

Appendix C

Table C.6. Control column volatile solids (VS) data.

Location	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate
Inf												
F1	53	1.0468	0.4320	113	2.2204	0.5616	135	4.0438	2.0303	149	1.7665	0.3824
F2		1.8149	2.1591		1.5435	0.4437		3.5923	0.3467		1.7794	1.2682
F3		1.8390	0.7739		1.2159	0.0595		4.5911	1.1855		1.8578	0.4100
F4		0.8227	0.5187		1.8936	0.7899		2.8044	0.3247		1.5969	0.1451
Eff												

Location	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate	Time (days)	Average VS/ dry sand (mg/g)	s of duplicate
Inf												
F1	170	1.8590	0.9189	191	1.9445	0.0942	275	3.1037	0.4197	276	2.1492	0.4897
F2		2.5906	0.1544		3.0980	0.5155		2.6569	0.8171		0.9881	0.1054
F3		2.9014	0.1280		1.7778	0.2270		2.7542	0.4342		3.4651	3.1305
F4		2.7796	0.0739		1.9982	0.7624		2.7529	0.7416		1.2280	0.0742
Eff											2.3406	2.3080

Calculations

s = standard deviation of triplicate analysis

where

x_i = single value

\bar{x} = average of values

n = number of observations

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

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Table C.6a-h. Volatile solids (VS) calculations used on raw data.

Calculations:

Volatile Solids (VS) = total biomass weight (g)

$$VS = D - C$$

where

D = weight of pan + sand after 20 min. at 550°C (g)

C = weight of pan + sand after 1 hr at 100°C (g)

Dry Sand Weight

$$E = D - A$$

where

A = weight of pre-burned pan (g)

Biomass Concentration (mg biomass/ g dry sand):

$$\text{Biomass} = \frac{(D - A) * 1000}{E}$$

where

E = dry sand mass (g)

1000 = conversion factor (1000 mg = 1 g)

Fraction of Dry sand:

$$J = 1 - \frac{(B - C)}{(B - A)}$$

where

J = fraction of dry sand (decimal)

B = Pan + wet sand mass (g)

Standard deviation in dry sand fraction:

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

where

x_i = single value

\bar{x} = average of values

n = number of observations

Note: Fraction dry sand and s of dry sand were used to determine protein and carbohydrates concentrations per dry sand mass.

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Table C.6a. Control column volatile solids (VS) raw data (day 53).

Sample Name	A	B	C	D	E	VS	G	H	J	
	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	VS, Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand	
Control day 53	F1a	0.9877	1.7835	1.6627	1.6622	0.6745	0.0005	0.74129	0.151797	0.8482
	F1b	0.9873	2.0301	1.8759	1.8747	0.8874	0.0012	1.35227	0.147871	0.85213
	F2a	0.984	1.8143	1.7046	1.7022	0.7182	0.0024	3.34169	0.132121	0.86788
	F2b	0.9826	2.1805	2.0238	2.0235	1.0409	0.0003	0.28821	0.130812	0.86919
	F3a	0.9829	2.3146	2.1456	2.1441	1.1612	0.0015	1.29177	0.126905	0.87309
	F3b	0.9842	2.2751	2.1184	2.1157	1.1315	0.0027	2.38621	0.121388	0.87861
	F4a	0.9817	2.2437	2.0759	2.0746	1.0929	0.0013	1.1895	0.132964	0.86704
	F4b	0.9801	2.2329	2.0773	2.0768	1.0967	0.0005	0.45591	0.124202	0.8758

Location	Average VS/ dry sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
1	1.05	0.43	0.85017	0.00278
2	1.81	2.16	0.86853	0.00093
3	1.84	0.77	0.87585	0.0039
4	0.82	0.52	0.87142	0.0062

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Table C.6b. Control column volatile solids (VS) raw data (day 113).

Sample Name	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand
Control day 113	F1a	0.9801	1.8046	1.8043	1.8028	0.8227	0.0015	1.82326	0.000364
	F1b	0.9792	1.8988	1.8985	1.8961	0.9169	0.0024	2.61752	0.000326
	F2a	0.9796	1.7935	1.7938	1.7928	0.8132	0.001	1.22971	
	F2b	0.9847	1.9559	1.9557	1.9539	0.9692	0.0018	1.8572	0.000206
	F3a	0.9871	1.9261	1.9253	1.9242	0.9371	0.0011	1.17383	0.000852
	F3b	0.9861	1.8618	1.8616	1.8605	0.8744	0.0011	1.25801	0.000228
	F4a	0.9827	2.0531	2.0328	2.0314	1.0487	0.0014	1.33499	0.018965
	F4b	0.9803	2.0464	2.0432	2.0406	1.0603	0.0026	2.45214	0.003002

Location	Average VS/ wet sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
1	2.22	0.56	0.99965	2.7E-05
2	1.54	0.44	0.99979	
3	1.22	0.06	0.99946	0.00044
4	1.89	0.79	0.98902	0.01129

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Table C.6c. Control column volatile solids (VS) raw data (day 135).

Sample Name	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand
Control day 135	F1a	0.9797	2.044	2.0382	1.0585	0.0058	5.47945	0.004024	0.99598
	F1b	0.986	2.0384	2.0212	1.0352	0.0027	2.60819	0.013778	0.98622
	F2a	0.9874	2.0072	2.0066	2.0032	1.0158	0.0034	3.34712	0.000588
	F2b	0.9867	2.0094	2.0069	2.003	1.0163	0.0039	3.83745	0.002445
	F3a	0.9831	1.7321	1.732	1.7292	0.7461	0.0028	3.75285	0.000134
	F3b	0.9807	1.6845	1.6844	1.6806	0.6999	0.0038	5.42935	0.000142
	F4a	0.9878	2.1173	2.117	2.1141	1.1263	0.0029	2.5748	0.000266
	F4b	0.9897	2.1549	2.1468	2.1433	1.1536	0.0035	3.03398	0.006952

Location	Average VS/ wet sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
1	4.04	2.03	0.9911	0.0069
2	3.59	0.35	0.99848	0.00131
3	4.59	1.19	0.99986	6.1E-06
4	2.80	0.32	0.99639	0.00473

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Table C.6d. Control column volatile solids (VS) raw data (day 149).

Sample Name	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand
Control day 149	F1a	0.9805	1.8662	1.866	1.8642	0.8837	2.03689	0.000226	0.99977
	F1b	0.9798	2.1183	2.1178	2.1161	1.1363	1.49608	0.000439	0.99956
	F2a	0.9814	2.4707	2.4555	2.4542	1.4728	0.88267	0.010206	0.98979
	F2b	0.9855	2.2222	2.2219	2.2186	1.2331	2.67618	0.000243	0.99976
	F3a	0.9876	2.0611	2.0608	2.0585	1.0709	2.14773	0.000279	0.99972
	F3b	0.9866	2.2007	2.2003	2.1984	1.2118	1.56792	0.000329	0.99967
	F4a	0.9844	2.2726	2.2578	2.2559	1.2715	1.4943	0.011489	0.98851
	F4b	0.9817	2.0577	2.0426	2.0408	1.0591	1.69956	0.014033	0.98597

Location	Average VS/ wet sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
Control day 149	1	0.38	0.99967	0.00015
	2	1.27	0.99478	0.00705
	3	0.41	0.9997	3.5E-05
	4	0.15	0.98724	0.0018

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Table C.6e. Control column volatile solids (VS) raw data (day 170).

Sample Name	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand	
Control day 170	F1a	0.9806	2.1059	2.0995	2.0967	1.1161	0.0028	2.50874	0.005687	0.99431
	F1b	0.9796	2.147	2.1388	2.1374	1.1578	0.0014	1.20919	0.007024	0.99298
	F2a	0.9807	2.0046	1.9835	1.9808	1.0001	0.0027	2.69973	0.020607	0.97939
	F2b	0.9854	2.405	2.359	2.3556	1.3702	0.0034	2.48139	0.032403	0.9676
	F3a	0.9877	2.2693	2.2281	2.2244	1.2367	0.0037	2.99183	0.032147	0.96785
	F3b	0.9878	1.7521	1.737	1.7349	0.7471	0.0021	2.81087	0.019757	0.98024
	F4a	0.9835	2.2109	2.1875	2.1841	1.2006	0.0034	2.83192	0.019065	0.98094
	F4b	0.9812	2.0631	2.0474	2.0445	1.0633	0.0029	2.72736	0.014512	0.98549

Location	Average VS/ wet sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
Control day 170	1	0.92	0.99364	0.00095
	2	0.15	0.97349	0.00834
	3	0.13	0.97405	0.00876
	4	0.07	0.98321	0.00322

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Table C.6f. Control column volatile solids (VS) raw data (day 191).

