

**Analysis of Polychlorinated Biphenyl (PCB) Residues
in Fish Collected September 8-10, 2003
from the Bayou Creek System**

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DRAFT REPORT

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INTRODUCTION

Fish were collected on September 8-10, 2003 from our series of sampling stations on Big and Little Bayou Creeks and the reference station on the west fork of Massac Creek (MC). Fillet samples were analyzed for Aroclors 1248, 1254, and 1260. A total of 107 fish were analyzed from Big and Little Bayou Creeks and Massac Creek. This included 4 fish from Massac Creek, 78 fish from Big Bayou Creek and 25 fish from Little Bayou Creek. The fish from Big Bayou Creek consisted of 23 green sunfish (*Lepomis cyanellus*) (GS), 20 longear sunfish (*Lepomis megalotis*) (LS), 14 bluegill sunfish (*Lepomis macrochirus*) (BG), 4 largemouth bass (*Micropterus salmoides*) (LMB), 12 yellow bullhead catfish (*Ictalurus natalis*) (YBH), 4 spotted bass (*Micropterus punctulatus*) (SpB), and 1 rock bass (*Ambloplites rupestris*) (RB). Fish collected from Little Bayou Creek consisted of 13 green sunfish, 7 longear sunfish, 2 bluegill sunfish, 1 largemouth bass, and 2 yellow bullhead catfish. From Massac Creek, fish consisted of 3 green sunfish and 1 longear sunfish.

METHODS

Fish collection

Fish were collected by UK personnel by use of back-pack shocker and seining. Fish that did not meet our requirements were returned to the stream. Collected fish were wrapped in aluminum foil, tagged, bagged in plastic containers by collecting station, and placed on ice (4 °C) for transport to the laboratory. Fish species were identified and stored in the freezer (-15 °C) until extraction.

Tissue extraction

Fish were measured for length and whole body weight, and fillets were taken with solvent-cleaned surgical instruments. The fillets were then weighed and macerated as described below. Otoliths (sagittae) were removed from each specimen for age determinations (Boxrucker, 1986).

PCBs in fish tissues were extracted and analyzed as described by Birge and Price (2001), using standard U.S. EPA methods (Watts, 1980; U.S. EPA, 1997; Erickson, 1997).

Analysis by Gas Chromatography

Samples were analyzed for Aroclors 1248, 1254, and 1260 according to SW-846 Method 8082 (U.S. EPA, 1997) and previously described by Birge and Price (2001).

Quality Assurance

Permanent bench records were kept of all assays and annotated as required under Good Laboratory Practices (*Federal Register*, 40 CFR, Part 160, August 17, 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 retrievable upon request. Chain of Custody was maintained for all samples collected.

RESULTS

A total of 107 fish were analyzed during this survey, which included 3 GS and 1 LS from Massac Creek; 23 GS, 20 LS, 14 BG, 4 LMB, 12 YBH, 4 SpB, and 1 RB from Big Bayou Creek; and 13 GS, 7 LS, 2 BG, 1 LMB, and 2 YBH from Little Bayou Creek (Tables 1 and 2). Of the fish that could be aged, 65% of the fish in Big Bayou Creek were <1 to 1+ years old and 17% of fish were 2 to 2+ years old. Two fish in Big Bayou Creek were 3 to 3+ years old. In Little Bayou Creek 62% of fish were <1 to 1+ year old; 23% were 2 to 2+ years old; and 1 fish was 3+ years old. The means \pm standard deviations for length, whole body weight, lipid, and Aroclor concentrations are given in Table 3.

In Big Bayou Creek, Aroclor 1248 was quantifiable in 34 of 78 fish collected (44%), Aroclors 1254 and 1260 were found in 24 out of 78 fish (31%) (Table 1). A green sunfish (GS2) at station BB2 of Big Bayou Creek had the highest concentrations of Aroclors 1248 and 1254 (0.46 and 0.32 $\mu\text{g/g}$, respectively). Highest Aroclor 1260 (0.16 $\mu\text{g/g}$) was detected for a green sunfish from station BB6. Mean concentrations of Aroclor for selected species from Big Bayou Creek are represented graphically in Table 1 and Figures 1 through 6. For longear sunfish, the highest Aroclor values were observed at BB7 with concentrations of 0.39, 0.31, and 0.11 $\mu\text{g/g}$ for 1248, 1254, and 1260, respectively. The overall range of fillet values was 0.02 to 0.46 $\mu\text{g/g}$. The highest total PCBs ($\mu\text{g/g}$) found in fillet were 0.81 at BB7-LS1, 0.79 at BB2-GS2, and 0.53 at BB4-LS3. Of the fish analyzed from Big Bayou Creek, 42 contained fillet total PCB values at or above the lowest action level in Kentucky (0.05 $\mu\text{g/g}$).

For Little Bayou Creek, Aroclor 1248 was quantifiable in 20 of 25 fish (80%); Aroclor 1254 was found in 24 of 25 fish (96%); and Aroclor 1260 was found in 15 of 25 fish (60%) (Table 2). Highest Aroclor concentrations were found for a yellow bullhead (YBH1) from LB2, with values of 2.75, 2.14, and 0.53 $\mu\text{g/g}$ for 1248, 1254, and 1260, respectively. Maximum Aroclor concentrations for green sunfish were 0.27, 0.23, and 0.09 $\mu\text{g/g}$, for 1248 (LB3), 1254 (LB3), and 1260 (LB2), respectively. Where as longear sunfish had maximum Aroclor concentrations of 0.28, 0.23, and 0.13 $\mu\text{g/g}$, for 1248 (LB2), 1254 (LB2), and 1260 (LB4), respectively. Twenty two of 25 fish analyzed from stations LB2, LB3, and LB4 contained total PCBs in fillet that were at or above 0.2 $\mu\text{g/g}$, and 11 of the fish tested contained total PCBs above 0.5 $\mu\text{g/g}$. Mean Aroclor concentrations for green and longear sunfish are presented in Figures 7 through 10. Mean PCB values are given in Table 3.

DISCUSSION

The PCB values from Big Bayou Creek presented for September 2003 were generally the same as reported for March 2003 (Birge and Price, 2003a), with the following exceptions. PCB results were greater in scope for station BB4 in the September collection and somewhat greater at stations BB6 and BB7 in March.

