup>a</sup> )	Parameter	Description (Unit) <sup>b</sup>	Water Year Type <sup>c</sup>	Time Period	Value					
<b>Municipal and Industrial Use</b>											
Contra Costa Canal at Pumping Plant #1 -or-	C-5 CHCC06	Chloride (Cl-)	Maximum mean daily 150 mg/L chloride for at least the number of days shown during the calendar year. Must be provided in intervals of not less than two weeks duration.	W AN BN D C	Number of Days Each Calendar Year <150						
San Joaquin River at Antioch Water Works Intake	D-12 (near) RSAN007	Chloride (Cl-)									
Contra Costa Canal at Pumping Plant #1 -and-	C-5 CHCC06	Chloride (Cl-)	Maximum mean daily, in mg/L	All	October- September	250					
West Canal at mouth of Clifton Court Forebay -and-	C-9 CHWSTO										
Delta-Mendota Canal at Tracy Pumping Plant -and-	DMC-1 CHDMC004										
Cache Slough at City of Vallejo Intake <sup>d</sup> -and-	C-19 SLCCH16										
Barker Slough at North Bay Aqueduct Intake	- SLBAR3										
<b>Agricultural Beneficial Use</b>											
<b>Western Delta</b>											
Sacramento River at Emmaton	D-22 (RSAC092)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)	W AN BN D C	0.45 EC April 1 to date shown August 15 July 1 June 20 June 15 —	EC from date shown to August 15 <sup>e</sup> — 0.63 1.14 1.67 2.78					

Location	Interagency Station Number (RKI <sup>a</sup> )	Parameter	Description (Unit) <sup>b</sup>	Water Year Type <sup>c</sup>	Time Period	Value
San Joaquin River at Jersey Point	D-15 (RSAN018)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)	W AN BN D C	0.45 EC April 1 to date shown August 15 August 15 June 20 June 15 —	EC from date shown to August 15 <sup>d</sup> — — 0.74 1.35 2.20
<b>Interior Delta</b>						
South Fork Mokelumne River at Terminus	C-13 (RSMKL08)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)	W AN BN D C	0.45 EC April 1 to date shown August 15 August 15 August 15 August 15 —	EC from date shown to August 15 <sup>d</sup> — — — — 0.54
San Joaquin River at San Andreas Landing	C-4 (RSAN032)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)	W AN BN D C	0.45 EC April 1 to date shown August 15 August 15 August 15 June 25 —	EC from date shown to August 15 <sup>d</sup> — — — 0.58 0.87

Location	Interagency Station Number (RKI <sup>a</sup> )	Parameter	Description (Unit) <sup>b</sup>	Water Year Type <sup>c</sup>	Time Period	Value
<b>Southern Delta</b>						
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	April–August September–March	0.7
-and-						1.0
San Joaquin River at Brandt Bridge Site	C-6 (RSAN073)					
-and-						
Old River near Middle River	C-8 (ROLD69)					
-and-						
Old River at Tracy Road Bridge	P-12 (ROLD59)					
<b>Export Area</b>						
West Canal at mouth of Clifton Court Forebay	C-9 CHWSTO	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	October–September	1.0
-and-						
Delta-Mendota Canal at Tracy Pumping Plant	DMC-1 CHDMC004					
<b>Fish and Wildlife Beneficial Uses</b>						
<b>Dissolved Oxygen</b>						
San Joaquin River between Tunner Cut and Stockton	(RSAN050 - RSAN061)	Dissolved Oxygen (DO)	Minimum DO (mg/L)	All	September–November	6
Salmon Protection			Narrative	Water quality conditions shall be maintained together with other measures in the watershed sufficient to achieve a doubling of natural production of Chinook Salmon from the average production of 1967–1991, consistent with the provisions of State and Federal law.		

Location	Interagency Station Number (RKI <sup>a</sup> )	Parameter	Description (Unit) <sup>b</sup>	Water Year Type <sup>c</sup>	Time Period	Value
<b>San Joaquin River Salinity</b>						
San Joaquin River at and between Jersey Point and Prisoners Point <sup>f</sup>	D-15 (RSAN018) -and- D-29 (RSAN038)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)	W AN BN D	April–May	0.44 <sup>g</sup>
<b>Eastern Suisun Marsh Salinity<sup>h</sup></b>						
Sacramento River at Collinsville -and- Montezuma Slough at National Steel -and- Montezuma Slough near Beldon Landing	C-2 (RSAS081) S-64 (SLMZU25) S-49 (SLMZU11)	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All	October	19.0
					November–December	15.5
					January	12.5
					February–March	8.0
					April–May	11.0
<b>Western Suisun Marsh Salinity<sup>h</sup></b>						
Chadbourne Slough at Sunrise Duck Club -and- Suisun Slough, 300 feet south of Volanti Slough -and- Cordelia Slough at Ibis Club -and- Goodyear Slough at Morrow Island Clubhouse -and- Water supply intakes for waterfowl management areas on Van Sickle and Chipps Islands	S-21 (SLCBN1) S-42 (SLSUS12) S-97 (SLCRD06) S-35 (SLGYR03) No locations specified	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All but deficiency period	October	19.0
					November	16.5
					December	15.5
					January	12.5
				February–March	8.0	
				April–May	11.0	
				Deficiency Period <sup>i</sup>	October	19.0
		November	16.5			
		December–March	15.6			
			April	14.0		
			May	12.5		

