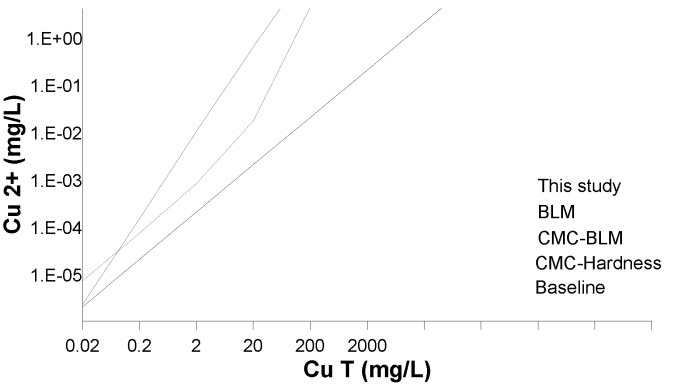
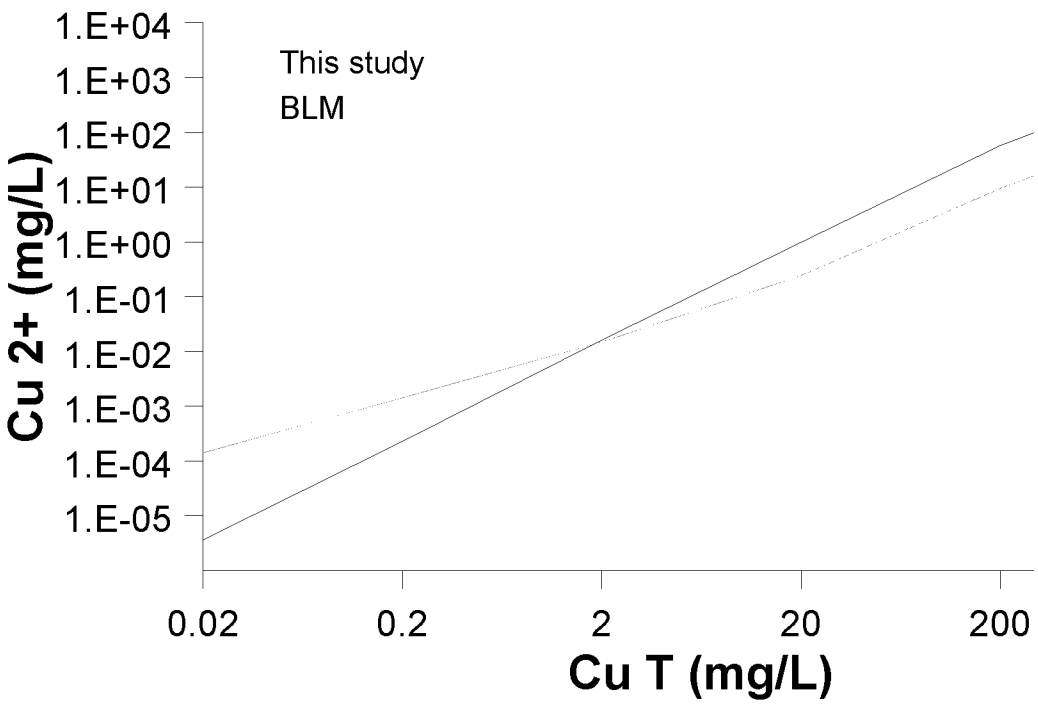


