

**Analysis of Metals in Water, Stream Sediments, and Floodplain Soils
Collected September 18-21, 2006 from the Bayou Creek System**

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DRAFT REPORT

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INTRODUCTION

Water, stream sediments, and floodplain soils were collected from Big and Little Bayou creeks on September 18-21, 2006 and analyzed for metal content. This collection corresponded to low-flow conditions. Samples were taken from 11 stations on Big Bayou creek (stations BB1A through BB9); five stations from Little Bayou creek (stations LB1 through LB4); and effluents 001, 006, 008 and 010+011. The reference station at the west fork of Massac Creek (MC) also was sampled for water, stream sediments, and floodplain soils. A total of 30 metals (*i.e.* silver (Ag), aluminum (Al), arsenic (As), boron (B), barium (Ba), beryllium (Be), calcium (Ca), cadmium (Cd), cobalt (Co), chromium (Cr), copper (Cu), iron (Fe), potassium (K), lithium (Li), magnesium (Mg), manganese (Mn), molybdenum (Mo), sodium (Na), nickel (Ni), phosphorus (P), lead (Pb), antimony (Sb), selenium (Se), silicon (Si), tin (Sn), strontium (Sr), titanium (Ti), thallium (Tl), vanadium (V), and zinc (Zn)) were determined for each sample, except for B, which was not tested in water samples.

METHODS

Water Collection

Samples for water quality measurements were collected in 1-L "Cubitainer" vessels and were placed on ice until delivery to the laboratory. Water samples for metal assays were collected in acid-cleaned 250-mL polyethylene bottles. Samples were preserved with concentrated trace-metal grade HNO₃ upon collection and analyzed for total recoverable (TR) metals.

Sediments and Floodplain Soils Collection

Stream sediment samples were restricted to the upper 5-10 cm of sediment soil, including depositional areas when found. Floodplain soils were collected within 10 m of the shoreline (5-10 cm deep) in areas where flood debris was present. Any surface vegetation was removed prior to sampling floodplain soils. All sediment and floodplain samples were collected in acetone-rinsed 0.47 L glass jars with Teflon-lined lids. The stainless steel spoons and scoops used for collections were acetone-rinsed between sampling stations.

Water Quality

On-site water quality measurements, which included temperature, pH, dissolved oxygen, and conductivity, were taken with a YSI 650 MDS meter and a YSI 600 QS multi-parameter sonde. Alkalinity and hardness were measured according to procedures described by American Public Health Association (APHA 1995), for bromocresol green-methyl red titrimetric and EDTA titrimetric procedures, respectively.

Metal Digestions and Determinations

Acidified water samples were analyzed directly for total recoverable (TR) metals. Sediment and floodplain soil samples were digested according to procedures described in EPA Method 3050B and ASTM Method D 3974-81 (ASTM 1989, U.S. EPA 1997) and previously described by Birge and Price (2001). Metal analysis was performed using a Varian Vista-MPX simultaneous Inductively Coupled Plasma-Optical Emission Spectrophotometer (ICP-OES) and a Varian Model Spectra AA-20 graphite furnace Atomic Absorption Spectrophotometer (AAS) as described by U.S. EPA (1997). All gases

used were ultra pure carrier grade. Calibration curves were based on at least four standards. Instrument blanks (0.5% HNO₃) and check standards were processed with all samples. Sample concentrations were then corrected for deviations from the standards and sample weights were factored into the calculations of final values.

Quality Assurance

Permanent bench records were kept of all assays and annotated as required under Good Laboratory Practices (*Federal Register* 1989). All printouts and graphic recordings were filed and are open for inspection. These bench records will be archived within two years after the close of the project but will remain retrievable upon request.

RESULTS

General Water Quality

The results for water quality parameters are given in Table 1. Temperature, pH, and dissolved oxygen were within expected ranges. Temperatures varied between 15.72 and 24.69° C. As observed in the May 2006 collection (Wigginton and Price 2007), the temperature range of the effluents was generally slightly warmer than nearby stream stations (23.63 – 24.69° C). The pH for Big Bayou creek ranged from 6.34 to 7.27, and dissolved oxygen ranged from 5.58 to 7.83 mg/L. For Little Bayou creek, pH ranged from 6.28 to 7.27, and dissolved oxygen levels ranged from 5.83 to 6.47 mg/L. As observed in May 2006 (Wigginton and Price 2007), high conductivity and hardness were observed for effluent 001 with values of 968 µS/cm and 268 mg CaCO₃/L, respectively. Conductivity and hardness were also high for effluent 010+011, which discharges into

Little Bayou creek, with values of 315 $\mu\text{S}/\text{cm}$ and 116 $\text{mg CaCO}_3/\text{L}$, respectively. Similar to results obtained in the past, alkalinity was at low to moderate levels and varied between 20 and 80 $\text{mg CaCO}_3/\text{L}$ in both Big and Little Bayou creeks.

Metals in Stream Water

A. Big Bayou Creek

Metal concentrations in water samples from Big Bayou creek and effluents are presented in Table 2 and in Figures 1 through 14 for selected metals. Water As, Be, Cd, Sb, Sn, and Tl were not detected at any of the stations in Big Bayou creek nor in any of the effluents. As observed in May 2006 (Wigginton and Price 2007), Ag was only detected in water samples from station BB6 (Figure 1, 2) and effluent 001 (Table 2). In addition to Ag, water Ca, Co, K, Li, Mg, Na, and Sr were also highest at effluent 001. It is interesting to note that water Li concentrations remained elevated in stations downstream of effluent 001 (Table 2). The highest water Al in Big Bayou creek was detected at stations BB2 and BB2A. Station BB2 also had the highest levels of Cr (Figures 3, 4), Cu (Figures 4, 5), Fe (Figures 7, 8), Si, and V. However, sediment Cr, Cu, Fe, and V were elevated at station BB2 and may be the source of these metals. Water Ni peaked at stations BB6 and BB7, with values of 8.95 and 7.36 $\mu\text{g}/\text{L}$, respectively (Table 2; Figures 9, 10). This trend has been noted in the past, however, under low-flow conditions it appeared that the effluents were not major contributors of Ni into Big Bayou creek. Lead values ranged from 1.08 $\mu\text{g}/\text{L}$ at BB9 to 2.45 $\mu\text{g}/\text{L}$ at BB3 and 2.42 $\mu\text{g}/\text{L}$ at BB8. Similar values were observed in May 2006 (Wigginton and Price 2007), with values ranging from 1.10 up to 2.24 $\mu\text{g}/\text{L}$.

However, effluent Pb concentrations in May 2006 were much higher, when concentrations ranged from 1.09 to 13.23 µg/L. Zinc in Big Bayou creek stream stations ranged from 3.06 to 19.39 µg/L. Effluent 008 seemed to be the largest contributor of aqueous Zn to Big Bayou creek with a concentration of 28.83 µg/L.

B. Little Bayou Creek

Metal concentrations in water samples from Little Bayou creek are presented in Table 3. Selected metals are presented in Figures 15 through 26. Water Ag, As, Cd, Sb, Se, Sn, and Tl were not detected at any of the stations along Little Bayou creek (Table 3). Station LB1 had the highest concentrations of Al, K, P, Si, and Ti. Effluent 010+011 appeared to be a source for several metals into Little Bayou creek. This combined effluent had the highest water concentrations of Be, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Ni, Pb, V, and Zn (Table 3). Water Ba and Sr concentrations peaked at station LB2A. Water metal concentrations decreased in stations downstream of effluent 010+011 for Cr, Cu, Fe, Ni, P, and Sr. Overall Cu values in Little Bayou creek were slightly higher than levels observed in May 2006 (1.18 to 4.20 µg/L). Highest water Pb, Ni, and Zn concentrations were detected at station LB1 during the May 2006 collection, with values of 5.43, 5.44, 26.48 µg/L, respectively (Wigginton and Price 2007). Whereas, these metals peaked in effluent 010+011 during low-flow conditions in September. These results indicate that metal contamination during low-flow periods is effluent driven, whereas, during high-flow the source of these metals is located upstream.

Metals in Sediments and Floodplain soils

A. Big Bayou Creek

Results for metal concentrations in individual assays of sediment and floodplain soils from Big Bayou creek are given in Tables A1 and A3, whereas mean metal concentrations are given in Tables 4 and 6. Water, sediment, and floodplain soil metal concentrations in Big Bayou creek are compared for select metals in Figures 1-14. Silver in sediments ranged from 0.027 to 0.102 $\mu\text{g/g}$, with the highest Ag concentrations found in station BB2. Floodplain soil Ag ranged from 0.025 to 0.437 $\mu\text{g/g}$, with effluent 008 having the highest concentration. Aluminum values ranged from 1585.5 to 11017.2 $\mu\text{g/g}$ in sediments and from 66244.5 to 159457.6 $\mu\text{g/g}$ in floodplain soils. Most of the Big Bayou creek floodplain soil samples had Al levels that were similar to those at the reference sites. Sediment and floodplain soils concentrations for B, Ba, Be, P, Sb, Se, Ti, and V in impacted stations were similar to those from reference stations. Highest sediment Cd was found in station BB2, whereas effluent 008 had the highest floodplain soils Cd. Sediment Cr was highest at effluent 006, and highest floodplain soils Cr was found in effluent 008. Sediments from effluent 001 had the highest concentrations of Cu, Mo, Na, Ni, and Zn. Floodplain soils from effluent 008 had the highest levels of Ag, Ca, Cd, Cr, Cu, Mg, Mo, Na, Ni, P, Pb, Sr, and Zn. The highest sediment Cu concentration was 7.83 $\mu\text{g/g}$ (001) and the highest floodplain soil Cu was 28.39 $\mu\text{g/g}$ (008) (Tables 4 and 6). Sediment Ni ranged from 1.53 to 6.88 $\mu\text{g/g}$, whereas floodplain soil Ni ranged from 2.60 to 17.11 $\mu\text{g/g}$. Lead levels in sediments ranged from 2.96 to 12.87 $\mu\text{g/g}$ amongst all sites in Big Bayou creek and were highest at station BB1. Whereas in May 2006 sediment Pb ranged from 2.82 to

20.40 µg/g. Floodplain soil Pb ranged from 2.97 to 10.14 µg/g in May 2006 and from 5.38 to 15.11 µg/g in September. Effluents 008 and 001 had the highest sediment Zn concentrations, with values of 24.03 and 28.84 µg/g, respectively. The highest Zn concentration in floodplain soils was observed at effluent 008, with a value of 110.95 µg/g.

B. Little Bayou Creek

Metal concentration results for individual assays of sediment and floodplain soils from Little Bayou creek are given in Tables A2 and A4, whereas mean metal concentrations are given in Tables 5 and 7. Water, sediment, and floodplain soil metal concentrations in Little Bayou creek are compared for select metals in Figures 15-26. Selenium was the only metal not found in any of the sediment samples collected from Little Bayou creek. Several metals were detected sporadically in sediment samples, and these included Ag, Sb, and Tl. In floodplain soils, several metals were only detected occasionally as well, including Ag, Se, and Tl. Sediment concentrations of Al, Ba, Ca, Cd, Co, Fe, K, Li, Mg, Mn, Na, Ni, and Sr and floodplain soil concentrations of Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mo, Na, P, Sb, Ti, and V were highest in samples from station LB1. Sediment concentrations of As, Be, Cr, Cu, Mo, P, Pb, Sb, Ti, Tl, V, and Zn, and floodplain concentrations of Mn and Ni were second highest in samples from LB1. Similar results were observed during the May 2006 collection. These results indicate that the upstream station LB1 is still problematic for several metals.

Station LB3 had the highest sediment Cr, Cu, Mo, Pb, Ti, and Zn and the second highest for Cd, Co, Fe, K, Li, Na, and Ni. In addition, LB3 had the highest floodplain

soils levels of Ca, Cr, Si, and Sb, and second highest for As, Co, Mo, Pb, Sr, and Zn. Sediment Be ranged from 0.17 to 0.44 $\mu\text{g/g}$ in May 2006 and from 0.15 to 0.80 $\mu\text{g/g}$ in September 2006. Beryllium in floodplain soils has remained relatively unchanged with values ranging from 0.18 to 0.38 $\mu\text{g/g}$ in May 2006, and values from 0.20 to 0.45 $\mu\text{g/g}$ in September 2006. Sediment Cd ranged from 0.05 to 0.21 $\mu\text{g/g}$ in May 2006 and from 0.08 to 0.37 $\mu\text{g/g}$ in September 2006, which was lower than levels observed in March 2005 (Price 2006). Floodplain soil Cd concentrations decreased from levels observed in May 2006 (0.43 to 0.95 $\mu\text{g/g}$) with September values ranging from 0.15 to 0.25 $\mu\text{g/g}$. Sediment Cu ranged from 2.19 to 10.53 $\mu\text{g/g}$, while floodplain soil Cu ranged from 4.25 to 8.03 $\mu\text{g/g}$, and were similar to values observed in May 2006. In general, Ni values were similar to or less than previous collections (Birge and Price 2005, Price 2006). As previously observed, both sediment and floodplain soil Pb were highest in stations LB1 and LB3. Highest Zn levels in sediments were observed at LB1 and LB3, with values of 47.68 and 59.44 $\mu\text{g/g}$, respectively. The remaining stations in Little Bayou creek had a sediment Zn range of 9.93 to 20.03 $\mu\text{g/g}$. Floodplain soil Zn ranged from 26.34 to 44.98 $\mu\text{g/g}$, with the highest Zn observed at effluent 010+011.

SUMMARY COMMENTS

Based on water quality results (i.e. conductivity and hardness), effluents 001 and 010+011 continue to introduce electrolytes into Big and Little Bayou creeks. All other water quality parameters did not appear problematic. Although Ag was detected in station BB6 stream waters, the values were below the national recommended chronic criterion value of 3.2 µg/L (U.S. EPA 2004). As observed in May 2006, both Be and Cd were not detected at any of the stations in the Bayou Creek system, however Be was detected in effluent 010+011. It is interesting to note that Li was elevated in water samples from effluent 001 and in waters from downstream stations, however, sediment and floodplain soil Li concentrations were not different from those observed in the upstream reference stations. Although concentrations of Pb in stream water from Big Bayou creek were below the chronic criterion value of 2.5 µg/L (U.S. EPA 2004), several of the stations had Pb levels close to the chronic criterion value. Elevated sediment Pb concentrations were observed at upstream stations BB1 and BB2. In Little Bayou creek, Pb levels in waters from effluent 010+011 exceeded the chronic criterion value and sediment Pb was elevated for stations LB1 and LB3. Lead contamination seems to be an ongoing problem in the Bayou Creek system. It has been present at levels near or above the chronic criterion for several years (Birge and Price 2005, Birge and Price 2006, Price 2006, Wigginton and Price 2007). Lead will continue to be monitored closely in the future. As observed in the May 2006 collection, both Ni and Zn concentrations in stream water were below the U.S. EPA chronic criterion values of 52 and 120 µg/L (U.S. EPA 2004). Water Ni was slightly elevated in stations downstream

of effluent 001, while sediments from effluent 001 had the highest Ni concentrations. However, effluent 008 and station BB9 had the highest floodplain soil Ni concentrations. Water Zn tended to peak at stations upstream of the effluent receiving zone (ERZ). Similar results were observed in May 2006. However, during low-flow conditions observed in September, sediment Zn tended to be highest in stations upstream of the ERZ, which may indicate sources of Zn other than PGDP effluents. Floodplain soils still represent a reservoir for metal contamination that can be reintroduced into the Bayou Creek system. As previously indicated, metal levels tend to increase during low-flow conditions found in the summer to early-fall (Birge and Price 2005). The assessment of metals during low-flow conditions when stream discharge is lower allows for effluent impacts to become more evident. Of values measured on Little Bayou creek, effluent 010+011 yielded 6 of the highest metal values for water samples, while station LB1 yielded 5 of the highest water metal values. For sediment samples, station LB1 had 15 metals that were highest. As presented in the past, station LB1 is still problematic in terms of metal contamination.

Table 1. Water quality results for stream water samples from the Bayou Creek system collected September 18-21, 2006.