Sample Name	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand
Control day 191	F1a	0.9808	2.3146	2.3121	1.3313	0.0025	1.8779	0.0482	0.9518
	F1b	0.9797	2.4744	2.4714	1.4917	0.003	2.0111	0.0439	0.9561
	F2a	0.9807	2.053	2.0493	1.0686	0.0037	3.4625	0.0173	0.9827
	F2b	0.9859	2.1319	2.0864	2.0834	1.0975	0.003	2.7335	0.0397
	F3a	0.9878	2.3959	2.3318	2.3292	1.3414	0.0026	1.9383	0.0455
	F3b	0.9883	2.573	2.4747	2.4723	1.484	0.0024	1.6173	0.0620
	F4a	0.9841	2.3573	2.288	2.2847	1.3006	0.0033	2.5373	0.0505
	F4b	0.9814	2.2961	2.2169	2.2151	1.2337	0.0018	1.4590	0.0602

Location	Average VS/ wet sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
1	1.94	0.09	0.9539	0.0030
2	3.10	0.52	0.9715	0.0158
3	1.78	0.23	0.9462	0.0117
4	2.00	0.76	0.9446	0.0069

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Table C.6g. Control column volatile solids (VS) raw data (day 275).

Sample Name	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand	
Control day 275	F1a	0.9845	2.101	2.0763	2.0726	1.0881	0.0037	3.4004	0.0221	0.9779
	F1b	0.989	2.0819	2.0608	2.0578	1.0688	0.003	2.8069	0.0193	0.9807
	F2a	0.9809	2.3007	2.2215	2.2175	1.2366	0.004	3.2347	0.0600	0.9400
	F2b	0.9866	2.4558	2.3843	2.3814	1.3948	0.0029	2.0792	0.0487	0.9513
	F3a	0.9834	3.0592	2.8839	2.8781	1.8947	0.0058	3.0612	0.0844	0.9156
	F3b	0.987	2.3034	2.2159	2.2129	1.2259	0.003	2.4472	0.0665	0.9335
	F4a	0.9844	2.5649	2.4538	2.449	1.4646	0.0048	3.2773	0.0703	0.9297
	F4b	0.9821	2.3731	2.2863	2.2834	1.3013	0.0029	2.2285	0.0624	0.9376

Location	Average VS/ wet sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
Control day 275	1	0.42	0.9793	0.0020
	2	0.82	0.9457	0.0080
	3	0.43	0.9245	0.0127
	4	0.74	0.9337	0.0056

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Table C.6h. Control column volatile solids (VS) raw data (day 276).

Sample Name	Pan Weight (g)	Pan + Sand wt (g)	Wt after 100 C (g)	Wt after 550 C (g)	Dry Sand Wt (g)	Volatile Solids Wt (g)	Biomass wt/dry sand wt (mg/g)	Fraction water in sand sample	Fraction dry sand	
Control day 276	Inf a	0.988	9.0423	7.6165	7.6	6.612	0.0165	0.177023	0.82298	
	Inf b	0.9885	8.7105	7.3229	7.3115	6.323	0.0114	0.179694	0.82031	
	F1a	0.9843	8.7405	7.3388	7.333	6.3487	0.0058	0.18072	0.81928	
	F1b	0.9828	9.6901	8.0485	8.041	7.0582	0.0075	0.188531	0.81147	
	F2a	0.9841	8.6718	7.2244	7.2166	6.2325	0.0078	0.188275	0.81173	
	F2b	0.9847	11.5633	9.5562	9.5078	8.5231	0.0484	0.189732	0.81027	
	F3a	0.9825	8.5338	7.1145	7.1073	6.1248	0.0072	0.187954	0.81205	
	F3b	0.9809	8.8945	7.3932	7.385	6.4041	0.0082	0.189711	0.81029	
	F4a	0.9834	11.6458	9.5939	9.58	8.5966	0.0139	0.192443	0.80756	
	F4b	0.9846	12.4571	10.3022	10.293	9.3084	0.0092	0.187832	0.81217	
	Eff a	0.9855	11.4168	9.5528	9.5189	8.5334	0.0339	3.9726	0.178693	0.82131
	Eff b	0.9825	14.0497	11.5748	11.5673	10.5848	0.0075	0.7086	0.189398	0.8106

Location	Average VS/wet sand (mg/g)	s of duplicate	average fraction of dry sand	s of dry sand fraction
Inf	2.1492	0.489686	0.82164	0.00189
1	0.99	0.11	0.81537	0.00552
2	3.47	3.13	0.811	0.00103
3	1.23	0.07	0.81117	0.00124
4	1.30	0.44	0.80986	0.00326
Eff	2.3406	2.30804	0.81595	0.00757

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Table C.7. Control column carbohydrates concentrations.

Location	Time (days)	Ave. (ug/g dry sand)	s	Time (days)	Ave. (ug/g dry sand)	s	Time (days)	Ave. (ug/g dry sand)	s	Time (days)	Ave. (ug/g dry sand)	s
Inf												
F1	53	62.6046	54.8108	113	70.8080	2.3059	135	71.4221	4.8951	149	80.1887	5.4000
F2		60.4937	11.4724		77.3161	12.1323		77.9604	8.5668		87.2928	9.2358
F3		76.9846	10.1433		88.5094	2.6649		108.1171	12.4369		117.1424	12.1402
F4		77.7223	0.4037		91.3594	14.9563		88.1717	3.2965		99.2433	2.3926
Eff												

Location	Time (days)	Ave. (ug/g dry sand)	s	Time (days)	Ave. (ug/g dry sand)	s	Time (days)	Ave. (ug/g dry sand)	s	Time (days)	Ave. (ug/g dry sand)	s
Inf												
F1	170	93.7017	1.6429	191	135.5669	2.1994	275	126.2145	7.9217	276	173.1240	0.6135
F2		93.0776	4.3377		134.7658	3.8734		137.6444	5.9012		38.6423	6.2179
F3		99.6151	8.4175		97.4251	1.6684		135.8862	15.4106		28.3999	4.1804
F4		86.1989	8.3759		108.1206	12.0334		141.0161	12.6545		27.3549	12.8391
Eff											16.6707	0.0314

Calculations

s = standard deviation of triplicate analysis

where

x_i = single value

\bar{x} = average of values

n = number of observations

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

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Table C.7. Calculations used on control column carbohydrates raw data.

Calculation Steps:

1. Convert transmittance to absorbance:

$$Abs = \log\left(\frac{100}{trans}\right)$$

where

Abs = absorbance

trans = transmittance

2. Adjust absorbance reading down using black absorbance.

3. Determine protein mass:

Use standard curve trendline equation, solving for x

4. Determine dry sand mass:

Multiply wet sand mass by fraction dry sand average from VS data.

