F SUMMARY OF METHYLMERCURY CONCENTRATION DATA FOR MAJOR DELTA TRIBUTARY INPUT AND EXPORT LOADS

The compilation of available methylmercury concentration data for the major Delta tributary inputs and exports is presented in Table D.1 in Appendix D. Table F.1 presents the average monthly methylmercury concentrations based on the data in Table D.1. Figures F.1 a d F.2 present the plots of methylmercury concentration versus daily flow for each tributary input and export monitoring station with daily flow data available.

Table F.1: Monthly Average Methylmercury Concentrations (ng/l) for March 2000 to April 2004 Period Used to Estimate Annual Average Loads. (a)

Month	Delta Mendota Canal	Mokelumne River @ I-5	Prospect Slough (b)	Sacramento River @ Freeport	Sacramento River @ Greene's Landing	Sacramento River @ RM44	San Joaquin River @ Vernalis	State Water Project	X2
January	0.144	0.246	0.413	0.145	0.170	0.152	0.239	0.113	0.095
February	0.133*	0.320	0.414	0.146	0.155	0.152	0.175	0.077	0.165
March	0.123	0.178	0.513	0.093	0.124	0.095	0.169	0.097	0.204
April	0.018	0.247	0.246	0.066	0.103	0.079	0.120	0.053	0.061
May	0.094	0.174	0.258	0.111	0.141	0.131	0.128	0.097	0.119
June	0.071	0.161	0.217	0.084	0.069	0.126	0.195	0.020	0.077
July	0.056	0.066	0.224	0.105	0.060	0.118	0.165	0.020	0.050
August	0.021	0.110	0.175	0.093	0.091	0.103	0.167	0.009	0.033
September	0.035	0.099	0.133	0.071	0.069	0.088	0.145	0.049	0.043
October	0.011	0.130	0.142	0.077	0.078	0.082	0.158	0.011	0.011
November	0.037*	0.113*	0.206*	0.123	0.099	0.118	0.130*	0.031*	0.035*
December	0.063	0.096	0.269	0.122	0.089	0.140	0.102	0.050	0.060
Average of All Data	0.062	0.153	0.256	0.105	0.105	0.117	0.156	0.051	0.075
Median of All Data	0.061	0.167	0.209	0.097	0.095	0.108	0.147	0.050	0.070
Annual Average (c)	0.064	0.166	0.273	0.103	0.104	0.115	0.160	0.054	0.083

(a) No methylmercury concentration data were available for the month of February at the Delta Mendota Canal monitoring station or for the month of November at the Delta Mendota Canal, Mokelumne River, Prospect Slough, San Joaquin River, State Water Project, and X2 monitoring stations. Monthly average methylmercury concentrations were estimated for the months with no data by averaging the concentrations for months before and after the month with no data; these estimated values are shown in bold, italicized text with an asterisk.

(b) There is generally no net outflow from the Yolo Bypass's Toe Drain downstream of Lisbon Weir between April and November. (See Appendix E for a description of Yolo Bypass hydrology.) Therefore, although sampling of Prospect Slough took place during outgoing tides with the intent of sampling outflows from the Yolo Bypass, during the summer months this sampling most likely represents waters tidally-pumped northward from Cache Slough, rather than outflows from the Yolo Bypass north of Lisbon Weir.

(c) The annual average concentration was estimated by averaging the monthly averages.

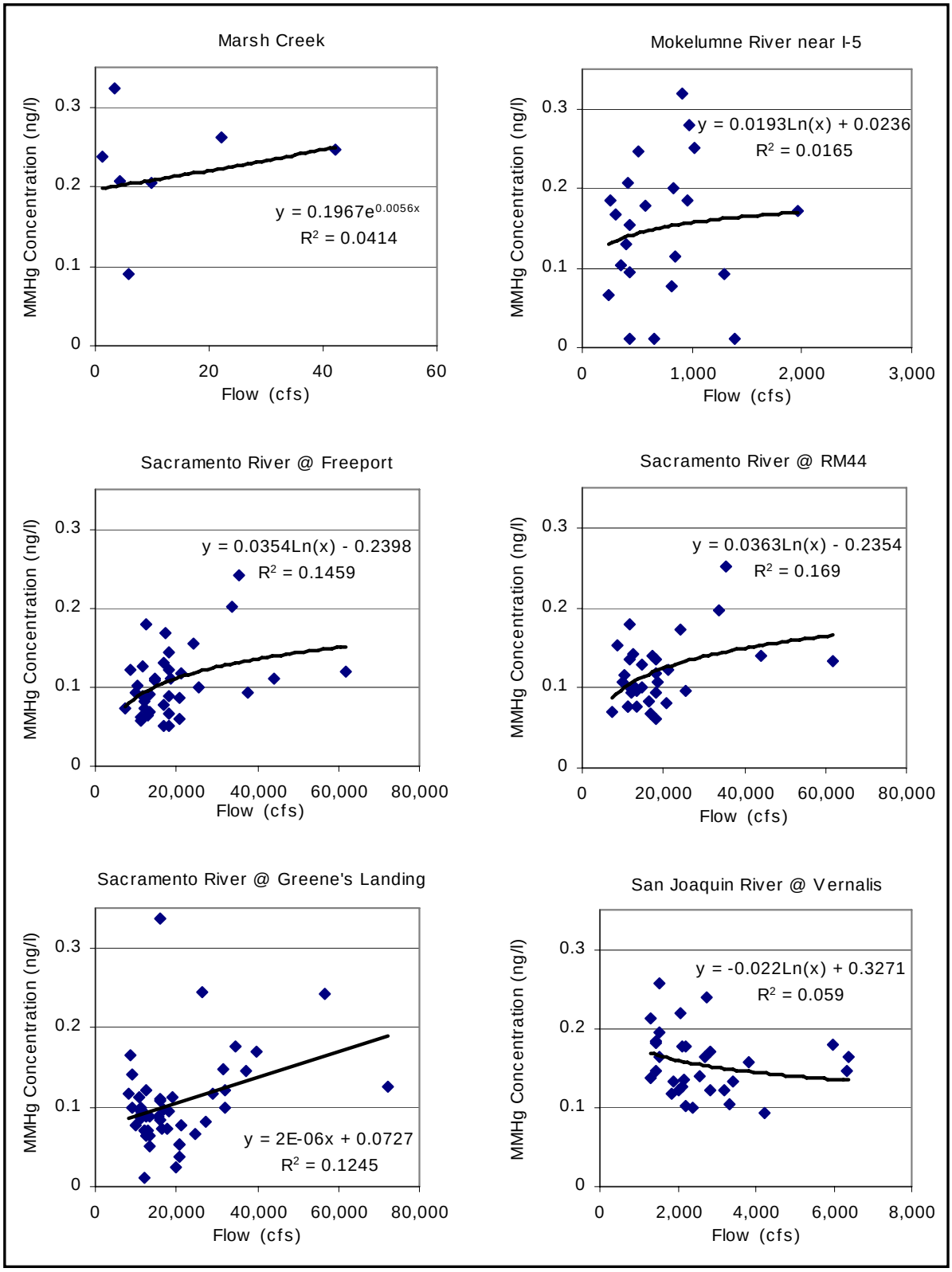
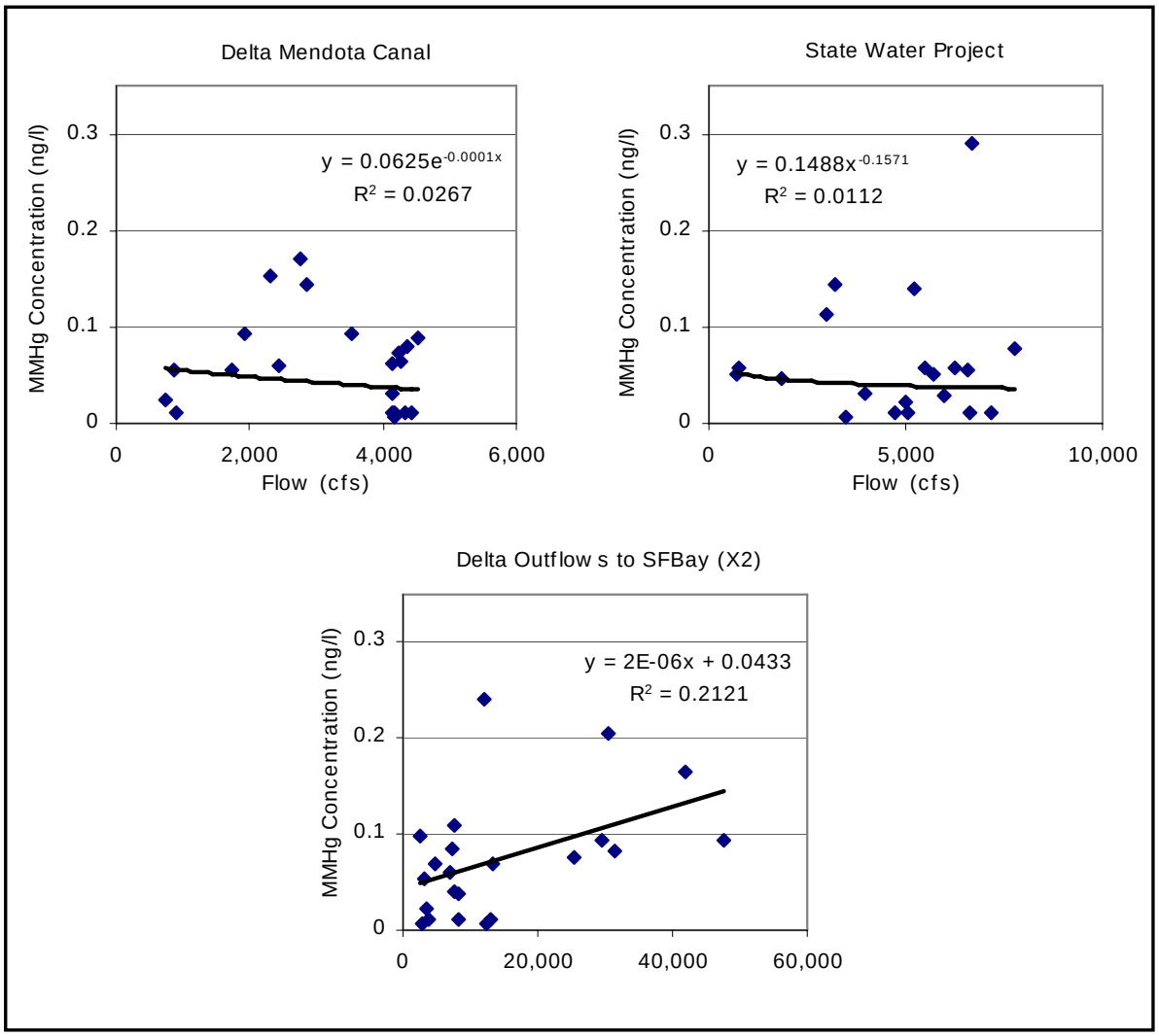


