

**Analysis of Polychlorinated Biphenyl (PCB) Residues
in Fish Collected March 16-18, 2004
from the Bayou Creek System**

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DRAFT REPORT

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INTRODUCTION

Fish were collected on March 16-18, 2004 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 83 fish were analyzed from Big and Little Bayou Creeks and Massac Creek. This included 56 fish from Big Bayou Creek, 22 fish from Little Bayou Creek, and 5 fish from Massac Creek. The fish from Big Bayou Creek consisted of 14 green sunfish (*Lepomis cyanellus*) (GS), 25 longear sunfish (*Lepomis megalotis*) (LS), 6 bluegill sunfish (*Lepomis macrochirus*) (BG), 5 largemouth bass (*Micropterus salmoides*) (LMB), and 6 yellow bullhead catfish (*Ictalurus natalis*) (YBH). Fish collected from Little Bayou Creek consisted of 9 green sunfish, 8 longear sunfish, 1 bluegill sunfish, and 4 yellow bullhead catfish. From Massac Creek, fish consisted of 1 green sunfish, 1 bluegill sunfish, 2 longear sunfish, and 1 yellow bullhead catfish.

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.

RESULTS

A total of 83 fish were analyzed during this survey, which included 1 GS, 1 BG, 2 LS and 1 YBH from Massac Creek; 14 GS, 25 LS, 6 BG, 5 LMB and 6 YBH from Big Bayou Creek; and 9 GS, 8 LS, 1 BG, and 4 YBH from Little Bayou Creek (Tables 1 and 2). Of the fish that could be aged, 58% of the fish collected from both Big and Little Bayou Creeks were <1 to 1+ years old and 25 of fish were 2 to 2+ years old. In Big

Bayou Creek 64% of fish were <1 to 1+ year old; 20% were 2 to 2+ years old; and 5% were 3+ years old. Three bluegill sunfish from BB5 in Big Bayou Creek were 3 to 3+ years old. In Little Bayou Creek 41% of fish were <1 to 1+ year old; 41% were 2 to 2+ years old; and no fish collected was over 3 years old.

In Big Bayou Creek, Aroclor 1248 was quantifiable in 17 of 56 fish collected (30%), Aroclors 1254 and 1260 were found in 32 out of 56 fish (57%) (Table 1). Mean concentrations of Aroclor for selected species from Big Bayou Creek are represented graphically in Table 1 and Figures 1 through 4. The means \pm standard deviations for length, whole body weight, lipid, and Aroclor concentrations are given in Table 3. Highest Aroclor 1248 concentrations were detected in a longear sunfish from Big Bayou Creek (BB1-LS2) at 0.28 $\mu\text{g/g}$; and highest 1254 and 1260 were found in a green sunfish at station BB7 (GS2) at 0.85 and 0.72 $\mu\text{g/g}$, respectively. The highest total PCBs (pg/g) found in fillet were 1.57 at BB7-GS2 and 0.47 at BB6-GS4. Total PCB concentrations in Big Bayou Creek ranged from 0.02 to 1.57 $\mu\text{g/g}$. Of the 56 fish analyzed from Big Bayou Creek, 33 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 11 of 22 fish (50%); Aroclor 1254 was found in 18 of 22 fish (82%); and Aroclor 1260 was found in 20 of 22 fish (91%) (Table 2). Mean PCB concentrations from selected species from Little Bayou Creek are represented graphically in Figures 5 through 8. Highest PCB concentrations were found for a longear sunfish (LS2) from LB3, with values of 0.76, 0.41, and 0.38 $\mu\text{g/g}$ for 1248, 1254, and 1260, respectively. Thirteen of 22 fish analyzed from stations

LB2, LB3, and LB4 contained total PCBs in fillet that were at or above 0.5 µg/g, and 4 of the fish tested contained total PCBs above 1.0 µg/g.

