

Comparisons of Organic Carbon Normalized DDT sediment Data to SQAGs

Sediment sample concentrations of DDTs, found in Appendix A, were normalized for total organic carbon concentration (TOC) (refer to Table 1) and compared to Sediment Quality Assessment Guidelines (SQAGs) (refer to Table 2). The SQAGs are human health based bioaccumulation targets and all samples greatly exceeded the targets developed by the Florida Department of Environmental Protection. The SQAGs are bioaccumulation pollutant concentrations in sediment for inland waters protective of human health. They are based on assessments done in New York and Washington State (WDOH, 1995), where they identified sediment chemistry concentrations that are unlikely to be associated with adverse effects on human health. They were recommended as interim guidelines in Florida until sufficient data are available to evaluate the reliability of these bioaccumulation guidelines.

Since nonpolar organic contaminants such as DDTs are associated with organic matter in sediment, TOC normalized data was used for comparison. The concentrations of DDTs in the organic fraction of sediments correlate to observed adverse biological effects and toxicity. SQAGs were developed to evaluate the quality of sediments.

Table 1: DDT sediment samples normalized for total organic carbon concentrations. All samples exceed the SQAGS found in Table 2.

Station	Name	Date	Project ID	Sum DDT (OC)ng/g, ppb	Sum DDD (OC) ng/g, ppb	Sum DDE (OC)ng/g, ppb	Total DDT (OC)ng/g, ppb	TOC (%)
312SOL	Solomon Creek	6/19/2009	Oso_Orcutt	563.11	4912.62	20572.82	26048.54	1.03
312ORC	Orcutt Ck. At Sant Plant	12/9/2008	Oso_Orcutt	410.26	4012.82	17000.00	21423.08	0.78
312SMA	Santa Maria River above the estuary	12/9/2008	Oso_Orcutt	645.32	4847.29	16950.74	22443.35	2.03
312SMA	Santa Maria River river above the estuary	6/19/2009	Oso_Orcutt	254.18	1725.75	9411.37	11391.30	2.99
312GVS	Green Valley Creek at Simas Rd.	6/19/2009	Oso_Orcutt	653.33	2793.33	11346.67	14793.33	1.50
312GVT	Orcutt Ck. at Brown Rd.	6/19/2009	Oso_Orcutt	611.84	2335.53	4190.79	7138.16	1.52
312OFC	Oso Flaco Ck. at Oso Flaco Rd.	6/19/2009	Oso_Orcutt	898.55	5115.94	29202.90	35217.39	0.69
312OFL	Oso Flaco Lake	12/9/2008	Oso_Orcutt	138.73	641.62	3820.81	4601.16	1.73

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312OFL	Oso Flaco Lake	6/19/2009	Oso_Orcutt	188.01	713.90	4040.87	4931.88	3.67
312BRO	Bradley Channel at River Oaks	6/19/2009	Oso_Orcutt	154.08	558.91	2821.75	3534.74	3.31
312BCD	Blosser Channel	6/19/2009	Oso_Orcutt		714.66	249.03	696.50	7.71
312MSS	Main Street Channel	6/19/2009	Oso_Orcutt		329.45	655.98	1772.59	3.43
312BCC	Bradley Canyon Creek	5/25/2010	RWB3_CCWQP	870.97	1370.97	3838.71	6080.65	1.24
312BCJ	Bradley Channel at Jones Street	5/25/2010	RWB3_CCWQP	1273.44	8320.31	25648.44	35242.19	1.28
312GVS	Green Valley at Simas	5/25/2010	RWB3_CCWQP	2785.71	5612.24	13438.78	21836.73	0.98
312MSD	Main Street Canal u/s Ray Road at Highway 166	5/25/2010	RWB3_CCWQP	1181.82	3545.45	8200.00	12927.27	1.65
312OFC	Oso Flaco Ck. at Oso Flaco Rd.	5/25/2010	RWB3_CCWQP	10363.64	5909.09	26781.82	43054.55	0.55
312OFN	Little Oso Flaco Creek	5/25/2010	RWB3_CCWQP	0.00	1250.00	1993.59	3243.59	1.56
312ORC	Orcutt Ck. At Sant Plant	5/25/2010	RWB3_CCWQP	1100.53	3783.07	8566.14	13449.74	1.89
312ORI	Orcutt Solomon Crk at Highway 1	5/25/2010	RWB3_CCWQP	2197.08	4773.72	9000.00	15970.80	1.37
312SMA	Santa Maria River at Estuary	5/25/2010	RWB3_CCWQP	908.26	1284.40	1238.53	3431.19	1.09

Table 2: Sediment Quality Assessment Guidelines(SQAGs) concentrations unlikely to be associated with adverse effects on human health

Human Health-based SQAGs	
Constituent	(ng/g, ppb) OC
Sum DDD	9.1
Sum DDE	5.5
Sum DDT	6.5
Total DDT	10.0

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