

APPENDIX D

Aquatic Model (PRZM/EXAMS) Output Summary and Example Output

EPTC California Delta Smelt San Francisco Bay Assessment.

Appendix D. Table 1. One-in-10-year EEC concentrations for aquatic environments from the application of EPTC to uses in California. ⁴					
Use (1 st app day/month)	Rate (lb a.i./A)/ Number/ Interval	Peak (µg/L)	21-day (µg/L)	60-day (µg/L)	
Alfalfa (01/01)	3.0625/3/40	33.44	27.89	18.57	
Alfalfa (05/01)	6.13/1/-	44.19	33.64	22.22	
Alfalfa (20/01)	6.13/1/-	32.36	25.05	16.30	
Alfalfa (20/01)	3.0625/4/60	21.08	15.55	9.57	
Alfalfa (01/06)	3.0625/4/60	18.22	14.35	9.20	
Almond (15/07)	3.0625/1/-	9.36	7.76	4.47	
Almond (15/07)	3.0625/2/30	13.68	11.06	8.15	
Almond (30/08)	3.0625/2/45	13.40	10.27	7.00	
Beans, Dried (01/01)	4.594/1/-	31.12	22.74	13.80	
Beans, Dried (01/04)	4.594/1/-	20.84	13.13	7.52	
Beans, Dried (01/06)	4.594/1/-	4.034	2.96	1.73	
Beans, Dried (01/01)	3.94/2/30	41.33	30.08	17.94	
Beans, Dried (01/04)	3.94/2/30	17.87	11.26	6.89	
Beans, Dried (01/06)	3.94/2/30	6.71	3.70	2.14	
Beans, Dried (01/01)	4.594 + 3.67/30	47.90	34.96	20.70	
Beans, Dried (01/04)	4.594 + 3.67/30	20.84	13.13	7.96	
Beans, Dried (01/06)	4.594 + 3.67/30	7.77	4.29	2.41	
Beans, Snap (01/01)	3.94/1/-	26.67	19.49	11.83	
Beans, Snap (01/04)	3.94/1/-	17.87	11.25	6.45	
Beans, Snap (01/06)	3.94/1/-	3.46	2.54	1.48	
Beans, Snap (01/01)	3.0625/1/-	37.29	25.62	14.68	
Beans, Snap (01/04)	3.0625/1/-	9.74	5.91	2.98	
Beans, Snap (01/06)	3.0625/1/-	2.69	1.97	1.15	
Beans, Snap (01/08)	3.0625/1/-	4.65	2.85	1.62	
Beans, Snap (01/01)	4.77/2/90	39.28	24.67	13.23	
Beans, Snap (01/01)	3.94 + 4.58/2/90 ¹	41.09	26.16	13.34	

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Use (1 st app day/month)	Rate (lb a.i./A)/ Number/ Interval	Peak (µg/L)	21- day (µg/L)	60- day (µg/L)
Broccoli (05/01) [Cabbage]	6.13/1/-	68.64	50.41	30.47
Broccoli (05/06) [Cabbage]	6.13/1/-	14.74	8.638	4.07
Broccoli (05/09) [Cabbage]	6.13/1/-	33.87	21.48	14.16
Carrot (01/01)	6.13/1/-	41.49	30.32	18.40
Carrot (01/04)	6.13/1/-	27.79	17.51	10.03
Carrot (01/06)	6.13/1/-	5.38	3.94	2.31
Carrot (01/08)	6.13/1/-	9.30	5.71	3.24
Carrot (01/09)	6.13/1/-	16.80	10.31	5.85
Caster Beans (01/01)	1.76/1/-	13.33	9.75	5.91
Cauliflower (05/01)	6.13/1/-	68.64	50.41	30.47
Cauliflower (05/06)	6.13/1/-	14.74	8.64	4.07
Cauliflower (05/09)	6.13/1/-	33.87	21.48	14.16
Clover (06/09)	3.94/1/-	12.11	10.65	7.58
Corn (15/03)	6.13/1/-	43.55	29.91	19.53
Cotton (15/05)	6.13/1/-	3.43	2.72	1.65
Grapefruit (15/01)	6.13/1/-	7.47	5.48	3.59
Grapefruit (15/01)	3.0625/1/-	3.74	2.74	1.79
Lemon (15/01)	6.13/1/-	7.47	5.48	3.59
Lemon (15/01)	3.0625/1/-	3.74	2.74	1.79
Lespedeza (15/01)	3.94/1/-	28.21	20.86	13.56
Lespedeza (g) (15/01)	4.00/1/-	27.56	20.92	13.80
Lettuce (01/02)²	6.13/1/-	170.8	122.2	72.94
Lettuce (01/05)	6.13/1/-	13.98	9.84	6.12
Lettuce (01/06)	6.13/1/-	8.33	5.99	3.60
Lettuce (01/07)	6.13/1/-	14.63	10.54	6.33
Lettuce (01/08)	6.13/1/-	26.23	18.88	11.35
Lettuce (17/08)	6.13/1/-	35.46	25.52	15.34
Orchards /Nursery	14.88/1/-	115.13	81.75	47.81
Orange (15/01)	6.13/1/-	7.47	5.48	3.59
Orange (15/01)	3.0625/1/-	3.74	2.74	1.79
Potato (16/02)	3.0625/1/-	1.90	1.52	0.98
Potato (16/02)	6.13/1/-	3.81	3.04	1.97