There were only minor differences in results determined in 2003 for stations BB1 through BB9 as compared to those presented for June 2002 (Birge and Price, 2003b). In September 2003, the frequency for total PCBs detected among fish samples was 60% for Big Bayou Creek. This compared to 62% in March 2003 and 59% in June 2002. In addition, in September 2003, 37% and 21% of fish contained total PCBs at or above

0.1 µg/g and 0.2 µg/g, respectively. In March 2003, comparative values were 50% and 33%. In June 2002, 38% and 15% of fish fillets contained total PCBs above 0.1 and 0.2 µg/g, respectively. All of the above studies did confirm greater contamination at stations BB4 through BB7.

With respect to Little Bayou Creek, overall frequencies of PCB detection in fish fillets were 96%, 79%, and 68% for collections on September 2003, March 2003, and June 2002. Frequencies of detection above 0.1, 0.2 and 0.4 µg/g were 96%, 84%, and 56% for September 2003; 79%, 79%, and 57% for March 2003; and 68%, 64%, and 54% in June 2002.

These results indicate that PCB fish contamination has remained constant or increased slightly in Big Bayou Creek from June 2002 to September 2003, whereas PCB fish residues have clearly increased over this time interval in Little Bayou Creek. Some fluctuations in results for different collecting periods are not unusual and further study will be required to determine if and when fish PCB residues drop below levels important in the Great Lakes protocol for human risk assessments.

Table 1. PCB concentrations in fish from Massac Creek and Big Bayou Creek collected September 8-10, 2003.

Station	Date	Type	Length (mm)	Age (Years)	Whole Body Wt. (g)	Fillet Wt. (g)	mg fat /g tissue	Aroclor Conc. (µg/g)			
								1248	1254	1260	Total
MC	09/09/03	GS1	133	1+	45.499	5.599	3.07	<0.036	<0.036	<0.036	<0.036
MC	09/09/03	GS2	140	1+	48.372	6.387	2.90	<0.031	<0.031	<0.031	<0.031
MC	09/09/03	GS3	126	1+	36.322	4.423	2.76	<0.045	<0.045	<0.045	<0.045
MC	09/09/03	LS1	90	1+	13.552	2.105	5.13	<0.095	<0.095	<0.095	<0.095
BB1A	09/08/03	GS1	105	1+	22.272	3.145	4.04	<0.064	<0.064	<0.064	<0.064
BB1A	09/08/03	LS1	101	1+	19.043	2.413	9.20	<0.083	<0.083	<0.083	<0.083
BB1A	09/08/03	YBH1	125	---	26.999	2.668	6.67	<0.075	<0.075	<0.075	<0.075
BB1	09/08/03	GS1	126	1+	37.461	5.633	3.10	<0.036	<0.036	<0.036	<0.036
BB1	09/08/03	GS2	115	2	32.877	4.408	4.21	0.050	<0.045	<0.045	0.050
BB1	09/08/03	GS3	101	1+	25.466	3.919	3.94	<0.051	0.058	0.055	0.112
BB1	09/08/03	LS1	101	2	19.099	2.810	3.77	<0.071	<0.071	<0.071	<0.071
BB1	09/08/03	YBH1	112	---	24.176	2.166	5.08	0.113	<0.092	<0.092	0.113
BB1	09/08/03	YBH2	117	---	18.652	1.716	2.65	0.234	<0.117	<0.117	0.234
BB1	09/08/03	LMB1	206	2+	137.330	19.285	5.50	0.025	0.023	0.020	0.068
BB2	09/09/03	GS1	104	1	19.696	2.377	3.13	<0.084	<0.084	<0.084	<0.084
BB2	09/09/03	GS2	89	1+	11.286	1.504	4.19	0.461	0.324	<0.133	0.785
BB2	09/09/03	LS1	83	<1	11.228	1.446	5.50	<0.138	<0.138	<0.138	<0.138
BB2	09/09/03	BG1	81	<1	9.317	1.397	5.76	<0.143	<0.143	<0.143	<0.143
BB3	09/08/03	GS1	105	1+	16.691	2.124	3.18	<0.094	<0.094	<0.094	<0.094
BB3	09/08/03	GS2	93	1+	15.494	2.617	3.94	<0.076	<0.076	<0.076	<0.076
BB3	09/08/03	LS1	107	1+	26.147	3.348	4.21	<0.060	<0.060	<0.060	<0.060
BB3	09/08/03	LS2	107	1+	25.713	3.668	3.26	<0.055	<0.055	<0.055	<0.055
BB3	09/08/03	BG1	122	1+	34.793	4.991	3.69	0.074	0.055	<0.040	0.129
BB3	09/08/03	BG2	90	1+	12.098	1.937	4.44	<0.103	<0.103	<0.103	<0.103
BB3	09/08/03	YBH1	180	---	75.520	6.475	2.97	0.060	<0.031	0.043	0.103

Table 1, continued. PCB concentrations in fish from Massac Creek and Big Bayou Creek collected September 8-10, 2003.

Station	Date	Type	Length (mm)	Age (Years)	Whole Body Wt. (g)	Fillet Wt. (g)	mg fat /g tissue	Aroclor Conc. ($\mu\text{g/g}$)			
								1248	1254	1260	Total
BB4	09/08/03	GS1	114	2+	27.642	3.841	2.59	0.055	<0.052	<0.052	0.055
BB4	09/08/03	GS2	102	2+	19.558	2.411	2.18	<0.083	<0.083	<0.083	<0.083
BB4	09/08/03	GS3	90	1+	13.998	2.093	4.37	<0.096	<0.096	<0.096	<0.096
BB4	09/08/03	LS1	116	2	33.008	4.379	4.04	0.072	<0.046	<0.046	0.072
BB4	09/08/03	LS2	118	1	32.474	4.312	2.45	0.090	0.070	0.080	0.240
BB4	09/08/03	LS3	100	1	23.647	3.131	4.18	0.205	0.177	0.146	0.529
BB4	09/08/03	BG1	123	1+	37.064	5.540	2.99	0.100	0.069	0.057	0.227
BB4	09/08/03	BG2	112	<1	25.349	3.976	3.26	0.087	0.072	0.078	0.237
BB4	09/08/03	BG3	105	1+	20.331	3.133	3.94	<0.064	0.124	0.101	0.225
BB4	09/08/03	YBH1	143	---	40.387	3.624	4.94	0.078	0.064	0.059	0.201
BB4	09/08/03	YBH2	77	---	6.426	0.463	3.35	<0.432	<0.432	<0.432	<0.432
BB5	09/09/03	GS1	87	1+	12.232	1.668	3.45	<0.120	<0.120	<0.120	<0.120
BB5	09/09/03	LS1	120	1+	37.875	5.088	3.66	<0.039	<0.039	<0.039	<0.039
BB5	09/09/03	LS2	115	1	28.900	4.133	2.03	<0.048	0.170	0.124	0.294
BB5	09/09/03	LS3	120	1	32.205	3.949	1.96	<0.051	0.124	0.087	0.211
BB5	09/09/03	BG1	127	1+	42.208	6.021	3.42	0.163	0.112	0.066	0.340
BB5	09/09/03	BG2	110	1+	23.762	3.387	4.00	<0.059	0.128	0.055	0.182
BB5	09/09/03	BG3	108	<1	22.375	3.587	2.96	0.100	0.071	<0.056	0.171
BB5	09/09/03	LMB1	206	3	142.820	9.503	1.39	<0.021	0.027	0.022	0.049
BB5	09/09/03	LMB2	120	1	21.230	3.391	4.57	<0.059	<0.059	<0.059	<0.059

Table 1, continued. PCB concentrations in fish from Massac Creek and Big Bayou Creek collected September 8-10, 2003.