Station	Temperature (° C)	pH	D.O. (mg/L)	Conductivity (µS/cm)	Alkalinity (mg CaCO ₃ /L)	Hardness (mg CaCO ₃ /L)
MC	18.45	7.11	6.32	106	60	40
BB1A	18.76	7.25	5.58	162	20	116
BB1	19.19	6.34	6.34	161	20	124
BB2A	19.67	6.68	5.97	103	20	176
BB2	19.96	6.75	5.90	104	20	164
BB3	20.17	6.55	6.18	133	40	136
008	24.69	6.91	5.80	289	80	112
BB4	20.44	6.77	6.19	142	60	132
006	24.37	6.94	5.80	270	60	80
BB5	20.43	6.74	6.03	143	60	128
001	23.63	6.94	6.30	968	80	268
BB6	22.38	7.16	6.66	633	60	180
BB7	23.06	7.27	7.83	580	60	136
BB8	22.15	6.93	6.69	605	60	148
BB9	17.37	7.07	6.16	589	60	136
LB1	19.80	6.28	6.46	69	40	56
LB2A	17.42	7.25	6.1	181	80	96
010+011	24.24	7.06	6.36	315	80	116
LB2	21.04	6.69	6.47	260	80	88
LB3	18.69	7.10	6.19	199	80	88
LB4	15.72	7.27	5.83	302	80	88

Table 2. Metal concentrations in water samples from Massac Creek (MC) and Big Bayou Creek (BB) collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)						
		Ag	Al	As	Ba	Be	Ca	Cd
MC	9/21/2006	<0.50	137.22	<5.00	52.43	<0.50	9066.98	<0.50
BB1A	9/19/2006	<0.50	1063.77	<5.00	76.21	<0.50	13685.95	<0.50
BB1	9/19/2006	<0.50	970.51	<5.00	68.43	<0.50	13420.76	<0.50
BB2	9/18/2006	<0.50	2601.44	<5.00	74.49	<0.50	9445.92	<0.50
BB2A	9/18/2006	<0.50	2184.65	<5.00	71.40	<0.50	12094.81	<0.50
BB3	9/18/2006	<0.50	1637.50	<5.00	71.77	<0.50	13590.75	<0.50
12 008	9/18/2006	<0.50	259.78	<5.00	35.61	<0.50	25936.18	<0.50
BB4	9/18/2006	<0.50	1855.05	<5.00	64.74	<0.50	14201.76	<0.50
006	9/18/2006	<0.50	248.74	<5.00	23.62	<0.50	14739.91	<0.50
BB5	9/18/2006	<0.50	1545.62	<5.00	63.83	<0.50	14359.12	<0.50
001	9/18/2006	0.54	355.32	<5.00	44.31	<0.50	55454.85	<0.50
BB6	9/21/2006	0.72	270.72	<5.00	50.45	<0.50	38066.93	<0.50
BB7	9/20/2006	<0.50	268.15	<5.00	47.88	<0.50	34547.57	<0.50
BB8	9/20/2006	<0.50	259.13	<5.00	49.83	<0.50	32917.58	<0.50
BB9	9/21/2006	<0.50	281.97	<5.00	61.96	<0.50	32827.24	<0.50

Table 2, continued. Metal concentrations in water samples from Massac Creek (MC) and Big Bayou Creek (BB) collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)						
		Co	Cr	Cu	Fe	K	Li	Mg
MC	9/21/2006	<0.50	<0.50	2.10	98.30	6812.73	<1.00	2526.30
BB1A	9/19/2006	<0.50	1.45	5.66	1117.70	14581.05	1.40	3455.70
BB1	9/19/2006	0.52	1.20	5.67	924.26	14380.03	1.28	3356.50
BB2	9/18/2006	<0.50	4.13	8.57	2076.17	11547.32	3.62	2699.30
BB2A	9/18/2006	<0.50	1.92	6.50	1773.05	12592.58	1.96	2838.80
BB3	9/18/2006	<0.50	1.80	6.32	1418.27	13679.07	1.92	3040.20
13 008	9/18/2006	<0.50	1.47	7.33	268.13	6692.33	3.67	5408.70
BB4	9/18/2006	<0.50	2.79	7.23	1486.37	13255.40	2.62	3147.40
006	9/18/2006	<0.50	0.84	2.76	679.23	4160.11	3.37	6789.80
BB5	9/18/2006	<0.50	2.40	7.16	1344.55	13110.06	2.43	3154.80
001	9/18/2006	1.05	1.33	6.74	395.07	22943.11	28.19	18458.80
BB6	9/21/2006	0.64	0.69	6.92	398.76	13092.53	14.57	11594.09
BB7	9/20/2006	<0.50	0.90	5.95	313.67	12433.83	13.28	10644.06
BB8	9/20/2006	<0.50	0.73	5.01	336.91	13480.12	13.03	11076.07
BB9	9/21/2006	<0.50	0.80	3.55	382.06	14660.42	12.03	11054.32

Table 2, continued. Metal concentrations in water samples from Massac Creek (MC) and Big Bayou Creek (BB) collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)						
		Mn	Mo	Na	Ni	P	Pb	Sb
MC	9/21/2006	50.49	0.92	4074.10	1.16	102.93	<1.00	<5.00
BB1A	9/19/2006	245.98	1.16	7850.40	3.40	585.09	1.51	<5.00
BB1	9/19/2006	165.27	1.36	7283.10	2.86	584.28	1.16	<5.00
BB2	9/18/2006	90.12	1.00	2823.30	5.08	597.45	2.43	<5.00
BB2A	9/18/2006	119.74	0.94	2999.30	3.50	729.90	1.89	<5.00
BB3	9/18/2006	136.75	0.97	3038.30	3.75	738.63	2.45	<5.00
14 008	9/18/2006	15.88	9.55	13994.69	4.07	509.35	1.39	<5.00
BB4	9/18/2006	77.15	1.81	3884.70	3.62	733.70	1.65	<5.00
006	9/18/2006	55.34	2.58	16975.62	1.24	<10.00	1.46	<5.00
BB5	9/18/2006	88.12	1.76	3907.50	4.12	717.58	2.25	<5.00
001	9/18/2006	72.72	6.47	56741.49	5.60	385.60	1.51	<5.00
BB6	9/21/2006	73.16	6.75	34634.32	8.95	136.89	2.18	<5.00
BB7	9/20/2006	42.97	6.67	31949.67	7.36	160.68	2.19	<5.00
BB8	9/20/2006	91.01	6.19	33356.87	4.02	162.04	2.42	<5.00
BB9	9/21/2006	126.61	5.63	33011.10	2.80	190.29	1.08	<5.00

Table 2, continued. Metal concentrations in water samples from Massac Creek (MC) and Big Bayou Creek (BB) collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)							
		Se	Si	Sn	Sr	Ti	Tl	V	Zn
MC	9/21/2006	<5.00	5555.92	<5.00	63.66	0.77	<5.00	0.71	5.06
BB1A	9/19/2006	<5.00	6295.65	<5.00	80.62	42.31	<5.00	4.34	8.68
BB1	9/19/2006	<5.00	6110.39	<5.00	78.98	32.75	<5.00	3.21	6.41
BB2	9/18/2006	<5.00	8696.74	<5.00	60.15	175.66	<5.00	9.16	15.84
BB2A	9/18/2006	<5.00	7863.10	<5.00	101.35	65.42	<5.00	5.20	11.47
BB3	9/18/2006	<5.00	6712.22	<5.00	125.00	58.33	<5.00	4.89	19.39
15 008	9/18/2006	<5.00	3465.26	<5.00	344.79	7.61	<5.00	0.94	28.83
BB4	9/18/2006	<5.00	7284.83	<5.00	98.62	102.76	<5.00	6.20	14.24
006	9/18/2006	<5.00	1440.09	<5.00	97.92	1.98	<5.00	1.80	4.54
BB5	9/18/2006	<5.00	6563.32	<5.00	170.23	73.72	<5.00	5.14	14.13
001	9/18/2006	<5.00	4288.13	<5.00	479.88	11.14	<5.00	1.48	14.95
BB6	9/21/2006	<5.00	3152.72	<5.00	309.51	5.96	<5.00	1.05	13.89
BB7	9/20/2006	<5.00	3047.87	<5.00	279.98	8.34	<5.00	1.17	9.06
BB8	9/20/2006	<5.00	3178.47	<5.00	350.95	4.51	<5.00	1.57	5.14
BB9	9/21/2006	5.10	3550.84	<5.00	343.33	9.51	<5.00	1.88	3.06

Table 3. Metal concentrations in water samples from Little Bayou Creek (LB) and effluents collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)						
		Ag	Al	As	Ba	Be	Ca	Cd
LB1	9/18/2006	<0.50	2370.85	<5.00	65.88	<0.50	7569.19	<0.50
LB2A	9/19/2006	<0.50	2076.32	<5.00	94.10	<0.50	19820.29	<0.50
010+011	9/19/2006	<0.50	1046.91	<5.00	91.19	0.87	31034.05	<0.50
LB2	9/19/2006	<0.50	727.87	<5.00	64.11	<0.50	24745.25	<0.50
LB3	9/19/2006	<0.50	1395.56	<5.00	71.54	<0.50	18550.68	<0.50
LB4	9/21/2006	<0.50	633.97	<5.00	77.93	<0.50	23344.50	<0.50

Table 3, continued. Metal concentrations in water samples from Little Bayou Creek (LB) and effluents collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)						
		Co	Cr	Cu	Fe	K	Li	Mg
LB1	9/18/2006	<0.50	3.81	5.81	1661.55	10405.17	2.89	1631.10
LB2A	9/19/2006	<0.50	3.77	5.11	1585.38	6394.63	3.87	4225.40
010+011	9/19/2006	3.73	10.91	10.04	2702.98	5008.68	4.14	6516.00
LB2	9/19/2006	<0.50	2.20	7.86	612.84	5547.60	3.22	5242.00
LB3	9/19/2006	<0.50	2.70	4.93	1095.46	6692.64	3.16	4122.10
LB4	9/21/2006	0.61	2.34	3.49	791.19	7000.65	3.45	5819.10

Table 3, continued. Metal concentrations in water samples from Little Bayou Creek (LB) and effluents collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)						
		Mn	Mo	Na	Ni	P	Pb	Sb
LB1	9/18/2006	55.75	1.23	1122.70	4.69	655.60	<1.00	<5.00
LB2A	9/19/2006	50.41	1.41	9824.40	3.36	256.06	1.55	<5.00
010+011	9/19/2006	277.64	1.24	16037.29	6.23	447.93	12.22	<5.00
LB2	9/19/2006	28.54	2.25	12647.84	2.24	239.09	1.79	<5.00
LB3	9/19/2006	65.00	1.63	10458.00	3.37	326.03	<1.00	<5.00
LB4	9/21/2006	89.59	2.49	16638.91	1.91	208.64	0.27	<5.00

Table 3, continued. Metal concentrations in water samples from Little Bayou Creek (LB) and effluents collected September 18-21, 2006.

Station	Date	Water Metal Conc. (µg/L)							
		Se	Si	Sn	Sr	Ti	Tl	V	Zn
LB1	9/18/2006	<5.00	8259.52	<5.00	38.21	138.07	<5.00	7.13	12.31
LB2A	9/19/2006	<5.00	8149.40	<5.00	792.02	134.44	<5.00	6.69	17.29
010+011	9/19/2006	<5.00	4534.60	<5.00	372.96	23.94	<5.00	13.25	74.74
LB2	9/19/2006	<5.00	4486.83	<5.00	536.16	37.64	<5.00	2.90	11.50
LB3	9/19/2006	<5.00	6140.59	<5.00	428.07	72.23	<5.00	4.32	11.92
LB4	9/21/2006	<5.00	4103.44	<5.00	358.20	37.38	<5.00	2.85	12.14

Table 4. Mean metal values in sediments from Massac Creek and Big Bayou Creek collected September 18-21, 2006.

Station	Sediment Metal Conc. ($\mu\text{g/g}$)									
	Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
MC	0.070	2044.8	4.33	18.93	28.09	0.32	135.0	0.210	4.77	17.43
BB1A	0.052	4568.6	2.75	18.57	20.88	0.29	436.2	0.158	3.63	7.47
BB1	0.070	2587.3	7.76	19.52	39.08	0.64	287.9	0.297	7.00	26.55
BB2A	0.063	3511.6	2.22	20.07	23.10	0.24	470.2	0.126	3.38	8.49
BB2	0.102	3202.3	8.28	18.57	27.43	0.62	260.7	0.430	7.17	39.85
BB3	0.056	2506.0	3.74	18.42	27.17	0.39	313.2	0.182	3.41	13.82
008	N.D.	7113.1	4.87	19.74	61.03	0.32	14205.1	0.228	4.93	9.24
BB4	N.D.	5372.8	2.09	19.56	10.90	0.35	339.5	0.190	2.38	18.59
006	0.035	3223.9	1.51	19.51	9.40	0.46	361.3	0.271	3.46	41.11
BB5	N.D.	11017.2	1.34	18.87	17.67	0.32	635.3	0.202	2.58	11.38
20 001	0.056	4151.6	3.81	18.08	20.02	0.51	4331.0	0.300	5.01	32.01
BB6	0.050	4763.6	2.12	17.49	23.93	0.29	864.1	0.177	3.28	16.23
BB7	0.040	1719.4	1.01	19.96	11.97	0.13	1966.1	0.084	1.65	6.32
BB8	0.027	1585.5	1.00	21.03	10.74	0.13	178.4	0.074	2.45	6.66
BB9	N.D.	5196.9	1.15	21.84	38.23	0.23	604.3	0.136	3.49	8.06

Table 4, continued. Mean metal values in sediments from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Sediment Metal Conc. ($\mu\text{g/g}$)								
	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni
MC	2.37	11847.4	113.0	0.81	107.0	327.3	0.39	39.17	3.06
BB1A	3.62	9121.1	337.3	3.65	447.2	143.4	0.16	47.24	3.85
BB1	3.48	17591.4	147.3	1.06	163.0	521.3	0.54	47.08	4.75
BB2A	2.57	6996.4	229.5	2.22	273.9	170.3	0.20	53.56	2.90
BB2	3.66	25506.4	154.1	1.32	168.1	492.5	0.54	51.41	5.70
BB3	2.59	10742.5	147.5	1.32	163.1	126.7	0.34	46.81	2.76
008	5.97	11655.2	550.4	7.65	1226.8	294.7	0.24	73.18	4.96
BB4	2.71	10988.0	210.8	2.71	158.9	95.6	0.23	48.64	2.99
21 006	4.79	16420.5	156.1	1.78	237.3	90.2	0.44	53.70	6.26
BB5	4.03	12155.0	377.5	7.08	311.2	107.8	0.21	65.15	3.73
001	7.83	17187.7	306.2	4.21	649.3	89.8	0.79	94.36	6.88
BB6	3.70	9748.9	244.2	2.93	317.3	126.5	0.27	60.56	3.66
BB7	1.55	4119.0	105.1	1.11	152.0	106.2	0.16	50.90	1.78
BB8	1.53	3778.1	95.4	0.99	125.9	92.5	0.15	51.46	1.53
BB9	4.03	6303.6	411.4	4.96	500.6	225.5	0.14	57.65	4.27

Table 4, continued. Mean metal values in sediments from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Sediment Metal Conc. ($\mu\text{g/g}$)									
	P	Pb	Sb	Se	Si	Sr	Ti	Tl	V	Zn
MC	221.9	6.08	0.63	N.D.	59.7	1.24	40.41	0.25	21.20	7.58
BB1A	193.3	6.03	0.46	N.D.	84.4	4.60	47.98	N.D.	13.50	12.78
BB1	424.5	12.87	0.85	N.D.	68.4	148.24	41.04	0.59	32.04	13.47
BB2A	186.4	5.55	0.35	N.D.	93.6	6.50	37.20	N.D.	13.27	16.58
BB2	394.4	11.74	1.16	N.D.	70.7	2.50	42.25	0.57	42.75	19.16
BB3	225.5	6.27	0.54	N.D.	74.5	4.65	29.14	N.D.	20.33	12.73
008	248.8	9.32	0.56	N.D.	99.9	25.79	38.99	0.38	19.31	24.03
BB4	168.6	4.85	0.48	N.D.	92.9	3.78	19.04	N.D.	21.47	9.40
006	271.3	5.93	0.77	N.D.	92.3	1.78	41.15	N.D.	40.03	13.06
BB5	117.6	6.02	0.42	N.D.	109.3	7.48	30.66	N.D.	23.55	10.30
001	277.3	7.75	0.73	N.D.	84.4	9.20	34.64	N.D.	32.83	28.84
BB6	195.6	5.46	0.50	N.D.	93.1	6.33	31.49	N.D.	18.55	16.55
BB7	98.0	2.96	N.D.	N.D.	82.7	5.17	24.92	N.D.	8.13	7.93
BB8	98.4	3.69	N.D.	N.D.	73.8	1.67	33.13	N.D.	8.62	5.36
BB9	237.8	5.51	N.D.	N.D.	108.1	6.60	46.83	0.32	10.18	15.70

Table 5. Mean metal values in sediments from Little Bayou Creek collected September 18-21, 2006.

Station	Sediment Metal Conc. (µg/g)									
	Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
LB1	0.034	6900.3	7.00	18.38	65.46	0.71	15037.4	0.370	10.16	19.87
LB2A	N.D.	4217.6	1.25	21.33	45.64	0.23	559.2	0.114	2.69	9.74
010+011	0.044	4578.4	1.20	20.08	35.68	0.26	1354.2	0.158	3.16	12.65
LB2	N.D.	2471.0	6.42	20.36	26.29	0.44	315.6	0.217	3.63	18.77
LB3	0.072	3923.4	10.30	20.17	28.91	0.80	985.2	0.345	7.81	112.54
LB4	N.D.	2986.2	0.66	22.15	18.15	0.15	299.5	0.083	1.78	12.90
Station	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	
LB1	7.66	21561.4	511.6	6.84	958.7	792.2	0.47	53.58	8.53	
LB2A	2.38	6007.6	174.3	2.18	290.6	97.0	0.07	46.35	2.70	
010+011	2.52	9393.0	184.6	2.14	391.8	666.0	0.11	43.97	2.99	
LB2	3.49	12336.2	93.4	1.04	154.5	95.9	0.36	43.50	3.95	
LB3	10.53	19001.9	220.1	2.33	327.1	204.0	0.53	50.70	5.88	
LB4	2.19	4438.2	166.3	1.98	222.7	110.6	0.09	47.32	1.91	
Station	P	Pb	Sb	Se	Si	Sr	Ti	Tl	V	Zn
LB1	524.6	17.21	0.69	N.D.	93.1	21.87	35.63	0.52	36.45	47.68
LB2A	106.0	5.54	N.D.	N.D.	129.6	15.16	18.23	N.D.	11.42	15.14
010+011	164.8	5.55	0.64	N.D.	118.6	9.94	11.61	1.02	12.93	20.03
LB2	211.4	7.95	0.47	N.D.	94.7	4.99	15.15	N.D.	24.81	15.06
LB3	674.7	17.66	1.40	N.D.	97.8	11.94	41.78	N.D.	38.50	59.44
LB4	99.5	3.72	N.D.	N.D.	97.6	5.63	29.06	N.D.	7.98	9.93

Table 6. Mean metal values in floodplain soils from Massac Creek and Big Bayou Creek collected September 18-21, 2006.