Figure F.1: Methylmercury Concentration versus Daily Flow for Tributary Inputs with Daily Flow Data Available.



Figures F.2: Methylmercury Concentration versus Daily Flow for Exports with Daily Flow Data Available.

G INFORMATION ABOUT NPDES-PERMITTED FACILITIES IN THE DELTA & ITS TRIBUTARY WATERSHEDS

Table G.1: Summary of Unfiltered Total Mercury Concentrations in Discharge from Facilities Located within the Delta

Facility Name	NPDES #	Facility Type	Delta Subarea	Average Daily Discharge (mgd)	TotHg Sampling Period	Ave. Conc. (ng/l)	Conc. Range (ng/l)	# of Samples	Standard Deviation	t Value (p = 0.975, conf 95%, df = n-1)	95% Conf. Interval (ng/l)	Annual TotHg Load ± 95% Conf. Interval (g/yr)
Brentwood WWTP	CA0082660	POTW	Marsh Ck	3.09	8/04-10/05	1.28	0.56- 2.2	15	0.54	2.145	0.30	5.48 ±1.3
CALAMCO Stockton Terminal	CA0083968	Heating /Cooling	Central	5.06	1/02	6.60	6.6	1	--	--	--	46 (b)
Deuel Vocational Institute WWTP	CA0078093	POTW	San Joaquin	0.47	3/02-12/02	3.31	2.5-4.6	4	0.90	3.182	1.44	2.1 ±0.92
Discovery Bay WWTP	CA0078590	POTW	Central	1.54	8/04-10/05	5.00	1.8- 11.0	10	2.76	2.262	1.98	10.6±4.2
GWF Power Systems	CA0082309	Power	West	0.05	4/01-10/05	4.25	0.60- 25.7	42	3.74	2.021	1.17	0.27 ±0.07 (b)
Lodi White Slough WWTP	CA0079243	POTW	Central	3.97	8/04-10/05	3.34	1.6-7.2	15	1.38	2.145	0.77	18.3 ±4.2
Manteca Aggregate Sand Plant	CA0082783	Lake Dewatering	San Joaquin	9.15	1/02-11/02	2.91	2.07-3.9	4	0.97	3.182	1.54	36.8 ±19.5
Manteca WWTP	CA0081558	POTW	San Joaquin	4.63	9/04-10/05	10.71	2.0-20.3	14	5.91	2.16	3.41	68.5 ±21.8
Mirant Delta LLC Contra Costa Power Plant, Outfall 1 & 2	CA0004863	Power	West	2.90	2/04-5/05	6.14	1.6-10.1	4	4.14	3.182	6.58	24.6 ±26.4 (b)
				121.03	2/04-5/05	7.11	4.2-11.8	4	3.64	3.182	5.79	1,189 ±968 (b)
Rio Vista Trilogy WWTP	CA0083771	POTW	Sacramento	0.10	1/03	3.70	3.7	1	--	--	--	0.52
Rio Vista WWTP	CA0079588	POTW	Sacramento	0.47	12/01-12/03	9.50	1.7-19	20	4.69	2.086	2.19	6.2 ±1.4
San Joaquin Co DPW CSA 31 Flag City WWTP	CA0082848	POTW	Central	0.06	1/05-10/05	3.25	0.60-17	8	5.57	2.365	4.66	0.26 ±0.38
SRCSD Sacramento River WWTP	CA0077682	POTW	Sacramento	151.42	1/96-11/03	8.42	2.9-24.9	302	2.83	1.96	0.32	1761 ±67
SRCSD Walnut Grove WWTP	CA0078794	POTW	Sacramento	0.08	12/00-1/04	21.47	11-29.4	9	5.24	2.306	4.03	2.39 ±0.45
State of California Central Heating/Cooling Plant	CA0078581	Heating /Cooling	Sacramento	5.26	3/02-12/02	2.77	1.1-3.7	4	1.19	3.182	1.9	20 (b)
Stockton WWTP	CA0079138	POTW	San Joaquin	27.78	8/04-7/05	5.18	3.0-11	12	3.00	2.201	1.91	199 ±73.2
Tracy WWTP	CA0079154	POTW	San Joaquin	9.49	8/04-8/05	11.02	2.1-18.6	13	4.43	2.179	2.68	144 ±35.1
West Sacramento WWTP	CA0079171	POTW	Sacramento	5.60	8/04-7/05	3.32	1.6-5	11	1.08	2.228	0.72	25.7 ±5.9
										Total Mercury Loading to the Delta (b)	**2,432 g/yr (2.4 kg/yr)**	