Station	Date	Type	Length (mm)	Age (Years)	Whole Body Wt. (g)	Fillet Wt. (g)	mg fat /g tissue	Aroclor Conc. ($\mu\text{g/g}$)			
								1248	1254	1260	Total
BB6	09/09/03	GS1	110	1+	25.709	3.477	2.99	<0.058	<0.058	<0.058	<0.058
BB6	09/09/03	GS2	90	<1	12.085	1.959	5.16	<0.102	<0.102	0.162	0.162
BB6	09/09/03	LS1	111	1+	32.350	4.188	4.24	0.047	<0.048	<0.048	0.047
BB6	09/09/03	LS2	120	2+	31.601	4.160	2.94	0.047	<0.048	<0.048	0.047
BB6	09/09/03	BG1	124	2+	35.375	4.913	3.49	0.079	0.066	0.055	0.200
BB6	09/09/03	BG2	129	2	41.747	5.906	4.68	0.072	0.043	<0.034	0.115
BB6	09/09/03	BG3	115	1+	27.611	4.133	3.91	0.057	<0.048	<0.048	0.057
BB6	09/09/03	SpB1	117	<1	16.438	2.278	2.57	<0.088	<0.088	0.101	0.101
BB6	09/09/03	YBH1	190	---	100.990	9.655	4.99	0.038	0.044	0.042	0.124
BB6	09/09/03	YBH2	166	---	68.220	5.818	5.05	0.076	0.072	0.064	0.211
BB6	09/09/03	YBH3	163	---	52.972	5.155	3.49	0.034	<0.039	<0.039	0.034
BB7	09/09/03	GS1	100	1+	19.603	2.850	3.96	0.092	<0.070	<0.070	0.092
BB7	09/09/03	GS2	90	1+	14.384	1.919	3.41	0.065	<0.104	<0.104	0.065
BB7	09/09/03	GS3	88	1+	13.967	1.796	5.99	0.098	<0.111	<0.111	0.098
BB7	09/09/03	GS4	94	1+	16.288	2.264	3.09	<0.088	<0.088	<0.088	<0.088
BB7	09/09/03	LS1	116	1+	23.410	2.990	3.23	0.392	0.305	0.108	0.805
BB7	09/09/03	LS2	98	1+	21.267	2.935	5.04	<0.068	<0.068	<0.068	<0.068
BB7	09/09/03	LS3	90	1	16.761	2.361	3.66	<0.085	<0.085	<0.085	<0.085
BB7	09/09/03	LS4	84	1+	12.096	1.689	4.53	<0.118	<0.118	<0.118	<0.118
BB7	09/09/03	YBH1	168	---	76.830	6.758	2.26	<0.030	<0.030	<0.030	<0.030
BB7	09/09/03	YBH2	134	---	39.382	3.559	2.98	<0.056	<0.056	<0.056	<0.056
BB7	09/09/03	YBH3	105	---	18.359	1.483	2.70	0.122	<0.135	<0.135	0.122

Table 1, continued. PCB concentrations in fish from Massac Creek and Big Bayou Creek collected September 8-10, 2003.

Station	Date	Type	Length (mm)	Age (Years)	Whole Body Wt. (g)	Fillet Wt. (g)	mg fat /g tissue	Aroclor Conc. ($\mu\text{g/g}$)			
								1248	1254	1260	Total
BB8	09/09/03	GS1	102	2+	18.034	2.114	3.48	<0.095	<0.095	<0.095	<0.095
BB8	09/09/03	GS2	79	<1	9.263	1.045	6.70	<0.191	<0.191	<0.191	<0.191
BB8	09/09/03	LS1	123	1+	44.074	4.826	2.77	0.062	<0.041	<0.041	0.062
BB8	09/09/03	LS2	121	1+	40.175	4.288	3.23	<0.047	<0.047	0.048	0.048
BB8	09/09/03	LS3	111	1	29.833	3.965	3.69	0.072	<0.050	<0.050	0.072
BB8	09/09/03	BG1	115	3+	28.471	3.950	4.28	0.047	<0.051	<0.051	0.047
BB8	09/09/03	BG2	119	2+	30.883	4.379	3.64	0.044	<0.046	<0.046	0.044
BB8	09/09/03	LMB1	110	1+	18.212	2.504	3.35	<0.080	0.105	0.090	0.195
BB8	09/09/03	SpB1	143	<1	36.779	4.482	2.81	<0.045	0.046	0.044	0.090
BB8	09/09/03	SpB2	123	<1	22.826	3.268	3.24	<0.061	0.122	0.099	0.221
BB9	09/10/03	GS1	113	2+	28.216	3.508	2.28	<0.057	<0.057	<0.057	<0.057
BB9	09/10/03	GS2	107	2+	23.202	2.783	3.74	<0.072	<0.072	<0.072	<0.072
BB9	09/10/03	GS3	83	1+	11.299	1.452	5.51	<0.138	<0.138	<0.138	<0.138
BB9	09/10/03	RB1	102	1+	22.748	3.498	3.72	<0.057	<0.057	<0.057	<0.057
BB9	09/10/03	SpB1	85	<1	7.564	0.919	4.13	<0.218	<0.218	<0.218	<0.218

Table 2. PCB concentrations in fish from Little Bayou Creek collected September 8-10, 2003.

