

**Compilation of Additional* Sediment Quality Guidelines of Potential Relevance to Klamath Dams
Sediment Evaluations**

8/4/2010

Analyte	Pacific Northwest Sediment Evaluation Framework (SEF)			Puget Sound, WA DMMP			NOAA	
	Marine	Fresh (Interim)		Marine			Marine	
	SL	SL1	SL2	SL	BT	ML	ER-L	ER-M
Metals (mg/kg dry weight)								
Antimony	150			150		200		
Arsenic	57	20	51	57	507	700	8.2	70
Cadmium	5.1	1.1	1.5	5.1	11.3	14	1.2	9.6
Chromium	260	95	100		267		81	370
Copper	390	80	830	390	1027	1300	34	270
Lead	450	340	430	450	975	1200	46.7	218
Mercury	0.41	0.28	0.75	0.41	1.5	2.3	0.15	0.71
Nickel		60	70	140	370	370	20.9	51.6
Selenium					3			
Silver	6.1	2	2.5	6.1	6.1	8.4	1	3.7
Zinc	410	130	400	410	2783	3800	150	410
SVOCs: Polynuclear Aromatic Hydrocarbons (PAHs) (ug/kg dry weight)								
Naphthalene	2100	500	1300	2100		2400	160	2100
Acenaphthylene	560	470	640	560		1300	44	640
Acenaphthene	500	1100	1300	500		2000	16	500
Fluorene	540	1000	3000	540		3600	19	540
Phenanthrene	1500	6100	7600	1500		21000	240	1500
Anthracene	960	1200	1600	960		13000	85.3	1100
2-Methylnaphthalene	670	470	560	670		1900	70	670
LPAH (total)	5200	6600	9200	5200		29000	552	3160
Fluoranthene	1700	11000	15000	1700	4600	30000	600	5100
Pyrene	2600	8800	16000	2600	11980	16000	665	2600
Benz(a)anthracene	1300	4300	5800	1300		5100	261	1600
Chrysene	1400	5900	6400	1400		21000	384	2800
Benzo(b,k)fluoranthene	3200	600	4000					
Benzo(b,j,k)fluoranthene				3200		9900		
Benzo(a)pyrene	1600	3300	4800	1600		3600	430	1600
Indeno(1,2,3-c,d)pyrene	600	4100	5300	600		4400		
Dibenz(a,h)anthracene	230	800	840	230		1900	63.4	260
Benzo(g,h,i)perylene	670	4000	5200	670		3200		
HPAH (total)	12000	31000	55000	12000		69000	1700	9600
PAH (total)							4022	44792
Organochlorine Pesticides (ug/kg dry weight)								
p,p'-DDD	16						2	20
p,p'-DDE	9						2.2	27
p,p'-DDT	12						1	7
DDT (total)				6.9	50	69	1.58	46.1
Aldrin	9.5			10				
Chlordane (total)	2.8			10	37		0.5	6
Dieldrin	1.9			10			0.02	8
Heptachlor	1.5			10				
gamma-BHC (Lindane)				10				
Polychlorinated biphenyls (PCBs) (ug/kg dry weight)								
PCBs (total)	130	60	120	130	38***	3100	22.7	180

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	Marine	Fresh (Interim)		Marine			Marine	
	SL	SL1	SL2	SL	BT	ML	ER-L	ER-M
Organometallic Compounds								
Tributyltin, bulk (µg/kg)		75	75	73	73			
Tributyltin, interstitial water (µg/L)	0.15			0.15	0.15			
SVOCs: Chlorinated Hydrocarbons (ug/kg dry weight)								
1,2-Dichlorobenzene	35			35		110		
1,3-Dichlorobenzene				170				
1,4-Dichlorobenzene	110			110		120		
1,2,4-Trichlorobenzene	31			31		64		
Hexachlorobenzene	22			22	168	230		
Phthalates (ug/kg dry weight)								
Dimethyl phthalate	71	46	440	71		1400		
Diethyl phthalate	200			200		1200		
Di-n-butyl phthalate	1400			1400		5100		
Butyl benzyl phthalate	63	260	370	63		970		
Bis(2-ethylhexyl) phthalate	1300	220	320	1300		8300		
Di-n-octyl phthalate	6200	26	45	6200		6200		
SVOCs: Phenols (ug/kg dry weight)								
Phenol	420			420		1200		
2-Methylphenol	63			63		77		
4-Methylphenol	670			670		3600		
2,4-Dimethylphenol	29			29		210		
Hexachloroethane				1400		14000		
Hexachlorobutadiene	11			29		270		
Pentachlorophenol	400			400	504	690		
Phenol	420			420		1200		
SVOCs: Other SVOCs (ug/kg dry weight)								
Benzyl alcohol	57			57		870		
Benzoic acid	650			650		760		
Dibenzofuran	540	400	440	540		1700		
N-Nitrosodiphenylamine	28			28		130		

SEF Marine SL: Screening Level (lowest AET) from 2009 SEF

SEF Freshwater SL1: Interim Sediment Screening Level 1 (lowest effect level) from 2006 Interim Final SEF**

SEF Freshwater SL2: Interim Sediment Screening Level 2 (next highest effect level) from 2006 Interim Final SEF**

Puget Sound Marine SL: Sediment Screening Level

NOAA ER-L: Effects Range - Low (10th percentile of included effects data)

NOAA ER-M: Effects Range - Medium (50th percentile of included effects data)

* A number of freshwater and marine sediment quality values are already compiled in NOAA's "Sediment Quick Reference Tables" (SQuiRT), available at http://response.restoration.noaa.gov/book_shelf/122_NEW-SQuiRTs.pdf. However, the Pacific Northwest SEF and Puget Sound DMMP sediment guidelines are not shown on the NOAA SQiRT tables. Readers could therefore benefit from having both the SQiRT tables and the additional guidelines compiled here available when reviewing sediment chemical testing data. (NOAA ER-L and ER-M values do appear on SQiRT tables, but are included here for comparison.)

** Sept 30, 2006. Interim Final Regional Sediment Evaluation Framework for the Pacific Northwest. Prepared by USACE Seattle District, USACE Portland District, USACE Walla Walla District, USACE Northwestern Division, USEPA Region 10, WA Dept. of Ecol., WA Dept. Nat. Res., OR Dept. Env. Qual., ID Dept. Env. Qual., NMFS, and USFWS.

*** This value is normalized to organic carbon, expressed as mg/kg (TOC Normalized).