Station	Floodplain Soil Metal Conc. ($\mu\text{g/g}$)									
	Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
MC	0.027	116466.4	2.53	20.81	48.43	0.28	523.0	0.153	5.59	7.23
BB1A	N.D.	127097.0	1.56	21.65	49.29	0.24	888.2	0.151	4.08	6.14
BB1	N.D.	154295.9	1.91	21.51	55.06	0.31	2370.8	0.450	5.61	8.54
BB2A	0.026	159457.6	1.87	22.87	48.46	0.29	3191.4	0.530	4.70	9.59
BB2	N.D.	131801.6	2.17	21.95	41.14	0.28	1946.5	0.391	4.79	7.26
BB3	0.036	97564.7	1.52	21.32	39.83	0.21	815.5	0.129	3.33	12.22
008	0.437	120226.3	1.58	21.31	54.38	0.25	9467.3	0.618	3.48	15.31
BB4	0.025	79303.0	2.04	21.05	30.66	0.25	635.5	0.185	3.67	11.33
006	0.063	138365.8	2.07	20.90	55.57	0.31	1023.9	0.207	4.89	12.80
BB5	0.049	98202.8	1.94	22.53	30.44	0.24	587.2	0.160	3.84	11.59
24 001	N.D.	113031.9	2.57	20.92	71.08	0.27	1137.6	0.167	4.08	6.68
BB6	0.037	66244.5	1.04	21.11	17.54	0.17	698.5	0.126	2.53	6.57
BB7	0.032	137038.6	2.12	23.78	31.36	0.25	839.8	0.194	4.38	8.32
BB8	N.D.	84175.6	1.23	19.58	42.64	0.20	699.4	0.126	3.24	8.30
BB9	0.047	154401.9	1.60	19.88	64.05	0.37	1153.8	0.312	5.33	10.96

Table 6, continued. Mean metal values in floodplain soils from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Floodplain Soil Metal Conc. ($\mu\text{g/g}$)								
	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni
MC	3.84	8824.2	427.0	4.06	465.2	331.5	0.24	44.07	4.37
BB1A	4.65	6905.8	439.5	5.05	556.5	321.6	0.17	44.05	4.78
BB1	5.38	9224.6	532.4	6.74	749.1	504.4	0.19	50.64	6.66
BB2A	6.14	9562.7	622.3	7.10	731.1	248.2	0.21	53.57	5.38
BB2	4.72	8489.9	608.7	6.39	715.0	264.9	0.21	41.04	5.19
BB3	3.46	6619.8	416.0	3.47	401.9	189.2	0.19	40.57	3.21
008	28.39	8199.8	511.2	6.90	1290.6	158.2	0.51	62.93	17.11
BB4	3.49	8395.7	277.6	2.50	267.9	201.9	0.23	35.77	3.64
006	7.47	9752.5	422.0	5.40	546.8	279.1	0.28	44.55	5.45
25 BB5	4.93	8023.3	350.3	3.69	379.7	225.6	0.23	45.06	4.11
001	4.87	7990.8	514.3	4.85	682.1	517.0	0.23	47.32	5.50
BB6	11.16	5239.2	220.3	2.19	274.6	237.7	0.13	40.61	2.60
BB7	5.16	8666.5	453.5	5.23	551.1	457.6	0.25	48.72	4.70
BB8	3.69	5846.2	341.6	2.99	364.1	192.3	0.17	45.30	3.44
BB9	6.87	9544.7	710.7	7.81	881.4	464.4	0.25	40.99	8.04

Table 6, continued. Mean metal values in floodplain soils from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Floodplain Soil Metal Conc. ($\mu\text{g/g}$)									
	P	Pb	Sb	Se	Si	Sr	Ti	Tl	V	Zn
MC	209.2	7.70	0.30	N.D.	184.5	5.04	60.54	0.34	14.44	12.87
BB1A	221.6	7.18	0.29	N.D.	202.6	8.60	54.90	0.44	12.72	18.74
BB1	213.0	8.12	0.28	N.D.	197.6	10.21	65.57	0.43	15.31	19.88
BB2A	250.4	8.29	0.30	N.D.	213.9	14.29	53.28	N.D.	15.50	22.19
BB2	252.6	7.37	0.25	N.D.	185.1	10.04	50.47	N.D.	14.08	18.60
BB3	210.6	6.29	0.34	N.D.	190.9	5.75	43.05	0.25	11.95	14.97
008	371.5	15.11	0.28	0.78	180.1	21.53	51.08	N.D.	11.73	110.95
BB4	199.2	6.29	0.54	N.D.	190.3	5.81	46.88	N.D.	15.94	12.13
006	181.7	11.34	0.40	N.D.	189.0	7.88	61.94	0.34	15.37	22.19
26 BB5	176.0	8.39	0.28	N.D.	199.6	5.27	48.62	N.D.	13.84	15.96
001	239.9	6.46	0.30	N.D.	179.6	12.77	35.24	0.72	13.22	18.92
BB6	127.6	5.38	N.D.	N.D.	158.4	4.61	35.76	0.35	9.68	13.31
BB7	207.4	10.68	0.28	N.D.	198.6	8.27	55.46	0.55	15.41	17.52
BB8	192.6	5.76	N.D.	N.D.	192.2	6.39	48.51	N.D.	11.39	14.74
BB9	349.0	8.16	0.30	0.28	180.1	9.09	48.73	0.64	12.82	31.92

Table 7. Mean metal values in floodplain soils from Little Bayou collected September 18-21, 2006.

Floodplain Soil Metal Conc. (µg/g)										
Station	Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
LB1	N.D.	211554.7	5.63	19.49	54.44	0.45	1387.3	0.254	5.04	10.26
LB2A	0.029	121068.3	1.22	20.87	54.38	0.28	1100.3	0.192	3.66	29.20
010+011	N.D.	148839.8	1.36	20.55	50.28	0.30	1766.5	0.200	3.69	14.78
LB2	N.D.	106634.4	1.34	18.74	39.83	0.21	1147.3	0.160	3.43	16.69
LB3	N.D.	97989.0	2.00	20.47	32.60	0.27	2799.2	0.179	4.13	41.97
LB4	0.066	82392.9	0.85	21.54	28.54	0.20	721.8	0.149	2.55	31.28
Station	Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni	
LB1	8.03	14330.6	706.4	8.90	1237.8	273.7	0.28	53.73	6.07	
LB2A	4.44	7083.5	351.9	4.12	512.4	200.1	0.12	47.34	4.44	
010+011	8.00	7172.4	427.5	6.52	741.4	569.3	0.14	45.12	6.13	
LB2	4.25	5784.9	323.3	3.74	469.3	235.8	0.13	40.92	3.96	
LB3	5.31	6926.7	336.6	3.50	414.2	176.8	0.16	46.05	3.96	
LB4	4.84	4361.5	258.2	3.12	349.8	216.0	0.14	40.45	3.57	
Station	P	Pb	Sb	Se	Si	Sr	Ti	Tl	V	Zn
LB1	349.4	12.97	0.48	N.D.	155.7	12.06	63.48	N.D.	25.31	26.34
LB2A	173.3	6.67	0.36	N.D.	222.6	14.08	26.15	0.25	12.94	29.74
010+011	250.6	6.84	0.34	0.45	187.1	8.94	37.57	0.85	12.07	44.98
LB2	192.5	5.58	0.27	N.D.	222.8	10.86	28.55	0.30	10.52	26.59
LB3	244.0	6.89	0.48	N.D.	226.7	13.93	29.53	N.D.	12.90	34.19
LB4	182.5	5.76	0.34	N.D.	217.3	6.72	32.65	N.D.	8.91	29.67

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Figure 1. Silver mean metal concentrations in water and sediments from Big Bayou Creek collected September 18-21, 2006.

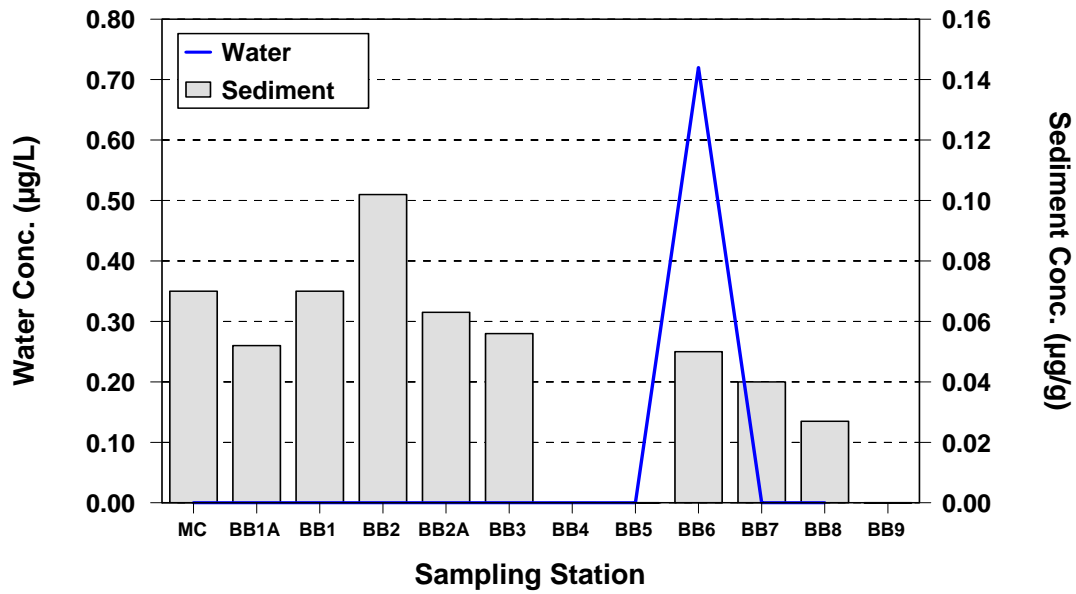


Figure 2. Silver mean metal concentrations in water and floodplain soils from Big Bayou Creek collected September 18-21, 2006.

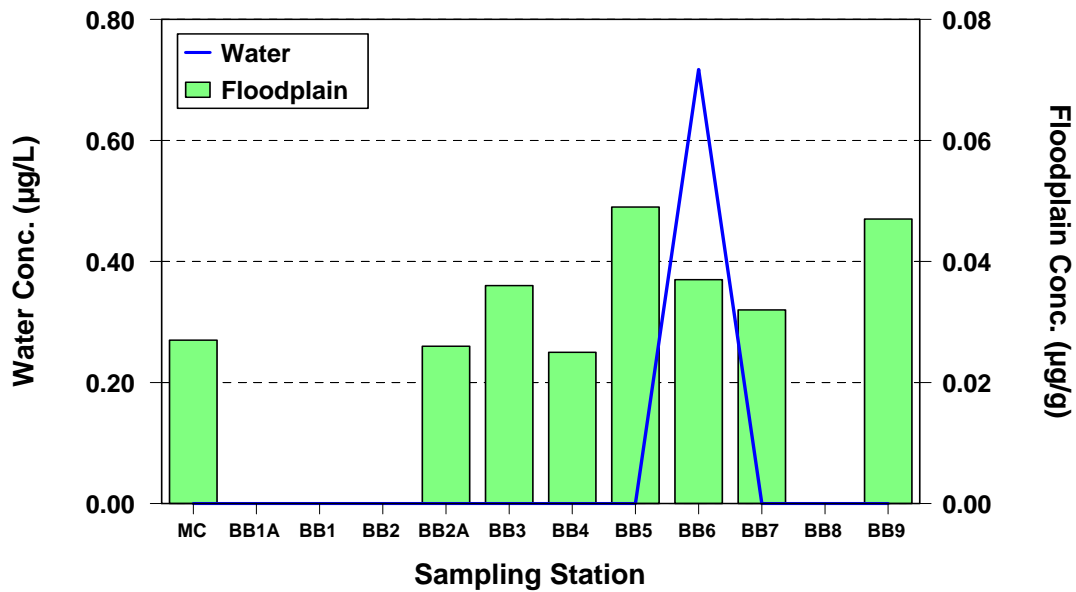


Figure 3. Chromium mean metal concentrations in water and sediments from Big Bayou Creek collected September 18-21, 2006.

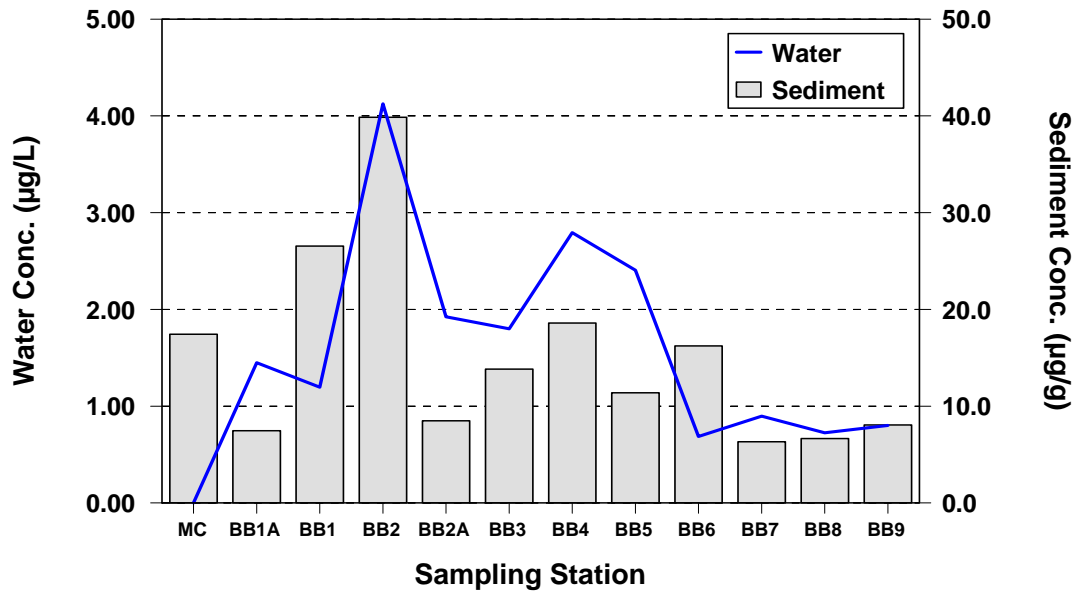


Figure 4. Chromium mean metal concentrations in water and floodplain soils from Big Bayou Creek collected September 18-21, 2006.

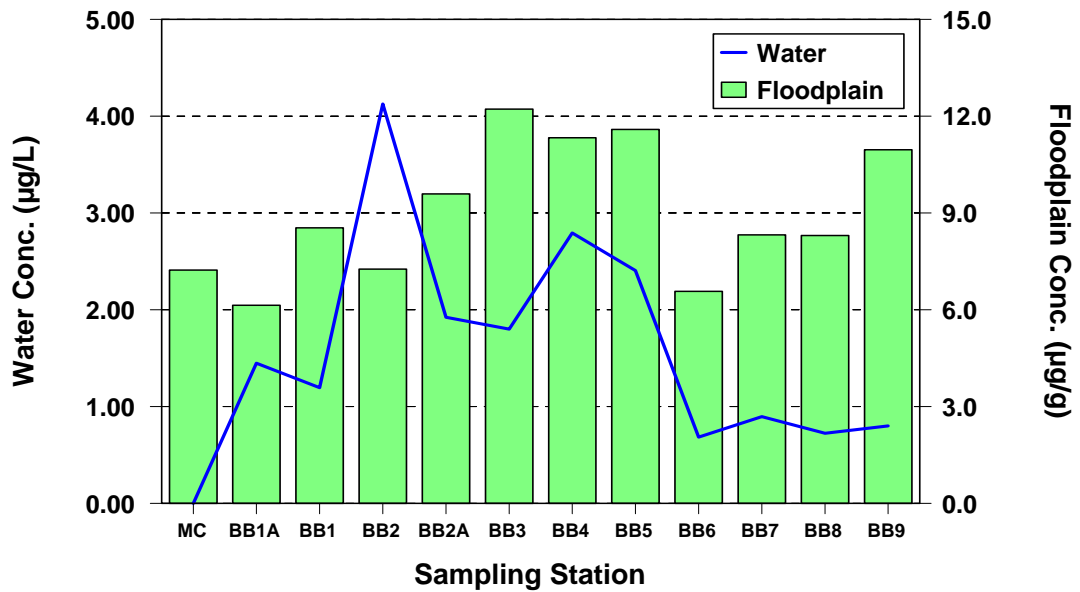


Figure 5. Copper mean metal concentrations in water and sediments from Big Bayou Creek collected September 18-21, 2006.