(a) No mercury data are yet available for Metropolitan Stevedore (CA0084174), a power facility in the Central Delta subarea. Mercury and flow data for the Sacramento Combined WWTP (CA0079111) in the Sacramento River subarea are summarized in Table G.2. In addition, Mountain House CSD WWTP (CA0084271) is not yet discharging to surface water.

(b) Based on the comparison of the available intake and outfall mercury data (Table G.4), facilities that use ambient water for cooling water do not appear to act as a source of new methylmercury to the Delta, and are therefore not included in the estimate of total mercury loading to the Delta. This assumption will be re-evaluated as additional information becomes available. If the estimated loading from the Combined WWTP is included (see Table G.2b), the total mercury loading to the Delta is approximately 2.4 kg/yr.

Table G.2a: Summary of City of Sacramento Combined Sewer System Total Mercury Concentration Data (a, b)

DATE	**CWTP** (ng/l)	**PIONEER** (ng/l)	**SUMP-2** (ng/l)
12/03/1994	58	82	32
01/08/1995	47	120	
01/10/1995			220
03/02/1995	90		98
03/09/1995			85
03/21/1995	68		83
Average	**66**	**71**	**104**
# of Samples	4	2	5
Standard Deviation	18.30	26.87	69.78
t value (p=0.975, conf 95%, df =n-1)	3.182	12.706	2.776
Confidence Interval	29	241	87

(a) The City of Sacramento owns and operates a combined sewer system (CSS) that serves 7,510 acres in the downtown, East Sacramento, and Land Park areas. An additional 3,690 acres with separate sewers contributes sanitary sewage to the combined system. The CSS conveys domestic and industrial wastewater and storm runoff to Sump 2, where up to 60 mgd is pumped to the Sacramento Regional County Sanitation District's regional wastewater treatment plant (SRCSD) for secondary treatment prior to discharge to the Sacramento River. This discharge is designated as point 001 and is governed by NPDES No. CA0077682. When flow to Sump 2 exceeds 60 mgd, the City operates its Combined Wastewater Treatment Plant (CWTP), where an additional 130 mgd of combined wastewater receives primary treatment with disinfection and discharge to the Sacramento River at points 002 and 003. The CWTP basins may also be used for storage of flows and diversion of flows back to the SRCSD. Flows to Sump 2 greater than 190 mgd are diverted to the 28 million gallon Pioneer Interceptor and Reservoir for storage. During major storms, Sump 1/1A also pumps up to 120 mgd to Pioneer Reservoir. The stored combined wastewater is diverted back to the SRCSD or the CWTP for treatment as treatment capacity allows, or is discharged to the Sacramento River if storm flows exceed total treatment and storage capacity. The discharge from Pioneer Reservoir occurs at point 006 and receives partial settleable solids and floatables removal, in a flow-through process, without disinfection. During extreme high flow conditions, discharges of untreated combined wastewater may occur at Sump 2 bypass points 004 and 005 and at Sump 1 bypass point 007. Collected screenings are hauled to a landfill, and sludges and other solids removed from liquid wastes are pumped through the collection system to the SRCSD.

(b) Total mercury concentration data were obtained from a City of Sacramento monitoring report to the Regional Board (City of Sacramento, 1996). Only data collected using clean hands techniques (MDL of 0.1 ng/l) were used for TMDL calculations.

Table G.2b: City of Sacramento Combined Stormwater/Sewer System Annual Water Volumes & Total Mercury Load Estimates

Water Year	**Water Volume (MG/year)**				**Total Mercury Load (kg/year)**			
	CWTP	PIONEER	SUMP 2	**TOTAL**	CWTP	PIONEER	SUMP 2	**TOTAL**
1993	459.6	42.5	243.9	**746.0**	0.114 ±0.051	0.016 ±0.039	0.096 ±0.08	**0.226** ±0.169
1994	190.5		18.6	**209.0**	0.047 ±0.021		0.007 ±0.006	**0.055** ±0.027
1995	399.7	189.7	435.9	**1025.3**	0.099 ±0.044	0.073 ±0.173	0.171 ±0.143	**0.343** ±0.36
1996	433.7	259.8	89.3	**782.8**	0.108 ±0.048	0.099 ±0.237	0.035 ±0.029	**0.242** ±0.315
1997	354.3	139.0	210.9	**704.2**	0.088 ±0.039	0.053 ±0.127	0.083 ±0.069	**0.224** ±0.235
1998	440.2	515.1		**955.3**	0.110 ±0.049	0.197 ±0.471		**0.306** ±0.519
1999	8.3	65.4		**73.7**	0.002 ±0.001	0.025 ±0.06		**0.027** ±0.061
2000	90.8	291.3	82.9	**465.0**	0.023 ±0.01	0.111 ±0.266	0.033 ±0.027	**0.166** ±0.303
2001		32.6		**32.6**		0.012 ±0.03		**0.012** ±0.03
2002		53.7		**53.7**		0.021 ±0.049		**0.021** ±0.049
2003		90.6		**90.6**		0.035 ±0.083		**0.035** ±0.083
Average Annual Water Volume (MG/year):				**467**	**Average Annual TotHg Load** (kg/year):			**0.151** ±0.196

(a) Total mercury load estimates are based on average total mercury concentrations and confidence intervals shown in Table G.6a.

Table G.3: Preliminary Summary of Available Methylmercury Concentration Data for NPDES-Permitted Facility Discharges in the Central Valley (a)