EPA-7609-0007123_00001

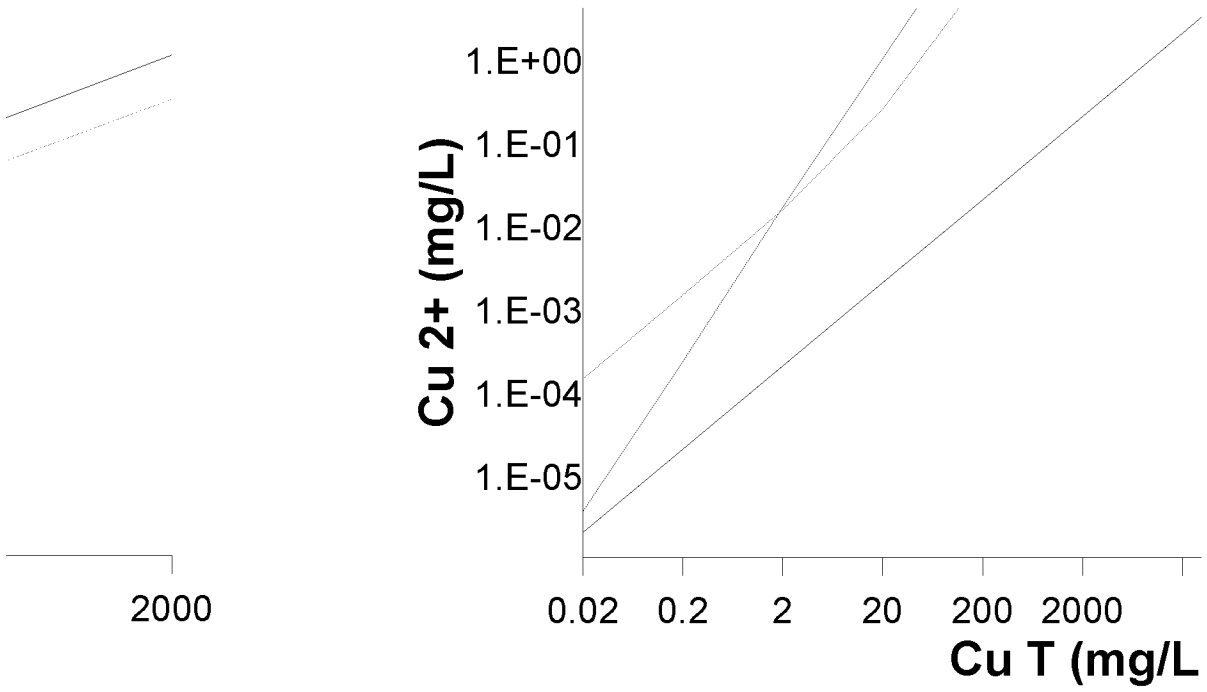
Cu Total	Cu Total (M)	Cu Free (BLM)	Cu Free (Minteq)	Cu:DOM	log K- this study
0.02	0.0000000003	0.00000000000	5.67E-14		16.93779
0.2	0.000000003	0.00000000002	3.58E-12		14.28590
2	0.00000003	0.0000000002	2.52E-10		11.63402
20	0.0000003	0.000000004	1.55E-08		8.98213
200	0.000003	0.0000001	8.99E-07		6.33024
2000	0.00003	0.000003	2.19E-05		3.67835



log K BLM	Cu Free BLM (ug/L)	Cu Free (Minteq) (ug/L)	LC50 - BLM (M)
12.89713	0.00014	0.000004	7.10E-07
11.89141	0.00142	0.00023	
10.83649	0.01506	0.01600	
9.40720	0.24215	0.98222	
7.07224	9.43828	57.06555	
4.78205	218.19487	1393.317	

Acute hardness-based criterion (EPA) (ug/L)

Site ID	mg/ Baseline Cu	mg/L as C: Hardness	Copper mg/ CMC-D
NF-02	0.2	14.7	2.2
UT-02	0.2	28.4	4.1
SF-02	1.3	13.4	2.0
	18.8	2.8	2.1
	(Mean hardness)		