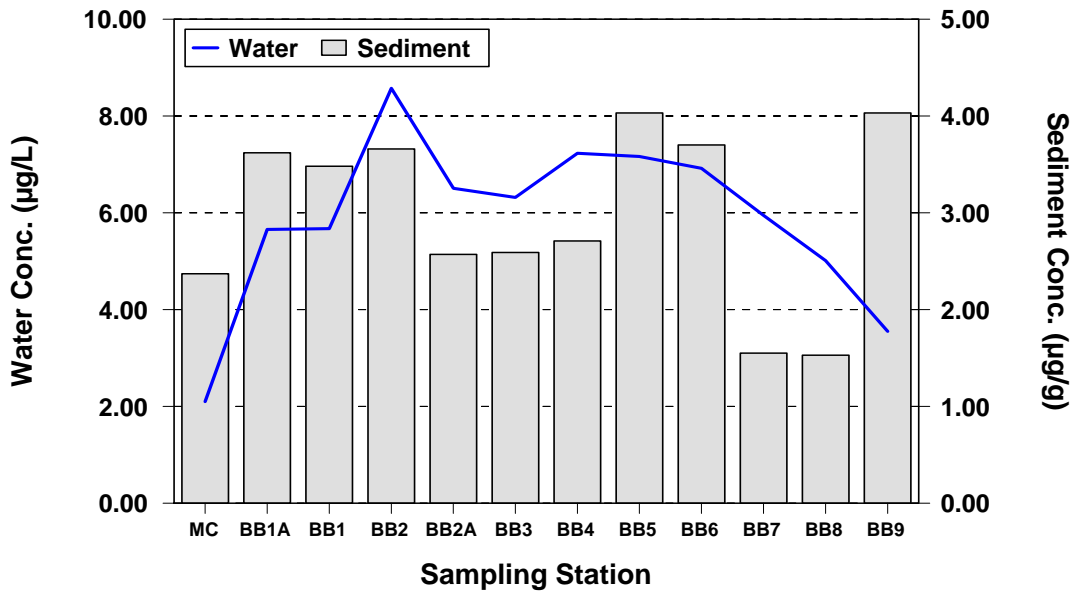


Figure 6. Copper mean metal concentrations in water and floodplain soils from Big Bayou Creek collected September 18-21, 2006.

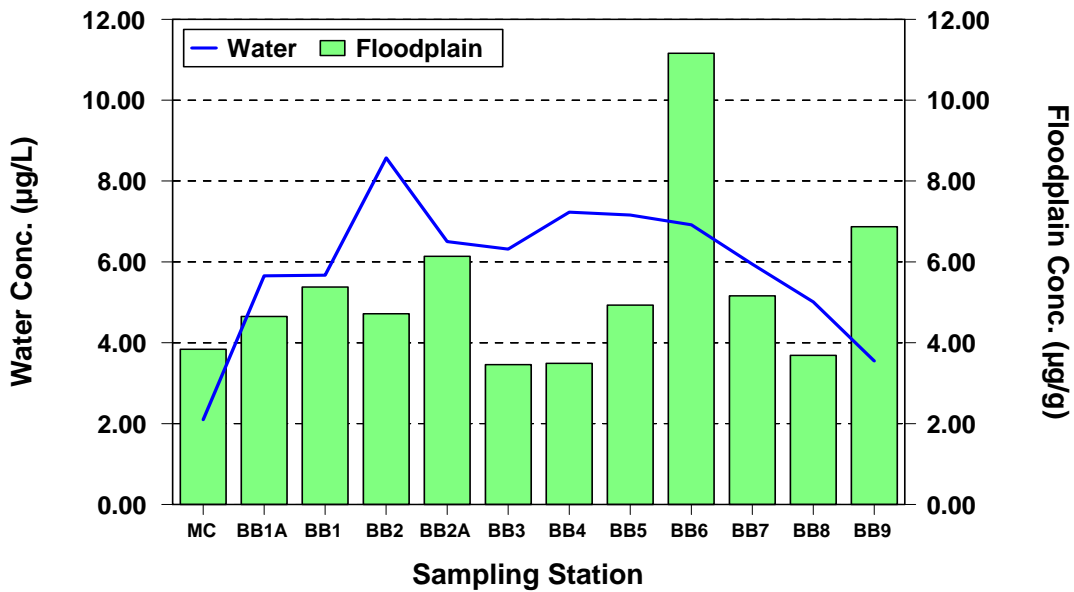


Figure 7. Iron mean metal concentrations in water and sediments from Big Bayou Creek collected September 18-21, 2006.

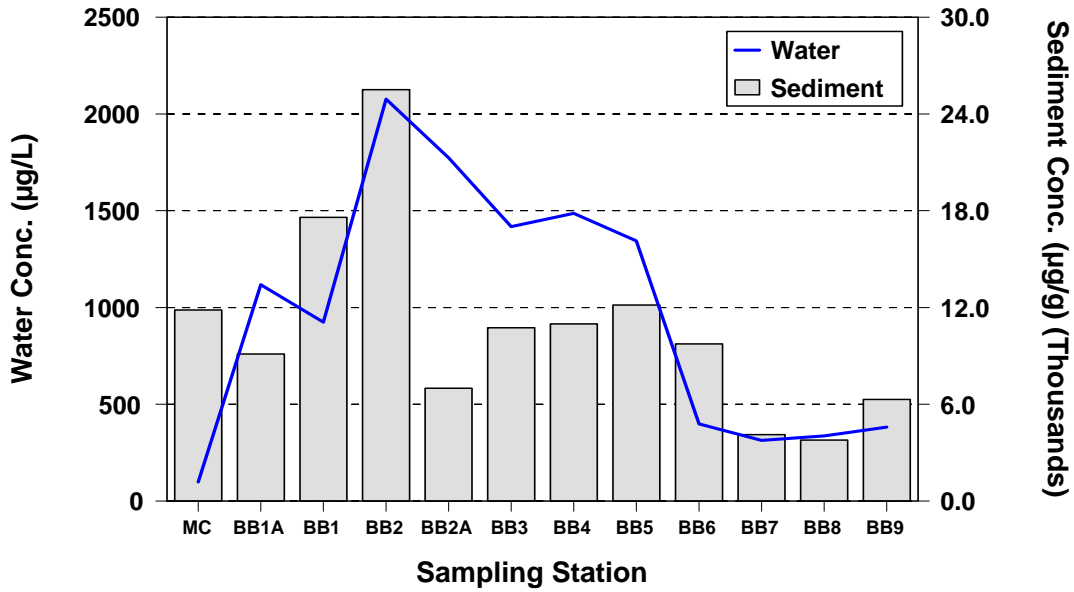


Figure 8. Iron mean metal concentrations in water and floodplain soils from Big Bayou Creek collected September 18-21, 2006.

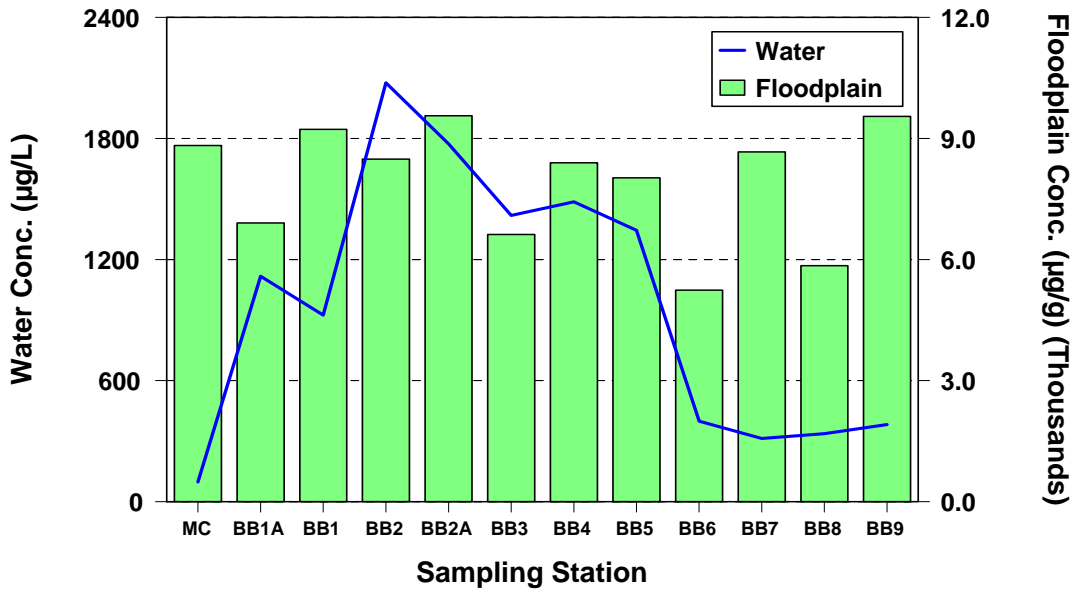


Figure 9. Nickel mean metal concentrations in water and sediments from Big Bayou Creek collected September 18-21, 2006.

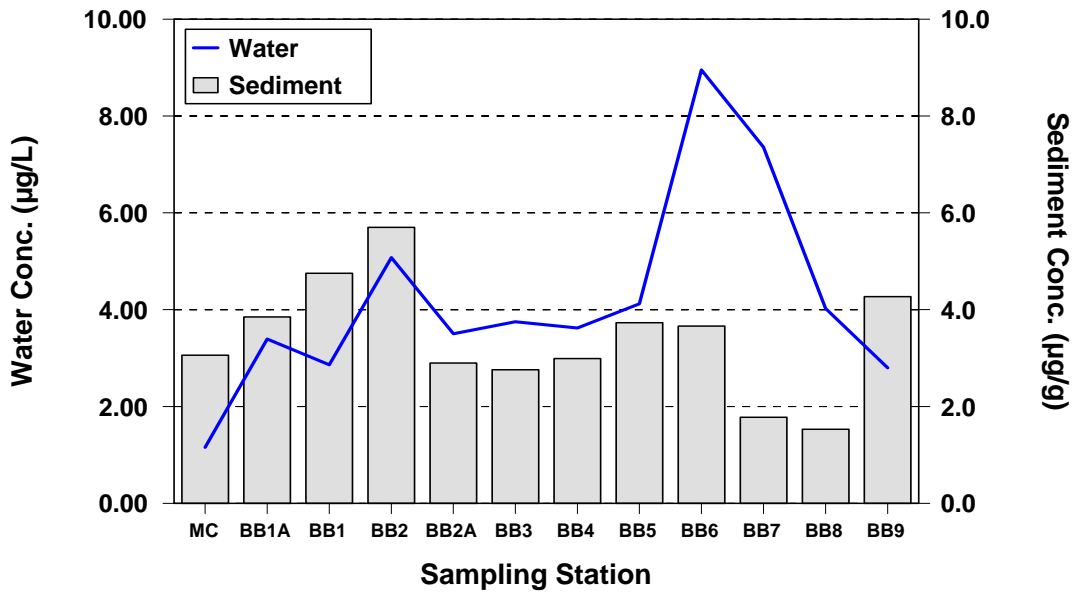


Figure 10. Nickel mean metal concentrations in water and floodplain soils from Big Bayou Creek collected September 18-21, 2006.

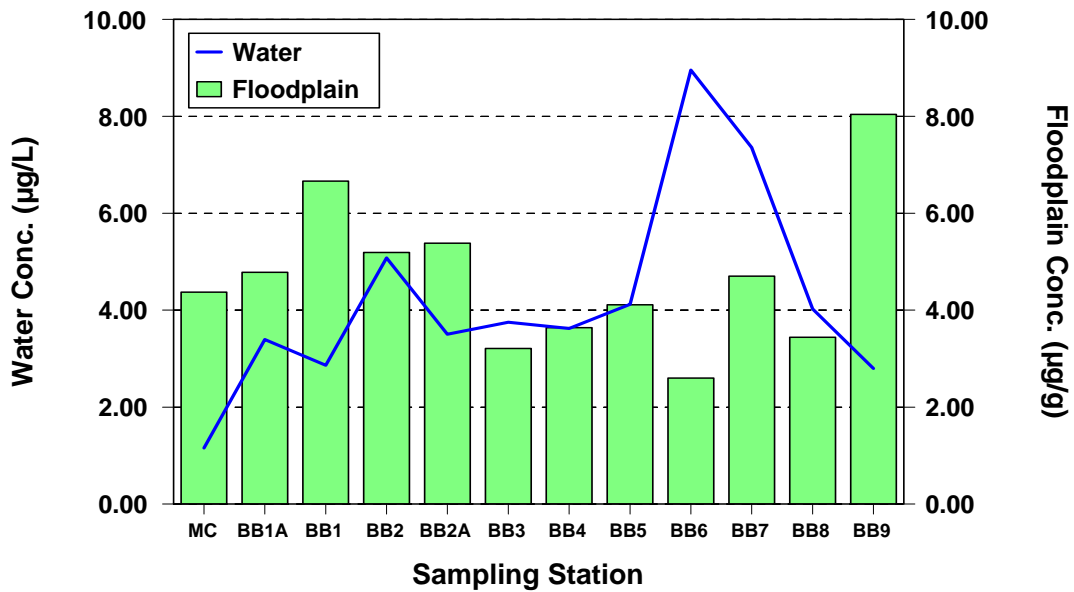


Figure 11. Lead mean metal concentrations in water and sediments from Big Bayou Creek collected September 18-21, 2006.

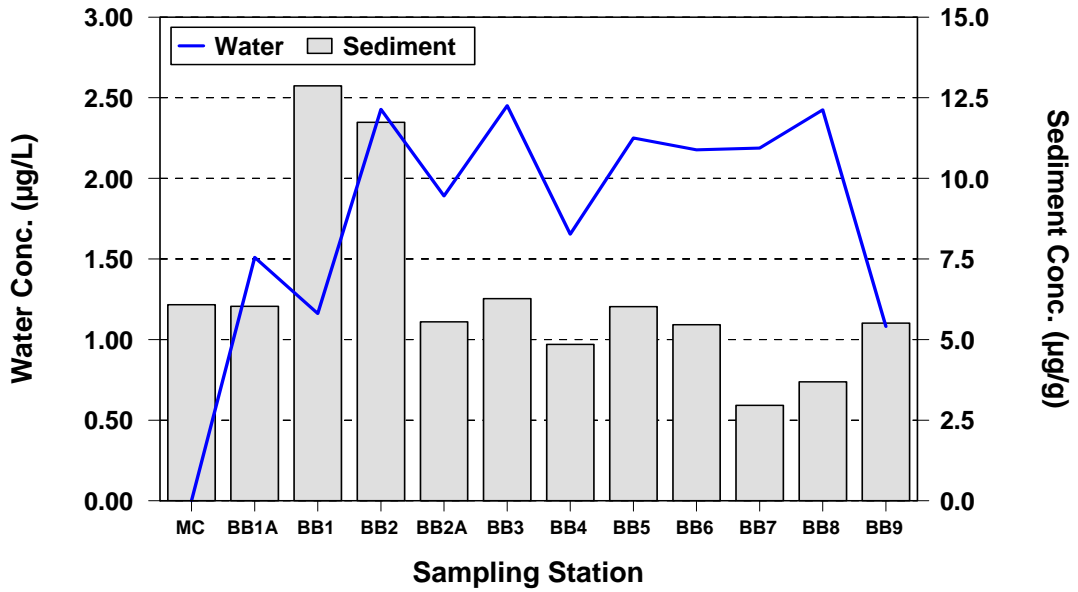


Figure 12. Lead mean metal concentrations in water and floodplain soils from Big Bayou Creek collected September 18-21, 2006.

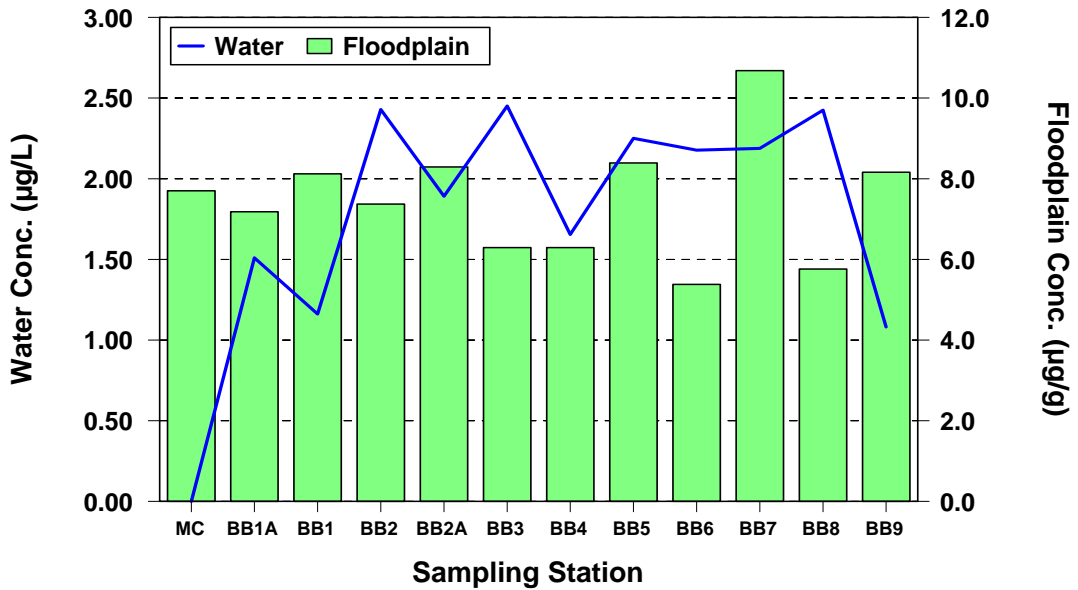


Figure 13. Zinc mean metal concentrations in water and sediments from Big Bayou Creek collected September 18-21, 2006.