DISCUSSION

It is important to note that younger fish (/i.e. <1 to 1+ years) tended to predominate both stream systems (58 %). In Little Bayou Creek, no fish over 3 years old were collected. In Big Bayou Creek, PCBs were detected in 57% of the fish sampled. Aroclor 1248 was found in 17 of 56 fish. The highest total PCB concentrations (µg/g) were 0.45, 0.47, and 1.57 at stations BB4, BB6, and BB7, respectively.

Concerning Little Bayou Creek, Aroclor 1248 occurred in fillets for 11 of 22 fish (50%) and Aroclor 1260 was detected in 91% of fish analyzed. Highest total PCB concentrations (µg/g) were 1.23, 1.56, and 0.61 at stations LB2, LB3, and LB4, respectively.

In summary, total fillet PCB residues were detected in 33 of 56 fish taken from Big Bayou Creek and 13 of 22 fish from Little Bayou Creek that were above the lowest action level (/i.e. 0.05 µg/g) for the Commonwealth of Kentucky. The occurrence of Aroclor 1248 may indicate PCB contamination that has resulted during the past year. This is based on the shorter biological half-life in sunfish of the less chlorinated congeners found in this PCB mixture (/i.e. 1248). Of the 83 fish analyzed in this study, three from Big Bayou Creek and 13 from Little Bayou Creek contained total fillet PCBs in the range of 0.45 to 1.57 µg/g.

REFERENCES

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Table 1. PCB concentrations in fish from Massac Creek and Big Bayou Creek collected March 16-18, 2004.

| 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 |
| MC | 03/18/04 | LS1 | 103 | 2+ | 26.875 | 3.756 | 6.47 | <0.053 | <0.053 | <0.053 | <0.053 |
| MC | 03/18/04 | LS2 | 93 | 1+ | 19.887 | 2.564 | 8.00 | <0.078 | <0.078 | <0.078 | <0.078 |
| MC | 03/18/04 | BG1 | 88 | 1+ | 14.678 | 2.020 | 7.45 | <0.099 | <0.099 | <0.099 | <0.099 |
| MC | 03/18/04 | GS1 | 82 | 1+ | 10.333 | 1.544 | 6.83 | <0.130 | <0.130 | <0.130 | <0.130 |
| MC | 03/18/04 | YBH1 | 178 | --- | 76.930 | 5.564 | 6.37 | <0.036 | <0.036 | <0.036 | <0.036 |
| BB1A | 03/16/04 | LS1 | 93 | 2+ | 14.354 | 2.079 | 6.85 | <0.096 | <0.096 | <0.096 | <0.096 |
| BB1A | 03/16/04 | LS2 | 85 | 1+ | 14.551 | 2.367 | 10.54 | <0.084 | <0.084 | <0.084 | <0.084 |
| BB1A | 03/16/04 | GS1 | 82 | 1+ | 11.433 | 1.919 | 15.06 | <0.104 | <0.104 | <0.104 | <0.104 |
| BB1A | 03/16/04 | GS2 | 87 | 1+ | 11.761 | 1.484 | 9.91 | <0.135 | <0.135 | <0.135 | <0.135 |
| BB1A | 03/16/04 | YBH1 | 176 | --- | 76.640 | 5.703 | 4.92 | <0.035 | <0.035 | <0.035 | <0.035 |
| BB1 | 03/16/04 | LS1 | 83 | 1+ | 14.126 | 2.122 | 8.48 | <0.094 | <0.094 | <0.094 | <0.094 |
| BB1 | 03/16/04 | LS2 | 77 | 1+ | 9.002 | 0.987 | 9.12 | 0.283 | <0.203 | <0.203 | 0.283 |
| BB1 | 03/16/04 | GS1 | 172 | 2+ | 25.591 | 3.450 | 3.88 | 0.089 | 0.047 | 0.031 | 0.166 |
| BB1 | 03/16/04 | GS2 | 92 | 2 | 13.762 | 1.982 | 6.36 | 0.120 | 0.047* | 0.045* | 0.213 |
| BB1 | 03/16/04 | GS3 | 97 | 1+ | 13.301 | 1.959 | 5.41 | <0.102 | 0.099 | 0.092 | 0.191 |
| BB1 | 03/16/04 | YBH1 | 88 | --- | 8.110 | 0.380 | 5.13 | <0.526 | <0.526 | <0.526 | <0.526 |
| BB2 | 03/17/04 | GS1 | 91 | 2+ | 16.844 | 2.474 | 6.02 | <0.081 | <0.081 | <0.081 | <0.081 |
| BB2 | 03/17/04 | GS2 | 73 | 1+ | 7.141 | 1.141 | 5.35 | <0.175 | <0.175 | <0.175 | <0.175 |
| BB2 | 03/17/04 | GS3 | 70 | >1 | 6.179 | 0.784 | 5.48 | <0.255 | <0.255 | <0.255 | <0.255 |
| BB3 | 03/16/04 | LS1 | 107 | 1+ | 29.413 | 4.045 | 5.61 | 0.116 | 0.053 | 0.045 | 0.214 |
| BB3 | 03/16/04 | LS2 | 96 | 1+ | 19.212 | 2.982 | 5.78 | 0.124 | 0.055 | 0.031* | 0.210 |
| BB3 | 03/16/04 | LS3 | 91 | 1+ | 15.283 | 2.372 | 8.49 | <0.084 | 0.116 | 0.070 | 0.187 |
| BB3 | 03/16/04 | LS4 | 80 | 2+ | 10.676 | 1.704 | 10.12 | 0.133 | 0.062* | 0.090 | 0.285 |
| BB3 | 03/16/04 | LMB1 | 98 | >1 | 11.137 | 1.612 | 3.23 | <0.124 | 0.117 | 0.080 | 0.196 |
| BB3 | 03/16/04 | LMB2 | 87 | >1 | 7.559 | 1.055 | 4.60 | <0.190 | 0.227 | 0.164 | 0.391 |

