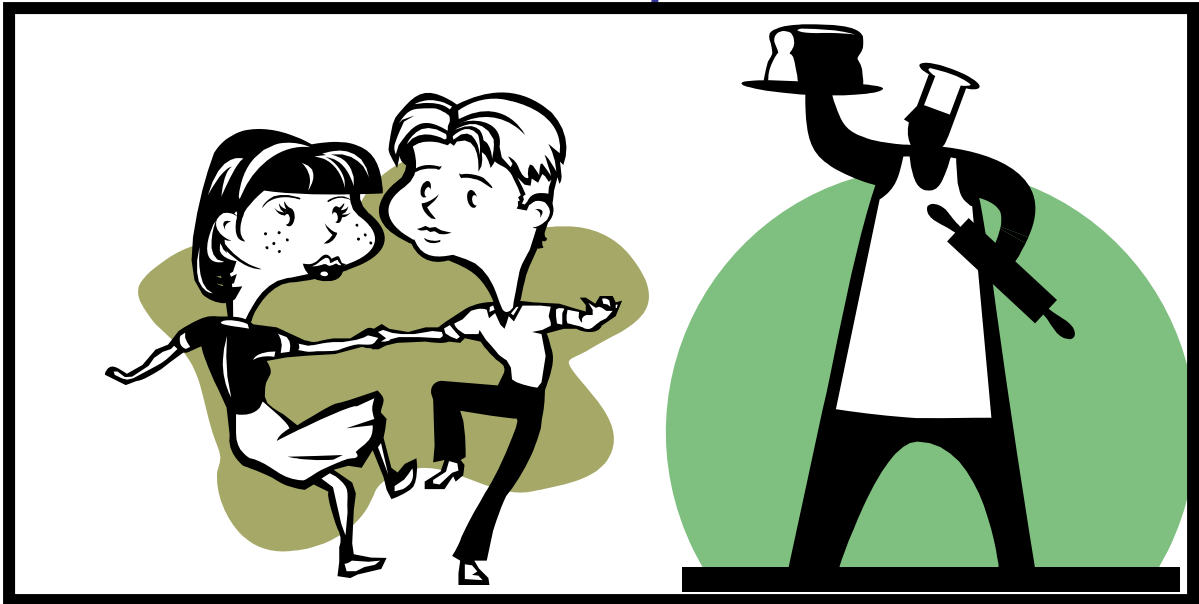


*Shake and Bake Experiments
A Further Update*



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Robert Mason – Project Manager
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Matt Reardon – Chief Shaker
and others in the cast