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Use (1st app day/month)	Rate (lb a.i./A)/ Number/ Interval	Peak (µg/L)	21- day (µg/L)	60- day (µg/L)	
Potato (16/02)	6.13/1/-	3.81	3.04	1.97	
Potato (10/02)	6.00/1/- g ³	73.99	52.95	31.33	
Potato (10/02)	6.13/1/-	76.56	54.58	32.43	
Potato (16/02)	6.00/1/- g	3.73	2.98	1.92	
Potato (10/02)	6.13/1/-	78.16	55.72	33.10	
Potato (16/02)	6.13/1/-	3.81	3.04	1.97	
Potato (01/03)	6.13/1/-	4.10	3.11	2.03	
Potato (10/02)	6.13/2/30	78.17	55.72	34.15	
Potato (09/02)	6.13/2/30	54.45	36.77	20.86	
Potato (16/02)	6.13/2/30	7.12	5.13	3.24	
Safflower (01/01)	3.0625/1/-	27.79	21.85	14.48	
Safflower (01/01)	3.0625/2/30	51.58	38.70	27.71	
Safflower (01/03)	3.0625/1/-	32.30	23.98	15.33	
Sugar Beet (25/01)	6.13/1/-	31.69	26.15	17.52	
Sugar Beet (20/05)	6.13/1/-	3.50	2.61	1.65	
Sugar Beet (05/06)	6.13/1/-	3.50	2.58	1.55	
Sugar Beet (20/07)	6.13/1/-	3.51	2.70	1.70	
Sugar Beet (07/11)	6.13/1/-	19.05	14.76	10.26	
Sunflower (15/03)	3.06/2/30	23.77	16.88	10.68	
Sunflower (01/04)	3.06/2/30	10.91	7.74	4.48	
Sweet Potato (10/02)	7.44/1/-	94.93	67.68	40.21	
Tomato (20/05)	3.0625/1/-	1.93	1.49	0.90	
Tangerine (15/01)	3.0625/1/-	3.74	2.74	1.79	
Walnut (15/08)	3.0625/1/-	10.24	8.21	5.30	
Walnut (15/01)	3.0625/1/-	23.85	17.87	11.15	
Walnut (15/05)	3.0625/1/-	18.93	14.48	8.96	
Walnut (15/06)	3.0625/1/-	11.53	9.02	5.83	
Walnut (15/08)	3.0625/1/-	12.69	9.74	6.25	
[Carrot] Fallow/Idle (20/09)	6.13/1/-	58.23	44.05	27.45	
[Lettuce] Fallow/Idle (30/08)	6.13/1/-	45.34	32.63	19.61	
[Lettuce] Fallow/Idle (01/08)	6.13/1/-	26.23	18.88	11.35	
[Tomato] Fallow/Idle (02/01)	6.13/1/-	85.53	66.48	43.51	

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Use (1 st app day/month)	Rate (lb a.i./A)/ Number/ Interval	Peak (µg/L)	21- day (µg/L)	60- day (µg/L)
[Tomato] Fallow/Idle (30/09)	6.13/1/-	38.10	28.30	21.10
[Cotton] Fallow/Idle (15/03)	6.13/1/-	34.23	24.92	14.57
Forestry/Ornamental (15/01)	14.88/1/-	146.5	108.0	67.1

¹ Unequal application rates

² Scenario selected for example output

³ granular formulation

⁴ CAM = 1, spray drift fraction = 0.01, and application efficiency = 0.99 except for granular formulation where CAM = 2, spray drift fraction = 0.00, and application efficiency = 1.00

Example output

stored as lettuce.out

Chemical: EPTC

PRZM environment: CAlettuceSTD.txt modified Tuesday, 21 February 2006
at 14:38:22

EXAMS environment: pond298.exv modified Thuday, 29 August 2002 at
16:33:30

Metfile: w23273.dvf modified Wedday, 3 July 2002 at 09:04:22

Water segment concentrations (ppb)

Year	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
1961	3.429	3.194	2.414	1.447	1.066	0.3089
1962	209	202	172	111	82.15	22.46
1963	146	140	114	73.22	55.1	15.02
1964	8.949	8.382	6.904	4.009	3.23	1.012
1965	3.447	3.19	2.423	1.475	1.3	0.3741
1966	14.29	13.3	10.18	6.179	4.502	1.208
1967	4.879	4.573	3.587	2.527	2.175	0.6166
1968	6.849	6.318	4.769	4.182	3.434	0.9492
1969	77.19	72.45	57.84	34.01	24.55	6.525
1970	57.42	53.57	41.22	22.84	16.28	4.446
1971	3.486	3.201	2.297	1.255	1.015	0.3993
1972	3.436	3.169	2.308	1.279	0.9092	0.257
1973	111	105	79.13	47.86	34.99	9.384
1974	81.7	75.26	55.22	30.62	21.85	5.891
1975	169	161	123	70.45	50.87	13.55
1976	97	91.55	69.21	39.38	28.48	7.549
1977	22.61	20.72	14.74	8.521	6.57	2.008
1978	215	205	159	94.13	68.36	18.24
1979	38.26	35.96	32.62	23.67	17.62	4.782
1980	141	132	96.86	54.36	39.29	10.55
1981	126	121	94.25	60	43.74	11.69
1982	34.57	32.23	24.44	14.78	10.93	2.986
1983	74.64	70.83	59.2	34.48	24.69	6.437
1984	3.482	3.193	2.279	1.415	1.054	0.2888
1985	46.61	44.1	35.36	22.53	16.94	4.765
1986	171	156	115	62.49	43.99	11.45
1987	34.12	31.27	22.05	13.31	10.05	2.766