Station	Date	Type	Length (mm)	Age (Years)	Whole Body Wt. (g)	Fillet Wt. (g)	mg fat /g tissue	Aroclor Conc. ($\mu\text{g/g}$)			
								1248	1254	1260	Total
LB2	09/09/03	GS1	123	1+	31.582	4.403	3.55	0.169	0.164	0.073	0.405
LB2	09/09/03	GS2	120	2+	28.595	3.523	2.81	0.114	0.070	<0.057	0.184
LB2	09/09/03	GS3	122	2+	32.096	4.257	3.34	0.238	0.238	0.146	0.622
LB2	09/09/03	GS4	107	1+	19.726	3.129	2.86	0.073	0.067	0.096	0.236
LB2	09/09/03	LS1	117	1+	31.189	3.864	2.59	0.175	0.155	0.073	0.403
LB2	09/09/03	LS2	96	1	18.052	2.511	2.75	<0.080	0.211	<0.080	0.211
LB2	09/09/03	LS3	114	1+	33.085	5.271	3.68	0.388	0.315	0.175	0.877
LB2	09/09/03	BG1	110	1+	23.319	2.660	3.87	0.348	0.253	0.349	0.951
LB2	09/09/03	LMB1	173	1	68.590	9.188	5.06	0.299	0.196	0.137	0.632
LB2	09/09/03	YBH1	78	---	6.590	0.545	3.58	2.750	2.139	0.534	5.423
LB3	09/09/03	GS1	120	2	32.743	4.754	3.26	0.079	0.095	0.041	0.215
LB3	09/09/03	GS2	96	1	15.840	2.308	4.81	0.178	0.185	0.077	0.440
LB3	09/09/03	GS3	91	1+	12.918	1.794	5.04	0.185	0.139	<0.111	0.324
LB3	09/09/03	GS4	83	2+	10.230	1.472	6.22	0.255	0.220	<0.136	0.476
LB3	09/09/03	GS5	81	1+	9.316	1.339	5.23	0.655	0.512	<0.149	1.167
LB3	09/09/03	LS1	106	1+	22.820	3.165	3.44	0.283	0.234	0.137	0.654
LB3	09/09/03	LS2	110	1+	26.066	4.054	3.76	0.265	0.190	0.081	0.535
LB4	09/10/03	GS1	128	3+	46.080	5.670	2.86	0.125	0.095	<0.035	0.219
LB4	09/10/03	GS2	136	2+	52.715	6.925	2.82	0.057	0.049	<0.029	0.106
LB4	09/10/03	GS3	100	2+	19.599	3.061	3.94	0.196	0.151	<0.065	0.347
LB4	09/10/03	GS4	96	1+	14.016	1.345	3.94	<0.149	<0.149	<0.149	<0.149
LB4	09/10/03	LS1	113	1+	30.111	3.749	4.13	<0.053	0.121	0.149	0.270
LB4	09/10/03	LS2	108	1	25.782	3.625	3.43	<0.055	0.064	0.117	0.181
LB4	09/10/03	BG1	113	1+	20.850	2.393	3.59	0.677	0.662	<0.084	1.339
LB4	09/10/03	YBH1	144	---	33.584	3.507	5.26	<0.057	0.264	0.318	0.582

Table 3. Means \pm standard deviations for measured parameters of fish from the Bayou Creek system, collected September 8-10, 2003.

System	Fish Type	Length (mm)	Whole Body Wt. (g)	Lipid (mg/g)	Mean Aroclor Conc. ($\mu\text{g/g}$)			
					1248	1254	1260	Total
MC	GS	133 \pm 7	43.40 \pm 6.29	2.91 \pm 0.16	N.D.	N.D.	N.D.	N.D.
MC	LS	90	13.55	5.13	N.D.	N.D.	N.D.	N.D.
BB1A	GS	105	22.27	4.04	N.D.	N.D.	N.D.	N.D.
BB1A	LS	101	19.04	9.20	N.D.	N.D.	N.D.	N.D.
BB1A	YBH	125	27.00	6.67	N.D.	N.D.	N.D.	N.D.
BB1	GS	114	31.93	3.75	0.05	0.06	0.06	0.08
BB1	LS	101	19.10	3.77	N.D.	N.D.	N.D.	N.D.
BB1	YBH	115 \pm 4	21.41 \pm 3.91	3.87 \pm 1.72	0.17 \pm 0.09	N.D.	N.D.	0.17 \pm 0.09
BB1	LMB	206	137.33	5.50	0.03	0.02	0.02	0.07
BB2	GS	97 \pm 11	15.49 \pm 5.95	3.66 \pm 0.75	0.46	0.32	N.D.	0.79
BB2	LS	83	11.23	5.50	N.D.	N.D.	N.D.	N.D.
BB2	BG	81	9.32	5.76	N.D.	N.D.	N.D.	N.D.
BB3	GS	99	16.09	3.56	0.05	N.D.	N.D.	0.05
BB3	LS	107 \pm 0	25.93 \pm 0.31	3.73 \pm 0.67	N.D.	N.D.	N.D.	N.D.
BB3	BG	106 \pm 23	23.45 \pm 16.05	4.06 \pm 0.53	0.07	0.06	0.03	0.15
BB3	YBH	180	75.52	2.97	0.06	N.D.	0.04	0.10
BB4	GS	102 \pm 12	20.40 \pm 6.86	3.05 \pm 1.17	0.06	0.03	N.D.	0.08
BB4	LS	111 \pm 10	29.71 \pm 5.26	3.56 \pm 0.96	0.12 \pm 0.07	0.09 \pm 0.08	0.09 \pm 0.05	0.30 \pm 0.20
BB4	BG	113 \pm 9	27.58 \pm 8.59	3.40 \pm 0.49	0.09 \pm 0.01	0.09 \pm 0.03	0.08 \pm 0.02	0.23 \pm 0.01
BB4	YBH	110 \pm 47	23.41 \pm 24.01	4.14 \pm 1.13	0.08	0.06	0.06	0.20

Table 3, continued. Means \pm standard deviations for measured parameters of fish from the Bayou Creek system, collected September 8-10, 2003.