5. Calculate carbohydrates concentration:

$$[Carbs] = \frac{\text{carbs mass } (\mu\text{g})}{\text{dry sand mass (g)}}$$

6. Average the two carbohydrates concentrations

$$\bar{x} = \frac{(x_1 + x_2)}{2}$$

where

\bar{x} = average value

x_1, x_2 = carbohydrates concentration

7. Determine the duplicate sample standard deviation

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

where

x_i = carbohydrates concentration

n = number of observations

3. Trendline equations used for:

days 53 and 113^a

$$x = \frac{107.53y}{2}$$

day 135

$$x = 106.38y$$

day 149

$$x = 107.53y$$

day 170

$$x = 103.09y$$

day 191

$$x = 109.89y$$

day 275

$$x = 102.04y$$

day 276

$$x = 102.04y$$

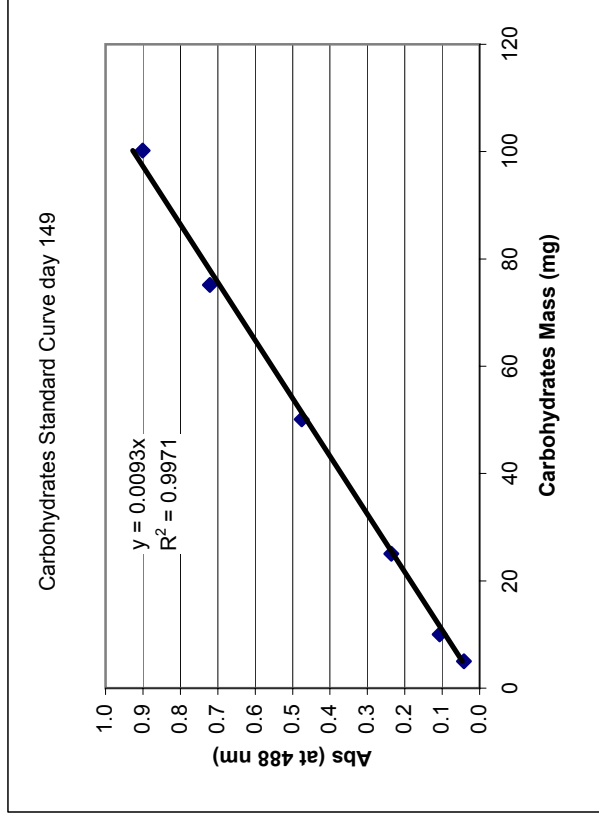
Analysis Note:

^aDays 53 and 113 show a trendline equation divided by 2. This trendline was used from day 149 carbohydrates standard curve. It was determined post-analysis on these days that the carbohydrates standards were improperly made, therefore a different standard curve was applied. The sample to reagent ratio was 1:2 on days 53 and 114, whereas the standard to reagent ratio was 1:1 on day 149 (and all other days). The 1:2 sample to reagent ratio effectively doubled the concentration compared to all other

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Table C.7a. Control column carbohydrates raw data day 53.

Standard	% Trans.	Abs.	Adjust	Ave.	Std Dev.
0 ug	98	0.009	0.012		
	96.5	0.015			
5 ug	88	0.056	-0.377	-0.378	0.002
	88.5	0.053	-0.379		
10 ug	75.5	0.122	-0.310	-0.313	0.004
	76.5	0.116	-0.316		
25 ug	55.5	0.256	-0.176	-0.184	0.011
	57.5	0.240	-0.192		
50 ug	33	0.481	0.049	0.056	0.009
	32	0.495	0.063		
75 ug	18.5	0.733	0.301	0.301	
100 ug	13	0.886	0.454	0.481	0.038
	11.5	0.939	0.507		



Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand	s dry sand fraction	Ave. (µg/g sand)	s	
				carbs mass, µg	wet sand, g							dry sand, g
ContFL1a	68	0.167	0.155	8.360	0.2548	0.216622	38.59	ContFL1	0.850166	0.00278	43.82	7.395005
ContFL1b	61	0.215	0.203	10.896	0.2613	0.222148	49.05	ContFL2	0.868533	0.00093	28.43	5.854402
ContFL2a	76.5	0.116	0.104	5.610	0.2659	0.230943	24.29	ContFL3	0.875853	0.0039	36.70	5.161233
ContFL2b	70	0.155	0.143	7.683	0.2716	0.235894	32.57	ContFL4	0.871417	0.0062	37.09	0.192658
ContFL3a	66	0.180	0.168	9.057	0.2563	0.224481	40.35					
ContFL3b	71	0.149	0.137	7.352	0.254	0.222467	33.05					
ContFL4a	68	0.167	0.155	8.360	0.2577	0.224564	37.23					
ContFL4b	68	0.167	0.155	8.360	0.2596	0.22622	36.95					

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Used same standard curve as day 53 and 149.

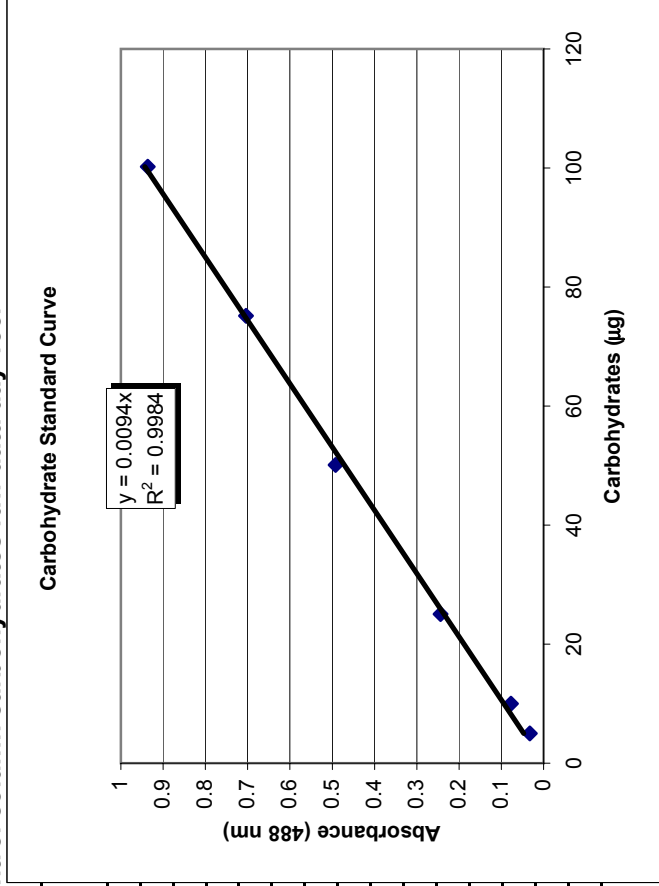
Table C.7b. Control column carbohydrates raw data day 113.

Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand	s dry sand fraction	Ave. (µg/g sand)	s
				carbs mass, µg	wet sand, g						
ContFL1a	15	0.824	0.392	21.069	0.5818	0.581599	ContFL1	0.999655	2.7E-05	34.08	3.029019
ContFL1b	17	0.770	0.338	18.147	0.5683	0.568104	ContFL2	0.999794		34.79	14.995553
ContFL2a	22.5	0.648	0.216	11.602	0.4797	0.479601	ContFL3	0.99946	0.00044	48.44	0.916762
ContFL2b	13.5	0.870	0.438	23.529	0.5184	0.518293	ContFL4	0.989017	0.01129	53.25	14.26234
ContFL3a	13.5	0.870	0.438	23.529	0.4926	0.492334					
ContFL3b	11.5	0.939	0.507	27.273	0.5559	0.5556					
ContFL4a	13.5	0.870	0.438	23.529	0.5512	0.545146					
ContFL4b	9	1.046	0.614	32.996	0.5268	0.521014					

Appendix C

Table C.7c. Control column carbohydrates raw data day 135.

Standard	% Trans.	Abs.	Adjust	Ave.	Std Dev.
0 ug	85.5	0.068	0.053		
	91.5	0.039			
5 ug	82	0.086	-0.346	-0.346	
10 ug	73.5	0.134	-0.298	-0.301	0.004
	74.5	0.128	-0.304		
25 ug	50	0.301	-0.131	-0.135	0.006
	51	0.292	-0.140		
50 ug	28.5	0.545	0.113	0.113	
75 ug	18	0.745	0.313	0.325	0.018
	17	0.770	0.338		
100 ug	10	1.000	0.568	0.557	0.015
	10.5	0.979	0.547		