Facility Code	Facility Name	# of Effluent 1 Samples	Ave. Eff. 1 Conc. (ng/l)	Min. Eff. 1 Conc. (ng/l)	Max. Eff. 1 Conc. (ng/l)	# of Influent 1 MeHg Samples	Ave. Inf. 1 MeHg Conc. (ng/l)	Min. Inf. 1 MeHg Conc. (ng/l)	Max. Inf. 1 MeHg Conc. (ng/l)
2	Aerojet Sacramento Facility	1	0.057	0.057	0.057				
5	Anderson WPCP	12	0.090	0.010	0.271				
6	Atwater WWTF	12	0.034	0.010	0.084	1	1.940	1.940	1.940
7	Auburn WWTP	12	0.028	0.010	0.072	1	2.720	2.720	2.720
9	Bell Carter Olive Company Inc.	4	0.019	0.010	0.027				
10	Bella Vista Water District	2	0.056	0.027	0.084				
11	Biggs WWTP	2	1.605	0.150	3.060				
12	Boeing Company, Interm. Treat. System	1	0.010	0.010	0.010				
13	Brentwood WTP	13	0.010	0.010	0.010				
14	Manteca Aggregate Sand Plant	2	0.027	0.010	0.043				
15	CA Dairies, Inc. Los Banos Foods	4	0.016	0.013	0.026				
16	CA State of, Central Heating/Cooling Facility	4	0.015	0.010	0.029				
17	CALAMCO - Stockton Terminal	4	0.293	0.030	0.919	1	0.026	0.026	0.026
18	Calaveras Trout Farm (Rearing Facility)	2	0.060	0.027	0.092	1	0.067	0.067	0.067
19	Calpine Corp. Greenleaf Unit One Cogen Plant	4	0.064	0.020	0.117				
20	Camanche Dam Powerhouse	4	0.020	0.010	0.039				
21	Canada Cove LP French Camp Golf & RV Park	4	0.147	0.029	0.291				
23	Chico Regional WWTF	12	0.157	0.057	0.527	11	1.133	0.155	1.590
24	Clear Creek CSD WTP	2	0.036	0.028	0.043				
25	Colfax STP	3	0.197	0.115	0.350				
26	Collins and Aikman								
28	Colusa WWTP	3	3.160	2.290	4.020	1	1.580	1.580	1.580
29	Corning Industries/ Domestic WWTF	3	0.043	0.034	0.053				
30	Cottonwood WWTP	5	0.096	0.045	0.245				
31	Crystal Creek Aggregate	1	0.010	0.010	0.010				
32	Davis WTP	12	0.574	0.247	1.440	1	1.660	1.660	1.660
33	Deer Creek WWTP	13	0.015	0.013	0.032	13	1.154	0.335	1.570
34	Defense Logistics Agency Sharpe GW Cleanup	4	0.024	0.020	0.033				

Table G.3: Preliminary Summary of Available Methylmercury Concentration Data for NPDES-Permitted Facility Discharges in the Central Valley (a)

Facility Code	Facility Name	# of Effluent 1 Samples	Ave. Eff. 1 Conc. (ng/l)	Min. Eff. 1 Conc. (ng/l)	Max. Eff. 1 Conc. (ng/l)	# of Influent 1 MeHg Samples	Ave. Inf. 1 MeHg Conc. (ng/l)	Min. Inf. 1 MeHg Conc. (ng/l)	Max. Inf. 1 MeHg Conc. (ng/l)
35	Deuel Vocational Institute STP	4	0.010	0.010	0.010				
36	DFG Darrah Springs Fish Hatchery	4	0.027	0.020	0.031	1	0.010	0.010	0.010
38	DFG Merced River Fish Hatchery	1	0.037	0.037	0.037				
39	DFG Moccasin Creek Fish Hatchery	1	0.010	0.010	0.010				
40	DFG Mokelumne River Fish Hatchery	4	0.041	0.010	0.059	1	0.010	0.010	0.010
41	DFG Nimbus Fish Hatchery	4	0.081	0.053	0.129	3	0.045	0.031	0.052
42	DFG San Joaquin Fish Hatchery	2	0.060	0.047	0.073	1	0.021	0.021	0.021
44	DGS Office of State Publishing	4	0.020	0.020	0.020				
45	Discovery Bay WTF	12	0.191	0.013	2.030				
47	El Dorado Hills WWTP	13	0.021	0.013	0.057	13	1.160	0.388	2.020
49	Galt WWTP	6	0.139	0.027	0.220				
50	Gaylord Container Corp. Antioch Pulp & Paper Mill	3	0.055	0.048	0.061				
51	General Electric Co. GWCS	4	0.040	0.010	0.131	4	0.036	0.010	0.112
53	Grass Valley STP	13	0.182	0.010	0.938	13	1.954	1.030	5.010
55	GWF Power Systems	4	0.013	0.013	0.013	4	0.075	0.013	0.263
56	Hershey Chocolate USA, Oakdale	4	0.010	0.010	0.010				
57	J.F. Shea CO Fawndale Rock and Asphalt	1	0.010	0.010	0.010				
58	Jackson WWTP	4	0.108	0.061	0.161	1	0.854	0.854	0.854
60	Lehigh Southwest Cement Co.	1	0.010	0.010	0.010				
61	Lincoln WWTP	8	0.020	0.010	0.068				
63	Live Oak	4	0.591	0.427	0.785				
64	Lodi White Slough WPCU	12	0.128	0.010	1.240	12	1.396	0.730	2.740
65	Manteca WWQCF	11	0.216	0.037	0.356				
66	Mariposa PUD WWTF	4	0.393	0.040	0.912	1	0.068	0.068	0.068
67	Maxwell PUD WWTF	3	1.309	0.508	1.720	1	14.600	14.600	14.600
68	Merced WWTF	12	0.386	0.130	0.672				
69	Mirant Delta CCPP	12	0.074	0.010	0.121	12	0.096	0.010	0.296
70	Modesto ID Regional WTP	3	0.050	0.038	0.066	3	0.024	0.020	0.033

Table G.3: Preliminary Summary of Available Methylmercury Concentration Data for NPDES-Permitted Facility Discharges in the Central Valley (a)

Facility Code	Facility Name	# of Effluent 1 Samples	Ave. Eff. 1 Conc. (ng/l)	Min. Eff. 1 Conc. (ng/l)	Max. Eff. 1 Conc. (ng/l)	# of Influent 1 MeHg Samples	Ave. Inf. 1 MeHg Conc. (ng/l)	Min. Inf. 1 MeHg Conc. (ng/l)	Max. Inf. 1 MeHg Conc. (ng/l)
71	Modesto WQCF	5	0.128	0.109	0.161				
73	Mt Lassen Trout Farms Meadowbrook Facility								
74	Nevada City WWTP	4	0.048	0.010	0.146	4	3.140	1.090	6.230
75	Nevada Co SD #1 Cascade Shores WWTP	3	0.142	0.010	0.286				
76	Nevada Co SD #1 Lake Wildwood WWTP	12	0.109	0.010	0.320				
77	Nevada Co SD #2 Lake of the Pines WWTP	2	1.409	0.708	2.110				
78	Olivehurst PUD WWTP	13	0.144	0.013	0.268				
80	Oroville WWTP	12	0.147	0.061	0.280				
82	South Feather Water & Power	2	0.013	0.013	0.013				
83	Pacific Coast Sprout Farms (Sacramento Facility)	1	0.010	0.010	0.010				
84	Pactiv Molded Pulp Mill	12	0.039	0.010	0.085				
85	Paradise Irrigation District	1	0.013	0.013	0.013				
86	Placer Co. SA #28 Zone #6	2	0.668	0.474	0.862				
87	Placer Co. SMD #1 WWTP	12	0.141	0.042	0.350	1	2.590	2.590	2.590
88	Placer Co. SMD #3 WWTP	12	0.100	0.037	0.381				
89	Placerville Hangtown Creek WWTP	12	0.058	0.013	0.170				
90	Planada Comm. Service Dist. WWTF	4	1.168	0.374	2.040	1	3.390	3.390	3.390
92	Proctor & Gamble Co. WWTP	4	0.016	0.010	0.033	3	0.010	0.010	0.010
94	Red Bluff WWRP	12	0.030	0.010	0.057				
95	Redding Clear Creek WWTP	12	0.042	0.013	0.084				
96	Redding Stillwater WWTP	13	0.013	0.013	0.013				
97	Rio Alto WD- Lake CA WWTP	3	1.219	0.141	3.350	1	0.057	0.057	0.057
98	Rio Vista Main WWTP	4	0.164	0.035	0.522	4	2.903	1.570	4.790
102	Roseville Dry Creek WTP	12	0.023	0.010	0.055	9	1.360	0.600	2.860
103	Roseville Pleasant Grove WTP	12	0.017	0.010	0.070	9	0.808	0.120	2.160
104	Sacramento Cogen Auth. Procter & Gamble Plant	4	0.052	0.013	0.070	4	0.029	0.010	0.080
106	Sacramento International Airport	2	0.035	0.023	0.046				
108	San Andreas SD WWTF	4	0.249	0.178	0.293				