Table 1, continued. PCB concentrations in fish from Massac Creek and Big Bayou Creek collected March 16-18, 2004.

| 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 | 03/17/04 | LS1 | 119 | 1+ | 39.512 | 5.815 | 7.10 | 0.083 | 0.045 | 0.030 | 0.158 |
| BB4 | 03/17/04 | LS2 | 109 | 2 | 27.264 | 3.423 | 3.72 | <0.058 | 0.066 | 0.050 | 0.116 |
| BB4 | 03/17/04 | LS3 | 102 | 1+ | 20.962 | 3.402 | 6.26 | 0.135 | 0.077 | 0.060 | 0.272 |
| BB4 | 03/17/04 | LS4 | 89 | 1+ | 15.038 | 2.377 | 6.79 | <0.084 | 0.097 | 0.070 | 0.167 |
| BB4 | 03/17/04 | BG1 | 66 | >1 | 4.910 | 0.844 | 7.88 | <0.237 | <0.237 | <0.237 | <0.237 |
| BB4 | 03/17/04 | YBH1 | 116 | --- | 19.937 | 1.605 | 5.67 | 0.138 | <0.125 | 0.056* | 0.194 |
| BB4 | 03/17/04 | YBH2 | 100 | --- | 12.904 | 0.796 | 5.84 | 0.248 | <0.251 | 0.201 | 0.450 |
| BB5 | 03/17/04 | LS1 | 129 | 2+ | 4.903 | 6.525 | 4.44 | <0.031 | 0.098 | 0.093 | 0.190 |
| BB5 | 03/17/04 | LS2 | 120 | 1+ | 36.053 | 5.268 | 5.25 | 0.076 | 0.049 | 0.037 | 0.162 |
| BB5 | 03/17/04 | BG1 | 173 | 3+ | 90.450 | 8.721 | 1.45 | <0.023 | 0.025 | 0.027 | 0.051 |
| BB5 | 03/17/04 | BG2 | 166 | 3 | 93.490 | 10.090 | 1.37 | 0.018 | <0.020 | <0.020 | 0.018 |
| BB5 | 03/17/04 | BG3 | 162 | 3 | 85.820 | 9.188 | 1.43 | <0.022 | 0.017 | 0.018 | 0.035 |
| BB6 | 03/17/04 | LS1 | 101 | 2 | 23.262 | 3.519 | 7.66 | 0.151 | 0.097 | 0.067 | 0.315 |
| BB6 | 03/17/04 | LS2 | 100 | 1+ | 16.950 | 2.160 | 3.89 | 0.190 | 0.101 | 0.107 | 0.398 |
| BB6 | 03/17/04 | LS3 | 83 | 1+ | 11.294 | 1.677 | 5.81 | <0.119 | 0.098 | 0.091 | 0.190 |
| BB6 | 03/17/04 | GS1 | 105 | 1+ | 21.506 | 3.282 | 6.05 | <0.061 | 0.117 | 0.144 | 0.261 |
| BB6 | 03/17/04 | GS2 | 112 | 1+ | 24.877 | 3.315 | 4.04 | 0.168 | 0.100 | 0.064 | 0.332 |
| BB6 | 03/17/04 | GS3 | 108 | 1+ | 22.626 | 3.338 | 6.88 | 0.126 | 0.061 | 0.072 | 0.260 |
| BB6 | 03/17/04 | GS4 | 90 | 1+ | 13.226 | 1.956 | 6.44 | 0.229 | 0.106 | 0.137 | 0.473 |
| BB6 | 03/17/04 | LMB1 | 102 | 1 | 11.266 | 1.800 | 4.72 | <0.111 | 0.170 | 0.106 | 0.276 |
| BB6 | 03/17/04 | YBH1 | 98 | --- | 7.601 | 0.479 | 4.38 | <0.418 | <0.418 | 0.332 | 0.332 |