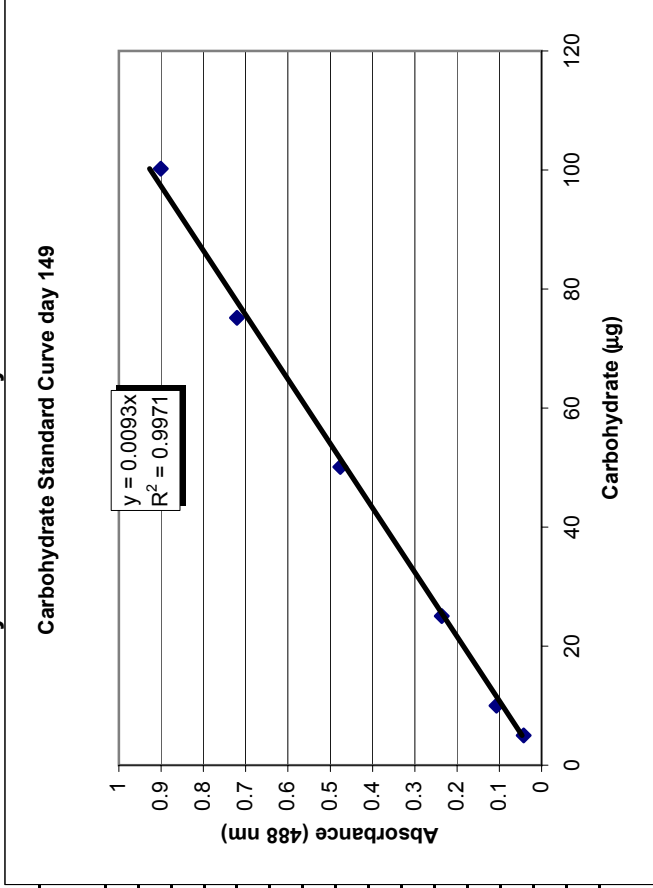


Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand	s dry sand fraction	Ave. (µg/g sand)	s
				carbs mass, µg	wet sand, g						
ContFL1a	40.5	0.393	0.339	36.089	0.5358	67.96	ContFL1	0.991099	0.0069	71.4221	4.895141
ContFL1b	40	0.398	0.345	36.663	0.494	74.88	ContFL2	0.998484	0.00131	77.9604	8.566804
ContFL2a	36.5	0.438	0.384	40.894	0.5696	71.90	ContFL3	0.999862	6.1E-06	108.117	12.43688
ContFL2b	34.5	0.462	0.409	43.497	0.5185	84.02	ContFL4	0.996391	0.00473	88.1717	3.29655
ContFL3a	20	0.699	0.646	68.688	0.5876	116.91					
ContFL3b	27.5	0.561	0.507	53.975	0.5435	99.32					
ContFL4a	38.5	0.415	0.361	38.429	0.4493	85.84					
ContFL4b	32	0.495	0.442	46.973	0.5209	90.50					

Appendix C

Table C.7d. Control column carbohydrates raw data day 149.

Standard	% Trans.	Abs.	Adjust	Ave.	Std Dev.
0 ug	98	0.009	0.012		
	96.5	0.015			
5 ug	88	0.056	-0.377	-0.378	0.002
	88.5	0.053	-0.379		
10 ug	75.5	0.122	-0.310	-0.313	0.004
	76.5	0.116	-0.316		
25 ug	55.5	0.256	-0.176	-0.184	0.011
	57.5	0.240	-0.192		
50 ug	33	0.481	0.049	0.056	0.009
	32	0.495	0.063		
75 ug	18.5	0.733	0.301	0.301	
100 ug	13	0.886	0.454	0.481	0.038
	11.5	0.939	0.507		

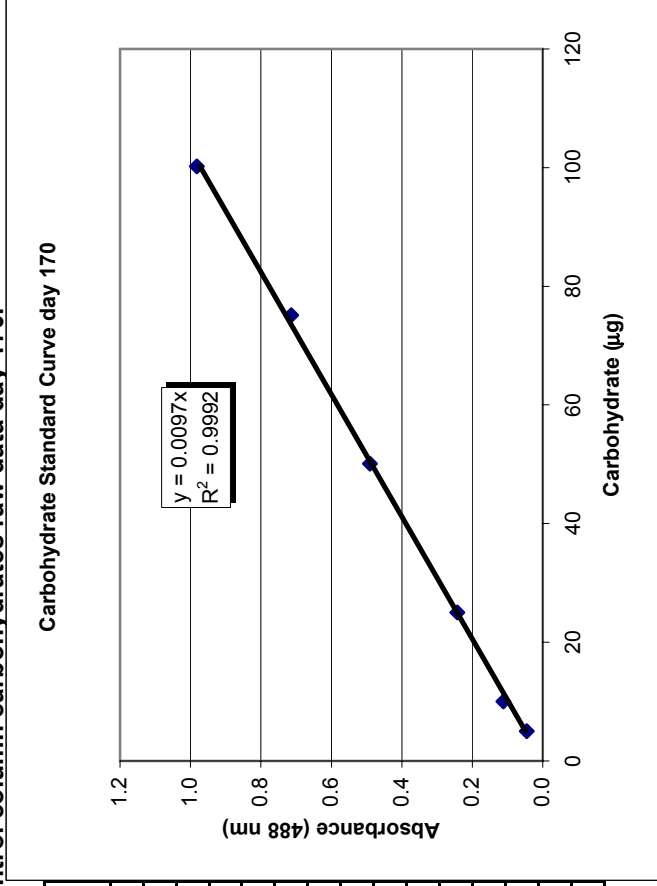


Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand	s dry sand fraction	Ave. (µg/g sand)	s
				carbs mass, µg	wet sand, g						
ContFL1a	40.5	0.393	0.380	40.906	0.5358	76.37	ContFL1	0.999668	0.00015	80.1887	5.400039
ContFL1b	40	0.398	0.386	41.486	0.494	84.01	ContFL2	0.994776	0.00705	87.2928	9.235829
ContFL2a	36.5	0.438	0.426	45.762	0.5696	80.76	ContFL3	0.999696	3.5E-05	117.142	12.14019
ContFL2b	34.5	0.462	0.450	48.393	0.5185	93.82	ContFL4	0.987239	0.0018	99.2433	2.392555
ContFL3a	20	0.699	0.687	73.855	0.5876	125.73					
ContFL3b	27.5	0.561	0.549	58.983	0.5435	108.56					
ContFL4a	38.5	0.415	0.402	43.271	0.4493	97.55					
ContFL4b	32	0.495	0.483	51.906	0.5209	100.94					

Appendix C

Table C.7e. Control column carbohydrates raw data day 170.

Standard	% Trans.	Abs.	Adjust	Ave.	Std Dev.
0 ug	98	0.009	0.008		
	98.5	0.007			
5 ug	90	0.046	-0.386	-0.379	0.010
	87	0.060	-0.372		
10 ug	76	0.119	-0.313	-0.313	0.000
	76	0.119	-0.313		
25 ug	55.5	0.256	-0.176	-0.182	0.008
	57	0.244	-0.188		
50 ug	31.5	0.502	0.070	0.066	0.005
	32	0.495	0.063		
75 ug	19	0.721	0.289	0.289	
	19	0.721	0.289		
100 ug	10.5	0.979	0.547	0.557	0.015
	10	1.000	0.568		

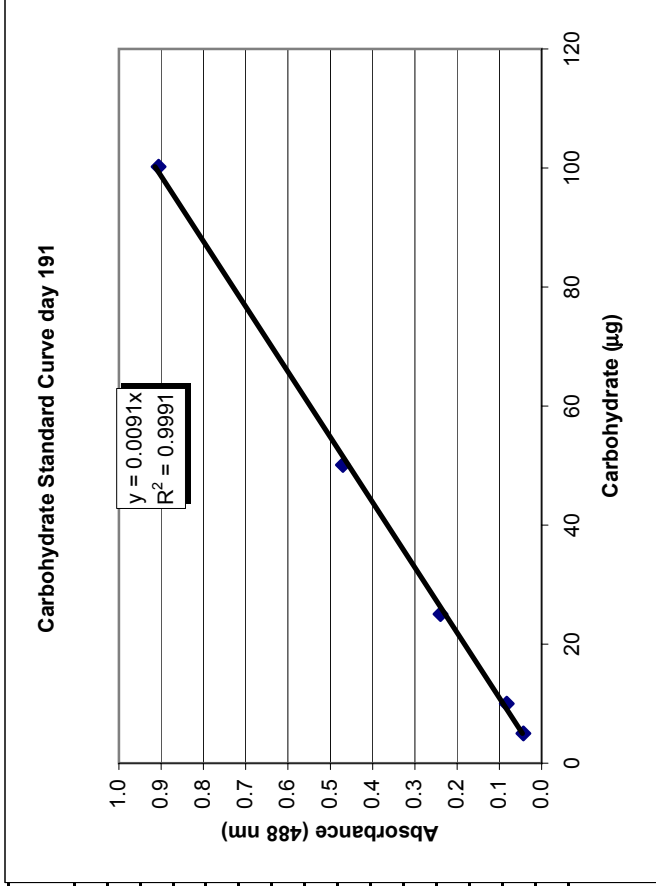


Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand		s	
				carbs mass, µg	wet sand, g			dry sand, g	s dry sand fraction		
ContFL1a	42	0.377	0.369	38.050	0.4138	0.41117	ContFL1	0.993644	0.00095	93.7017	1.642929
ContFL1b	34.5	0.462	0.455	46.857	0.4971	0.493941	ContFL2	0.973495	0.00834	93.0776	4.337742
ContFL2a	37	0.432	0.424	43.725	0.499	0.485774	ContFL3	0.974048	0.00876	99.6151	8.417535
ContFL2b	29	0.538	0.530	54.632	0.5837	0.568229	ContFL4	0.983212	0.00322	86.1989	8.375918
ContFL3a	29	0.538	0.530	54.632	0.5313	0.517512					
ContFL3b	34.5	0.462	0.455	46.857	0.5136	0.500271					
ContFL4a	33	0.481	0.474	48.847	0.5393	0.530246					
ContFL4b	35	0.456	0.448	46.213	0.5855	0.575671					

Appendix C

Table C.7f. Control column carbohydrates raw data day 191.