Shake and Bake Experiments

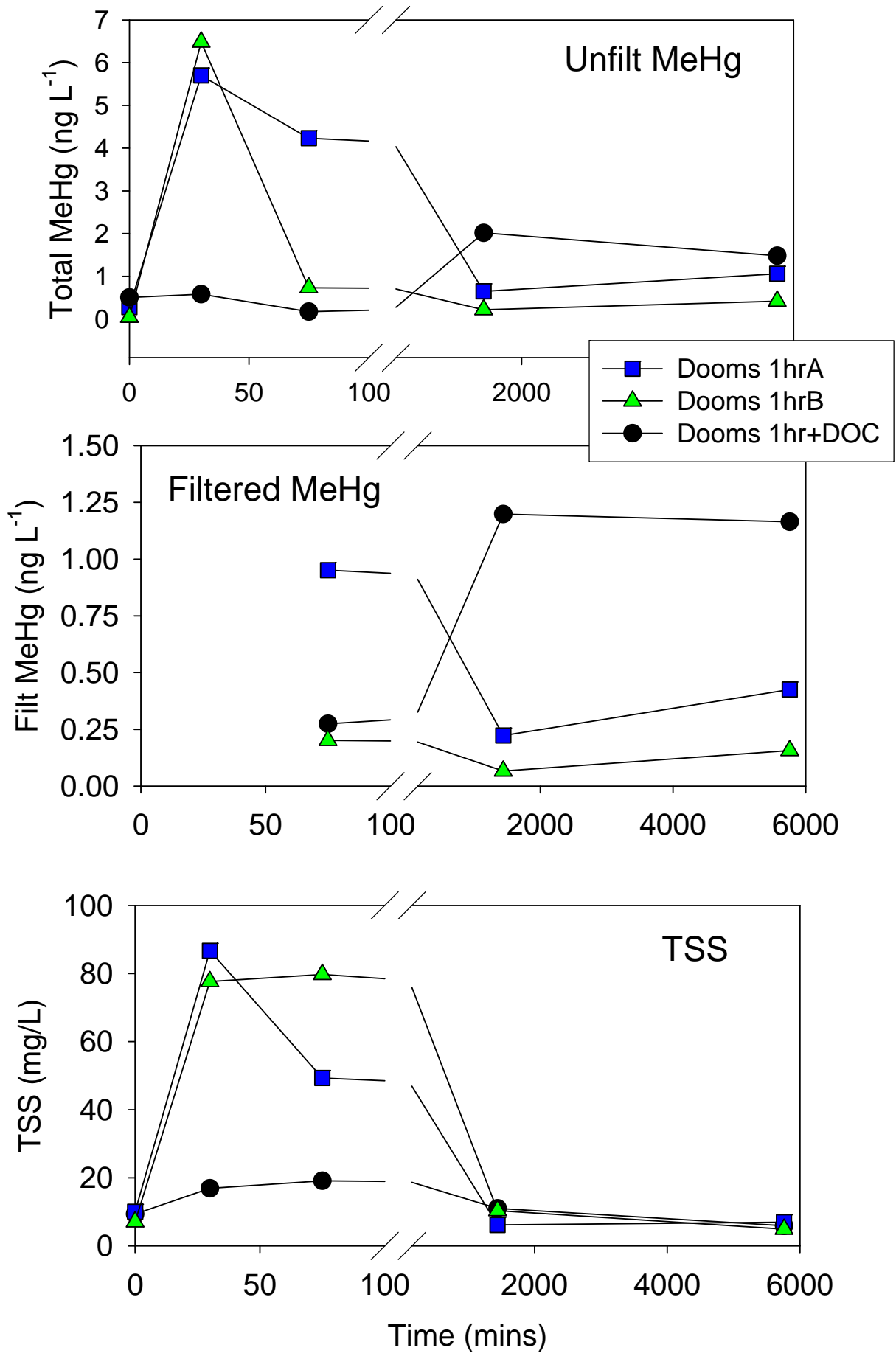
- *Rationale:* To estimate the extent of mercury (Hg) and methylmercury (MeHg) release from sediments during resuspension, and to estimate the impact of resuspension on Hg methylation in the short-term
- *Approach:* Use microcosms containing sediment and water obtained from the site and resuspend the sediment for different lengths of time (20 mins, 1 hr and 5 hrs) for different sediment types and monitor the total and dissolved Hg and MeHg concentrations, as well as TSS and other ancillary parameters, with time during and after the resuspension event to determine the extent of Hg and MeHg release to the dissolved phase. From analysis of sediments before and after the experiment determine if net methylation has occurred in the sediment. To assess the importance of biological activity, DOC was added to some sediments in an effort to stimulate Hg methylation.