* PCBs detected but below minimum quantitation limit (MQL).

Table 1, continued. PCB concentrations in fish from Massac Creek and Big Bayou Creek collected March 16-18, 2004.

| 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 |
| BB7 | 03/18/04 | LS1 | 128 | 2 | 40.416 | 4.621 | 2.92 | <0.043 | 0.198 | <0.043 | 0.198 |
| BB7 | 03/18/04 | LS2 | 103 | 1+ | 22.896 | 3.076 | 4.24 | <0.065 | 0.086 | 0.097 | 0.183 |
| BB7 | 03/18/04 | LS3 | 100 | 2 | 21.454 | 2.943 | 6.10 | <0.068 | 0.033* | <0.068 | 0.033 |
| BB7 | 03/18/04 | GS1 | 104 | 2 | 19.252 | 2.820 | 5.18 | <0.071 | 0.035* | <0.071 | 0.035 |
| BB7 | 03/18/04 | GS2 | 80 | 1 | 7.048 | 0.851 | 7.11 | <0.235 | 0.854 | 0.720 | 1.574 |
| BB7 | 03/18/04 | LMB1 | 67 | >1 | 3.299 | 0.463 | 6.05 | <0.432 | <0.432 | <0.432 | <0.432 |
| BB7 | 03/18/04 | YBH1 | 128 | --- | 27.203 | 1.788 | 3.80 | <0.112 | <0.112 | <0.112 | <0.112 |
| BB8 | 03/18/04 | LS1 | 114 | 1+ | 43.785 | 5.998 | 6.68 | <0.033 | <0.033 | <0.033 | <0.033 |
| BB8 | 03/18/04 | LS2 | 110 | 1+ | 39.721 | 4.255 | 10.25 | <0.047 | 0.025* | 0.032* | 0.058 |
| BB8 | 03/18/04 | LS3 | 90 | 1+ | 16.065 | 2.645 | 16.71 | <0.076 | 0.065 | 0.076 | 0.141 |
| BB8 | 03/18/04 | LS4 | 90 | 1+ | 15.195 | 1.598 | 5.10 | <0.125 | <0.125 | <0.125 | <0.125 |
| BB8 | 03/18/04 | BG1 | 97 | 1+ | 16.993 | 2.579 | 8.86 | <0.078 | <0.078 | <0.078 | <0.078 |
| BB8 | 03/18/04 | LMB1 | 80 | >1 | 6.203 | 0.863 | 8.05 | <0.232 | <0.232 | <0.232 | <0.232 |
| BB9 | 03/18/04 | LS1 | 81 | 1+ | 12.704 | 1.652 | 7.60 | <0.121 | <0.121 | <0.121 | <0.121 |
| BB9 | 03/18/04 | BG1 | 78 | 1 | 9.953 | 1.405 | 8.43 | <0.142 | <0.142 | <0.142 | <0.142 |