Standard	% Trans.	Abs.	Adjust	Ave.	Std Dev.
0 ug	98	0.009	0.015		
	95	0.022			
	97	0.013			
5 ug	87.5	0.058	-0.374	-0.374	0.000
	87.5	0.058	-0.374		
10 ug	80	0.097	-0.335	-0.335	0.000
	80	0.097	-0.335		
25 ug	55.5	0.256	-0.176	-0.178	0.003
	56	0.252	-0.180		
50 ug	33.5	0.475	0.043	0.053	0.014
	32	0.495	0.063		
75 ug	12	0.921	0.489	0.498	0.013
	11.5	0.939	0.507		
100 ug	12	0.921	0.489	0.489	0.000
	12	0.921	0.489		

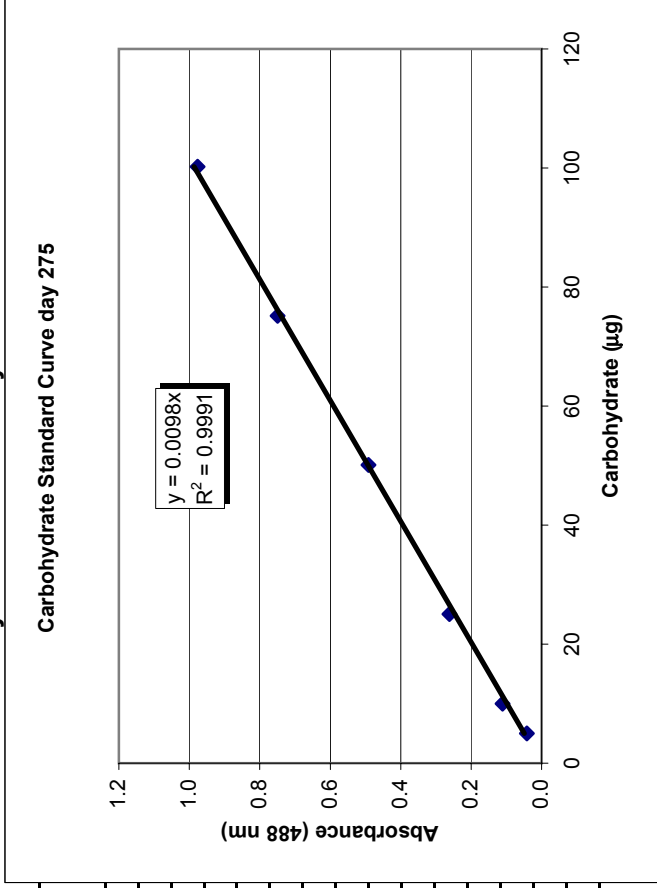


Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand	s dry sand fraction	Ave. (µg/g sand)	s
				carbs mass, µg	wet sand, g						
ContFL1a	24	0.620	0.605	66.460	0.5083	137.07	ContFL1	0.95391	0.00304	135.51	2.199113
ContFL1b	24.5	0.611	0.596	65.476	0.5124	133.96	ContFL2	0.971488	0.01583	134.71	3.873011
ContFL2a	22	0.658	0.643	70.613	0.5288	137.45	ContFL3	0.946223	0.01167	97.38	1.669493
ContFL2b	23	0.638	0.623	68.491	0.5342	131.98	ContFL4	0.944646	0.00691	108.07	12.03437
ContFL3a	33.5	0.475	0.460	50.545	0.5553	96.20					
ContFL3b	31.5	0.502	0.487	53.482	0.5735	98.56					
ContFL4a	26	0.585	0.570	62.640	0.5688	116.58					
ContFL4b	32.5	0.488	0.473	51.991	0.5528	99.56					

Appendix C

Table C.7g. Control column carbohydrates raw data day 275.

Standard	% Trans.	Abs.	Adjust	Ave.	Std Dev.
0 ug	95	0.022	0.014		
	97.5	0.011			
	98	0.009			
5 ug		#DIV/0!	#DIV/0!	-0.377	#DIV/0!
	88	0.056	-0.377		
10 ug	77	0.114	-0.319	-0.307	0.016
	73	0.137	-0.295		
25 ug	54	0.268	-0.164	-0.156	
	52	0.284	-0.148		
50 ug	30.5	0.516	0.084	0.073	0.015
	32	0.495	0.063		
75 ug	17	0.770	0.338	0.331	0.009
	17.5	0.757	0.325		
100 ug	9.5	1.022	0.590	0.558	0.045
	11	0.959	0.527		

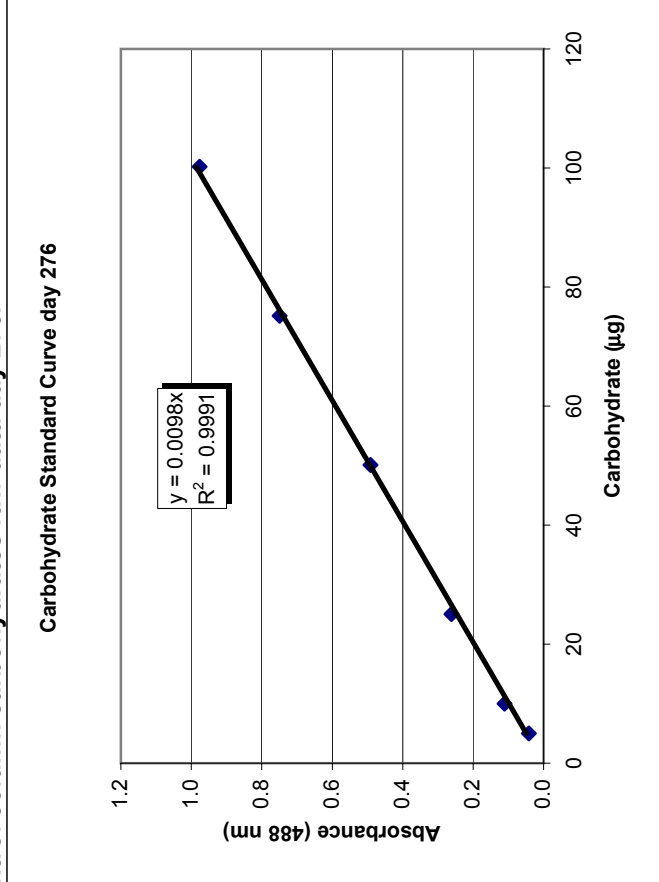


Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand	s dry sand fraction	Ave. (µg/g sand)	s
				carbs mass, µg	wet sand, g						
ContFL1a	28	0.553	0.539	54.984	0.4655	120.62	ContFL1	0.979285	0.00199	126.22	7.921473
ContFL1b	21	0.678	0.664	67.733	0.5247	131.82	ContFL2	0.945662	0.00802	137.65	5.901268
ContFL2a	25	0.602	0.588	60.006	0.4754	133.48	ContFL3	0.924541	0.01271	135.89	15.41012
ContFL2b	24.5	0.611	0.597	60.901	0.4541	141.82	ContFL4	0.933652	0.00558	141.02	12.65455
ContFL3a	16	0.796	0.782	79.784	0.5879	146.79					
ContFL3b	28	0.553	0.539	54.984	0.4758	124.99					
ContFL4a	19.5	0.710	0.696	71.017	0.5072	149.97					
ContFL4b	23	0.638	0.624	63.701	0.5166	132.07					

Appendix C

Table C.7g. Control column carbohydrates raw data day 276.