Location	Interagency Station Number (RKI <sup>a</sup> )	Parameter	Description (Unit) <sup>b</sup>	Water Year Type <sup>c</sup>	Time Period	Value
Brackish Tidal Marshes of Suisun Bay			Narrative			Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained. Water quality conditions shall be maintained so that none of the following occurs: (a) loss of diversity; (b) conversion of brackish marsh to salt marsh; (c) for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or (d) for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.

<sup>a</sup> River Kilometer Index station number.

<sup>b</sup> Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period for the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

<sup>c</sup> The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 4.4-2 in Section 4.2) applies for determinations of water year type.

<sup>d</sup> Cache Slough objective to be effective only when water is being diverted from this location.

<sup>e</sup> When no date is shown, EC limit continues from April 1.

<sup>f</sup> Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).

<sup>g</sup> This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedance level. The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in DWR Bulletin 120 for the following locations: Sacramento River above Bend Bridger, near Red Bluff; Feather River, total unimpaired inflow to Oroville Reservoir; Yuba River at Smartville; and American River, total unimpaired inflow to Folsom Reservoir.

<sup>h</sup> An exceedance of any of these objectives at a time when it is established through certification by the entity operating the Suisun Marsh Salinity Control Gates that the gates are being operated to the maximum extent shall not be considered a violation of the objective.

<sup>i</sup> A deficiency period is: (1) the second consecutive Dry Water Year following a Critical Water Year; (2) a Dry Water Year following a year in which the Sacramento River Index (described in footnote 7, above) was less than 11.35; or (3) a Critical Water Year following a Dry or Critical Water Year. The determination of a deficiency period is made using the prior year's final Water Year Type determination and a forecast of the current year's Water Year Type and remains in effect until a subsequent Water Year is other than a Dry or Critical Water Year as announced on May 31 by DWR and Reclamation as the final Water Year determination.

1 **Table 8A-3. Narrative Objectives in the Basin Plans for the Central Valley and San Francisco Bay**  
 2 **Regional Water Boards**

Parameter	Region 5	Region 2
Bacteria	<b>Water Contact Recreation</b>	
	Fecal Coliform: - Based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200/100 ml, - nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.	See Tables 8A-4 and 8A-5
	For Folsom Lake (50), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 100/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 200/100 ml.	
Bioaccumulation		Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.
Biostimulatory Substances	Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.	Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
Dissolved Oxygen		<b>Tidal Waters</b>
	Sacramento River below I Street Bridge and in all Delta Waters west of Antioch Bridge – 7.0 mg/L.	Downstream of Carquinez Bridge – 5.0 mg/L minimum Upstream of Carquinez Bridge – 7.0 mg/L minimum
		<b>Nontidal Waters</b>
	San Joaquin River between Turner Cut and Stockton (September 1 through November 30) – 6.0 mg/L.	Colder Water Habitat – 7.0 mg/L minimum Warmer Water Habitat – 5.0 mg/L minimum
	All other delta water except for those bodies of water constructed for special purposes from which fish have been excluded or where the fishery is not important as a beneficial use – 5.0 mg/L.	

Parameter	Region 5	Region 2
Floating Material	Waters shall not contain floating material, including soils, liquids, foams and scum, in concentrations that cause nuisance or adversely affect beneficial uses.	Waters shall not contain floating material, including soils, liquids, foams and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
Oil and Grease	Waters shall not contain oils, grease, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, otherwise adversely affect beneficial uses.	Waters shall not contain oils, grease, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, otherwise adversely affect beneficial uses.
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.	
	Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.	
	Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Execution Officer.	
	Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies.	
	Pesticide concentrations shall not exceed the lowest levels technically and economically achievable.	
	Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.	
	Water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of thiobencarb in excess of 1.0 µg/L.	
pH	Shall not be depressed below 6.5 nor raised above 8.5.	Shall not be depressed below 6.5 nor raised above 8.5. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels.