* PCBs detected but below minimum quantitation limit (MQL).

Table 2. PCB concentrations in fish from Little Bayou Creek collected March 16-18, 2004.

| 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 | 03/17/04 | LS1 | 112 | 2+ | 31.789 | 4.594 | 4.91 | <0.087 | 0.234 | 0.449 | 0.684 |
| LB2 | 03/17/04 | LS2 | 112 | 2+ | 22.739 | 3.015 | 4.30 | <0.133 | 0.164 | 0.165 | 0.330 |
| LB2 | 03/17/04 | LS3 | 96 | 1+ | 19.315 | 3.387 | 4.99 | <0.118 | 0.312 | 0.279 | 0.591 |
| LB2 | 03/17/04 | GS1 | 92 | 1+ | 13.721 | 1.867 | 5.60 | 0.537 | 0.398 | 0.286 | 1.220 |
| LB2 | 03/17/04 | GS2 | 85 | 2+ | 14.614 | 2.008 | 4.98 | <0.199 | 0.455 | 0.291 | 0.747 |
| LB2 | 03/17/04 | GS3 | 75 | 1+ | 9.057 | 1.071 | 5.60 | 0.700 | <0.373 | 0.530 | 1.230 |
| LB2 | 03/17/04 | BG1 | 81 | 1+ | 10.512 | 1.663 | 8.15 | <0.241 | 0.292 | 0.336 | 0.628 |
| LB2 | 03/17/04 | YBH1 | 143 | --- | 33.261 | 2.634 | 3.51 | <0.152 | 0.369 | 0.601 | 0.970 |
| LB2 | 03/17/04 | YBH2 | 161 | --- | 54.247 | 4.400 | 3.52 | 0.278 | 0.262 | 0.422 | 0.962 |
| LB2 | 03/17/04 | YBH3 | 160 | --- | 45.364 | 2.737 | 3.67 | 0.326 | <0.146 | 0.157 | 0.483 |
| LB3 | 03/17/04 | LS1 | 97 | 1+ | 22.012 | 3.335 | 9.03 | <0.060 | 0.247 | 0.185 | 0.432 |
| LB3 | 03/17/04 | LS2 | 70 | 1+ | 9.068 | 1.283 | 9.51 | 0.762 | 0.414 | 0.382 | 1.558 |
| LB3 | 03/17/04 | GS1 | 98 | 2+ | 18.218 | 2.484 | 4.79 | <0.161 | 0.505 | 0.489 | 0.994 |
| LB3 | 03/17/04 | GS2 | 88 | 1+ | 13.647 | 1.845 | 10.89 | 0.384 | 0.196 | 0.260 | 0.840 |
| LB3 | 03/17/04 | GS3 | 79 | 1+ | 10.547 | 1.346 | 7.39 | 0.618 | 0.400 | 0.306 | 1.324 |
| LB4 | 03/18/04 | LS1 | 98 | 2+ | 22.414 | 3.262 | 12.25 | 0.188 | 0.328 | 0.092 | 0.607 |
| LB4 | 03/18/04 | LS2 | 93 | 1+ | 19.113 | 2.785 | 6.25 | <0.072 | 0.122 | 0.097 | 0.218 |
| LB4 | 03/18/04 | LS3 | 97 | 2+ | 18.664 | 2.826 | 8.05 | 0.163 | <0.071 | <0.071 | 0.163 |
| LB4 | 03/18/04 | GS1 | 136 | 2+ | 55.247 | 7.220 | 1.91 | 0.105 | 0.048 | 0.045 | 0.199 |
| LB4 | 03/18/04 | GS2 | 106 | 2+ | 21.384 | 2.897 | 3.12 | <0.069 | <0.069 | <0.069 | <0.069 |
| LB4 | 03/18/04 | GS3 | 102 | 2+ | 26.234 | 4.268 | 8.88 | 0.211 | 0.120 | 0.086 | 0.417 |
| LB4 | 03/18/04 | YBH1 | 143 | --- | 45.082 | 2.822 | 3.65 | <0.071 | 0.080 | 0.061 | 0.141 |

