1   Table M-6. Selenium Bioaccumulation from Water (µg/L) to Particulates and Fish (µg/g, dw) Using Model 2 with Estimated Kd from All Years Regression for Model 3

DSM2 Delta Water Location	Year 2000 DSM2 Water	Particulate from Water	Invert. from Particulate	Model 3 Fish	K_d	Whole-body Bass[a]	Fish-to-Bass Ratio Model 3	Year 2005 DSM2 Water	Particulate from Water	Invert. from Particulate	Model 3 Fish	K_d	Whole-body Bass[a]	Fish-to-Bass Ratio Model 3	Year 2007 DSM2 Water	Particulate from Water	Invert. from Particulate	Model 3 Fish	K_d	Whole-body Bass[a]	Fish-to-Bass Ratio Model 3
First Quarter																					
Sacramento River RM 44	0.09	0.54	1.50	1.81	6060	2.6	0.69	0.09	0.54	1.50	1.81	5945	1.5	1.25	0.09	0.54	1.50	1.81	5946	1.8	0.98
Cache Slough Ryer[b]	0.10	0.54	1.50	1.82	5389	1.5	1.22	0.09	0.54	1.50	1.82	5783	1.7	1.05	0.09	0.54	1.50	1.81	5852	2.5	0.71
San Joaquin River Potato Slough	0.17	0.55	1.53	1.85	3229	1.4	1.36	0.14	0.54	1.52	1.84	3824	1.3	1.41	0.09	0.54	1.50	1.81	5819	2.5	0.73
Franks Tract	0.19	0.55	1.53	1.85	2904	1.6	1.13	0.15	0.54	1.52	1.84	3724	1.1	1.61	0.09	0.54	1.50	1.82	5762	3.0	0.61
Big Break	0.13	0.54	1.51	1.83	4295	1.6	1.18	0.11	0.54	1.51	1.82	4873	1.0	1.79	0.09	0.54	1.50	1.81	5850	2.8	0.64
Middle River Bullfrog	0.31	0.56	1.56	1.88	1801	NA	NA	0.46	0.56	1.57	1.90	1221	1.9	1.0	0.20	0.55	1.53	1.86	2773	2.1	0.87
Old River near Paradise Cut[c]	0.73	0.57	1.60	1.93	780	NA	NA	0.78	0.57	1.60	1.94	729	2.4	0.8	0.56	0.57	1.58	1.92	1007	NA	NA
Knights Landing[d]	0.23	0.55	1.54	1.87	2394	NA	NA	0.23	0.55	1.54	1.87	2394	2.2	0.8	0.23	0.55	1.54	1.87	2394	NA	NA
Vernalis[e]	0.83	0.57	1.60	1.94	689	1.7	1.14	0.85	0.57	1.60	1.94	674	1.9	1.02	0.58	0.57	1.59	1.92	976	2.4	0.80
Second Quarter																					
Sacramento River RM 44	0.09	0.54	1.50	1.81	5952	2.6	0.69	0.09	0.54	1.50	1.81	5947	1.5	1.25	0.09	0.54	1.50	1.81	5944	1.8	0.98
Cache Slough Ryer[b]	0.11	0.54	1.51	1.83	4777	1.5	1.22	0.10	0.54	1.50	1.82	5538	1.7	1.05	0.10	0.54	1.50	1.82	5241	2.5	0.72