Table G.3: Preliminary Summary of Available Methylmercury Concentration Data for NPDES-Permitted Facility Discharges in the Central Valley (a)

Facility Code	Facility Name	# of Effluent 1 Samples	Ave. Eff. 1 Conc. (ng/l)	Min. Eff. 1 Conc. (ng/l)	Max. Eff. 1 Conc. (ng/l)	# of Influent 1 MeHg Samples	Ave. Inf. 1 MeHg Conc. (ng/l)	Min. Inf. 1 MeHg Conc. (ng/l)	Max. Inf. 1 MeHg Conc. (ng/l)
109	San Joaquin Co DPW - Flag City	3	0.081	0.013	0.152				
110	Shasta Lake WTP	2	0.025	0.010	0.040				
111	Shasta Lake WWTF	2	0.022	0.010	0.034				
112	SMUD Rancho Seco Nuclear Generating Station	12	0.040	0.013	0.104				
113	SPI Anderson Division	4	0.106	0.036	0.140				
117	SPI Shasta Lake	2	0.607	0.023	1.190				
118	SRCSD Sacramento River WWTP	45	0.727	0.144	2.930	44	1.645	0.787	2.840
119	SRCSD Walnut Grove WWTP (CSD1)	3	1.689	0.759	3.360	3	2.839	0.626	6.740
120	Stimpel Wiebelhaus Assoc. SWA at Mountain Gate	1	0.081	0.081	0.081				
121	Stockton Congeneration Co.	4	0.017	0.013	0.029				
122	Stockton STP Main Plant	12	0.935	0.010	2.090				
123	Tracy STP	13	0.145	0.013	0.422				
124	Tuolumne UD Sonora RWTP/ Jamestown SDWTP	3	0.182	0.071	0.262				
125	Turlock WWTP	12	0.114	0.010	0.840				
126	UA Local 38 Trust Fund Konocti Harbor Resort	1	0.079	0.079	0.079				
127	UC Davis Center for Aquatic Biology & Aquaculture	4	0.030	0.010	0.067				
128	UC Davis Hydraulics Laboratory	3	0.057	0.038	0.082				
129	UC Davis WTP	13	0.038	0.010	0.078	13	2.766	0.074	11.100
130	United Auburn Indian Community Casino WWTP	1	0.010	0.010	0.010				
133	USDI BR Winter Run Rearing Facility (Livingston Stone)	4	0.010	0.010	0.010				
134	USDI FWS Coleman Fish Hatchery	3	0.030	0.023	0.043				
135	Vacaville Easterly Sewage Plant	12	0.024	0.010	0.057				
136	West Sacramento STP	12	0.050	0.010	0.085				
137	Wheelabrator Shasta Energy Co.	4	0.104	0.055	0.178				
138	Williams WWTP	4	1.553	0.560	2.100	4	7.133	4.530	11.900
140	Woodland WWTP	12	0.031	0.013	0.059	12	2.309	0.767	7.070
141	Yuba City WW Reclamation Plant	12	0.295	0.106	0.625				

(a) The complete dataset for all facilities will be included in a separate Central Valley Water board staff report to be released in summer 2006.

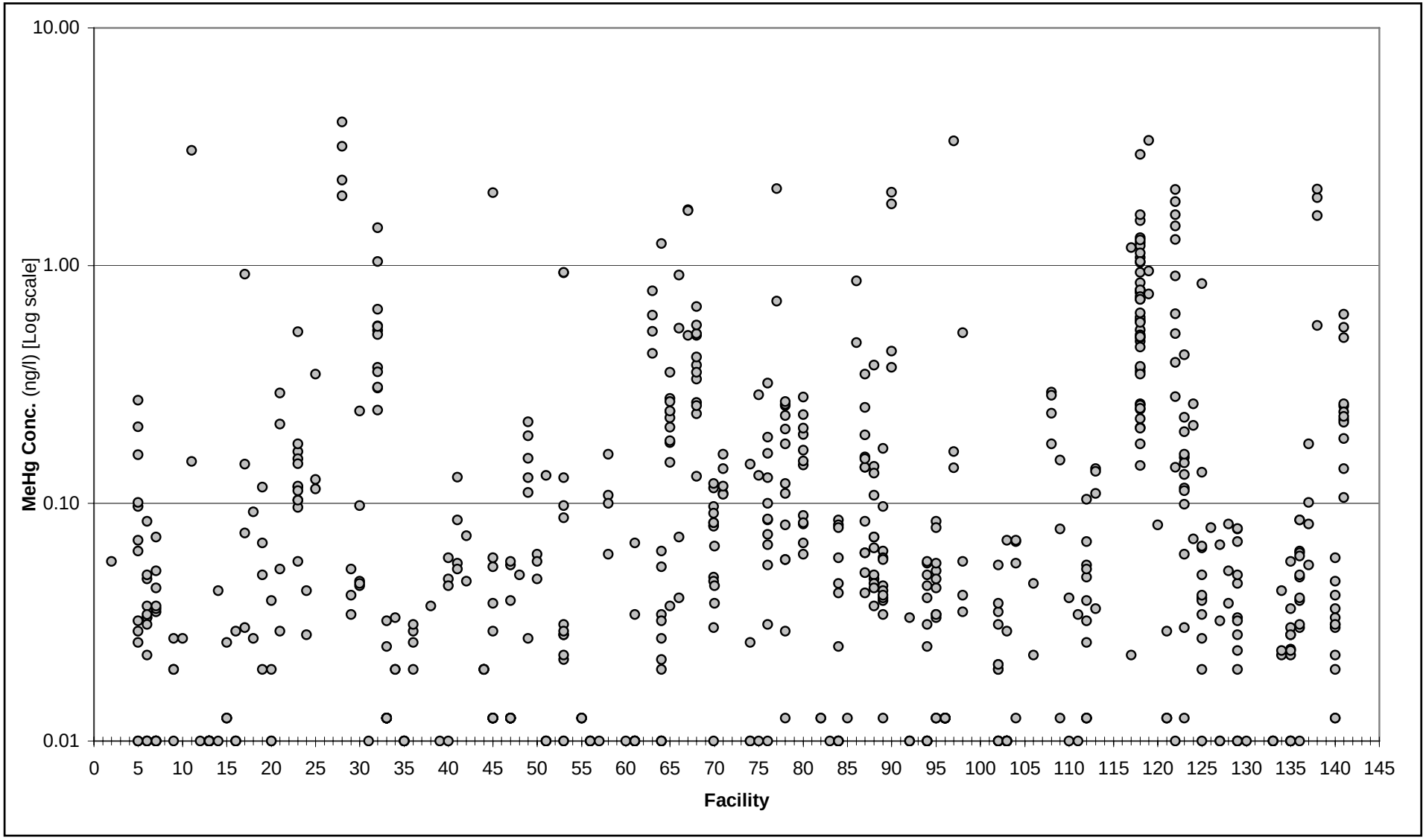


Figure G.1: Available Methylmercury Concentration Data (Effluent 1) for NPDES-Permitted Facility Discharges in the Central Valley. See Table G.3 for definition of the facility codes.