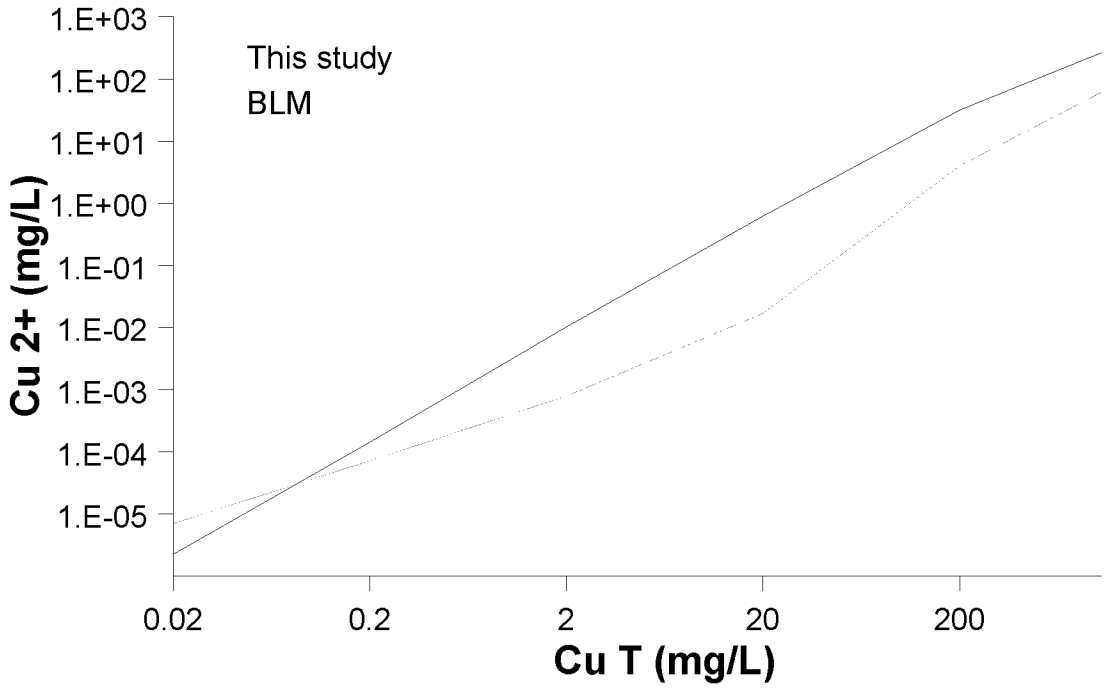
LC50 - BLM (ug/L)	Acute criterion (LC50/2) (ug/L)	CMC - D	Cu 2+	Baseline
45.1	22.5	2.2	2.00E-06	2.00E-01
45.1	22.6	2.2	2.00E-05	2.00E-01
45.1	22.6	2.2	2.00E-04	2.00E-01
45.1	22.6	2.2	2.00E-03	2.00E-01
45.1	22.6	2.2	2.00E-02	2.00E-01
45.1	22.6	2.2	2.00E-01	2.00E-01
45.1	22.6	2.2	2.00E+00	2.00E-01
45.1	22.6	2.2	2.00E+01	2.00E-01
45.1	22.6	2.2	2.00E+02	2.00E-01
45.1	22.6	2.2	2.00E+03	2.00E-01
45.1	22.6	2.2	2.00E+04	2.00E-01

Copper mg/		
CCC-D	**CMC-TR**	**CCC-TR**
1.7	2.3	1.8
3.1	4.3	3.2
1.6	2.1	1.7
2.9	2.2	

This study
BLM
LC50-BLM
CMC-BLM
CMC-Hardness
Baseline-NF Koktuli

)