Standard	% Trans.	Abs.	Adjust	Ave.	Std Dev.
0 ug	95	0.022	0.014		
	97.5	0.011			
	98	0.009			
5 ug		#DIV/0!	#DIV/0!	-0.377	#DIV/0!
	88	0.056	-0.377		
10 ug	77	0.114	-0.319	-0.307	0.016
	73	0.137	-0.295		
25 ug	54	0.268	-0.164	-0.156	0.012
	52	0.284	-0.148		
50 ug	30.5	0.516	0.084	0.073	0.015
	32	0.495	0.063		
75 ug	17	0.770	0.338	0.331	0.009
	17.5	0.757	0.325		
100 ug	9.5	1.022	0.590	0.558	0.045
	11	0.959	0.527		



Sample Name	%Trans	Abs.	Adjust	Mass		Conc.	Location	average fraction of dry sand	s dry sand fraction	Ave. (µg/g sand)	s
				carbs mass, µg	wet sand, g						
Cont Inf a	13	0.886	0.872	88.985	0.624	0.512704	Cont Inf	0.821641	0.00189	173.13	0.613345
Cont Inf b	15.5	0.810	0.796	81.191	0.5722	0.470143	ContFL1	0.815374	0.00552	45.76	1.308855
ContFL1a	55.5	0.256	0.242	24.664	0.6479	0.528281	ContFL2	0.810997	0.00103	38.65	6.217425
ContFL1b	63	0.201	0.187	19.047	0.521	0.42481	ContFL3	0.811167	0.00124	28.40	4.180441
ContFL2a	71.5	0.146	0.132	13.438	0.4838	0.39236	ContFL4	0.809863	0.00326	27.36	12.83827
ContFL2b	61	0.215	0.201	20.477	0.5866	0.475731	Cont Eff	0.815955	0.00757	16.67	0.030983
ContFL3a	73	0.137	0.123	12.518	0.4921	0.399175					
ContFL3b	77	0.114	0.100	10.154	0.4919	0.399013					
ContFL4a	84	0.076	0.062	6.298	0.4254	0.344516					
ContFL4b	66	0.180	0.166	16.985	0.5756	0.466157					
Cont Eff a	83.5	0.078	0.064	6.563	0.4817	0.393045					
Cont Eff b	85	0.071	0.057	5.774	0.4249	0.346699					

Appendix C

Table C.8. Control column protein concentrations.

Location	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)
Inf												
F1	53	751.55	26.64	113	287.78	17.88	135	355.42	36.85	149	440.16	100.49
F2		358.99	158.86		501.42	97.13		384.98	48.46		416.25	39.41
F3		280.96	72.35		397.30	11.01		446.40	2.19		335.26	54.04
F4		347.45	20.03		463.49	50.12		399.63	64.70		321.68	71.01
Eff												
Location	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)	Time (days)	Average of Duplicate (µg/g dry sand)	s (of duplicate)
Inf												
F1	170	354.87	7.78	191	768.51	32.03	275	556.50	18.41	276	718.87	15.10
F2		384.03	54.88		397.91	22.61		846.78	69.93		164.53	6.89
F3		453.13	4.51		553.99	93.75		722.28	97.62		129.95	8.20
F4		494.21	86.28		409.20	5.22		844.10	43.58		87.29	18.16
Eff												

Calculations:

Average of duplicate:

$$\bar{x} = \frac{(x_1 + x_2)}{2}$$

where
 \bar{x} = average value
 x_1, x_2 = carbohydrates concentration

s = standard deviation of triplicate analysis

where

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

x_i = single value
 = average of values
 n = number of observations
 \bar{x}

Calculation Steps:

1. Use trendline equation from calibration curve to determine protein mass.

2. Account for 50 μL of sample transferred to one of reagent mixture:

$$= \text{protein mass} * \frac{50}{1000}$$

3. Using the fraction of dry sand obtained from VS calculations determine the dry sand mass.

Dry sand mass = wet sand mass * dry fraction

4. Determine the protein concentration by dividing the protein mass by dry sand mass (μg protein/g dry sand)

5. Average the two $\bar{x} = \frac{(x_1 + x_2)}{2}$ concentration samples.

\bar{x}
where

= average value

x_1, x_2 = carbohydrates concentration

6. Determine standard deviation of 2 samples

s = standard deviation of triplicate analysis

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$$

where

x_i = single value

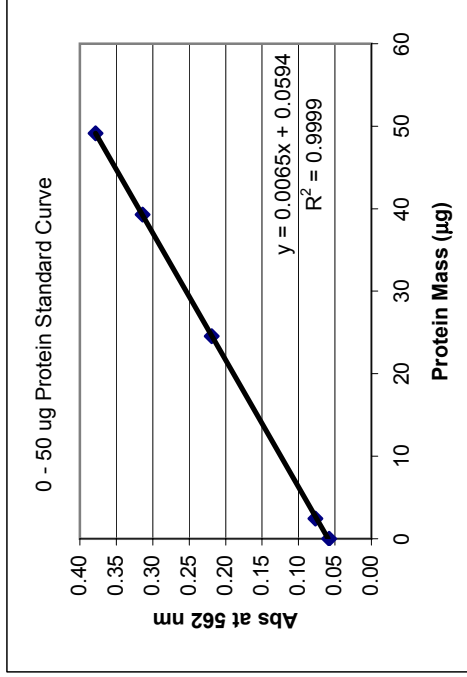
= average of values

n = number of observations

Appendix C

Table C.8a. Control column protein concentrations raw data for day 53.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.05804
0.05	2.45634	0.0767
0.5	24.5634	0.2192
0.8	39.3015	0.31386
1	49.1268	0.37866



Trendline Equations Used:
day 53:

$$P = \frac{Abs - 0.0594}{0.0065}$$

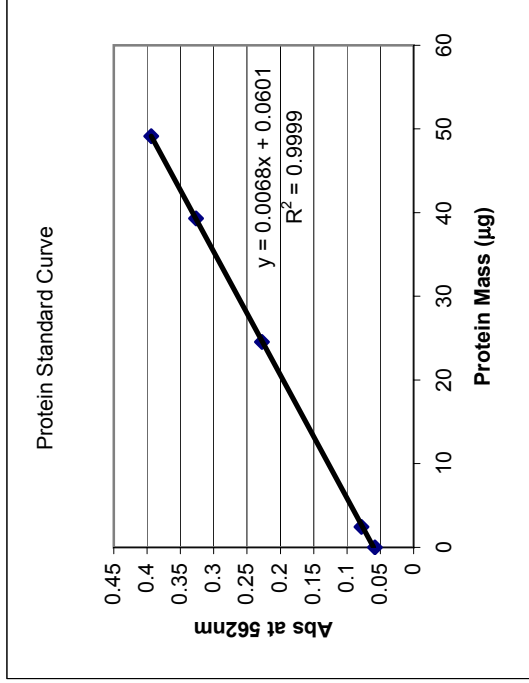
where
P = protein mass (µg)
Abs = absorbance reading

Location (day 53)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
F1a	0.11706	8.87136	177.4272	0.2709	0.23031	770.3844	0.85017	0.00278	751.549	26.63738
F1b	0.11319	8.2756	165.512	0.2657	0.22589	732.7135	0.86853	0.00093	358.992	158.8619
F2a	0.09366	5.27053	105.4105	0.2575	0.22365	471.3247	0.87585	0.0039	280.959	72.35256
F2b	0.07789	2.84501	56.90014	0.2656	0.23068	246.66	0.87142	0.0062	347.448	20.02637
F3a	0.07700	2.70707	54.1415	0.269	0.2356	229.7982				
F3b	0.08475	3.89936	77.98721	0.2681	0.23482	332.1202				
F4a	0.08609	4.10591	82.11815	0.2606	0.22709	361.6084				
F4b	0.08385	3.76109	75.22188	0.259	0.2257	333.2869				

Appendix C

Table C.8b. Control column protein concentrations raw data for day 113.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.05832
0.05	2.45634	0.07832
0.1	4.91268	
0.5	24.5634	0.22767
0.8	39.3015	0.32672
1	49.1268	0.39391