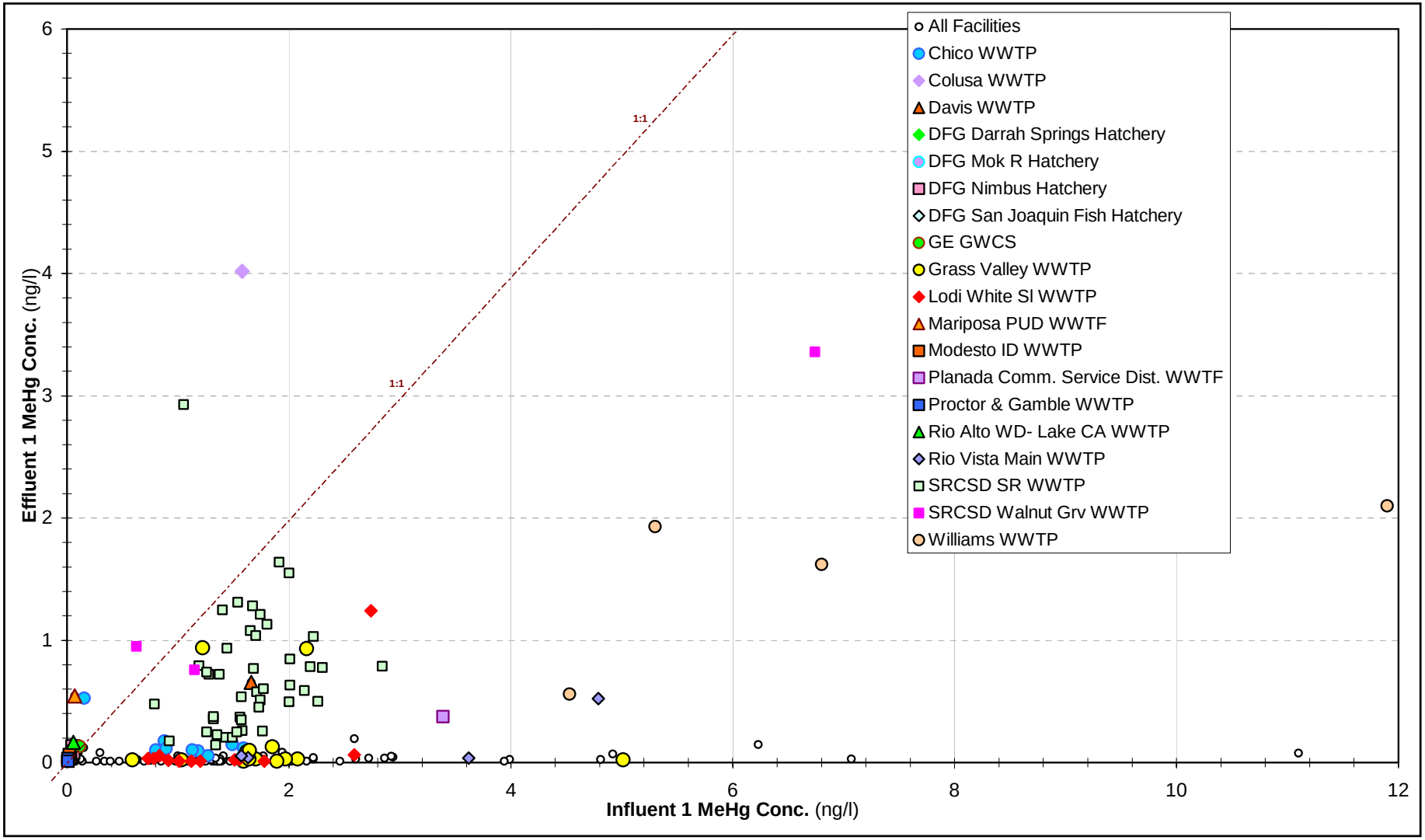


Figure G.2: Influent 1 versus Effluent 1 Methylmercury Concentrations for Facilities with Available Influent Data

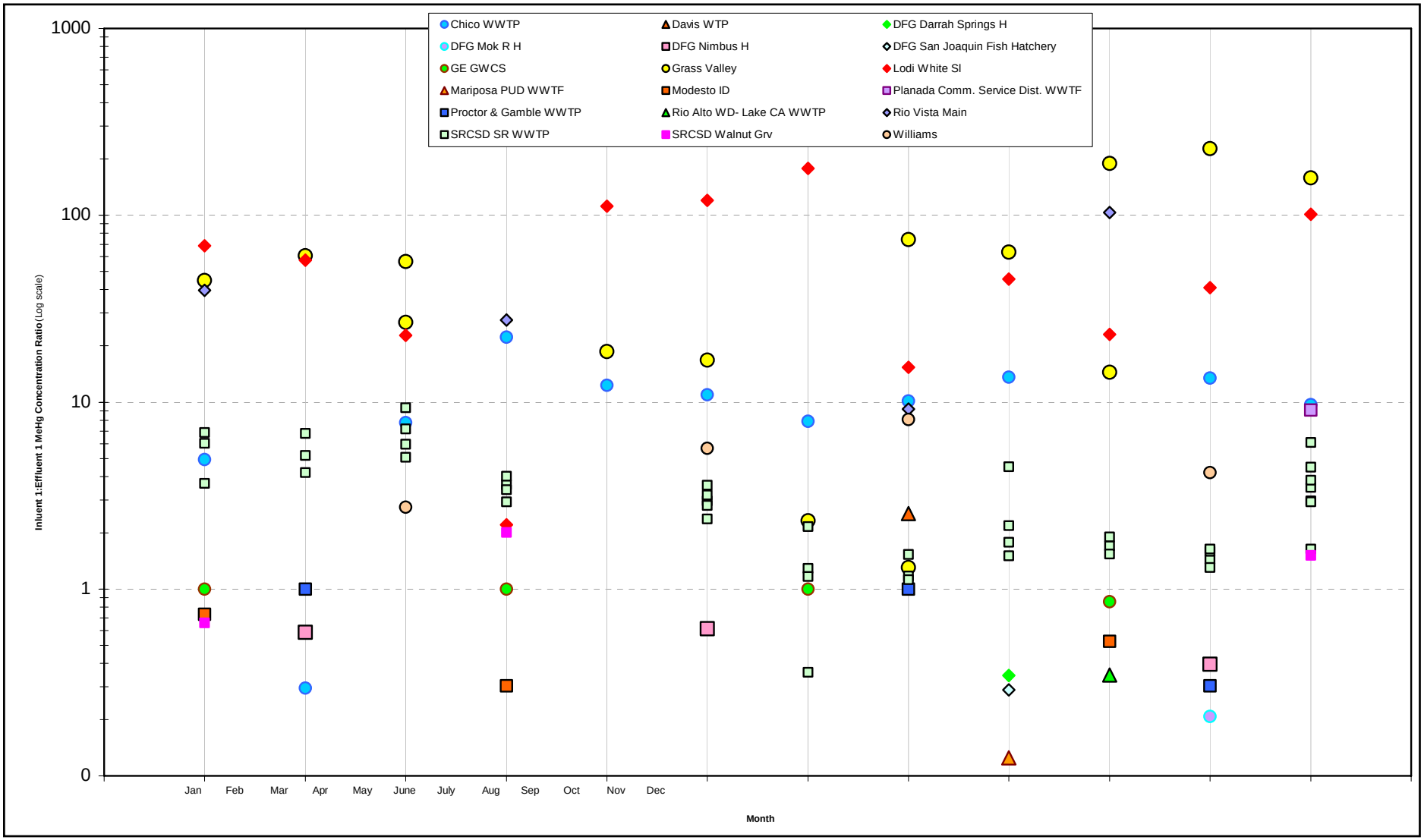


Figure G.3: Seasonal Patterns in Influent 1 to Effluent 1 Methylmercury Concentration Ratios.
This figure illustrates the seasonal changes in demethylation efficiency experienced by some facilities.