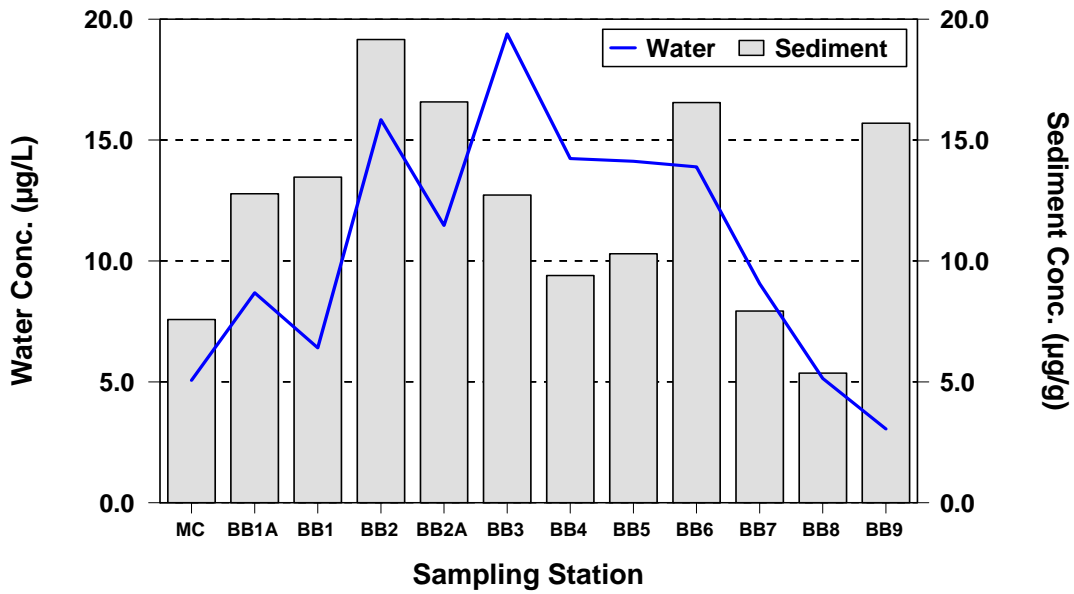


Figure 14. Zinc mean metal concentrations in water and floodplain soils from Big Bayou Creek collected September 18-21, 2006.

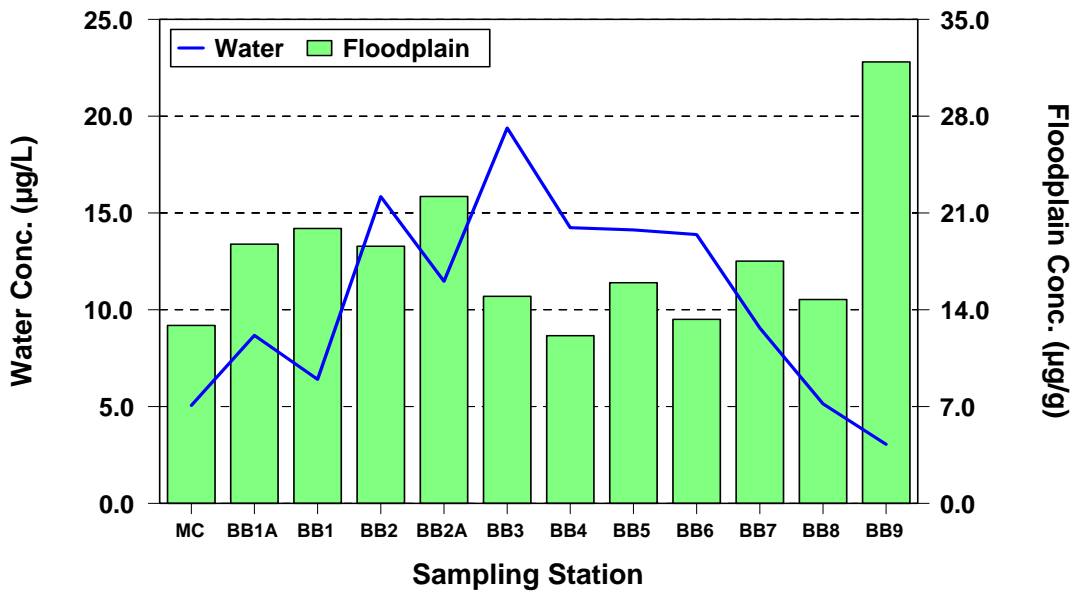


Figure 15. Chromium mean metal concentrations in water and sediments from Little Bayou Creek collected September 18-21, 2006.

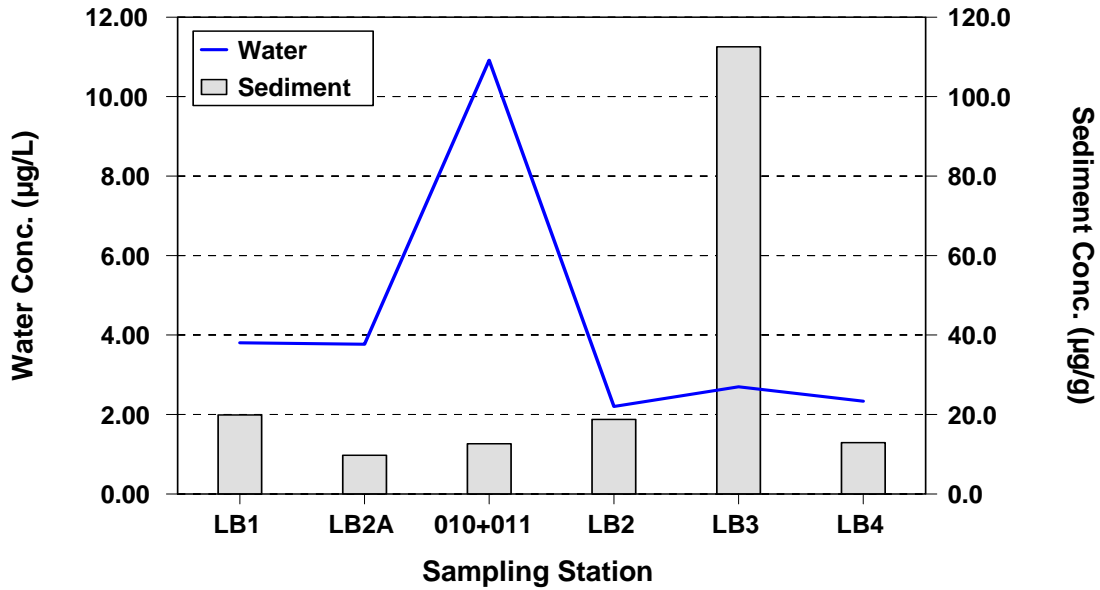


Figure 16. Chromium mean metal concentrations in water and floodplain soils from Little Bayou Creek collected September 18-21, 2006.

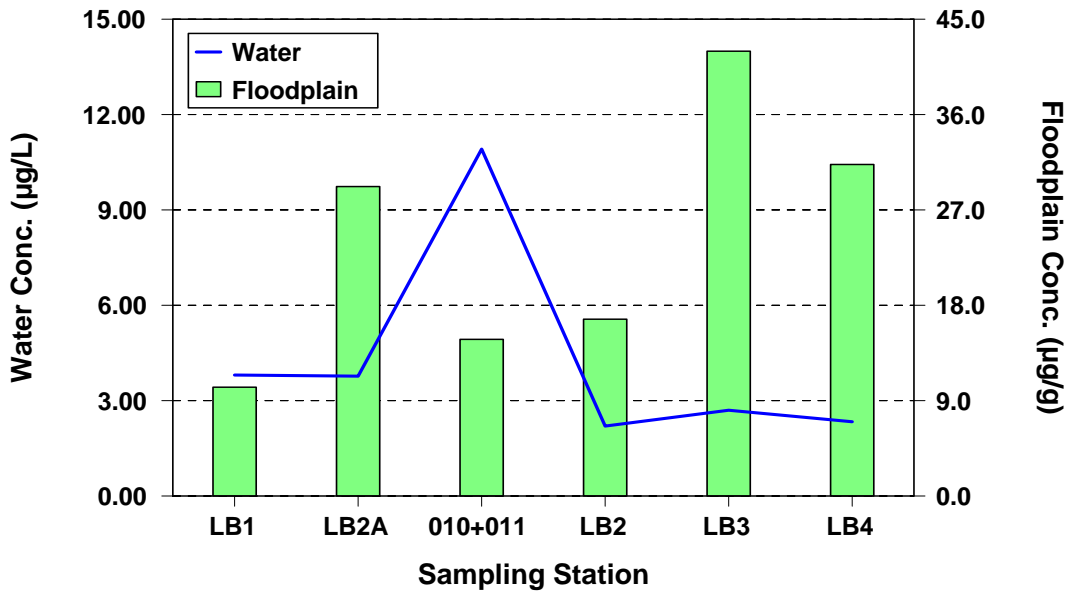


Figure 17. Copper mean metal concentrations in water and sediments from Little Bayou Creek collected September 18-21, 2006.

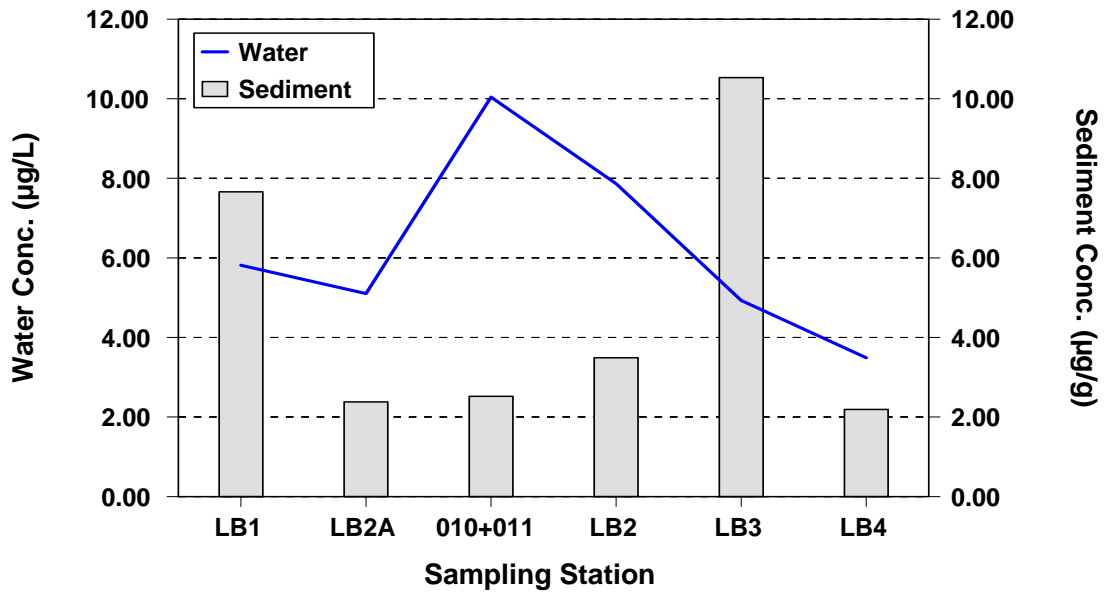


Figure 18. Copper mean metal concentrations in water and floodplain soils from Little Bayou Creek collected September 18-21, 2006.

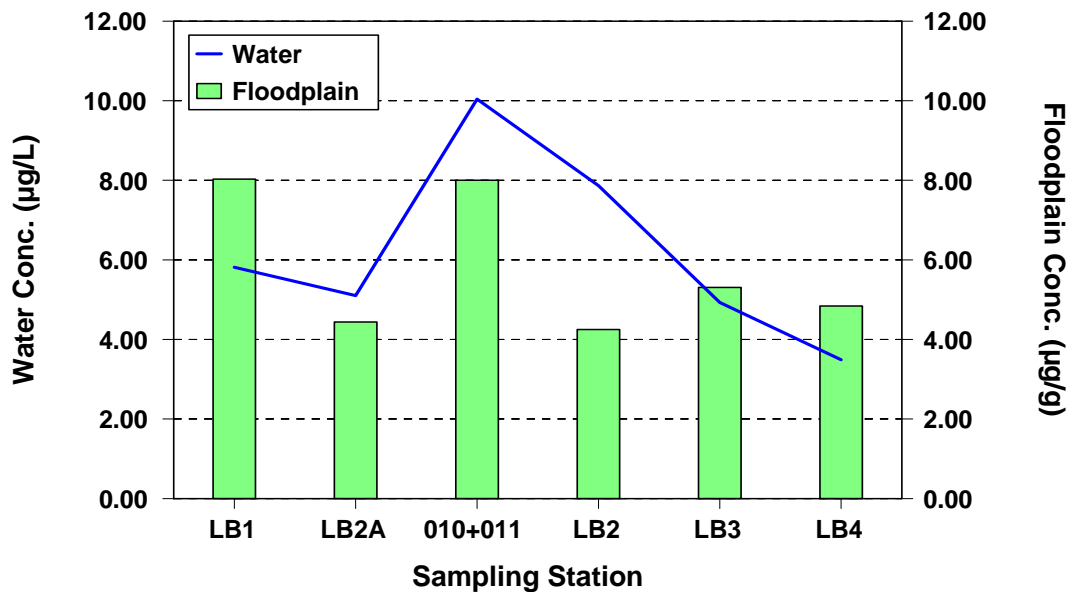


Figure 19. Iron mean metal concentrations in water and sediments from Little Bayou Creek collected September 18-21, 2006.

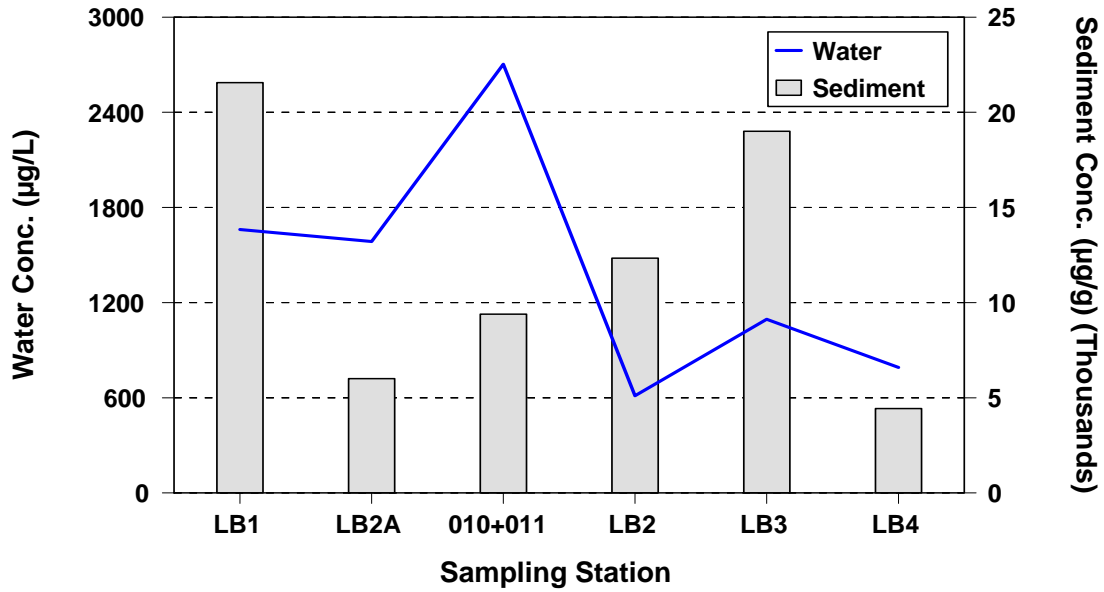


Figure 20. Iron mean metal concentrations in water and floodplain soils from Little Bayou Creek collected September 18-21, 2006.

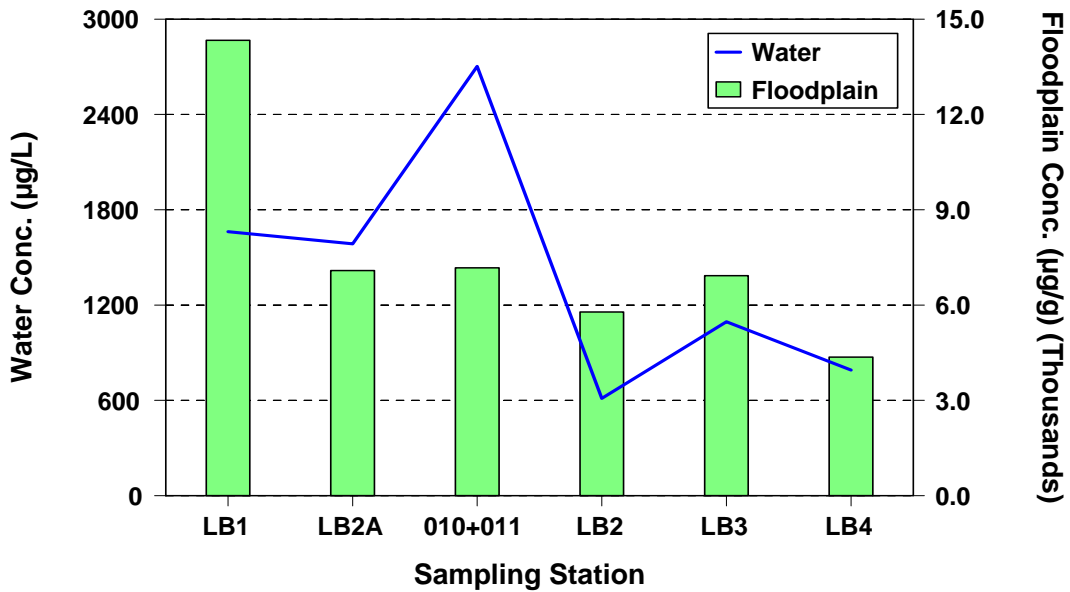


Figure 21. Nickel mean metal concentrations in water and sediments from Little Bayou Creek collected September 18-21, 2006.