Trendline Equations Used:
day 113:

$$P = \frac{Abs - 0.0601}{0.0068}$$

where
P = protein mass (µg)
Abs = absorbance reading

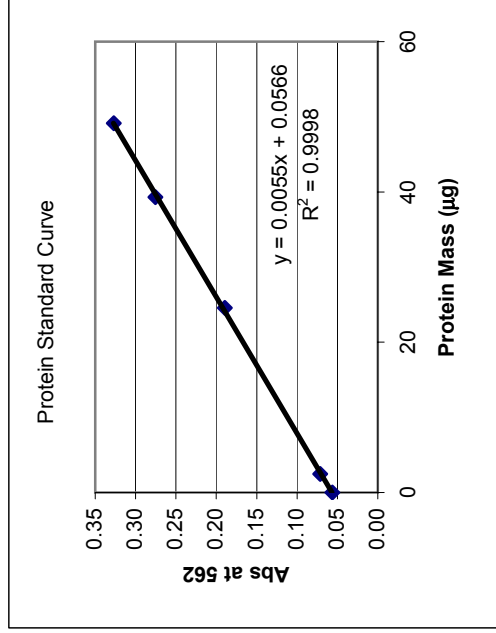
Location (day 113)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)
F1a	0.12056	8.89086	177.8172	0.5921	0.5919	300.4198	0.99965	2.7E-05
F1b	0.10366	6.40569	128.1138	0.4658	0.46564	275.1353	0.99979	0.00044
F2a	0.14671	12.7372	254.743	0.5888	0.58868	432.7369	0.99946	0.00044
F2b	0.15099	13.366	267.3198	0.4690	0.4689	570.0958	0.98902	0.01129
F3a	0.12986	10.2583	205.1659	0.5270	0.52672	389.5195		
F3b	0.13794	11.4475	228.951	0.5655	0.56519	405.0835		
F4a	0.14353	12.2688	245.3758	0.5796	0.57323	428.0552		
F4b	0.15446	13.8759	277.517	0.5624	0.55622	498.9312		

Flowcell	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
1	287.778	17.87885
2	501.416	97.12736
3	397.302	11.00539
4	463.493	50.11695

Appendix C

Table C.8c. Control column protein concentrations raw data for day 135.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.05633
0.05	2.45634	0.07133
0.1	4.91268	
0.5	24.5634	0.18957
0.8	39.3015	0.27538
1	49.1268	0.32721



Trendline Equations Used:
day 135:

$$P = \frac{Abs - 0.0566}{0.0055}$$

where
P = protein mass (µg)
Abs = absorbance reading

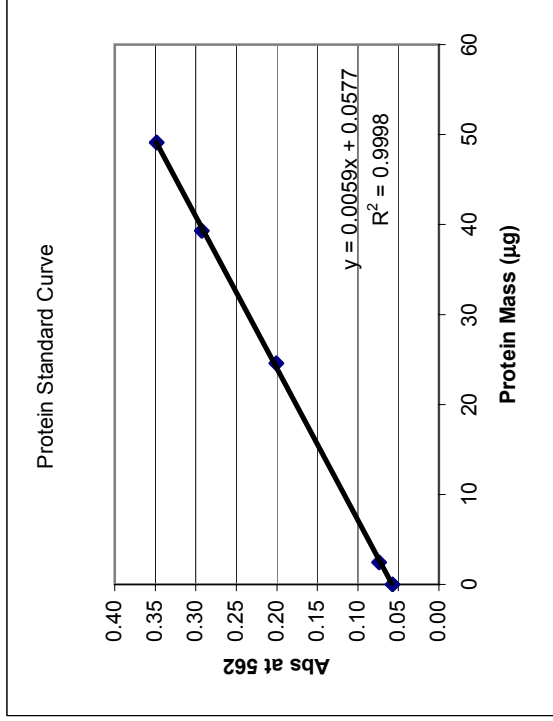
Location (day 135)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)
F1a	0.10317	8.4669	169.3377	0.4439	0.43995	384.9031	0.9911	0.0069
F1b	0.10754	9.2617	185.2342	0.5624	0.55739	332.3219	0.99848	0.00131
F2a	0.11291	10.2374	204.748	0.5838	0.58291	351.2487	0.99986	6.1E-06
F2b	0.11065	9.8271	196.5414	0.4688	0.46809	419.8804	0.99639	0.00473
F3a	0.12982	13.3131	266.2611	0.5944	0.59432	448.0112		
F3b	0.11248	10.1603	203.2061	0.4568	0.45674	444.9082		
F4a	0.11237	10.1405	202.8091	0.5731	0.57103	355.1625		
F4b	0.12502	12.4393	248.7869	0.5586	0.55658	446.9888		

Flowcell	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
1	358.613	37.18056
2	385.565	48.52994
3	446.46	2.194123
4	401.076	64.93101

Appendix C

Table C.8d. Control column protein concentrations raw data for day 149.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.0572
0.05	2.45634	0.07381
0.1	4.91268	
0.5	24.5634	0.2006
0.8	39.3015	0.29275
1	49.1268	0.34844



Trendline Equations Used:

day 149:

$$P = \frac{Abs - 0.0577}{0.0059}$$

where

P = protein mass (µg)

Abs = absorbance reading

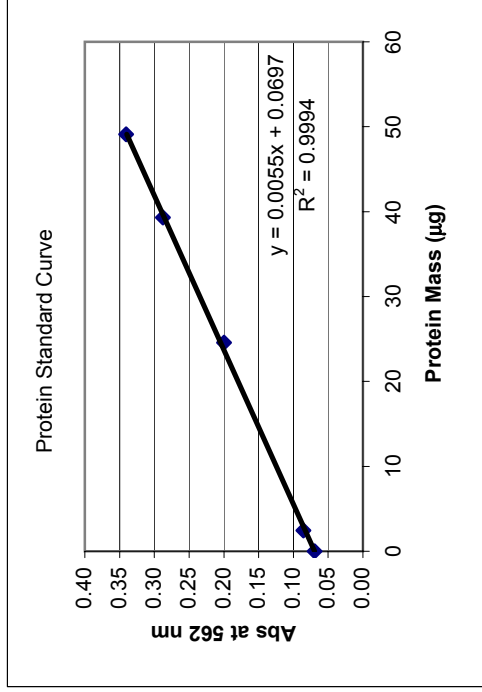
Location (day 149)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)
F1a	0.14644	15.0401	300.8015	0.5886	0.5884	511.2156	0.99967	0.00015
F1b	0.11923	10.4291	208.5824	0.5653	0.56511	369.0993	0.99478	0.00705
F2a	0.12281	11.0363	220.7264	0.5713	0.56832	388.3873	0.9997	3.5E-05
F2b	0.13333	12.8189	256.3776	0.5803	0.57727	444.122	0.98724	0.0018
F3a	0.11915	10.4148	208.295	0.5579	0.55773	373.4692		
F3b	0.10642	8.2582	165.164	0.5562	0.55603	297.0412		
F4a	0.11286	9.3493	186.9855	0.5093	0.5028	371.8879		
F4b	0.0934	6.0515	121.03	0.4516	0.44584	271.4669		

Flowcell	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
1	440.157	100.4914
2	416.255	39.4104
3	335.255	54.04274
4	321.677	71.00835

Appendix C

Table C.8e. Control column protein concentrations raw data for day 170.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.0695
0.05	2.45634	0.08572
0.1	4.91268	
0.5	24.5634	0.19967
0.8	39.3015	0.28769
1	49.1268	0.34063



Trendline Equations Used:
day 170:

$$P = \frac{Abs - 0.0697}{0.0055}$$

where
P = protein mass (µg)
Abs = absorbance reading

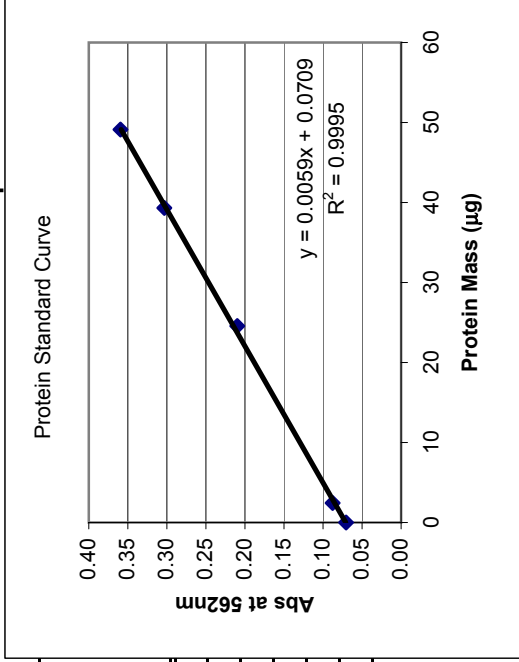
Location (day 170)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)
F1a	0.1261	10.2592	205.1844	0.573	0.56936	360.3784	0.99364	0.00095
F1b	0.1156	8.34371	166.8742	0.4807	0.47764	349.3688	0.97349	0.00834
F2a	0.1245	9.96639	199.3278	0.5931	0.57738	345.2283	0.97405	0.00876
F2b	0.1259	10.2146	204.2913	0.4963	0.48315	422.8361	0.98321	0.00322
F3a	0.1336	11.6121	232.2411	0.5225	0.50894	456.3231		
F3b	0.1392	12.6418	252.8361	0.5769	0.56193	449.9437		
F4a	0.1529	15.1242	302.4842	0.5541	0.5448	555.223		
F4b	0.1308	11.1125	222.251	0.5218	0.51304	433.204		