Parameter	Region 5	Region 2
Population and Community Ecology		All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Radioactivity	The Basin Plan incorporates by reference the California drinking water MCLs.	The Basin Plan incorporates by reference the California drinking water MCLs.
Salinity	<p>Basin Plan incorporates the 1991 Bay-Delta Water Quality Control Plan objectives, which provide the current Delta objectives).</p> <ul style="list-style-type: none"> <li>- Electrical conductivity (EC) (at 25°C) in the Sacramento River shall not exceed 230 µmhos/cm (50 percentile) or 235 µmhos/cm (90 percentile) at Knights Landing above Colusa Basin Drain; or 240 µmhos/cm (50 percentile) or 340 µmhos/cm (90 percentile) at I Street Bridge, based upon previous 10 years of record.</li> <li>- EC (at 25°C) shall not exceed 150 µmhos/cm (90 percentile) in well-mixed waters of the Feather River.</li> <li>- EC (at 25°C) shall not exceed 150 µmhos/cm from Friant Dam to Gravelly Ford (90 percentile).</li> <li>- Total Dissolved Solids (TDS) shall not exceed 125 mg/L (90 percentile) in the North Fork of the American River from the source to Folsom Lake; Middle Fork of the American River from the source to Folsom Lake; South Fork of the American River from the source to Folsom Lake; American River from Folsom Dam to Sacramento River.</li> <li>- TDS in Folsom Lake shall not exceed 100 mg/L (90 percentile).</li> </ul>	Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.



Parameter	Region 5	Region 2
Settleable Material	Waters shall not contain substances that result in the deposition of material that cause nuisance or adversely affect beneficial uses.	Waters shall not contain substances that result in the deposition of material that cause nuisance or adversely affect beneficial uses.
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Sulfide		All water shall be free from dissolved sulfide concentrations above natural background levels.
Tastes and Odors	Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.	Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.	The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.
	At no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.	The temperature of any COLD or WARM freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature.
	The temperature shall not be elevated above 56°F in the reach from Keswick Dam to Hamilton City or above 68°F in the reach from Hamilton City to the I Street Bridge during periods when temperature increases will be detrimental to the fishery.	N/A
Toxicity	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce detrimental responses in aquatic organisms.

Parameter	Region 5	Region 2
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.
	Increases in turbidity shall not exceed the following limits: - Where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTUs - Where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU - Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent - Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 - Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent	Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTUs.
	Except for periods of storm runoff, the turbidity of Delta waters shall not exceed 50 NTUs in the waters of the Central Delta and 150 NTUs in other Delta waters.	
	For Folsom Lake and American River (Folsom Dam to Sacramento River), except for periods of storm runoff, the turbidity shall be less than or equal 10 NTUs. To the extent of any conflict with the general turbidity objective, the more stringent applies.	
Sources: CVRWQCB 2009; SFBRWQCB 2007 Notes: µg/L = microgram per liter µmhos/cm = micromhos per centimeter MCL = maximum contaminant level mg/L = milligram per liter ml = milliliter N/A = not applicable		

1 **Table 8A-4. San Francisco Bay Basin Plan – Water Quality Objectives for Coliform Bacteria<sup>a</sup>**

Beneficial Use	Fecal Coliform (MPN/100 mL)	Total Coliform (MPN/100 mL)
Water Contact Recreation	geometric mean <200 90th percentile <400	median <240 no sample >10,000
Shellfish Harvesting	median <14 90th percentile <43	median <70 90th percentile <230 <sup>b</sup>
Non-contact Water Recreation	mean <2,000 90th percentile <4,000	
<b>Municipal Supply</b>		
Surface Water <sup>c</sup>	geometric mean <20	geometric mean <100
Groundwater		< 1.1 <sup>d</sup>
Source: SFBRWQCB 2007		
Notes:		
mL = milliliter		
MPN = most probable number		
<sup>a</sup> Based on a minimum of five consecutive samples equally spaced over a 30-day period		
<sup>b</sup> Based on a five-tube decimal dilution test or 300 MPN/100 mL when a three-tube decimal dilution test is used		
<sup>c</sup> Source: California Department of Health Services recommendation		
<sup>d</sup> Based on multiple tube fermentation technique; equivalent test results based on other analytical techniques, as specified in the National Primary Drinking Water Regulation, 40 Code of Federal Regulations Part 141.21(f), revised June 10, 1992, are acceptable		

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3 **Table 8A-5. U.S. Environmental Protection Agency Bacteriological Criteria Incorporated in the San**  
4 **Francisco Bay Basin Plan for Water Contact Recreation<sup>a</sup>**

Criteria	Freshwater		Saltwater
	<i>Enterococci</i> (colonies/100 mL)	<i>E. Coli</i> (colonies/100 mL)	<i>Enterococci</i> (colonies/100 mL)
Steady State (all areas)	33	126	35
<b>Maximum at:</b>			
Designated Beach	61	235	104
Moderately Used Area	89	298	124
Lightly Used Area	108	406	276
Infrequently Used Area	151	576	500
<sup>a</sup> The U.S. Environmental Protection Agency criteria apply to water contact recreation only. The criteria provide for a level of production based on the frequency of usage of a given water contact recreation area. The criteria may be employed in special studies within this region to differentiate between pollution sources or to supplement the current coliform objectives for water contact recreation. Note: mL = milliliter Source: SFBRWQCB 2007			

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## 1 **8A.1**      **References**

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