San Joaquin River Potato Slough	0.24	0.55	1.54	1.87	2309	1.4	1.38	0.36	0.56	1.56	1.89	1537	1.3	1.45	0.13	0.54	1.52	1.84	4020	2.5	0.74
Franks Tract	0.27	0.55	1.55	1.87	2048	1.6	1.14	0.49	0.56	1.58	1.91	1159	1.1	1.67	0.14	0.54	1.52	1.84	3921	3.0	0.61
Big Break	0.20	0.55	1.53	1.86	2800	1.6	1.20	0.30	0.55	1.55	1.88	1876	1.0	1.84	0.12	0.54	1.51	1.83	4645	2.8	0.64
Middle River Bullfrog	0.61	0.57	1.59	1.92	928	NA	NA	0.75	0.57	1.60	1.93	764	1.9	1.0	0.29	0.55	1.55	1.88	1896	2.1	0.9
Old River near Paradise Cut[c]	0.68	0.57	1.59	1.93	842	NA	NA	0.84	0.57	1.60	1.94	682	2.4	0.8	0.43	0.56	1.57	1.90	1291	NA	NA
Knights Landing[d]	0.23	0.55	1.54	1.87	2394	NA	NA	0.23	0.55	1.54	1.87	2394	2.2	0.8	0.23	0.55	1.54	1.87	2394	NA	NA
Vernalis[e]	0.83	0.57	1.60	1.94	689	1.7	1.14	0.85	0.57	1.60	1.94	674	1.9	1.02	0.58	0.57	1.59	1.92	976	2.4	0.80
Third Quarter																					
Sacramento River RM 44	0.09	0.54	1.50	1.81	5947	2.6	0.69	0.09	0.54	1.50	1.81	5946	1.5	1.25	0.09	0.54	1.50	1.81	5946	1.8	0.98
Cache Slough Ryer[b]	0.11	0.54	1.51	1.82	4942	1.5	1.22	0.09	0.54	1.50	1.81	5914	1.7	1.05	0.10	0.54	1.51	1.82	5184	2.5	0.72
San Joaquin River Potato Slough	0.10	0.54	1.50	1.82	5592	1.4	1.34	0.10	0.54	1.50	1.82	5523	1.3	1.39	0.10	0.54	1.50	1.82	5557	2.5	0.73
Franks Tract	0.10	0.54	1.50	1.82	5412	1.6	1.10	0.11	0.54	1.51	1.82	5121	1.1	1.59	0.10	0.54	1.50	1.82	5393	3.0	0.61
Big Break	0.10	0.54	1.50	1.82	5227	1.6	1.17	0.10	0.54	1.51	1.82	5159	1.0	1.79	0.10	0.54	1.50	1.82	5291	2.8	0.64
Middle River Bullfrog	0.20	0.55	1.54	1.86	2688	NA	NA	0.30	0.55	1.55	1.88	1868	1.9	1.0	0.12	0.54	1.51	1.83	4656	2.1	0.86
Old River near Paradise Cut[c]	0.75	0.57	1.60	1.93	757	NA	NA	0.80	0.57	1.60	1.94	714	2.4	0.8	0.53	0.56	1.58	1.91	1061	NA	NA
Knights Landing[d]	0.23	0.55	1.54	1.87	2394	NA	NA	0.23	0.55	1.54	1.87	2394	2.2	0.8	0.23	0.55	1.54	1.87	2394	NA	NA
Vernalis[e]	0.83	0.57	1.60	1.94	689	1.7	1.14	0.85	0.57	1.60	1.94	674	1.9	1.02	0.58	0.57	1.59	1.92	976	2.4	0.80