System	Fish Type	Length (mm)	Whole Body Wt. (g)	Lipid (mg/g)	Mean Aroclor Conc. ($\mu\text{g/g}$)			
					1248	1254	1260	Total
BB5	GS	87	12.23	3.45	N.D.	N.D.	N.D.	N.D.
BB5	LS	118 \pm 3	32.99 \pm 4.54	2.55 \pm 0.96	N.D.	0.15 \pm 0.03	0.11 \pm 0.03	0.25 \pm 0.06
BB5	BG	115 \pm 10	29.45 \pm 11.07	3.46 \pm 0.52	0.13 \pm 0.05	0.10 \pm 0.03	0.05 \pm 0.02	0.24 \pm 0.09
BB5	LMB	163 \pm 61	82.03 \pm 85.98	2.98 \pm 2.25	N.D.	0.04 \pm 0.02	0.03 \pm 0.01	0.07 \pm 0.03
BB6	GS	100 \pm 14	18.90 \pm 9.63	4.07 \pm 1.53	N.D.	N.D.	0.16	0.16
BB6	LS	116 \pm 6	31.98 \pm 0.53	3.59 \pm 0.91	0.05 \pm 0.001	N.D.	N.D.	0.05 \pm 0.001
BB6	BG	123 \pm 7	34.91 \pm 7.08	4.03 \pm 0.60	0.07 \pm 0.01	0.05 \pm 0.02	0.04 \pm 0.01	0.16 \pm 0.04
BB6	SpB	117	16.44	2.57	N.D.	0.07	0.10	0.17
BB6	YBH	173 \pm 15	74.06 \pm 24.54	4.51 \pm 0.88	0.05 \pm 0.02	0.05 \pm 0.03	0.04 \pm 0.02	0.14 \pm 0.07
BB7	GS	93 \pm 5	16.06 \pm 2.57	4.11 \pm 1.30	0.09 \pm 0.02	N.D.	N.D.	0.09 \pm 0.02
BB7	LS	97 \pm 14	18.38 \pm 5.02	4.12 \pm 0.82	0.39	0.31	0.11	0.81
BB7	YBH	136 \pm 32	44.86 \pm 29.62	2.65 \pm 0.36	0.12	N.D.	N.D.	0.12
BB8	GS	91 \pm 16	13.65 \pm 6.20	5.09 \pm 2.28	N.D.	N.D.	N.D.	N.D.
BB8	LS	118 \pm 6	38.03 \pm 7.36	3.23 \pm 0.46	0.07 \pm 0.01	N.D.	0.05	0.06 \pm 0.01
BB8	BG	117 \pm 3	29.68 \pm 1.71	3.96 \pm 0.45	0.05 \pm 0.003	N.D.	N.D.	0.05 \pm 0.003
BB8	LMB	110	18.21	3.35	N.D.	0.11	0.09	0.20
BB8	SpB	133 \pm 14	29.80 \pm 9.87	3.03 \pm 0.31	N.D.	0.08 \pm 0.05	0.07 \pm 0.04	0.16 \pm 0.09
BB9	GS	101 \pm 16	20.91 \pm 8.69	3.84 \pm 1.62	N.D.	N.D.	N.D.	N.D.
BB9	RB	102	22.75	3.72	N.D.	N.D.	N.D.	N.D.
BB9	SpB	85	7.56	4.13	N.D.	N.D.	N.D.	N.D.

Table 3, continued. Means \pm standard deviations for measured parameters of fish from the Bayou Creek system, collected September 8-10, 2003.

System	Fish Type	Length (mm)	Whole Body Wt. (g)	Lipid (mg/g)	Mean Aroclor Conc. ($\mu\text{g/g}$)			
					1248	1254	1260	Total
LB2	GS	118 \pm 7	28.00 \pm 5.73	3.14 \pm 0.36	0.15 \pm 0.07	0.14 \pm 0.08	0.09 \pm 0.04	0.37 \pm 0.18
LB2	LS	109 \pm 11	27.44 \pm 8.19	3.01 \pm 0.59	0.28 \pm 0.15	0.23 \pm 0.08	0.12 \pm 0.07	0.50 \pm 0.34
LB2	BG	110	23.32	3.87	0.35	0.25	0.35	0.95
LB2	LMB	173	68.59	5.06	0.30	0.20	0.14	0.63
LB2	YBH	78	6.59	3.58	2.75	2.14	0.53	5.42
LB3	GS	94 \pm 16	16.21 \pm 9.59	4.91 \pm 1.07	0.27 \pm 0.22	0.23 \pm 0.16	0.07 \pm 0.02	0.56 \pm 0.36
LB3	LS	108 \pm 3	24.44 \pm 2.30	3.60 \pm 0.22	0.27 \pm 0.01	0.21 \pm 0.03	0.11 \pm 0.04	0.60 \pm 0.08
LB4	GS	115 \pm 20	33.10 \pm 19.15	3.39 \pm 0.64	0.13 \pm 0.07	0.10 \pm 0.05	0.03 \pm 0.01	0.25 \pm 0.13
LB4	LS	111 \pm 4	27.95 \pm 3.06	3.78 \pm 0.49	N.D.	0.09 \pm 0.04	0.13 \pm 0.02	0.23 \pm 0.06
LB4	BG	113	20.85	3.59	0.68	0.66	N.D.	1.34
LB4	YBH	141 \pm 5	32.69 \pm 1.27	4.55 \pm 1.01	N.D.	0.26	0.32	0.58

Figure 1. Mean PCB concentrations in green sunfish from Big Bayou Creek, collected September 8-10, 2003.

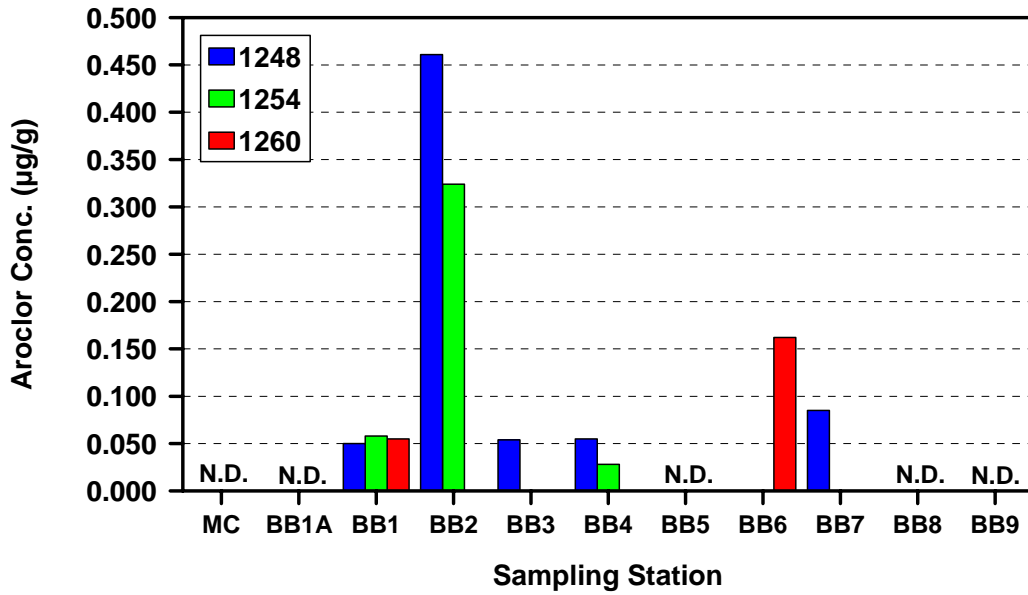


Figure 2. Mean total PCB concentrations in green sunfish from Big Bayou Creek, collected September 8-10, 2003.

