

Appendix H

Average Loading Rate Estimates for Pathways during Stormflow

APPENDIX H

Section 7.3 of the main report includes figures and analysis using mean loading rates for each pathway. The tables in this appendix present the results that were used for this analysis. The footnotes listed in Table H-1 describe the table components and apply to all tables in this appendix.

Table H-1. Mean loading rates by pathway for conventional parameters.

Analyte	Location	Mean Loading Rates (kg/hr)				
		Sewage Component <i>Dry Baseflow^a</i> (N)	Wet Baseflow (N)	Stormflow (N)	Infiltration Component ^b	Stormwater Component ^c
TOC	Corson & Eddy	6.65 (6)	10.2 (5)	15.0 (10)	3.59	4.76
	Homer	0.170 (9)	NC	0.736 (9)	NC	0.566
	Juneau	0.908 (7)	0.771 (5)	1.53 (10)	-0.137	0.757
DOC	Corson & Eddy	3.79 (6)	8.14 (5)	5.24 (10)	4.35	-2.90
	Homer	0.0878 (9)	NC	0.392 (9)	NC	0.305
	Juneau	0.480 (7)	0.534 (5)	0.780 (10)	0.0533	0.246
TSS	Corson & Eddy	23.1 (6)	34.2 (5)	97.4 (10)	11.1	63.2
	Homer	0.633 (9)	NC	6.26 (9)	NC	5.62
	Juneau	2.26 (7)	2.46 (5)	10.4 (10)	0.198	7.89

^a Sewage loading rates at Corson & Eddy and Juneau were estimated with mean dry baseflow loading rates at. At Homer, there was no signal of infiltration, and so dry and wet baseflow results were combined to represent the sewage component.

^b Infiltration loading rates at Corson & Eddy and Juneau were estimated by subtracting mean dry baseflow loading rates from mean wet baseflow loading rates. At Homer, infiltration was not calculated (NC).

^c Stormwater loading rates at Corson & Eddy and Juneau were estimated by subtracting mean wet baseflow loading rates from mean stormflow loading rates. At Homer, stormwater loading rates were calculated by subtracting mean combined dry and wet baseflow loading rates from mean stormflow loading rates.

N is number of samples on which the mean is based (detections only)

Table H-2. Mean loading rates by pathway for total and dissolved metals.

Analyte	Location	Mean Loading Rates (mg/hr)				
		Sewage Component <i>Dry Baseflow (N)</i>	Wet Baseflow (N)	Stormflow (N)	Infiltration Component	Stormwater Component
Total Arsenic	Corson & Eddy	409 (6)	374 (5)	1,310 (10)	-35.9	941
	Homer	2.10 (9)	NC	216 (9)	NC	214
	Juneau	18.1 (7)	27.0 (5)	249 (10)	8.97	222
Dissolved Arsenic	Corson & Eddy	161 (6)	275 (5)	499 (10)	114	224
	Homer	1.20 (9)	NC	26.3 (8)	NC	25.1
	Juneau	13.6 (7)	19.2 (5)	136 (10)	5.59	117

Table H-2 continued

Analyte	Location	Mean Loading Rates (mg/hr)				
		Sewage Component Dry Baseflow (N)	Wet Baseflow (N)	Stormflow (N)	Infiltration Component	Stormwater Component
Total Cadmium	Corson & Eddy	38.2 (6)	46.9 (5)	161 (10)	8.70	114
	Homer	0.297 (9)	NC	20.1 (9)	NC	19.9
	Juneau	1.64 (7)	1.79 (4)	14.6 (8)	0.154	12.8
Dissolved Cadmium	Corson & Eddy	Not calculated due to <75% frequency of detection.				
	Homer					
	Juneau					
Total Chromium	Corson & Eddy	554 (6)	542 (5)	3,880 (10)	-11.2	3,330
	Homer	3.61 (9)	NC	323 (9)	NC	319
	Juneau	24.1 (7)	27.5 (5)	356 (10)	3.41	329
Dissolved Chromium	Corson & Eddy	57.0 (6)	100.0 (5)	170 (10)	43.0	69.9
	Homer	0.863 (6)	NC	27.2 (8)	NC	26.3
	Juneau	5.44 (7)	7.49 (5)	35.7 (8)	2.06	28.2
Total Copper	Corson & Eddy	7,130 (6)	7,530 (5)	30,900 (10)	397	23,400
	Homer	87.6 (9)	NC	2,910 (9)	NC	2,830
	Juneau	375 (7)	307 (5)	6,810 (10)	-67.3	6,510
Dissolved Copper	Corson & Eddy	493 (6)	1,150 (5)	1,890 (10)	657	739
	Homer	14.3 (9)	NC	356 (8)	NC	342
	Juneau	119 (7)	148 (5)	3,350 (10)	29.4	3,210
Total Lead	Corson & Eddy	Not calculated due to illicit discharges.				
	Homer	17.3 (9)	NC	3,950 (9)	NC	3,940
	Juneau	202 (7)	90.0 (5)	1,430 (10)	-112	1,340
Dissolved Lead	Corson & Eddy	Not calculated due to illicit discharges.				
	Homer	1.27 (5)	NC	41.2 (8)	NC	40.0
	Juneau	11.9 (7)	15.2 (5)	57.0 (10)	3.32	41.8
Total Nickel	Corson & Eddy	734 (6)	2,430 (5)	13,900 (10)	1,700	11,500
	Homer	14.0 (9)	NC	378 (9)	NC	364
	Juneau	48.3 (7)	60.5 (5)	436 (10)	12.2	376
Dissolved Nickel	Corson & Eddy	274 (6)	1,660 (5)	3,030 (10)	1,390	1367
	Homer	10.2 (9)	NC	85.4 (8)	NC	75.2
	Juneau	24.4 (7)	44.3 (5)	151 (10)	19.9	107