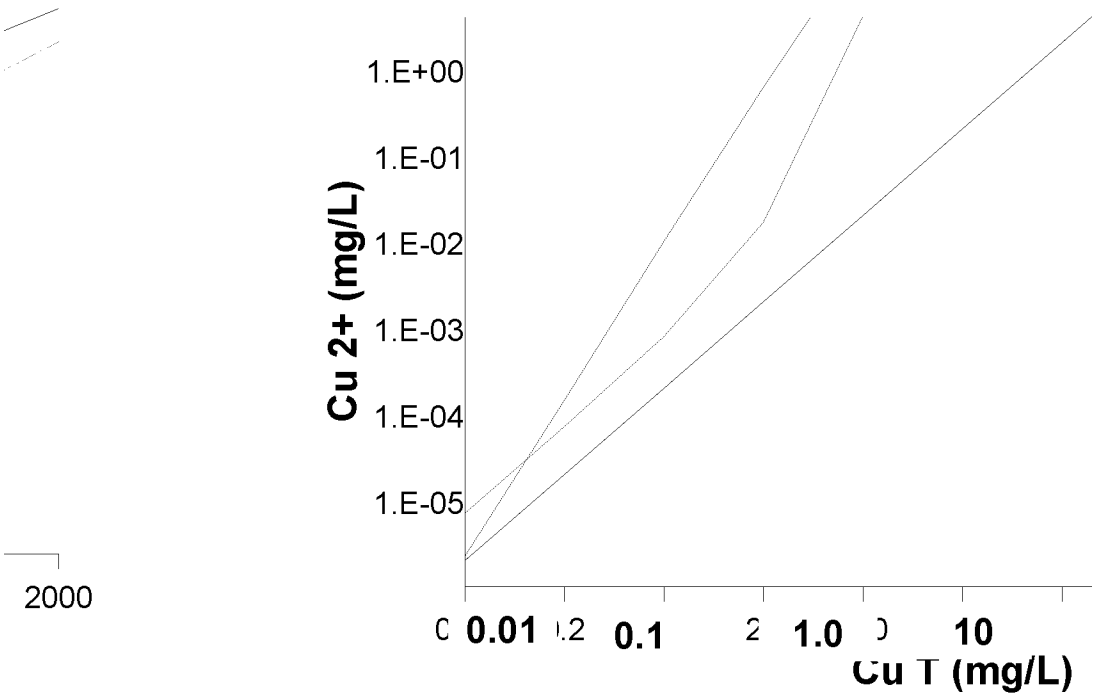
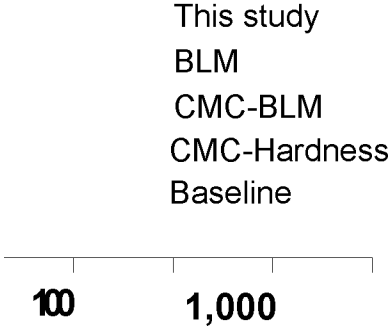
Cu Total	Cu Total (M)	Cu Free (BLM)	Cu Free (Minteq)	Cu:DOM	log K
0.02	0.0000000003	0.00000000000	3.59E-14	0.000005	16.93779
0.2	0.000000003	0.00000000000	2.27E-12	0.00005	14.28590
2	0.00000003	0.00000000001	1.59E-10	0.00046	11.63402
20	0.0000003	0.0000000003	9.62E-09	0.00461	8.98213
200	0.000003	0.00000006	5.02E-07	0.04608	6.33024
2000	0.00003	0.000003	9.34E-06	0.46083	3.67835



Cu Free BLM (ug/L)	Cu Free (Minteq) (ug/L)
0.000007	0.000002
0.00007	0.00014
0.00079	0.01011
0.01667	0.61107
4.02947	31.88018
176.91444	592.88045

LC50 - BLM (M)	LC50 - BLM (ug/L)
1.72E-06	109.2
	109.22
	109.22
	109.22
	109.22
	109.22
	109.22
	109.22
	109.22
	109.22
	109.22

LC50:
pH 6.0= 7.10E-07 M
pH 7.13= 1.72E-06 M



CMC - BLM (ug/L)	CMC - D (ug/L)	Cu 2+ (ug/L)	Baseline (ug/L)
4.5	2.2	2.00E-06	2.00E-01
4.5	2.2	2.00E-05	2.00E-01
4.5	2.2	2.00E-04	2.00E-01
4.5	2.2	2.00E-03	2.00E-01
4.5	2.2	2.00E-02	2.00E-01
4.5	2.2	2.00E-01	2.00E-01
4.5	2.2	2.00E+00	2.00E-01
4.5	2.2	2.00E+01	2.00E-01
4.5	2.2	2.00E+02	2.00E-01
4.5	2.2	2.00E+03	2.00E-01
4.5	2.2	2.00E+04	2.00E-01