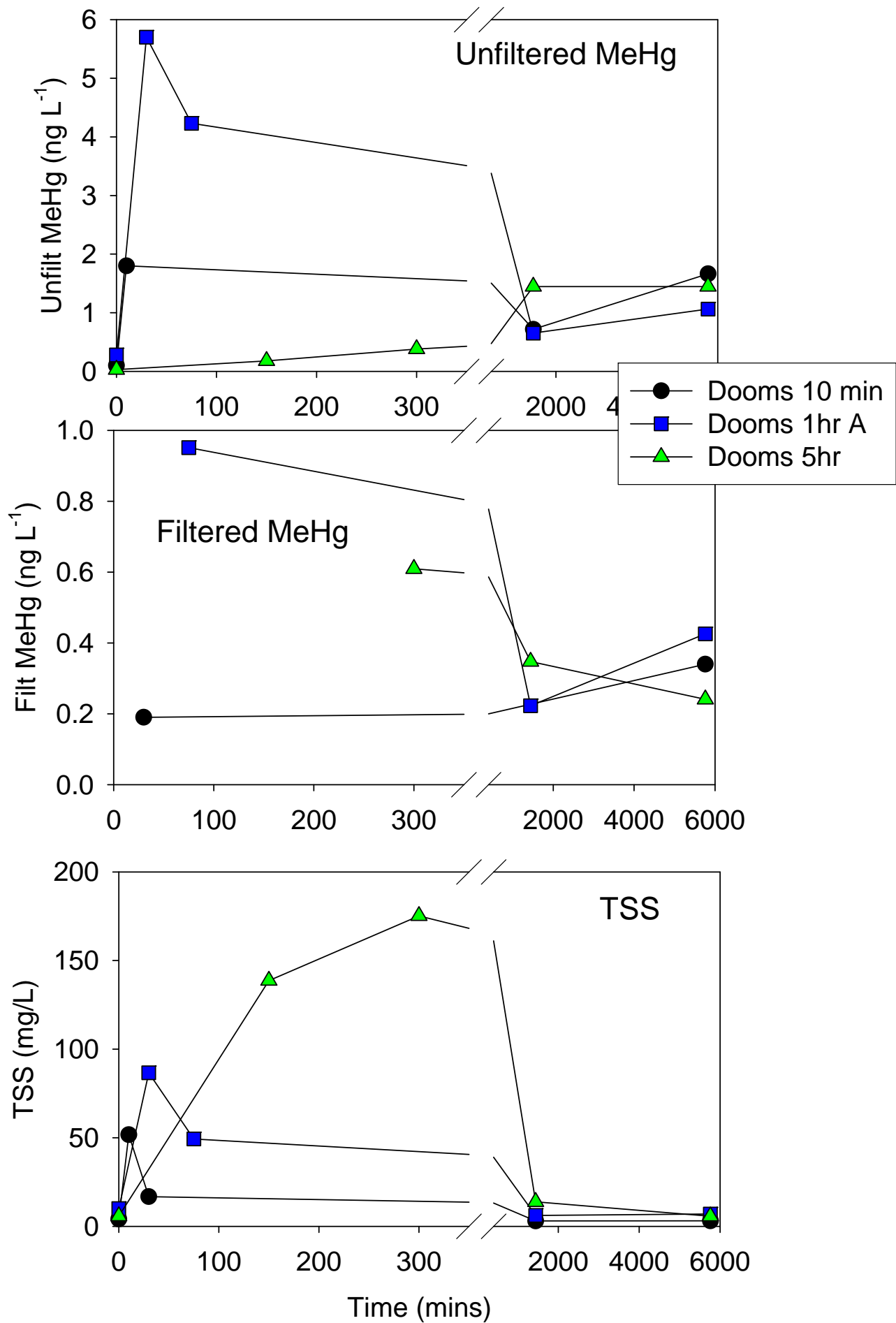
Progress to Date: Sample analysis on-going.