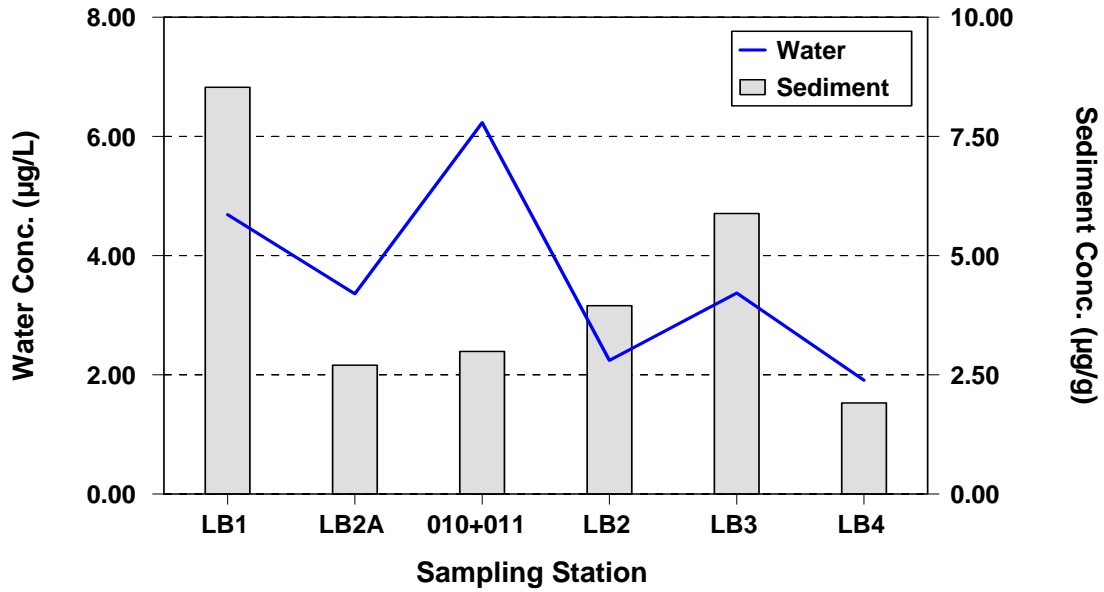


Figure 22. Nickel mean metal concentrations in water and floodplain soils from Little Bayou Creek collected September 18-21, 2006.

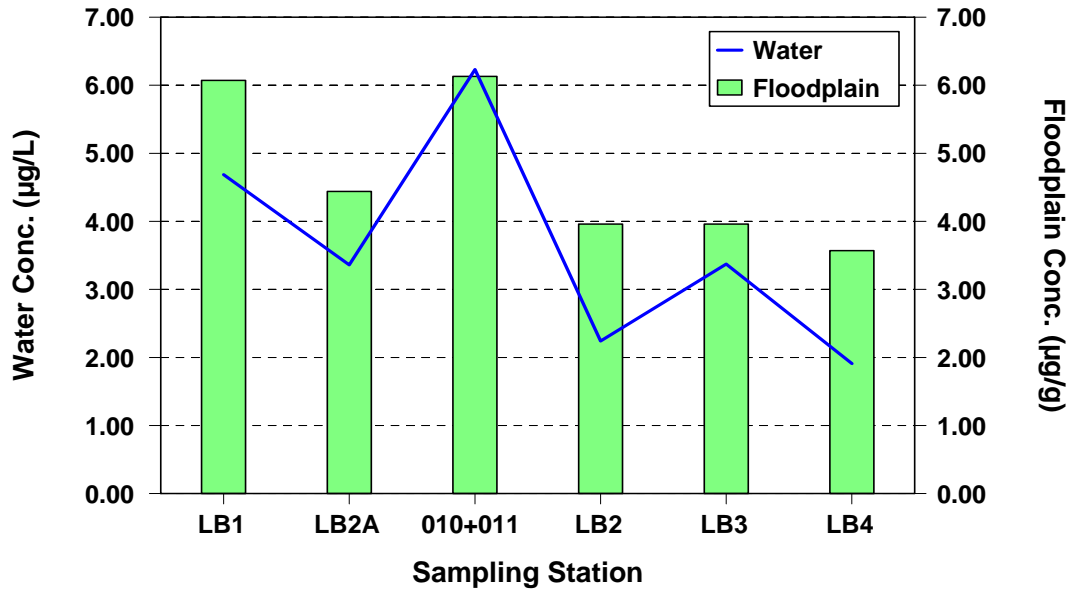


Figure 23. Lead mean metal concentrations in water and sediments from Little Bayou Creek collected September 18-21, 2006.

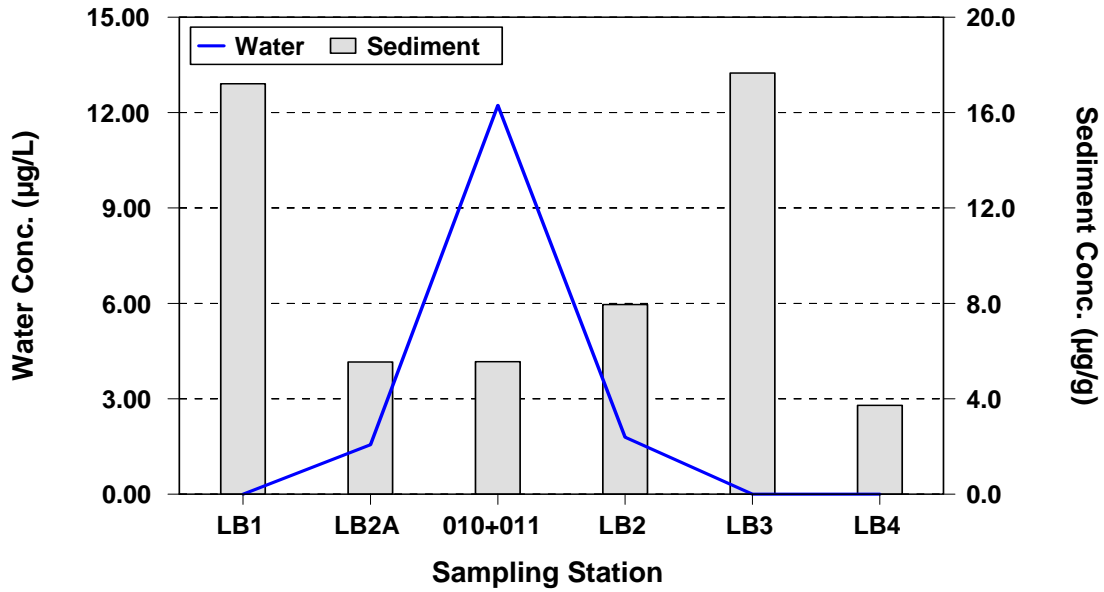


Figure 24. Lead mean metal concentrations in water and floodplain soils from Little Bayou Creek collected September 18-21, 2006.

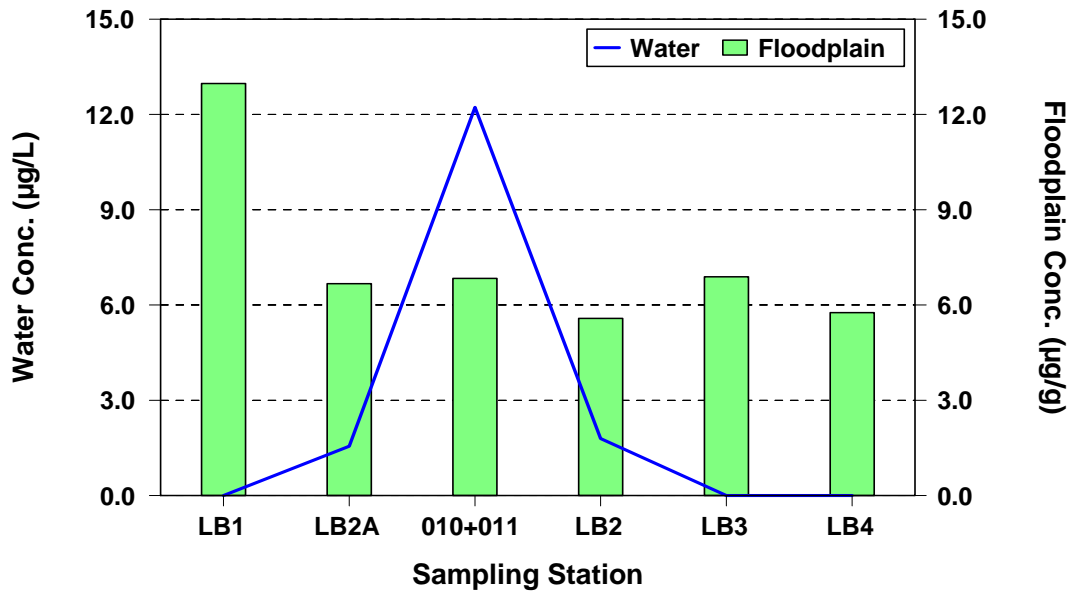


Figure 25. Zinc mean metal concentrations in water and sediments from Little Bayou Creek collected September 18-21, 2006.

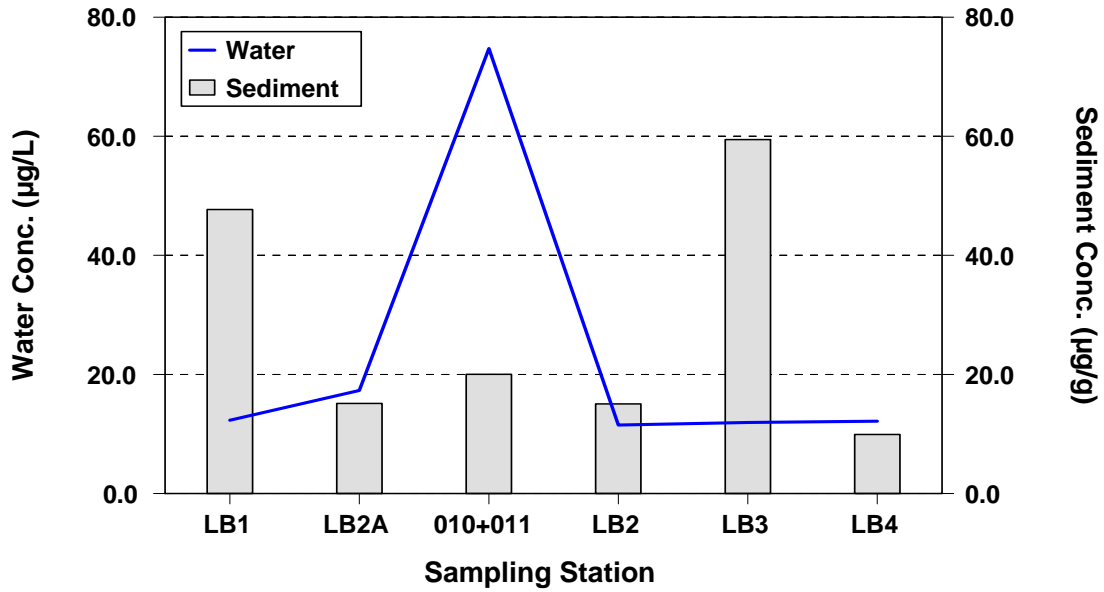
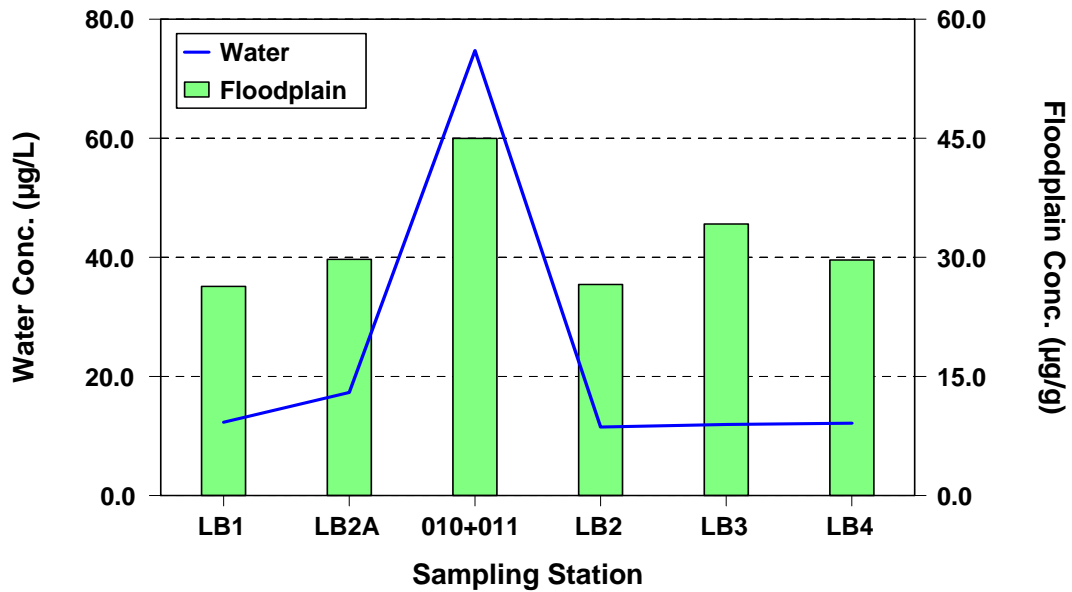


Figure 26. Zinc mean metal concentrations in water and floodplain soils from Little Bayou Creek collected September 18-21, 2006.



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Table A1. Metal concentrations in sediments from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)									
			Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
MC	09/21/06	MSED1A	0.066	1611.3	3.30	19.10	14.36	0.27	100.4	0.16	3.62	15.59
MC	09/21/06	MSED1B	0.074	2478.3	5.35	18.76	41.82	0.37	169.6	0.26	5.93	19.27
BB1A	09/19/06	MSED1A	0.042	5101.4	0.90	20.32	23.38	0.20	506.0	0.10	3.11	6.00
BB1A	09/19/06	MSED1B	0.062	4035.9	4.59	16.81	18.38	0.38	366.4	0.21	4.16	8.93
BB1	09/19/06	MSED1A	0.076	2851.7	8.86	20.10	57.22	0.64	318.4	0.31	8.52	20.83
BB1	09/19/06	MSED1B	0.065	2322.9	6.67	18.94	20.93	0.64	257.4	0.28	5.47	32.27
BB2A	09/18/06	MSED1A	0.069	3472.5	1.48	20.10	22.62	0.21	463.0	0.12	3.01	7.35
BB2A	09/18/06	MSED1B	0.058	3550.8	2.96	20.05	23.58	0.27	477.4	0.14	3.76	9.63
BB2	09/18/06	MSED1A	0.146	3467.2	12.50	20.14	37.32	0.67	279.9	0.57	9.83	62.17
BB2	09/18/06	MSED1B	0.057	2937.5	4.06	16.99	17.54	0.56	241.5	0.29	4.51	17.53
BB3	09/18/06	MSED1A	0.060	2636.7	4.62	17.50	14.43	0.45	254.1	0.21	3.07	12.41
42 BB3	09/18/06	MSED1B	0.052	2375.3	2.86	19.34	39.90	0.32	372.2	0.16	3.75	15.24
BB4	09/18/06	MSED1A	<0.022	8415.4	1.87	18.43	13.41	0.42	484.8	0.23	2.88	24.91
BB4	09/18/06	MSED1B	<0.023	2330.2	2.30	20.68	8.39	0.29	194.1	0.15	1.89	12.26
BB5	09/18/06	MSED1A	<0.024	11282.3	1.67	20.48	17.89	0.35	664.3	0.24	2.93	11.82
BB5	09/18/06	MSED1B	<0.022	10752.1	1.01	17.26	17.45	0.30	606.3	0.16	2.23	10.94
BB6	09/21/06	MSED1A	0.057	5322.3	1.74	16.56	32.16	0.29	1195.7	0.18	3.52	14.25
BB6	09/21/06	MSED1B	0.042	4204.8	2.49	18.43	15.69	0.28	532.6	0.18	3.04	18.21
BB7	09/20/06	MSED1A	0.047	1733.5	1.13	19.90	11.63	0.13	1950.0	0.08	1.81	6.24
BB7	09/20/06	MSED1B	0.032	1705.4	0.89	20.01	12.30	0.13	1982.3	0.08	1.48	6.39
BB8	09/20/06	MSED1A	0.029	1829.9	1.21	20.34	13.48	0.15	220.6	0.08	2.39	7.46
BB8	09/20/06	MSED1B	0.025	1341.2	0.80	21.72	8.01	0.11	136.1	0.06	2.50	5.86
BB9	09/21/06	MSED1A	<0.024	5141.7	1.18	21.66	37.80	0.23	618.9	0.13	3.49	8.12
BB9	09/21/06	MSED1B	<0.024	5252.2	1.11	22.03	38.66	0.23	589.7	0.14	3.49	8.00