Table H-2 continued

Analyte	Location	Mean Loading Rates (mg/hr)				
		Sewage Component Dry Baseflow (N)	Wet Baseflow (N)	Stormflow (N)	Infiltration Component	Stormwater Component
Total Silver	Corson & Eddy	24.9 (6)	24.9 (5)	88.1 (9)	-0.0174	63.2
	Homer	Not calculated due to <75% frequency of detection.				
	Juneau					
Dissolved Silver	Corson & Eddy	Not calculated due to <75% frequency of detection.				
	Homer					
	Juneau					
Total Vanadium	Corson & Eddy	587 (6)	876 (5)	3,910 (10)	289	3,030
	Homer	5.77 (9)	NC	387 (9)	NC	381
	Juneau	25.4 (7)	36.3 (5)	503 (10)	10.8	467
Dissolved Vanadium	Corson & Eddy	216 (6)	418 (5)	647 (10)	202	229
	Homer	1.28 (9)	NC	33.0 (8)	NC	31.7
	Juneau	8.75 (7)	21.9 (5)	115 (10)	13.2	93.0
Total Zinc	Corson & Eddy	22,100 (6)	25,400 (5)	97,100 (10)	3,330	71,700
	Homer	195 (9)	NC	10,800 (9)	NC	10,600
	Juneau	1,290 (7)	1,160 (5)	6,370 (10)	-135	5,210
Dissolved Zinc	Corson & Eddy	1,910 (6)	7,360 (5)	10,000 (10)	5,450	2,640
	Homer	20.7 (9)	NC	1,890 (8)	NC	1,870
	Juneau	331 (7)	466 (5)	1,560 (10)	135	1,100
Total Mercury	Corson & Eddy	9.29 (6)	14.0 (5)	71.6 (10)	4.74	57.6
	Homer	0.0688 (9)	NC	1.65 (9)	NC	1.58
	Juneau	0.667 (7)	0.640 (5)	3.02 (10)	-0.0263	2.38
Dissolved Mercury	Corson & Eddy	Not calculated due to <75% frequency of detection.				
	Homer					
	Juneau					

Table H-3. Mean loading rates by pathway for PAHs and phthalates.

Analyte	Location	Mean Loading Rates (mg/hr)				
		Sewage Component Dry Baseflow (N)	Wet Baseflow (N)	Stormflow (N)	Infiltration Component	Stormwater Component
Naphthalene	Corson & Eddy	Not calculated due to illicit discharges.				
	Homer	0.375 (8)	NC	3.41 (9)	NC	3.03
	Juneau	1.28 (6)	2.27 (4)	4.85 (10)	0.986	2.59
Phenanthrene	Corson & Eddy	Not calculated due to illicit discharges.				
	Homer	Not calculated due to <75% frequency of detection.				
	Juneau	1.73 (4)	2.74 (4)	7.11 (10)	1.01	4.37
Pyrene*	Corson & Eddy	Not calculated due to illicit discharges.				
	Homer	0.147 (4/9)	NC	12.5 (8/8)	NC	12.3
	Juneau	0.787 (0/7)	0.512 (1/4)	4.63 (8/10)	-0.275	4.12
Bis (2-ethylhexyl) phthalate	Corson & Eddy	2,520 (4)	1,130 (3)	1,950 (9)	-1,390	820
	Homer	10.3 (5)	NC	162 (8)	NC	152
	Juneau	57.6 (4)	44.9 (3)	191 (9)	-12.7	147
Diethyl Phthalate	Corson & Eddy	270 (4)	625 (3)	455 (8)	355	-170
	Homer	12.0 (8)	NC	18.6 (6)	NC	6.67
	Juneau	75.9 (7)	59.5 (3)	99.3 (6)	-16.4	39.8

* Calculations for pyrene include non-detects at the MDL value. Use of MDL as a surrogate for non-detects is highly uncertain, and incorporates a high bias for the non-detect results. Since most of the non-detects are observed in baseflow samples, it is primarily the baseflow results that are biased high. Frequency of detection is listed instead of N for pyrene results.

Table H-4. Mean loading rates by pathway for PCBs and dioxin/furans.

Analyte	Location	Mean Loading Rates				
		Sewage Component Dry Baseflow (N)	Wet Baseflow (N)	Stormflow (N)	Infiltration Component	Stormwater Component
Total PCBs (mg/hr)	Corson & Eddy	7.26 (3)	29.1 (4)	101 (5)	21.9	72.4
	Homer	0.838 (9)	NC	71.5 (5)	NC	70.7
	Juneau	0.389 (3)	0.233 (5)	4.71 (5)	-0.157	4.48
Total Dioxin/Furans (mg/hr)	Corson & Eddy	0.0761 (3)	0.0844 (3)	0.593 (3)	0.00827	0.508
	Homer	Not analyzed.				
	Juneau					
Total Dioxin TEQs (ng/TEQ/hr)	Corson & Eddy	331 (3)	598 (3)	3,350 (3)	266	2,750
	Homer	Not analyzed.				
	Juneau					