Table 3. Means \pm standard deviations for measured parameters of fish from the Bayou Creek system, collected March 16-18, 2004.

| 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 | 98 \pm 7 | 23.38 \pm 4.94 | 7.23 \pm 1.08 | N.D. | N.D. | N.D. | N.D. |
| MC | BG | 88 | 14.68 | 7.45 | N.D. | N.D. | N.D. | N.D. |
| MC | GS | 82 | 10.33 | 6.83 | N.D. | N.D. | N.D. | N.D. |
| MC | YBH | 178 | 76.93 | 6.37 | N.D. | N.D. | N.D. | N.D. |
| BB1A | LS | 89 \pm 6 | 14.45 \pm 0.14 | 8.70 \pm 2.61 | N.D. | N.D. | N.D. | N.D. |
| BB1A | GS | 85 \pm 4 | 11.60 \pm 0.23 | 12.48 \pm 3.64 | N.D. | N.D. | N.D. | N.D. |
| BB1A | YBH | 176 | 76.64 | 4.92 | N.D. | N.D. | N.D. | N.D. |
| BB1 | LS | 80 \pm 4 | 11.56 \pm 3.62 | 8.80 \pm 0.45 | 0.283 | N.D. | N.D. | 0.283 |
| BB1 | GS | 120 \pm 45 | 17.55 \pm 7.00 | 5.22 \pm 1.25 | 0.104 \pm 0.022 | 0.064 \pm 0.030 | 0.056 \pm 0.032 | 0.190 \pm 0.024 |
| BB1 | YBH | 88 | 8.11 | 5.13 | N.D. | N.D. | N.D. | N.D. |
| BB2 | GS | 78 \pm 11 | 10.06 \pm 5.90 | 5.62 \pm 0.36 | N.D. | N.D. | N.D. | N.D. |
| BB3 | LS | 94 \pm 11 | 18.65 \pm 7.98 | 7.50 \pm 2.19 | 0.124 \pm 0.009 | 0.072 \pm 0.030 | 0.059 \pm 0.026 | 0.224 \pm 0.043 |
| BB3 | LMB | 93 \pm 8 | 9.35 \pm 2.53 | 3.91 \pm 0.97 | N.D. | 0.172 \pm 0.078 | 0.122 \pm 0.060 | 0.294 \pm 0.138 |
| BB4 | LS | 105 \pm 13 | 25.69 \pm 10.48 | 5.97 \pm 1.54 | 0.109 \pm 0.037 | 0.071 \pm 0.022 | 0.052 \pm 0.017 | 0.178 \pm 0.066 |
| BB4 | BG | 66 | 4.91 | 7.88 | N.D. | N.D. | N.D. | N.D. |
| BB4 | YBH | 108 \pm 11 | 16.42 \pm 4.97 | 5.76 \pm 0.12 | 0.193 \pm 0.078 | N.D. | 0.129 \pm 0.103 | 0.322 \pm 0.181 |

Table 3, continued. Means \pm standard deviations for measured parameters of fish from the Bayou Creek system, collected March 16-18, 2004.