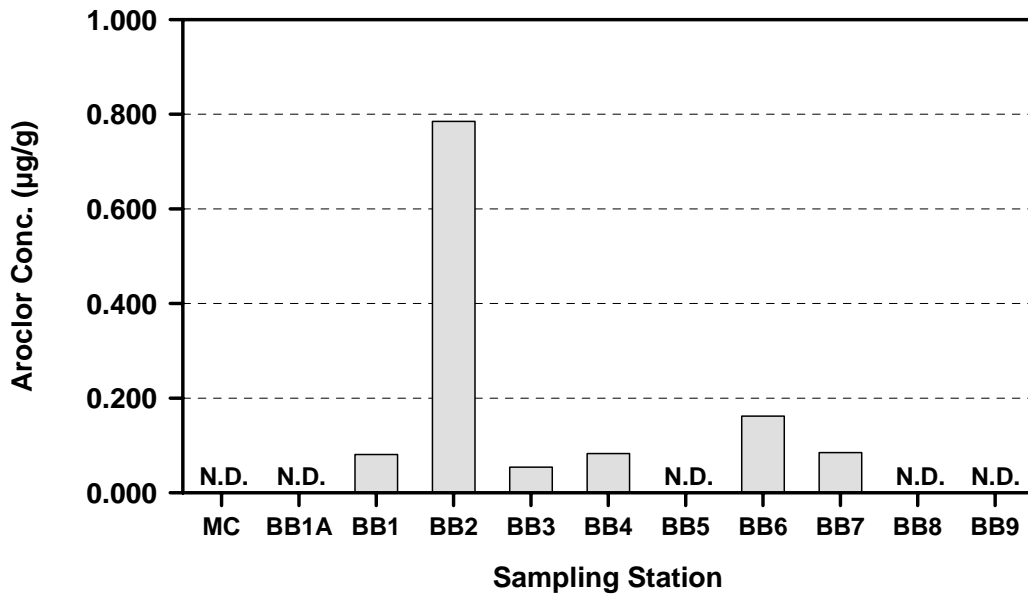


Figure 3. Mean PCB concentrations in longear sunfish from Big Bayou Creek, collected September 8-10, 2003.

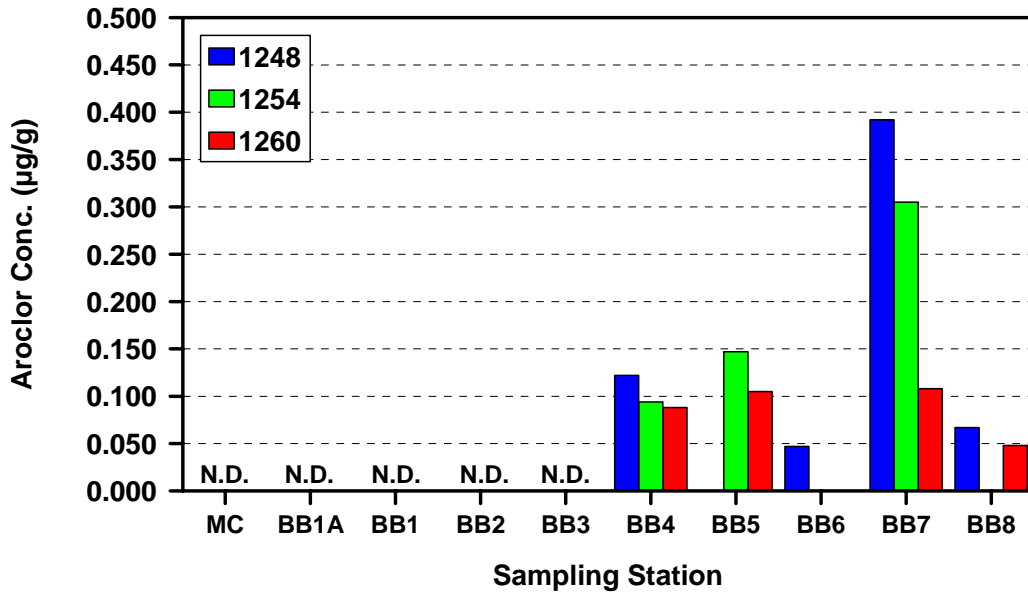


Figure 4. Mean total PCB concentrations in longear sunfish from Big Bayou Creek, collected September 8-10, 2003.

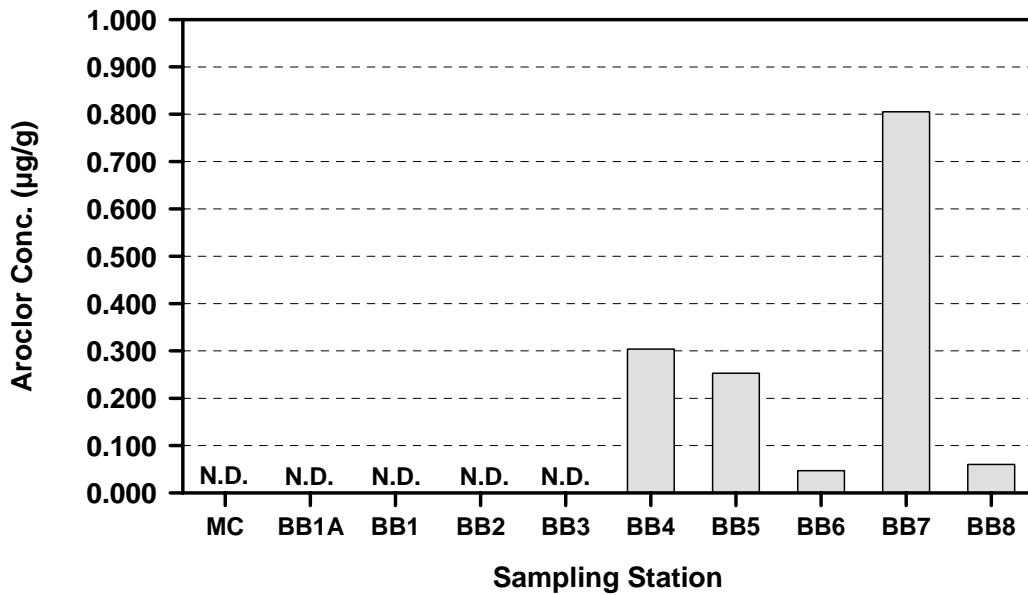


Figure 5. Mean PCB concentrations in yellow bullhead from Big Bayou Creek, collected September 8-10, 2003.