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A1, continued. Metal concentrations in sediments from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)								
			Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni
MC	09/21/06	MSED1A	1.76	8515.8	89.6	0.65	84.1	165.3	0.30	36.98	2.19
MC	09/21/06	MSED1B	2.98	15178.9	136.3	0.97	129.8	489.3	0.48	41.37	3.94
BB1A	09/19/06	MSED1A	3.70	5575.9	396.7	4.42	539.8	118.8	0.12	54.20	4.08
BB1A	09/19/06	MSED1B	3.55	12666.4	277.9	2.87	354.6	168.1	0.21	40.29	3.63
BB1	09/19/06	MSED1A	3.40	17838.1	172.7	1.28	176.8	832.5	0.60	49.41	5.09
BB1	09/19/06	MSED1B	3.56	17344.6	121.8	0.83	149.2	210.2	0.48	44.75	4.41
BB2A	09/18/06	MSED1A	2.51	6080.7	231.6	2.25	279.9	157.3	0.16	54.74	2.72
BB2A	09/18/06	MSED1B	2.63	7912.1	227.3	2.20	268.0	183.2	0.23	52.39	3.08
BB2	09/18/06	MSED1A	4.08	34148.0	150.7	1.31	170.5	832.3	0.78	53.43	6.99
BB2	09/18/06	MSED1B	3.24	16864.7	157.5	1.32	165.6	152.7	0.29	49.38	4.41
BB3	09/18/06	MSED1A	2.76	12423.8	141.5	1.32	155.7	117.5	0.39	44.68	2.74
43 BB3	09/18/06	MSED1B	2.42	9061.2	153.6	1.31	170.4	135.9	0.29	48.94	2.78
BB4	09/18/06	MSED1A	3.19	13410.4	324.5	4.43	232.6	100.8	0.19	47.09	3.58
BB4	09/18/06	MSED1B	2.22	8565.5	97.2	0.98	85.3	90.3	0.27	50.18	2.40
BB5	09/18/06	MSED1A	4.43	14109.3	383.2	7.19	313.6	114.5	0.25	69.03	3.94
BB5	09/18/06	MSED1B	3.62	10200.6	371.8	6.98	308.9	101.0	0.17	61.27	3.52
BB6	09/21/06	MSED1A	4.39	9457.8	278.9	3.55	364.8	136.6	0.24	65.68	4.01
BB6	09/21/06	MSED1B	3.02	10040.0	209.6	2.30	269.8	116.3	0.29	55.44	3.31
BB7	09/20/06	MSED1A	1.58	4198.8	108.7	1.13	159.0	116.9	0.17	51.93	1.76
BB7	09/20/06	MSED1B	1.51	4039.2	101.5	1.10	144.9	95.5	0.15	49.86	1.80
BB8	09/20/06	MSED1A	1.83	4386.9	108.3	1.13	151.4	99.4	0.18	53.53	1.77
BB8	09/20/06	MSED1B	1.23	3169.3	82.5	0.86	100.4	85.7	0.12	49.39	1.30
BB9	09/21/06	MSED1A	3.91	6249.4	409.4	4.89	491.9	227.7	0.14	56.23	4.21
BB9	09/21/06	MSED1B	4.16	6357.8	413.5	5.03	509.3	223.3	0.14	59.07	4.33

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A1, continued. Metal concentrations in sediments from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)					
			P	Pb	Sb	Se	Si	Sr
MC	09/21/06	MSED1A	189.5	4.50	0.46	<0.23	58.31	0.98
MC	09/21/06	MSED1B	254.3	7.65	0.80	<0.22	61.12	1.51
BB1A	09/19/06	MSED1A	136.5	5.24	<0.24	<0.24	97.45	5.38
BB1A	09/19/06	MSED1B	250.1	6.82	0.46	<0.20	71.38	3.81
BB1	09/19/06	MSED1A	438.5	16.47	0.77	<0.24	71.73	2.63
BB1	09/19/06	MSED1B	410.4	9.27	0.92	<0.21	65.07	293.84
BB2A	09/18/06	MSED1A	166.0	5.09	<0.24	<0.24	95.31	6.82
BB2A	09/18/06	MSED1B	206.9	6.01	0.35	<0.24	91.93	6.18
BB2	09/18/06	MSED1A	469.2	15.69	1.53	<0.23	73.78	2.81
BB2	09/18/06	MSED1B	319.7	7.80	0.78	<0.20	67.66	2.19
BB3	09/18/06	MSED1A	243.7	5.16	0.59	<0.20	70.80	3.26
44 BB3	09/18/06	MSED1B	207.2	7.38	0.48	<0.22	78.19	6.04
BB4	09/18/06	MSED1A	166.0	5.75	0.60	<0.22	101.54	5.59
BB4	09/18/06	MSED1B	171.2	3.95	0.36	<0.23	84.21	1.97
BB5	09/18/06	MSED1A	124.6	6.46	0.38	<0.24	109.95	7.70
BB5	09/18/06	MSED1B	110.5	5.58	0.45	<0.22	108.61	7.27
BB6	09/21/06	MSED1A	205.9	5.81	0.54	<0.21	94.51	7.68
BB6	09/21/06	MSED1B	185.4	5.12	0.47	<0.22	91.59	4.99
BB7	09/20/06	MSED1A	105.4	3.18	<0.23	<0.23	82.46	5.72
BB7	09/20/06	MSED1B	90.7	2.74	<0.24	<0.24	82.96	4.62
BB8	09/20/06	MSED1A	116.0	4.31	<0.23	<0.23	77.52	2.04
BB8	09/20/06	MSED1B	80.7	3.07	<0.23	<0.23	70.16	1.30
BB9	09/21/06	MSED1A	245.7	5.49	<0.24	<0.24	104.57	5.98
BB9	09/21/06	MSED1B	229.9	5.53	<0.24	<0.24	111.53	7.22

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A1, continued. Metal concentrations in sediments from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)			
			Ti	Tl	V	Zn
MC	09/21/06	MSED1A	38.39	<0.23	15.89	5.98
MC	09/21/06	MSED1B	42.43	0.25	26.51	9.18
BB1A	09/19/06	MSED1A	55.78	<0.24	11.40	12.57
BB1A	09/19/06	MSED1B	40.18	<0.20	15.60	12.98
BB1	09/19/06	MSED1A	43.44	0.59	31.19	14.48
BB1	09/19/06	MSED1B	38.64	<0.21	32.90	12.46
BB2A	09/18/06	MSED1A	36.02	<0.24	11.57	17.08
BB2A	09/18/06	MSED1B	38.39	<0.24	14.96	16.07
BB2	09/18/06	MSED1A	49.35	0.57	56.34	22.45
BB2	09/18/06	MSED1B	35.15	<0.20	29.16	15.87
BB3	09/18/06	MSED1A	28.22	<0.20	22.29	12.53
45 BB3	09/18/06	MSED1B	30.06	<0.22	18.37	12.93
BB4	09/18/06	MSED1A	20.90	<0.22	25.46	11.15
BB4	09/18/06	MSED1B	17.18	<0.23	17.47	7.65
BB5	09/18/06	MSED1A	33.52	<0.24	25.52	10.77
BB5	09/18/06	MSED1B	27.79	<0.22	21.58	9.84
BB6	09/21/06	MSED1A	31.50	<0.21	17.71	18.72
BB6	09/21/06	MSED1B	31.49	<0.22	19.39	14.38
BB7	09/20/06	MSED1A	25.62	<0.23	8.43	8.06
BB7	09/20/06	MSED1B	24.23	<0.24	7.83	7.80
BB8	09/20/06	MSED1A	35.28	<0.23	9.72	6.25
BB8	09/20/06	MSED1B	30.99	<0.23	7.53	4.47
BB9	09/21/06	MSED1A	46.68	<0.24	10.11	15.57
BB9	09/21/06	MSED1B	46.99	0.32	10.26	15.83

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A2. Metal concentrations in sediments from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)									
			Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
LB1	09/18/06	MSED1A	0.028	7532.7	4.29	17.55	70.43	0.47	8734.6	0.23	8.56	8.33
LB1	09/18/06	MSED1B	0.040	6267.9	9.71	19.20	60.48	0.95	21340.3	0.51	11.76	31.41
LB2A	09/19/06	MSED1A	<0.024	4617.2	1.34	21.63	43.12	0.24	601.9	0.12	2.84	8.75
LB2A	09/19/06	MSED1B	<0.025	3818.0	1.15	21.03	48.16	0.22	516.5	0.11	2.54	10.72
LB2	09/19/06	MSED1A	<0.025	1788.1	2.81	20.50	10.05	0.23	240.4	0.12	2.16	15.40
LB2	09/19/06	MSED1B	<0.024	3153.8	10.04	20.22	42.52	0.64	390.8	0.31	5.09	22.14
LB3	09/19/06	MSED1A	0.061	3696.1	11.71	20.22	22.38	0.87	1026.0	0.37	7.94	111.22
LB3	09/19/06	MSED1B	0.083	4150.6	8.88	20.12	35.44	0.73	944.4	0.32	7.68	113.86
LB4	09/21/06	MSED1A	<0.025	2396.3	0.58	22.11	14.28	0.12	244.2	0.07	1.54	9.88
LB4	09/21/06	MSED1B	<0.022	3576.0	0.74	22.19	22.01	0.17	354.8	0.09	2.02	15.91
46 001	09/18/06	MSED1A	0.054	3970.7	3.06	17.78	20.38	0.45	7145.7	0.25	4.98	24.84
001	09/18/06	MSED1B	0.057	4332.4	4.56	18.38	19.66	0.56	1516.3	0.34	5.04	39.17
006	09/18/06	MSED1A	0.036	3388.9	1.60	20.11	8.60	0.52	393.8	0.29	3.62	41.54
006	09/18/06	MSED1B	0.034	3058.9	1.41	18.90	10.21	0.40	328.8	0.25	3.31	40.67
008	09/18/06	MSED1A	<0.024	7403.4	4.98	20.59	51.04	0.30	14316.8	0.22	4.35	9.42
008	09/18/06	MSED1B	<0.024	6822.9	4.77	18.89	71.02	0.34	14093.4	0.24	5.51	9.05
010011	09/19/06	MSED1A	0.044	4906.0	1.58	21.84	54.81	0.29	2017.3	0.22	4.29	14.43
010011	09/19/06	MSED1B	<0.022	4250.8	0.82	18.32	16.55	0.22	691.1	0.09	2.03	10.87

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A2, continued. Metal concentrations in sediments from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)								
			Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni
LB1	09/18/06	MSED1A	6.43	13227.1	557.2	7.63	833.2	672.4	0.23	47.89	5.71
LB1	09/18/06	MSED1B	8.90	29895.8	466.0	6.05	1084.2	912.0	0.70	59.28	11.36
LB2A	09/19/06	MSED1A	2.39	6336.1	185.9	2.34	309.2	107.2	0.08	47.22	2.78
LB2A	09/19/06	MSED1B	2.38	5679.1	162.7	2.02	272.0	86.8	0.06	45.47	2.62
LB2	09/19/06	MSED1A	2.13	6808.6	66.1	0.75	108.8	78.0	0.23	40.04	2.43
LB2	09/19/06	MSED1B	4.85	17863.9	120.7	1.34	200.3	113.8	0.48	46.96	5.46
LB3	09/19/06	MSED1A	10.38	20767.1	205.2	2.02	301.2	222.6	0.61	50.63	5.94
LB3	09/19/06	MSED1B	10.68	17236.8	235.1	2.63	352.9	185.5	0.46	50.76	5.81
LB4	09/21/06	MSED1A	1.59	4131.2	131.9	1.53	177.6	122.0	0.09	45.31	1.49
LB4	09/21/06	MSED1B	2.79	4745.2	200.7	2.42	267.8	99.2	0.10	49.33	2.33
47 001	09/18/06	MSED1A	7.72	14062.7	321.4	4.59	750.8	90.7	0.83	101.66	6.11
001	09/18/06	MSED1B	7.94	20312.8	291.1	3.83	547.8	88.9	0.76	87.06	7.66
006	09/18/06	MSED1A	5.09	17418.8	168.8	1.90	247.7	98.0	0.43	58.19	8.14
006	09/18/06	MSED1B	4.48	15422.1	143.3	1.65	226.9	82.5	0.45	49.20	4.37
008	09/18/06	MSED1A	6.25	11490.2	578.8	7.95	1284.5	222.1	0.26	76.37	5.23
008	09/18/06	MSED1B	5.68	11820.3	522.1	7.35	1169.1	367.3	0.22	70.00	4.69
010011	09/19/06	MSED1A	2.81	13324.7	209.6	2.50	477.7	1278.1	0.15	48.82	3.27
010011	09/19/06	MSED1B	2.23	5461.3	159.6	1.79	306.0	53.8	0.07	39.11	2.70

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A2, continued. Metal concentrations in sediments from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)					
			P	Pb	Sb	Se	Si	Sr
LB1	09/18/06	MSED1A	313.2	12.42	0.39	<0.21	98.77	13.45
LB1	09/18/06	MSED1B	736.1	21.99	1.00	<0.23	87.51	30.29
LB2A	09/19/06	MSED1A	104.2	6.17	<0.24	<0.24	121.18	16.33
LB2A	09/19/06	MSED1B	107.8	4.91	<0.25	<0.25	137.93	14.00
LB2	09/19/06	MSED1A	111.6	3.84	0.26	<0.25	87.35	3.44
LB2	09/19/06	MSED1B	311.1	12.06	0.67	<0.24	101.95	6.54
LB3	09/19/06	MSED1A	726.7	17.60	1.52	<0.24	92.86	11.36
LB3	09/19/06	MSED1B	622.7	17.72	1.28	<0.23	102.81	12.53
LB4	09/21/06	MSED1A	81.8	3.22	<0.25	<0.25	87.83	4.46
LB4	09/21/06	MSED1B	117.2	4.22	<0.22	<0.22	107.36	6.80
48 001	09/18/06	MSED1A	265.1	8.25	0.40	<0.20	81.16	10.31
001	09/18/06	MSED1B	289.6	7.26	1.06	<0.21	87.59	8.08
006	09/18/06	MSED1A	286.9	6.47	0.81	<0.24	109.66	1.88
006	09/18/06	MSED1B	255.7	5.38	0.74	<0.23	74.84	1.67
008	09/18/06	MSED1A	237.6	9.04	0.57	<0.24	106.79	26.83
008	09/18/06	MSED1B	260.0	9.61	0.56	<0.24	93.04	24.76
010011	09/19/06	MSED1A	215.0	6.36	0.64	<0.24	122.79	13.34
010011	09/19/06	MSED1B	114.5	4.75	<0.22	<0.22	114.44	6.55

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A2, continued. Metal concentrations in sediments from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Sediment Metal Conc. (µg/g)			
			Ti	Tl	V	Zn
LB1	09/18/06	MSED1A	28.16	0.52	22.60	32.23
LB1	09/18/06	MSED1B	43.10	0.53	50.29	63.12
LB2A	09/19/06	MSED1A	17.97	<0.24	11.51	15.17
LB2A	09/19/06	MSED1B	18.49	<0.25	11.34	15.11
LB2	09/19/06	MSED1A	10.74	<0.25	15.93	10.29
LB2	09/19/06	MSED1B	19.56	<0.24	33.70	19.82
LB3	09/19/06	MSED1A	43.77	<0.24	42.40	58.83
LB3	09/19/06	MSED1B	39.79	<0.23	34.59	60.05
LB4	09/21/06	MSED1A	31.27	<0.25	7.13	7.01
LB4	09/21/06	MSED1B	26.84	<0.22	8.84	12.85
49 001	09/18/06	MSED1A	33.25	<0.20	26.15	29.19
001	09/18/06	MSED1B	36.02	<0.21	39.52	28.50
006	09/18/06	MSED1A	41.09	<0.24	43.27	13.87
006	09/18/06	MSED1B	41.21	<0.23	36.79	12.25
008	09/18/06	MSED1A	39.64	<0.24	18.55	25.95
008	09/18/06	MSED1B	38.33	0.38	20.07	22.10
010011	09/19/06	MSED1A	14.36	1.02	14.76	24.48
010011	09/19/06	MSED1B	8.85	<0.22	11.10	15.59

¹ MSED1A and MSED1B are duplicates from the same sampling site.

Table A3. Metal concentrations in floodplain soils from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)									
			Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
MC	09/21/06	MFP1	0.027	69455.3	2.76	21.26	43.22	0.24	263.5	0.13	5.24	6.95
MC	09/21/06	MFP2	<0.023	163477.5	2.30	20.37	53.65	0.32	782.6	0.17	5.94	7.51
BB1A	09/19/06	MFP1	<0.024	124340.4	1.63	21.69	41.19	0.27	676.0	0.14	4.52	6.74
BB1A	09/19/06	MFP2	<0.025	129853.6	1.49	21.61	57.39	0.22	1100.5	0.16	3.65	5.55
BB1	09/19/06	MFP1	<0.025	192334.8	1.59	20.84	69.76	0.35	374.7	0.69	6.47	8.31
BB1	09/19/06	MFP2	<0.024	116257.0	2.23	22.18	40.36	0.27	4366.8	0.21	4.75	8.78
BB2A	09/18/06	MFP1	<0.024	166174.8	1.86	22.55	53.60	0.30	4626.9	0.69	5.10	9.07
BB2A	09/18/06	MFP2	0.026	152740.4	1.89	23.18	43.32	0.29	1756.0	0.37	4.29	10.11
BB2	09/18/06	MFP1	<0.023	170741.6	2.36	21.83	58.64	0.33	3078.9	0.24	5.50	8.58
BB2	09/18/06	MFP2	<0.025	92861.5	1.99	22.06	23.63	0.23	814.1	0.54	4.07	5.94
BB3	09/18/06	MFP1	<0.024	78449.2	1.36	20.81	39.20	0.19	475.3	0.11	3.02	5.86
BB3	09/18/06	MFP2	0.036	116680.1	1.68	21.84	40.46	0.23	1155.8	0.15	3.65	18.57
BB4	09/18/06	MFP1	0.025	94454.1	2.30	21.12	38.83	0.28	722.3	0.18	3.87	13.00
BB4	09/18/06	MFP2	<0.024	64152.0	1.78	20.98	22.49	0.22	548.6	0.19	3.46	9.67
BB5	09/18/06	MFP1	0.067	148087.9	2.19	21.38	43.43	0.28	818.6	0.20	4.61	14.77
BB5	09/18/06	MFP2	0.031	48317.7	1.69	23.68	17.45	0.20	355.9	0.12	3.08	8.41
BB6	09/21/06	MFP1	<0.023	47404.2	1.25	19.96	12.95	0.17	241.8	0.09	2.05	7.64
BB6	09/21/06	MFP2	0.037	85084.9	0.84	22.27	22.14	0.16	1155.1	0.16	3.00	5.50
BB7	09/20/06	MFP1	<0.025	110633.0	1.93	24.22	22.51	0.26	1118.6	0.16	3.95	8.42
BB7	09/20/06	MFP2	0.032	163444.2	2.30	23.34	40.22	0.24	561.0	0.22	4.80	8.21
BB8	09/20/06	MFP1	<0.024	87952.7	1.07	17.02	42.42	0.20	588.3	0.11	3.28	7.78
BB8	09/20/06	MFP2	<0.024	80398.4	1.38	22.15	42.87	0.20	810.5	0.14	3.20	8.82
BB9	09/21/06	MFP1	<0.025	81546.3	0.86	19.64	48.78	0.23	346.0	0.11	3.18	10.21
BB9	09/21/06	MFP2	0.047	227257.4	2.35	20.13	79.33	0.50	1961.7	0.51	7.48	11.71

¹ MFP1 and MFP2 are separate samples.