1988	30.72	26.2	14.77	6.62	4.84	1.258
1989	14.57	13.2	9.624	5.158	3.592	0.9171
1990	31.61	28.19	19.73	10.21	7.126	1.836

Sorted results

Prob.	Peak	96 hr	21 Day	60 Day	90 Day	Yearly
0.032258064516129	215	205	172	111	82.15	22.46
0.0645161290322581		209	202	159	94.13	68.36
0.0967741935483871		171	161	123	73.22	55.1
0.129032258064516	169	156	115	70.45	50.87	13.55
0.161290322580645	146	140	114	62.49	43.99	11.69
0.193548387096774	141	132	96.86	60	43.74	11.45
0.225806451612903	126	121	94.25	54.36	39.29	10.55
0.258064516129032	111	105	79.13	47.86	34.99	9.384
0.290322580645161	97	91.55	69.21	39.38	28.48	7.549
0.32258064516129	81.7	75.26	59.2	34.48	24.69	6.525
0.354838709677419	77.19	72.45	57.84	34.01	24.55	6.437
0.387096774193548	74.64	70.83	55.22	30.62	21.85	5.891
0.419354838709677	57.42	53.57	41.22	23.67	17.62	4.782
0.451612903225806	46.61	44.1	35.36	22.84	16.94	4.765
0.483870967741936	38.26	35.96	32.62	22.53	16.28	4.446
0.516129032258065	34.57	32.23	24.44	14.78	10.93	2.986
0.548387096774194	34.12	31.27	22.05	13.31	10.05	2.766
0.580645161290323	31.61	28.19	19.73	10.21	7.126	2.008
0.612903225806452	30.72	26.2	14.77	8.521	6.57	1.836
0.645161290322581	22.61	20.72	14.74	6.62	4.84	1.258
0.67741935483871	14.57	13.3	10.18	6.179	4.502	1.208
0.709677419354839	14.29	13.2	9.624	5.158	3.592	1.012
0.741935483870968	8.949	8.382	6.904	4.182	3.434	0.9492
0.774193548387097	6.849	6.318	4.769	4.009	3.23	0.9171
0.806451612903226	4.879	4.573	3.587	2.527	2.175	0.6166
0.838709677419355	3.486	3.201	2.423	1.475	1.3	0.3993
0.870967741935484	3.482	3.194	2.414	1.447	1.066	0.3741
0.903225806451613	3.447	3.193	2.308	1.415	1.054	0.3089
0.935483870967742	3.436	3.19	2.297	1.279	1.015	0.2888
0.967741935483871	3.429	3.169	2.279	1.255	0.9092	0.257

0.1	170.8	160.5	122.2	72.943	54.677	14.873
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Average of yearly averages:
5.66413333333333

Inputs generated by pe5.pl - Novemeber 2006

Data used for this run:

Output File: lettuce

Metfile: w23273.dvf

PRZM scenario: CAlettuceSTD.txt

EXAMS environment file: pond298.exv

Chemical Name: EPTC

Description	Variable Name	Value	Units	Comments
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Molecular weight	mwt	189.32	g/mol	
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Henry's Law Const.	henry	1.5e-05		atm-m^3/mol
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Vapor Pressure	vapr	1.6e-02	torr	
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Solubility	sol	344	mg/L	
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Kd	Kd		mg/L	
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Koc	Koc	172	mg/L	
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Photolysis half-life	kdp	0	days	Half-life
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Aerobic Aquatic Metabolism kbacw 0 days Halfife
 Anaerobic Aquatic Metabolism kbacs 0 days Halfife
 Aerobic Soil Metabolism asm 37.08 days Halfife
 Hydrolysis: pH 7 0 days Half-life
 Method: CAM 1 integer See PRZM manual
 Incorporation Depth: DEPI 4 cm
 Application Rate: TAPP 6.86 kg/ha
 Application Efficiency: APPEFF 0.99 fraction
 Spray Drift DRFT 0.01 fraction of application rate applied to pond
 Application Date Date 01-02 dd/mm or dd/mm or dd-mm or dd-
 Record 17: FILTRA
 IPSCND
 UPTKF
 Record 18: PLVKRT
 PLDKRT
 FEXTRC 0.5
 Flag for Index Res. Run IR EPA Pond
 Flag for runoff calc. RUNOFF none none, monthly or
 total(average of entire run)