Table G.4: Available Intake and Outfall Methylmercury Concentration Data for Aquaculture, Power and Heating/Cooling Facilities in the Delta and Its Upstream Tributary Watersheds (a)

Facility [NPDES #, Type]	Sample Date	Outfall 1 MeHg Conc (ng/l) (b)	Outfall 1 MeHg Qual. (c)	Outfall 2 MeHg Conc (ng/l)	Outfall 2 MeHg Qual. (c)	Outfall 2 Field Dup MeHg Conc (ng/l)	Outfall 2 Field Dup MeHg Qual. (c)	Intake 1 MeHg Conc (ng/l) (a)	Intake 1 MeHg Qual. (c)	Intake 1 Dup. MeHg Conc (ng/l)	Intake 1 Dup. MeHg Qual. (c)	Intake 2 MeHg Conc. (ng/l)	Intake 2 MeHg Qual. (c)
CALAMCO - Stockton Terminal [CA0083968, Heating /Cooling]	8/26/04	0.030	B					0.026	B				
Calaveras Trout Farm (Rearing Facility) [CA0081752, Aquaculture]	9/30/04	0.027	B					0.067					
DFG Darrah Springs Fish Hatchery [CA0004561, Aquaculture]	9/15/04	0.029	B, (nn)	0.043	B, X, (mm)			0.010	<MDL, (nn)			0.020	<MDL, (nn)
DFG Mokelumne River Fish Hatchery [CA0004791, Aquaculture]	11/16/04	0.048	A					0.010	<MDL, A	0.020	<MDL, A		
DFG Nimbus Fish Hatchery [CA0004774, Aquaculture]	11/16/04	0.129	A					0.051	A				
	2/17/05	0.053						0.031				0.053	
	6/20/05	0.085						0.052					
DFG San Joaquin Fish Hatchery [CA0004812, Aquaculture]	9/28/04	0.073						0.021	B				
GWF Power Systems [CA0082309, Power]	8/11/04	0.013	<MDL					0.013	<MDL				
	11/4/04	0.013	<MDL					0.013	<MDL				
	2/3/05	0.013	<MDL					0.263					
	5/5/05	0.013	<MDL					0.013	<MDL				

Table G.4: Available Intake and Outfall Methylmercury Concentration Data for Aquaculture, Power and Heating/Cooling Facilities in the Delta and Its Upstream Tributary Watersheds, *continued*

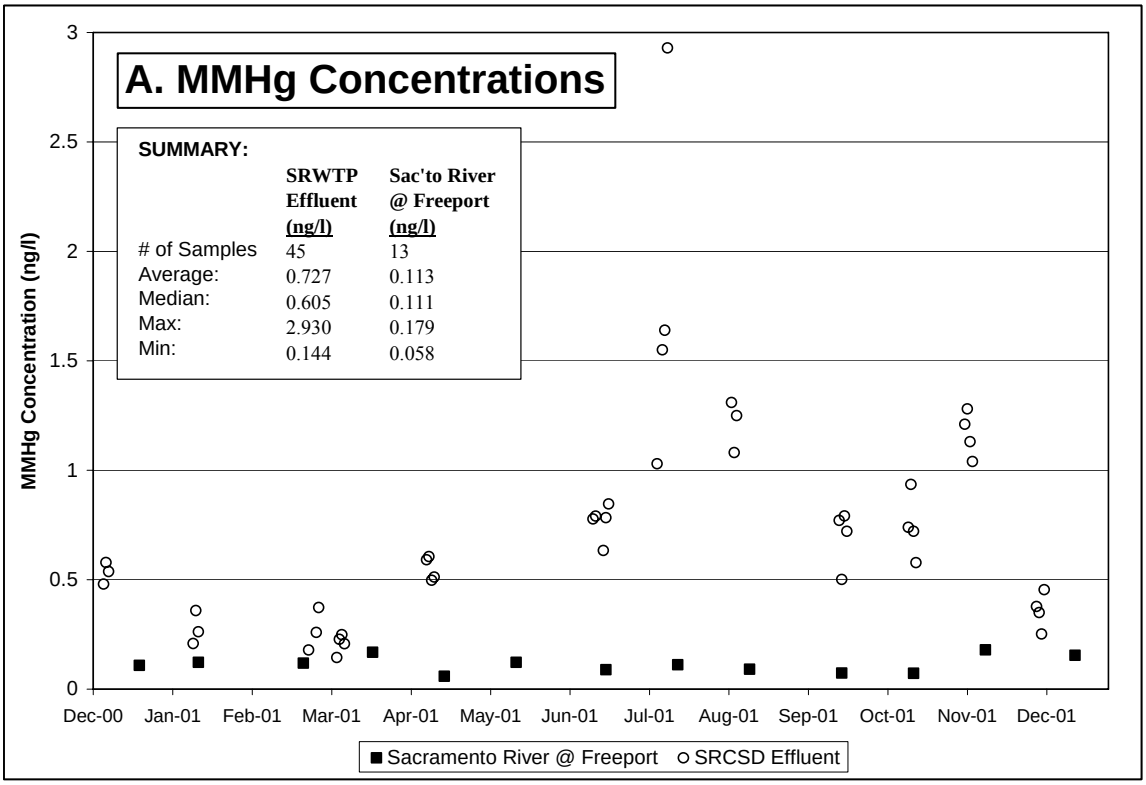
Facility [NPDES #, Type]	Sample Date	Outfall 1 MeHg Conc (ng/l) (a)	Outfall 1 MeHg Qual. (b)	Outfall 2 MeHg Conc (ng/l)	Outfall 2 MeHg Qual. (c)	Outfall 2 Field Dup MeHg Conc (ng/l)	Outfall 2 Field Dup MeHg Qual. (c)	Intake 1 MeHg Conc (ng/l) (a)	Intake 1 MeHg Qual. (c)	Intake 1 Dup. MeHg Conc (ng/l)	Intake 1 Dup. MeHg Qual. (c)	Intake 2 MeHg Conc. (ng/l)	Intake 2 MeHg Qual. (c)
Mirant Delta CCPP [CA0004863, Power]	2/4/04	0.081		0.0835	(k)	0.0799	(k)	0.296	(l)				
	3/3/04	0.116		0.127	(k)			0.12	(l)	0.122	(l)		
	8/3/04	0.010	<MDL, J	0.070	(k)			0.010	<MDL				
	9/1/04	0.080		0.060	(k)			0.080	(l)				
	10/5/04	0.049	B	0.060	(k)			0.038	(l), B				
	11/2/04	0.047	B	0.042	(k), B			0.040	(l), B				
	12/2/04	0.030	B	0.063	(k)			0.070	(l)				
	1/11/05	0.083		0.081	(k)			0.102	(l)				
	2/8/05	0.097		0.120	(k)			0.098	(l)				
	3/8/05	0.121		0.150	(k)			0.15	(l)				
	4/26/05	0.083			Y			0.069	(l)				
	5/25/05	0.091			Y			0.077	(l)				
Sacramento Cogen Authority Procter & Gamble Plant [CA0083569, Power]	8/11/04	0.056						0.013	<MDL				
	10/6/04	0.069						0.010	<MDL				
	1/5/05	0.070						0.080					
	5/4/05	0.013	<MDL					0.013	<MDL				