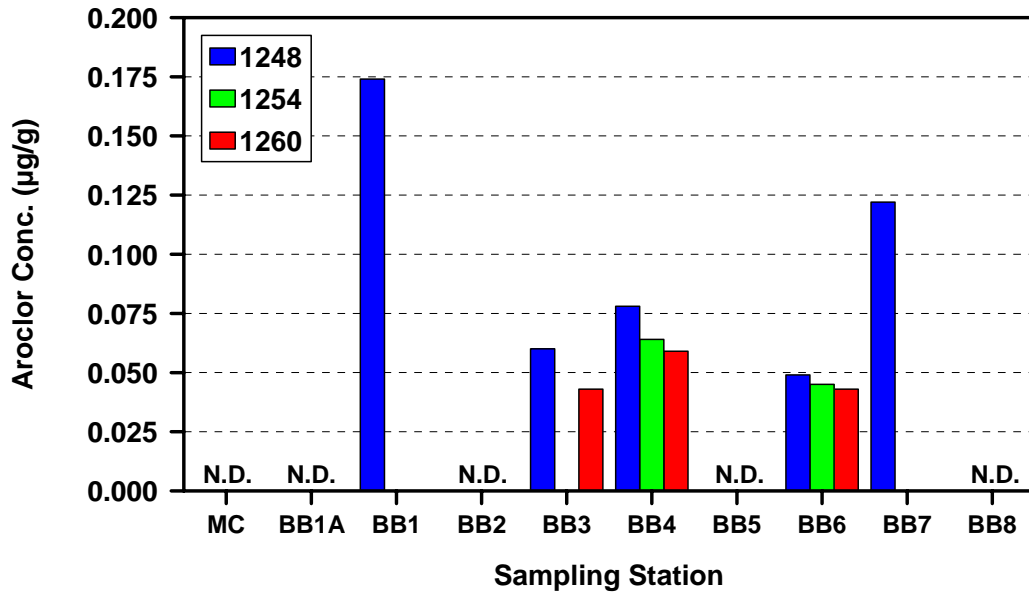


Figure 6. Mean total PCB concentrations in yellow bullhead from Big Bayou Creek, collected September 8-10, 2003.

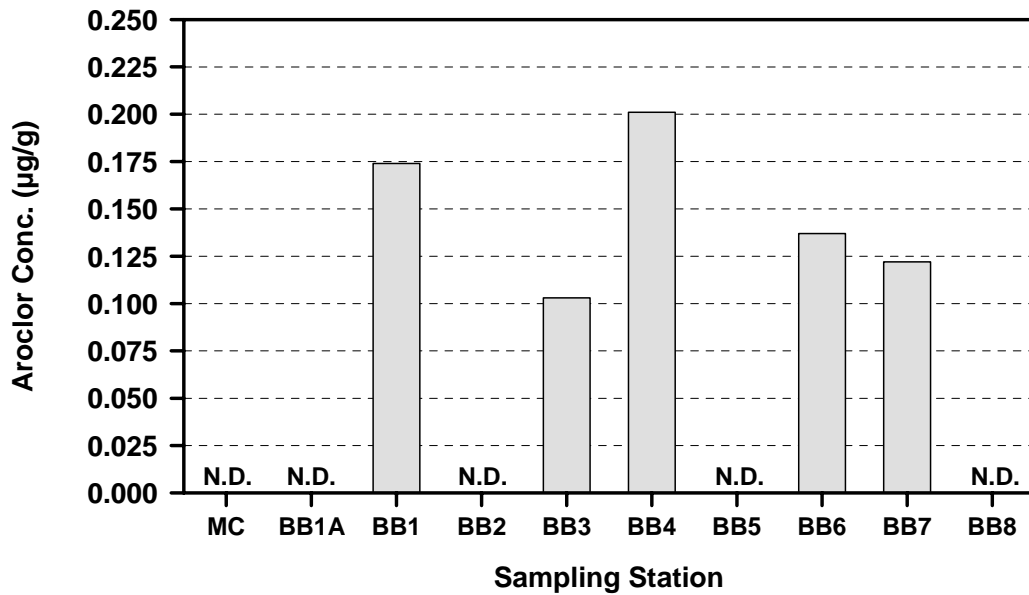


Figure 7. Mean PCB concentrations in green sunfish from Little Bayou Creek, collected September 8-10, 2003.

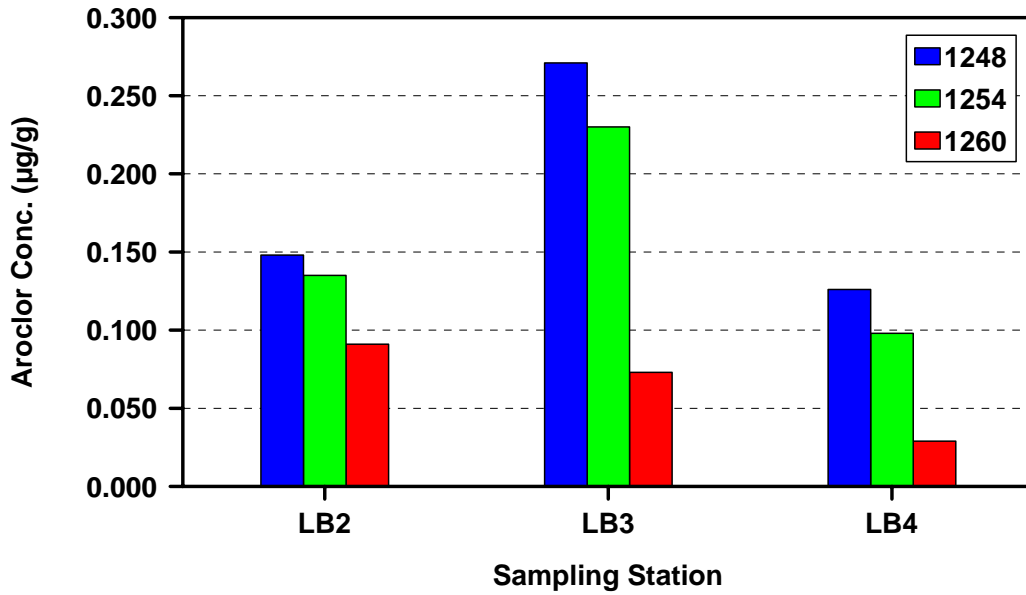


Figure 8. Mean total PCB concentrations in green sunfish from Little Bayou Creek, collected September 8-10, 2003.