Table A3, continued. Metal concentrations in floodplain soils from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)								
			Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni
MC	09/21/06	MFP1	2.38	7687.8	229.3	1.85	235.1	314.1	0.24	41.64	2.89
MC	09/21/06	MFP2	5.30	9960.6	624.7	6.27	695.2	348.9	0.24	46.51	5.85
BB1A	09/19/06	MFP1	4.43	7540.9	381.2	4.58	472.9	272.7	0.18	42.45	4.39
BB1A	09/19/06	MFP2	4.86	6270.6	497.7	5.53	640.2	370.4	0.16	45.65	5.17
BB1	09/19/06	MFP1	6.03	9586.7	586.4	8.65	896.8	733.6	0.18	55.66	7.24
BB1	09/19/06	MFP2	4.73	8862.6	478.4	4.83	601.3	275.2	0.20	45.63	6.08
BB2A	09/18/06	MFP1	6.45	10213.6	693.0	7.64	750.1	267.7	0.20	56.16	5.56
BB2A	09/18/06	MFP2	5.82	8911.8	551.6	6.56	712.1	228.8	0.22	50.98	5.21
BB2	09/18/06	MFP1	5.93	10207.6	875.4	9.41	1051.7	265.9	0.24	41.31	6.81
BB2	09/18/06	MFP2	3.52	6772.2	342.0	3.37	378.3	263.9	0.17	40.77	3.57
BB3	09/18/06	MFP1	2.31	6213.4	235.3	2.28	266.3	157.0	0.13	36.66	2.44
BB3	09/18/06	MFP2	4.62	7026.2	596.7	4.66	537.4	221.3	0.26	44.49	3.97
BB4	09/18/06	MFP1	4.00	9667.0	313.1	3.13	309.3	201.7	0.24	38.12	4.12
BB4	09/18/06	MFP2	2.97	7124.3	242.0	1.87	226.6	202.0	0.21	33.42	3.17
BB5	09/18/06	MFP1	7.86	9753.1	471.6	6.03	590.6	278.8	0.27	49.44	6.05
BB5	09/18/06	MFP2	2.01	6293.5	229.0	1.35	168.8	172.3	0.19	40.68	2.18
BB6	09/21/06	MFP1	1.72	5383.1	154.7	1.23	147.6	94.1	0.14	39.22	1.84
BB6	09/21/06	MFP2	20.60	5095.3	285.8	3.14	401.6	381.2	0.13	41.99	3.37
BB7	09/20/06	MFP1	4.71	8171.1	376.9	4.06	423.3	228.2	0.23	46.86	4.22
BB7	09/20/06	MFP2	5.60	9161.8	530.1	6.39	678.9	686.9	0.28	50.57	5.18
BB8	09/20/06	MFP1	3.65	5769.1	290.7	3.11	359.0	200.2	0.17	52.37	3.45
BB8	09/20/06	MFP2	3.74	5923.4	392.4	2.87	369.2	184.3	0.17	38.23	3.44
BB9	09/21/06	MFP1	3.32	5577.1	354.6	3.68	363.0	106.7	0.19	37.26	3.59
BB9	09/21/06	MFP2	10.42	13512.3	1066.8	11.93	1399.8	822.2	0.31	44.72	12.49

¹ MFP1 and MFP2 are separate samples.

Table A3, continued. Metal concentrations in floodplain soils from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)					
			P	Pb	Sb	Se	Si	Sr
MC	09/21/06	MFP1	177.7	7.23	0.39	<0.24	172.20	2.19
MC	09/21/06	MFP2	240.6	8.16	0.20	<0.23	196.78	7.89
BB1A	09/19/06	MFP1	200.4	7.31	0.29	<0.24	210.62	6.70
BB1A	09/19/06	MFP2	242.7	7.04	<0.25	<0.25	194.65	10.49
BB1	09/19/06	MFP1	200.2	7.49	0.28	<0.25	188.54	8.61
BB1	09/19/06	MFP2	225.7	8.75	<0.24	<0.24	206.58	11.80
BB2A	09/18/06	MFP1	243.0	8.97	0.29	<0.24	222.82	15.66
BB2A	09/18/06	MFP2	257.8	7.62	0.31	<0.25	204.90	12.92
BB2	09/18/06	MFP1	325.1	8.04	0.23	<0.23	199.44	12.05
BB2	09/18/06	MFP2	180.1	6.70	0.26	<0.25	170.86	8.02
BB3	09/18/06	MFP1	133.1	5.17	<0.24	<0.24	172.79	4.32
BB3	09/18/06	MFP2	288.2	7.42	0.34	<0.24	208.97	7.18
BB4	09/18/06	MFP1	203.9	6.73	0.54	<0.24	200.79	5.52
BB4	09/18/06	MFP2	194.5	5.86	<0.24	<0.24	179.90	6.09
BB5	09/18/06	MFP1	202.9	11.52	0.28	<0.23	218.10	7.80
BB5	09/18/06	MFP2	149.1	5.27	<0.25	<0.25	181.12	2.75
BB6	09/21/06	MFP1	126.6	4.06	<0.23	<0.23	157.31	1.85
BB6	09/21/06	MFP2	128.6	6.70	<0.25	<0.25	159.47	7.36
BB7	09/20/06	MFP1	180.2	7.56	0.26	<0.25	200.65	7.21
BB7	09/20/06	MFP2	234.6	13.80	0.30	<0.24	196.49	9.32
BB8	09/20/06	MFP1	166.3	5.53	<0.24	<0.24	186.08	6.56
BB8	09/20/06	MFP2	218.9	5.99	<0.24	<0.24	198.35	6.23
BB9	09/21/06	MFP1	219.9	5.07	<0.25	<0.25	187.43	3.79
BB9	09/21/06	MFP2	478.1	11.26	0.30	0.28	172.84	14.39

¹ MFP1 and MFP2 are separate samples.

Table A3, continued. Metal concentrations in floodplain soils from Massac Creek (MC) and Big Bayou Creek collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)			
			Ti	Tl	V	Zn
MC	09/21/06	MFP1	58.08	0.31	13.31	8.09
MC	09/21/06	MFP2	63.01	0.36	15.57	17.65
BB1A	09/19/06	MFP1	58.09	<0.24	14.10	14.82
BB1A	09/19/06	MFP2	51.71	0.44	11.34	22.66
BB1	09/19/06	MFP1	80.73	0.53	16.45	19.32
BB1	09/19/06	MFP2	50.42	0.34	14.17	20.44
BB2A	09/18/06	MFP1	52.81	<0.24	15.67	24.13
BB2A	09/18/06	MFP2	53.74	<0.25	15.33	20.24
BB2	09/18/06	MFP1	54.96	<0.23	15.84	23.42
BB2	09/18/06	MFP2	45.98	<0.25	12.32	13.78
BB3	09/18/06	MFP1	39.78	<0.24	11.39	9.15
BB3	09/18/06	MFP2	46.33	0.25	12.51	20.78
BB4	09/18/06	MFP1	49.38	<0.24	18.72	13.76
BB4	09/18/06	MFP2	44.38	<0.24	13.16	10.51
BB5	09/18/06	MFP1	57.64	<0.23	15.43	22.77
BB5	09/18/06	MFP2	39.60	<0.25	12.24	9.15
BB6	09/21/06	MFP1	35.31	<0.23	10.67	7.98
BB6	09/21/06	MFP2	36.20	0.35	8.69	18.63
BB7	09/20/06	MFP1	53.99	<0.25	14.60	16.44
BB7	09/20/06	MFP2	56.93	0.55	16.21	18.60
BB8	09/20/06	MFP1	50.04	<0.24	11.51	14.07
BB8	09/20/06	MFP2	46.99	<0.24	11.27	15.41
BB9	09/21/06	MFP1	61.71	<0.25	9.42	13.14
BB9	09/21/06	MFP2	35.74	0.64	16.21	50.70

¹ MFP1 and MFP2 are separate samples.

Table A4. Metal concentrations in floodplain soils from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)									
			Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr
LB1	09/18/06	MFP1	<0.023	183761.2	4.82	18.72	55.65	0.48	1097.5	0.21	5.43	10.10
LB1	09/18/06	MFP2	<0.024	239348.1	6.44	20.26	53.23	0.42	1677.2	0.30	4.66	10.41
LB2A	09/19/06	MFP1	<0.024	135788.6	1.64	20.41	56.51	0.34	1175.7	0.17	4.47	16.71
LB2A	09/19/06	MFP2	0.029	106348.1	0.80	21.34	52.24	0.21	1024.9	0.21	2.85	41.69
LB2	09/19/06	MFP1	<0.023	101972.7	1.22	18.99	41.42	0.18	1166.2	0.19	2.58	17.89
LB2	09/19/06	MFP2	<0.023	111296.0	1.47	18.49	38.24	0.25	1128.4	0.13	4.28	15.50
LB3	09/19/06	MFP1	<0.024	104047.0	3.07	20.92	42.21	0.35	1356.3	0.23	5.45	71.32
LB3	09/19/06	MFP2	<0.024	91931.0	0.93	20.02	22.99	0.19	4242.1	0.13	2.81	12.62
LB4	09/21/06	MFP1	<0.024	54731.0	0.61	21.59	18.93	0.15	566.3	0.14	2.08	36.73
LB4	09/21/06	MFP2	0.066	110054.7	1.08	21.49	38.15	0.26	877.3	0.16	3.01	25.83
54 001	09/18/06	MFP1	<0.023	123814.7	1.35	21.31	54.10	0.23	1239.9	0.17	3.94	7.42
001	09/18/06	MFP2	<0.025	102249.0	3.80	20.53	88.07	0.32	1035.3	0.17	4.21	5.94
006	09/18/06	MFP1	0.063	175098.7	2.34	20.75	60.08	0.37	1121.5	0.25	5.48	18.49
006	09/18/06	MFP2	<0.025	101632.8	1.80	21.04	51.06	0.25	926.2	0.17	4.29	7.11
008	09/18/06	MFP1	0.437	121383.2	1.93	22.35	62.02	0.23	16584.8	1.06	3.67	20.72
008	09/18/06	MFP2	<0.023	119069.3	1.24	20.28	46.74	0.26	2349.8	0.18	3.30	9.90
010011	09/19/06	MFP1	<0.024	117435.6	0.86	20.58	39.04	0.19	3384.0	0.25	3.02	16.15
010011	09/19/06	MFP2	<0.024	180244.0	1.87	20.52	61.52	0.40	149.1	0.15	4.35	13.40

¹ MFP1 and MFP2 are separate samples.

Table A4, continued. Metal concentrations in floodplain soils from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)								
			Cu	Fe	K	Li	Mg	Mn	Mo	Na	Ni
LB1	09/18/06	MFP1	7.83	13021.0	530.6	7.69	947.3	273.0	0.28	50.45	6.16
LB1	09/18/06	MFP2	8.23	15640.3	882.3	10.12	1528.3	274.5	0.28	57.00	5.97
LB2A	09/19/06	MFP1	4.24	9192.9	302.7	4.26	476.3	125.4	0.10	44.91	4.48
LB2A	09/19/06	MFP2	4.65	4974.0	401.1	3.98	548.6	274.7	0.13	49.78	4.40
LB2	09/19/06	MFP1	4.50	4894.9	368.7	3.86	461.6	250.1	0.16	42.45	4.01
LB2	09/19/06	MFP2	4.01	6674.9	277.8	3.62	477.1	221.5	0.10	39.39	3.91
LB3	09/19/06	MFP1	6.76	8803.4	315.6	3.36	412.3	195.9	0.22	44.03	4.67
LB3	09/19/06	MFP2	3.86	5050.0	357.7	3.64	416.1	157.8	0.10	48.06	3.24
LB4	09/21/06	MFP1	3.54	3584.2	201.0	1.72	229.6	181.1	0.13	35.43	2.41
LB4	09/21/06	MFP2	6.14	5138.8	315.5	4.52	470.0	250.9	0.16	45.48	4.73
001	09/18/06	MFP1	5.60	7152.8	623.6	5.94	850.4	190.0	0.25	54.81	7.37
001	09/18/06	MFP2	4.14	8828.9	405.0	3.76	513.9	844.1	0.21	39.83	3.63
006	09/18/06	MFP1	11.41	11769.3	487.7	7.30	686.4	291.9	0.38	46.56	7.19
006	09/18/06	MFP2	3.53	7735.6	356.2	3.51	407.2	266.2	0.19	42.54	3.71
008	09/18/06	MFP1	50.93	9201.9	539.4	8.91	2073.1	110.6	0.83	83.67	29.74
008	09/18/06	MFP2	5.85	7197.7	483.0	4.90	508.1	205.7	0.19	42.19	4.48
010011	09/19/06	MFP1	10.29	6153.9	380.9	5.61	823.0	125.5	0.11	43.53	5.95
010011	09/19/06	MFP2	5.71	8190.8	474.1	7.44	659.8	1013.1	0.18	46.70	6.30

¹ MFP1 and MFP2 are separate samples.

Table A4, continued. Metal concentrations in floodplain soils from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)						
			P	Pb	Sb	Se	Si	Sr	
LB1	09/18/06	MFP1	305.0	10.35	0.43	<0.23	101.94	9.72	
LB1	09/18/06	MFP2	393.8	15.59	0.53	<0.24	209.44	14.40	
LB2A	09/19/06	MFP1	139.4	7.32	0.37	<0.24	211.57	16.49	
LB2A	09/19/06	MFP2	207.2	6.01	0.34	<0.25	233.64	11.68	
LB2	09/19/06	MFP1	241.4	5.21	<0.23	<0.23	217.86	10.38	
LB2	09/19/06	MFP2	143.5	5.94	0.27	<0.23	227.75	11.33	
LB3	09/19/06	MFP1	278.5	8.46	0.83	<0.24	236.84	12.50	
LB3	09/19/06	MFP2	209.5	5.33	0.12	<0.24	216.63	15.37	
LB4	09/21/06	MFP1	175.6	4.74	0.34	<0.24	202.79	4.64	
LB4	09/21/06	MFP2	189.4	6.77	<0.25	<0.25	231.72	8.80	
59	001	09/18/06	MFP1	226.6	5.53	<0.23	<0.23	213.62	14.79
	001	09/18/06	MFP2	253.2	7.38	0.30	<0.25	145.53	10.74
	006	09/18/06	MFP1	177.9	14.72	0.52	<0.23	160.18	8.74
	006	09/18/06	MFP2	185.4	7.95	0.27	<0.25	217.91	7.03
	008	09/18/06	MFP1	454.8	23.79	0.26	0.78	180.84	31.63
	008	09/18/06	MFP2	288.3	6.43	0.29	<0.23	179.32	11.43
	010011	09/19/06	MFP1	267.6	5.19	0.28	<0.24	193.38	14.62
	010011	09/19/06	MFP2	233.5	8.50	0.40	0.45	180.81	3.25

¹ MFP1 and MFP2 are separate samples.

Table A4, continued. Metal concentrations in floodplain soils from Little Bayou Creek and effluents collected September 18-21, 2006.

Station	Date	Sample ¹	Floodplain Soil Metal Conc. (µg/g)			
			Ti	Tl	V	Zn
LB1	09/18/06	MFP1	47.19	<0.23	27.59	22.67
LB1	09/18/06	MFP2	79.77	<0.24	23.02	30.01
LB2A	09/19/06	MFP1	22.84	<0.24	16.55	25.52
LB2A	09/19/06	MFP2	29.46	0.25	9.33	33.97
LB2	09/19/06	MFP1	32.82	0.30	8.79	30.54
LB2	09/19/06	MFP2	24.29	<0.23	12.24	22.64
LB3	09/19/06	MFP1	32.13	<0.24	16.52	41.87
LB3	09/19/06	MFP2	26.94	<0.24	9.29	26.51
LB4	09/21/06	MFP1	28.73	<0.24	7.64	27.95
LB4	09/21/06	MFP2	36.56	<0.25	10.18	31.40
57 001	09/18/06	MFP1	47.09	<0.23	11.98	21.95
001	09/18/06	MFP2	23.40	0.72	14.46	15.90
006	09/18/06	MFP1	72.61	0.41	17.15	30.98
006	09/18/06	MFP2	51.28	0.26	13.59	13.40
008	09/18/06	MFP1	52.40	<0.24	9.66	195.66
008	09/18/06	MFP2	49.76	<0.23	13.80	26.25
010011	09/19/06	MFP1	38.54	<0.24	9.34	68.48
010011	09/19/06	MFP2	36.61	0.85	14.81	21.48

¹ MFP1 and MFP2 are separate samples.