(a) One half the method detection limit is listed for values below the detection limit.
(b) < MDL: below method detection limit; detection limits ranged between 0.020 and 0.025 ng/l.
A: Samples were received out of optimal temperature range.
B: Sample results above the MDL and below the ML; should be considered an estimate.
J: Detected but below the reporting limit; result is an estimated concentration.
X: Collected 9/14/04.
Y: No discharge.
(l): Mirant Delta CCPP Intake 002.
(mm): Darrah Springs Fish Hatchery - Lower Springs.
(nn): Darrah Springs Fish Hatchery - Upper Springs.

Table G.5: Comparison of Daily/Weekly Average Methylmercury Concentrations & Loads in the Sacramento River & SRCSD Influent and Effluent

Figure O.1 Grouping	Sample Period	SRCSD Influent Sample-Period Average Conc. (ng/l)	SRCSD Effluent Sample-Period Average Conc. (ng/l)	Sac'to River @ Freeport Daily Conc. (ng/l)	Effluent / Influent Conc. (%)	Effluent / Sac'to River Conc. (%)	SRCSD Effluent Sample-Period Average Volume (mgd)	SRCSD Effluent Sample-Period Average Volume (cfs)	Sac'to River @ Freeport Daily Flow (cfs)	SRCSD Effluent Sample-Period Average Load (g/day)	Sac'to River @ Freeport Load (g/day)	Effluent / River Flow (%)	Effluent / River Load (%)
A	Dec 5-19, 2000	1.36	0.53	0.127	39%	419%	154.82	240	11,700	0.31	3.86	2.0%	8.1%
B	Jan 9-17, 2001	1.44	0.28	0.122	19%	227%	216.50	335	17,700	0.22	5.28	1.9%	4.2%
C	Feb 21-27, 2001	1.41	0.27	0.118	19%	229%	200.89	311	21,400	0.20	6.18	1.5%	3.2%
D	Mar 6-20, 2001	1.36	0.21	0.168	15%	123%	191.52	296	17,300	0.15	7.11	1.7%	2.1%
E	Apr 10-17, 2001	1.91	0.55	0.058	29%	950%	150.99	234	11,300	0.32	1.60	2.1%	19.7%
F	Jun 14-20, 2001	2.26	0.76	0.089	34%	857%	143.77	222	11,700	0.41	2.55	1.9%	16.2%
G	Jul 9-17, 2001	2.04	1.41	0.111	69%	1267%	151.35	234	14,900	0.80	4.05	1.6%	19.9%
H	Aug 7-14, 2001	1.61	1.21	0.091	75%	1333%	158.81	246	13,600	0.73	3.03	1.8%	24.3%
I	Sep 18-21, 2001	1.60	0.70	0.073	43%	953%	148.87	230	12,100	0.39	2.16	1.9%	18.2%
J	Oct 15-19, 2001	1.36	0.74	0.072	55%	1032%	151.87	235	7,389	0.41	1.30	3.2%	31.9%
K	Nov 6-9, 2001	1.73	1.16	0.179	67%	651%	156.95	243	12,868	0.69	5.64	1.9%	12.3%
-	Dec 4-7, 2001*	1.54	0.36	0.154	23%	232%	na	na	24,130	na	9.09	na	na
											Average:	**1.9%**	**14.5%**

* Sacramento River @ Freeport sample collected on 12/19/01.



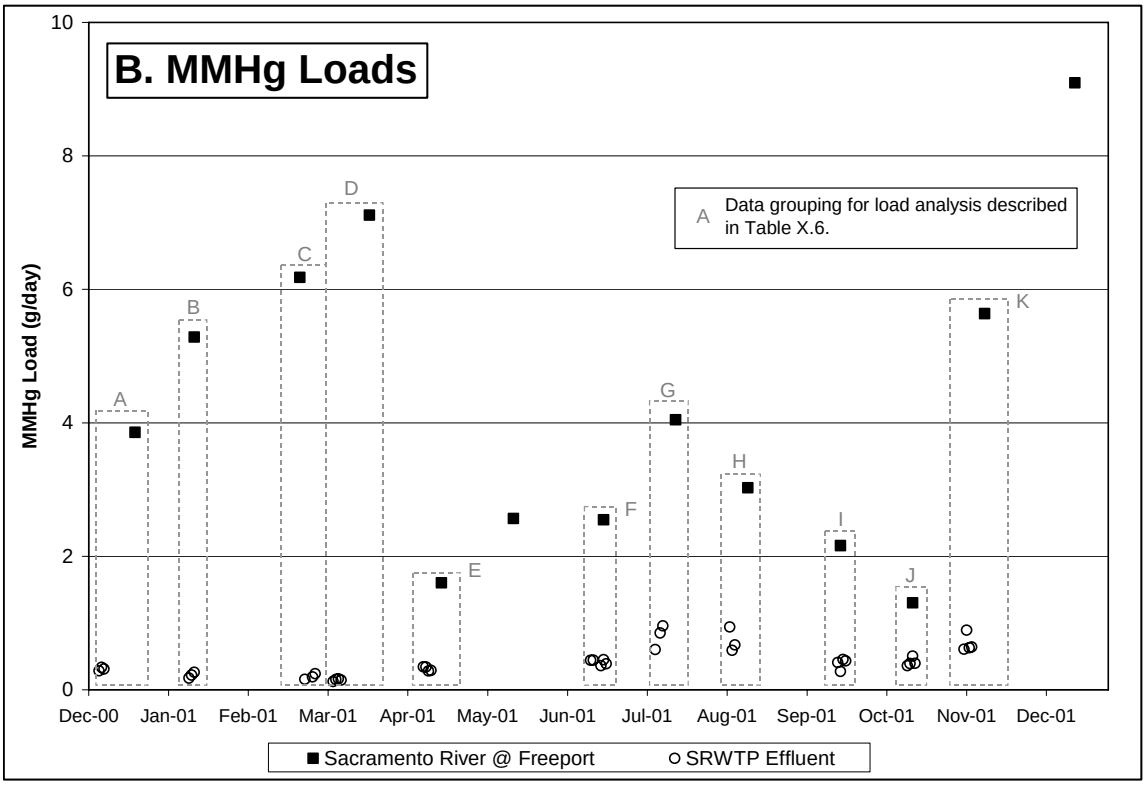


Figure G.4: Comparison of Methylmercury Concentrations and Loads in the Sacramento River at Freeport and SRCSD Sacramento River Wastewater Treatment Plant Effluent Discharges

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