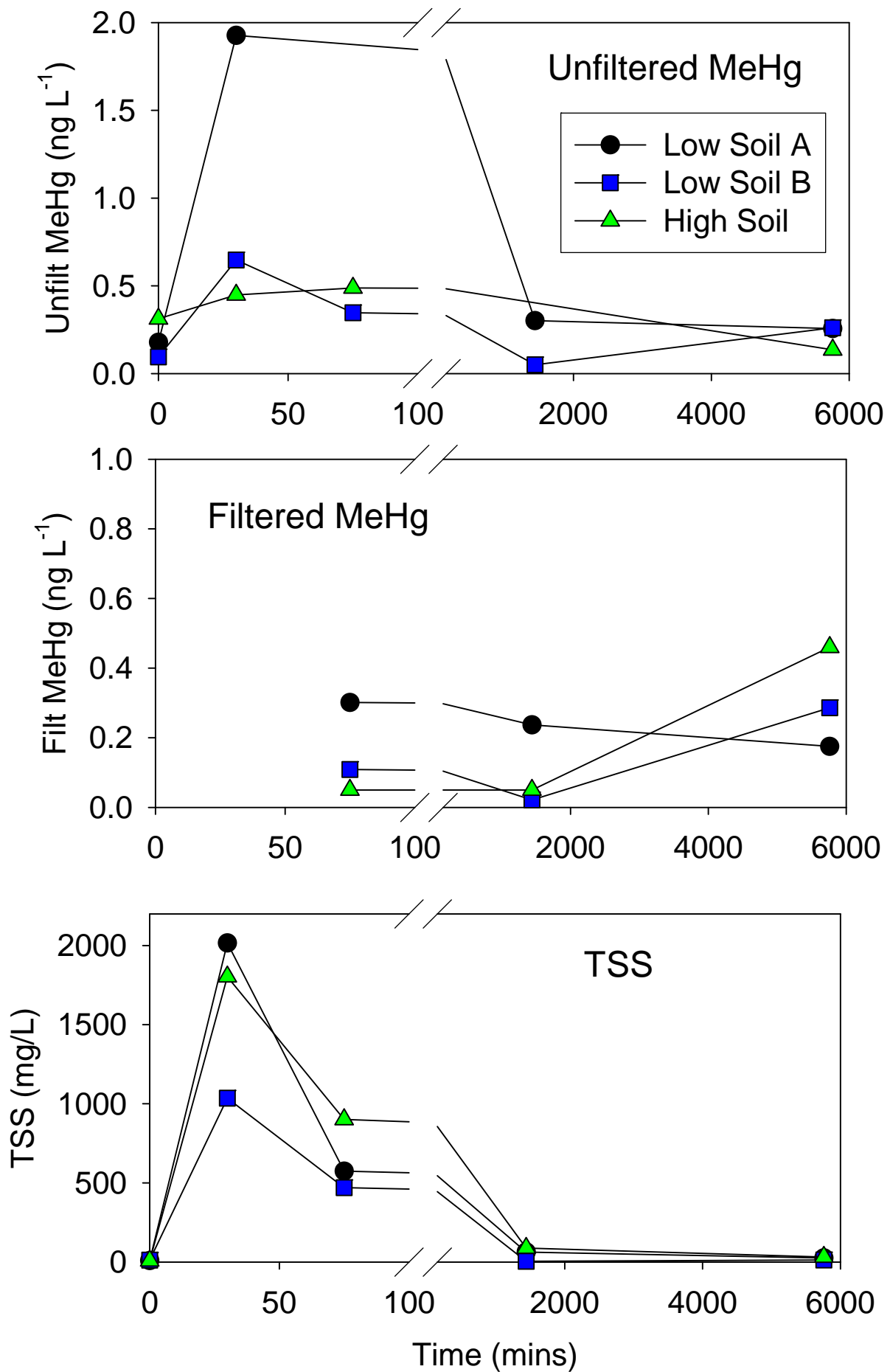
Concentrations of Mercury and Methylmercury in Sediment Samples from the River