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1   **Table M-6 (continued). Selenium Bioaccumulation from Water (µg/L) to Particulates and Fish (µg/g, dw) Using Model 2 with Estimated Kd from All Years Regression for Model 3**

DSM2 Delta Water Location	Year 2000 Concentration DSM2 Water	Particulate from Water	Invert. from Particulate	Model 3 Fish	K_d	Whole-body Bass[a]	Fish-to-Bass Ratio Model 3	Year 2005 Concentration DSM2 Water	Particulate from Water	Invert. from Particulate	Model 3 Fish	K_d	Whole-body Bass[a]	Fish-to-Bass Ratio Model 3	Year 2007 Concentration DSM2 Water	Particulate from Water	Invert. from Particulate	Model 3 Fish	K_d	Whole-body Bass[a]	Fish-to-Bass Ratio Model 3
	Fourth Quarter							Fourth Quarter							Fourth Quarter						
Sacramento River RM 44	0.09	0.54	1.50	1.81	5948	2.6	0.69	0.09	0.54	1.50	1.81	5946	1.5	1.25	0.09	0.54	1.50	1.81	5947	1.8	0.98
Cache Slough Ryer[b]	0.10	0.54	1.50	1.82	5261	1.5	1.22	0.09	0.54	1.50	1.81	5830	1.7	1.05	0.10	0.54	1.50	1.82	5345	2.5	0.71
San Joaquin River Potato Slough	0.09	0.54	1.50	1.82	5704	1.4	1.34	0.09	0.54	1.50	1.81	5885	1.3	1.39	0.09	0.54	1.50	1.82	5678	2.5	0.73
Franks Tract	0.10	0.54	1.50	1.82	5621	1.6	1.10	0.09	0.54	1.50	1.81	5859	1.1	1.59	0.10	0.54	1.50	1.82	5596	3.0	0.61
Big Break	0.10	0.54	1.50	1.82	5534	1.6	1.17	0.09	0.54	1.50	1.82	5809	1.0	1.78	0.10	0.54	1.50	1.82	5470	2.8	0.64
Middle River Bullfrog	0.30	0.55	1.55	1.88	1859	NA	NA	0.24	0.55	1.54	1.87	2283	1.9	1.0	0.17	0.55	1.53	1.85	3241	2.1	0.87
Old River near Paradise Cut[c]	0.81	0.57	1.60	1.94	704	NA	NA	0.72	0.57	1.60	1.93	795	2.4	0.8	0.57	0.57	1.58	1.92	994	NA	NA
Knights Landing[d]	0.23	0.55	1.54	1.87	2394	NA	NA	0.23	0.55	1.54	1.87	2394	2.2	0.8	0.23	0.55	1.54	1.87	2394	NA	NA
Vernalis[e]	0.83	0.57	1.60	1.94	689	1.7	1.14	0.85	0.57	1.60	1.94	674	1.9	1.02	0.58	0.57	1.59	1.92	976	2.4	0.80

Notes:

Equations from Presser and Luoma (2010a, 2010b) were used to calculate selenium concentrations for fish. Model 3 used the average selenium trophic transfer factors to aquatic insects (2.8) and fish (1.1 for all trophic levels).

Model 3 = Model 2 (TL-4 Fish Eating TL-3 Fish) with K_d estimated using all years regression (log K_d = 2.76-0.97(logDSM2))

Invert. = invertebrate

K_d = particulate concentration/water concentration ratio

µg/g, dw = micrograms per gram, dry weight

NA = not available; bass not collected here

RM = river mile

TL = trophic level

a Geometric mean calculated from whole-body largemouth bass data presented in Foe (2010a).

* Geometric mean calculated from whole-body largemouth bass data presented in Foe (2010a).

b Fish data collected at Rio Vista (Foe 2010a) were used to calculate geometric mean whole-body largemouth bass and ratios.

c Fish data collected at Old River near Tracy (Foe 2010a) were used to calculate geometric mean whole-body largemouth bass and ratios.

d Geometric mean of total selenium concentrations in water collected from years 2004, 2007, and 2008 (DWR Website 2009) was used to estimate selenium concentrations in particulates and biota (DSM2 data were not available). Fish data collected from Sacramento River at Veterans Bridge (Foe 2010a) were used to calculate geometric mean whole-body largemouth bass and ratios.

e Geometric mean of selenium concentrations (total or dissolved was not specified) in water collected from years 1999–2000 (SWAMP Website 2009) was used to estimate Year 2000 selenium concentrations in particulates and biota (DSM2 data were not available); years 2004-2005 were used for Year 2005 estimates; and years 2006-2007 were used for Year 2007 estimates.

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