Flowcell	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
1	354.874	7.784986
2	384.032	54.87698
3	453.133	4.510925
4	494.214	86.28043

Appendix C

Table C.8f. Control column protein concentrations raw data for day 191.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.07044
0.05	2.45634	0.08789
0.1	4.91268	
0.5	24.5634	0.21002
0.8	39.3015	0.3033
1	49.1268	0.3593



Trendline Equations Used:
day 191:

$$P = \frac{Abs - 0.0709}{0.0059}$$

where

P = protein mass (µg)

Abs = absorbance reading

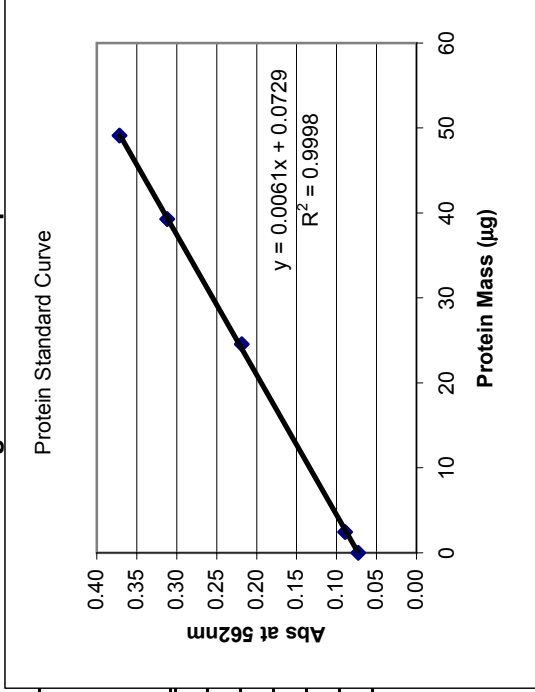
Location (day 191)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)
F1a	0.1849	19.324	386.4793	0.5432	0.51816	745.8632	0.95391	0.00304
F1b	0.1947	20.9842	419.6842	0.5561	0.53047	791.1564	0.97149	0.01583
F2a	0.1369	11.1823	223.6451	0.5562	0.54034	413.8957	0.94622	0.01167
F2b	0.1363	11.09	221.8004	0.5978	0.58076	381.9169	0.94465	0.00691
F3a	0.1600	15.0986	301.9722	0.5145	0.48683	620.2802		
F3b	0.1474	12.9606	259.2117	0.5617	0.53149	487.7042		
F4a	0.1354	10.9404	218.8077	0.5712	0.53958	405.5134		
F4b	0.1345	10.7865	215.7292	0.5531	0.52248	412.8918		

Flowcell	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
1	768.51	32.02715
2	397.906	22.61241
3	553.992	93.74538
4	409.203	5.217272

Appendix C

Table C.8g. Control column protein concentrations raw data for day 275.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.07286
0.05	2.45634	0.0893
0.1	4.91268	
0.5	24.5634	0.2187
0.8	39.3015	0.3118
1	49.1268	0.37175



Trendline Equations Used:
day 275:

$$P = \frac{Abs - 0.0729}{0.0061}$$

where

P = protein mass (µg)

Abs = absorbance reading

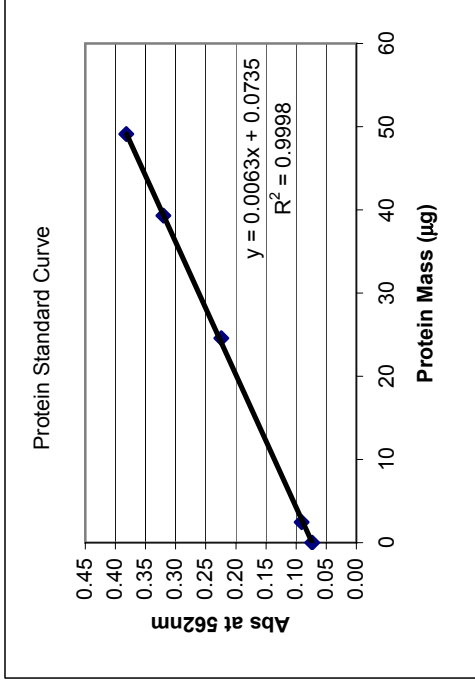
Location (day 275)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)
F1a	0.1549	13.4386	268.7728	0.5050	0.49454	543.4813	0.97929	0.00199
F1b	0.1673	15.4683	309.3661	0.5547	0.54321	569.5151	0.94566	0.00802
F2a	0.1966	20.2856	405.7115	0.4787	0.45269	896.2265	0.92454	0.01271
F2b	0.1811	17.7304	354.6083	0.4703	0.44475	797.3293	0.93365	0.00558
F3a	0.1857	18.4911	369.8226	0.5055	0.46736	791.3093		
F3b	0.1654	15.1623	303.2469	0.5021	0.46421	653.251		
F4a	0.1923	19.5804	391.6075	0.4794	0.44759	874.9189		
F4b	0.1999	20.8168	416.3368	0.5483	0.51192	813.2823		

Flowcell	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
1	556.498	18.40865
2	846.778	69.93084
3	722.28	97.62195
4	844.101	43.58365

Appendix C

Table C.8h. Control column protein concentrations raw data for day 276.

Standard Conc. (g/ml)	Protein Mass in Standard (µg)	Abs at 562nm
0	0	0.07325
0.05	2.45634	0.09062
0.1	4.91268	
0.5	24.5634	0.22428
0.8	39.3015	0.32034
1	49.1268	0.38219



Trendline Equations Used:
day 276:

$$P = \frac{Abs - 0.0735}{0.0063}$$

where
P = protein mass (µg)
Abs = absorbance reading

Location (day 275)	Average Abs at 562nm	Protein Mass (µg)	Account for 50µL transfer of 1 ml NaOH added	Wet Sand Mass (g)	Dry Sand Mass (g)	Protein conc. (µg protein/g wet sand)	average fraction of dry sand	s (in dry sand fraction)
Inf a	0.1900	18.4862	369.7231	0.6354	0.52207	708.1858	0.82164	0.00189
Inf b	0.1935	19.0407	380.8139	0.6353	0.52199	729.5446	0.81537	0.00552
F1a	0.0987	4.00368	80.07357	0.5797	0.47267	169.406	0.811	0.00103
F1b	0.0954	3.47191	69.43818	0.5334	0.43492	159.6571	0.81117	0.00124
F2a	0.0939	3.2433	64.86599	0.5892	0.47784	135.7486	0.80986	0.00326
F2b	0.0924	2.99787	59.95749	0.5955	0.48295	124.1488	0.81595	0.00757
F3a	0.0871	2.16257	43.25148	0.5325	0.43195	100.1316		
F3b	0.0839	1.65817	33.16334	0.5491	0.44541	74.45544		
F4a	0.0824	1.41068	28.21361	0.5699	0.46154	49.50625		
F4b	0.0854	1.88926	37.78516	0.522	0.42275	72.38536		
Eff a	0.0798	1.00175	20.03496	0.5514	0.44992	36.33471		
Eff b	0.0802	1.0653	21.30607	0.558	0.4553	38.18293		

Flowcell	Avg. Protein conc. (µg protein/g wet sand)	s (of duplicate)
inf	718.865	15.10291
1	164.532	6.893512
2	129.949	8.202253
3	87.2935	18.15576
4	60.9458	16.17797
eff	37.2588	1.30689