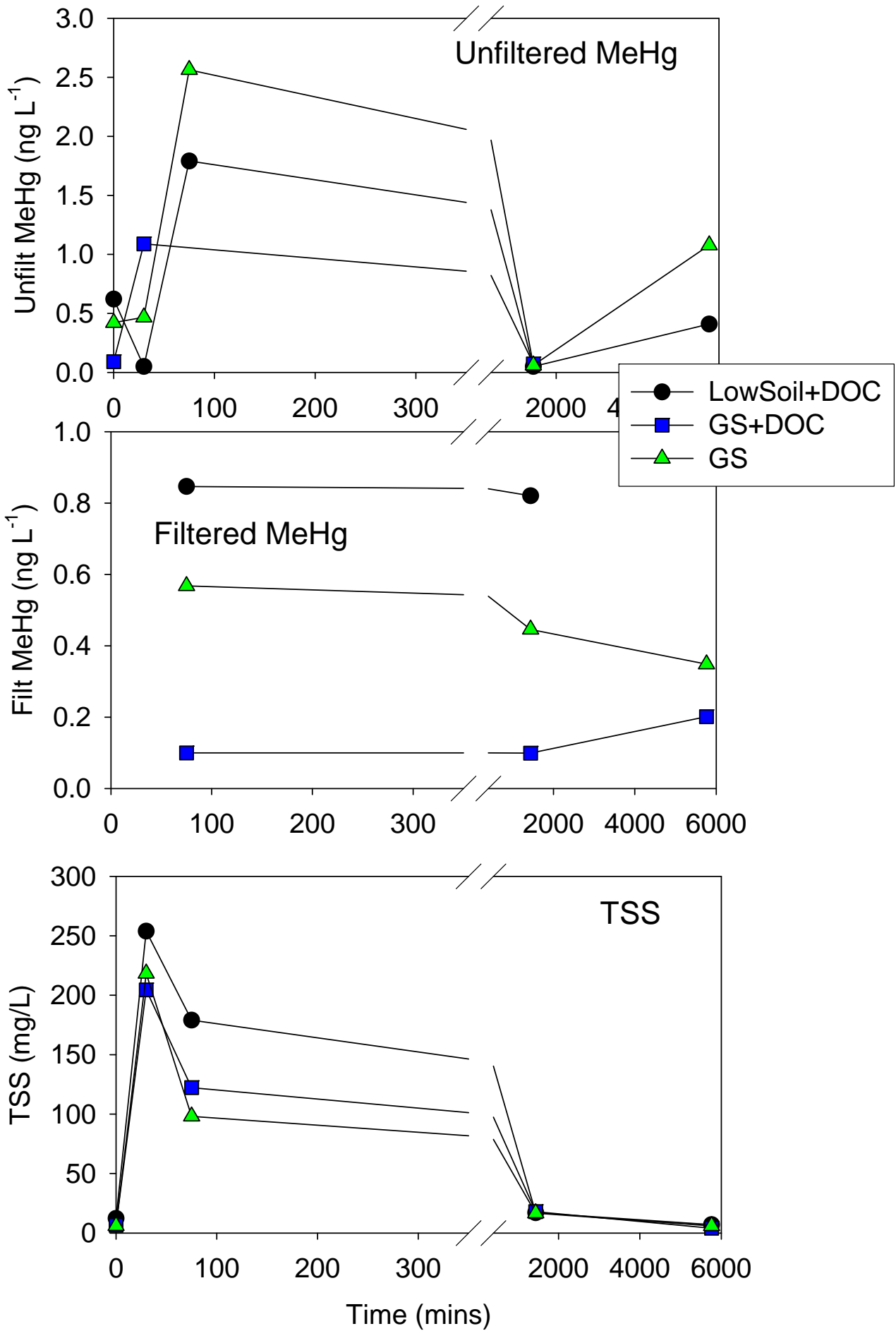
Dupont Site	T-Hg ug/g	MeHg ng/g	%MeHg	MeHg Av	MeHg Stdev
Lo-Hg-001	7.31	13.00	0.18		
Lo-Hg-085	7.38	16.08	0.22		
Lo-Hg-005	2.46	2.16	0.09	10.41	7.3123
HiHg-P11-01	57.29	10.36	0.02		
HiHg-P11-01	31.36	4.90	0.02		
HiHg-P11-01	11.44	1.39	0.01	5.55	4.5238
Doom's 01	5.68	16.00	0.28		
Doom's 02	37.38	46.94	0.13		
Doom's 03	19.34	20.41	0.11	27.78	16.734
GS-01	2.56	6.19	0.24		
GS-02	2.55	3.67	0.14	4.93	
Riv-1	4.02	4.90	0.12		
Riv-2	5.01	19.67	0.39	12.28	
Levee Erode	8.87	2.07	0.02	0.02	

1. Doom's had the highest average MeHg concentrations and a relatively high %MeHg, even though the total Hg was relatively high
2. The soils had both a low MeHg concentration and the high Hg soil had a very low %MeHg.









Treatment	Final Diss. MeHg (ng/L)	Soil MeHg (ng/g)
Dooms		27.8 ± 16.7
1hr A	0.43	
1hr B	0.16	
1hr +DOC	1.16	
10 min	0.34	
5 hr	0.24	
Low Soil		10.4 ± 7.3
1hr A	0.18	
1hr B	0.29	
1hr +DOC	0.82 (24 hrs)	
GS		4.93
1 hr	0.35	
1hr +DOC	0.20	
High Soil	0.46	5.6 ± 4.5
Blank	0.14	-
River	0.74	1.51 unfilt

Summary

1. Concentrations of total MeHg track those of TSS in the water column overall, and there is no indication of a significant release of MeHg upon Resuspension
2. After 96 hours, dissolved MeHg concentrations were 0.5 ng/L or less for most treatments, but were somewhat higher in two of the three resuspended systems where DOC was added. Overall, values at the end of the Experiment were lower than that found for the one Measurement of river water (0.74 ng/L filtered)
3. Resuspension time did not appear to have a large impact on the result.