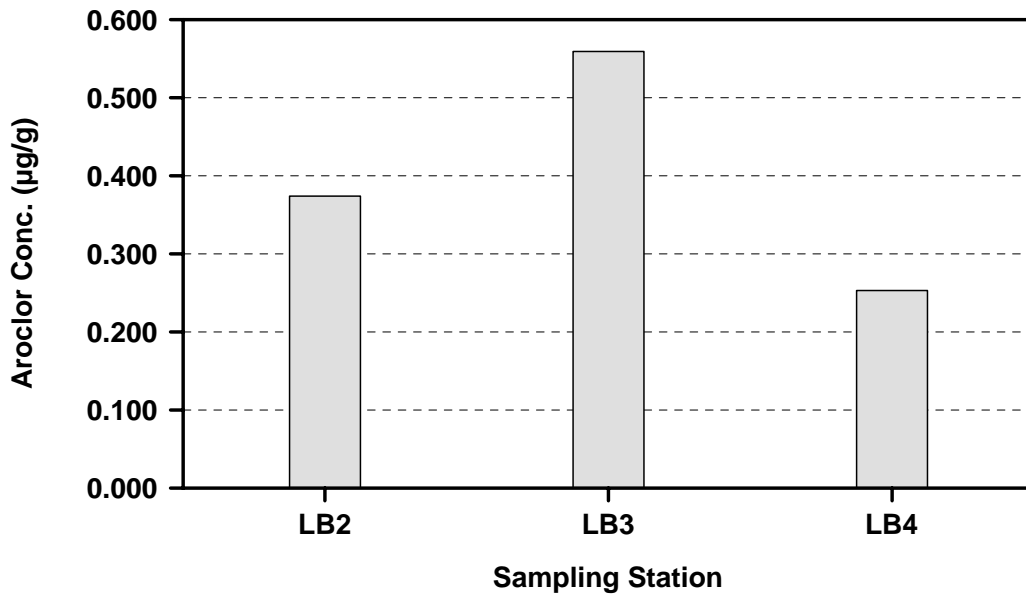


Figure 9. Mean PCB concentrations in longear sunfish from Little Bayou Creek, collected September 8-10, 2003.

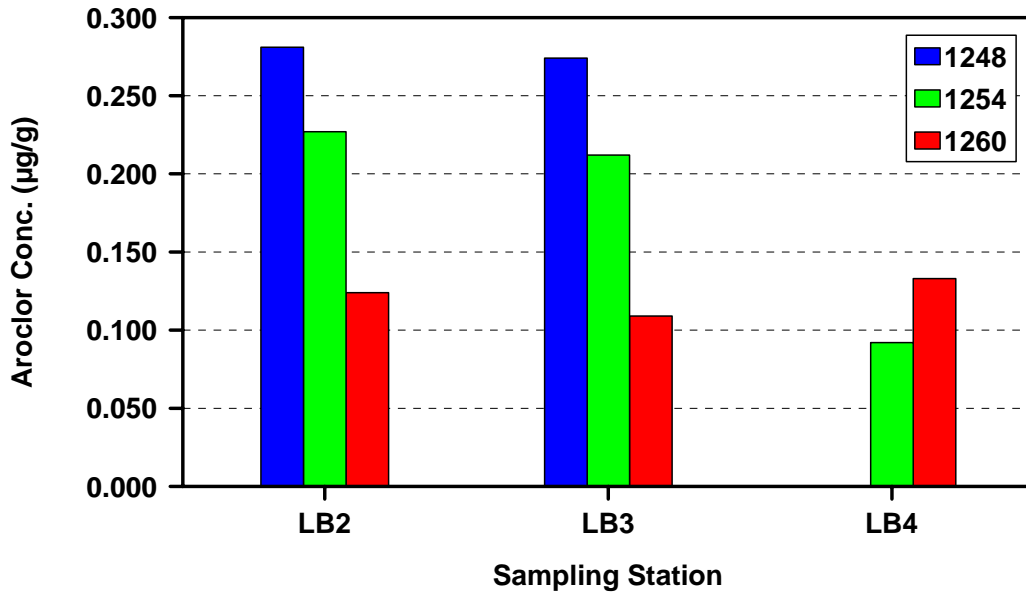
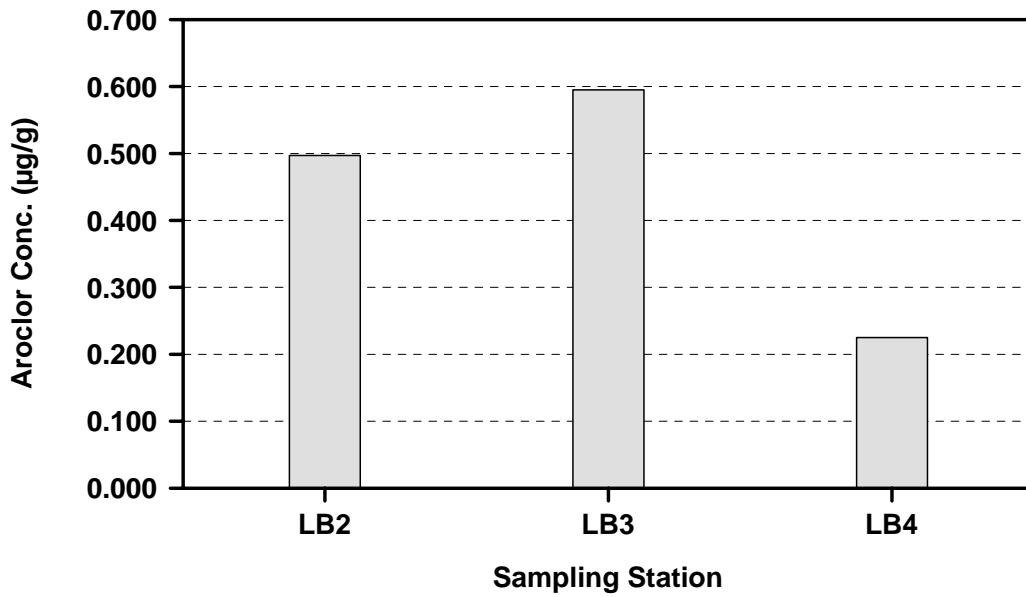


Figure 10. Mean total PCB concentrations in longear sunfish from Little Bayou Creek, collected September 8-10, 2003.



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