| System | Fish Type | Length (mm) | Whole Body Wt. (g) | Lipid (mg/g) | Mean Aroclor Conc. ($\mu\text{g/g}$) | | | |
|--------|-----------|--------------|--------------------|-----------------|--|-------------------|-------------------|-------------------|
| | | | | | 1248 | 1254 | 1260 | Total |
| BB5 | LS | 125 \pm 6 | 20.48 \pm 22.03 | 4.85 \pm 0.57 | 0.076 | 0.073 \pm 0.034 | 0.065 \pm 0.040 | 0.176 \pm 0.020 |
| BB5 | BG | 167 \pm 6 | 89.92 \pm 3.86 | 1.42 \pm 0.04 | 0.018 | 0.021 \pm 0.006 | 0.022 \pm 0.006 | 0.035 \pm 0.017 |
| BB6 | LS | 95 \pm 10 | 17.17 \pm 5.99 | 5.79 \pm 1.88 | 0.171 \pm 0.028 | 0.099 \pm 0.002 | 0.089 \pm 0.020 | 0.301 \pm 0.105 |
| BB6 | GS | 104 \pm 10 | 20.56 \pm 5.09 | 5.85 \pm 1.25 | 0.175 \pm 0.052 | 0.096 \pm 0.024 | 0.104 \pm 0.042 | 0.331 \pm 0.100 |
| BB6 | LMB | 102 | 11.27 | 4.72 | N.D. | 0.170 | 0.106 | 0.276 |
| BB6 | YBH | 98 | 7.60 | 4.38 | N.D. | N.D. | 0.332 | 0.332 |
| BB7 | LS | 110 \pm 15 | 28.26 \pm 10.56 | 4.42 \pm 1.60 | N.D. | 0.106 \pm 0.084 | 0.097 | 0.138 \pm 0.092 |
| BB7 | GS | 92 \pm 17 | 13.15 \pm 8.63 | 6.14 \pm 1.37 | N.D. | 0.445 \pm 0.579 | 0.720 | 0.805 \pm 1.088 |
| BB7 | LMB | 67 | 3.30 | 6.05 | N.D. | N.D. | N.D. | N.D. |
| BB7 | YBH | 128 | 27.20 | 3.80 | N.D. | N.D. | N.D. | N.D. |
| BB8 | LS | 101 \pm 13 | 28.69 \pm 15.18 | 9.68 \pm 5.16 | N.D. | 0.045 \pm 0.028 | 0.054 \pm 0.031 | 0.099 \pm 0.059 |
| BB8 | BG | 97 | 16.99 | 8.86 | N.D. | N.D. | N.D. | N.D. |
| BB8 | LMB | 80 | 6.20 | 8.05 | N.D. | N.D. | N.D. | N.D. |
| BB9 | LS | 81 | 12.70 | 7.60 | N.D. | N.D. | N.D. | N.D. |
| BB9 | BG | 78 | 9.95 | 8.43 | 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 March 16-18, 2004.

| System | Fish Type | Length (mm) | Whole Body Wt. (g) | Lipid (mg/g) | Mean Aroclor Conc. ($\mu\text{g/g}$) | | | |
|--------|-----------|--------------|--------------------|-----------------|--|-------------------|-------------------|-------------------|
| | | | | | 1248 | 1254 | 1260 | Total |
| LB2 | LS | 107 \pm 9 | 24.61 \pm 6.45 | 4.73 \pm 0.38 | N.D. | 0.237 \pm 0.074 | 0.298 \pm 0.143 | 0.535 \pm 0.184 |
| LB2 | GS | 84 \pm 9 | 12.46 \pm 2.98 | 5.39 \pm 0.36 | 0.618 \pm 0.115 | 0.427 \pm 0.041 | 0.369 \pm 0.140 | 1.066 \pm 0.276 |
| LB2 | BG | 81 | 10.51 | 8.15 | N.D. | 0.292 | 0.336 | 0.628 |
| LB2 | YBH | 155 \pm 10 | 44.29 \pm 10.53 | 3.57 \pm 0.09 | 0.302 \pm 0.034 | 0.315 \pm 0.076 | 0.393 \pm 0.223 | 0.805 \pm 0.279 |
| LB3 | LS | 84 \pm 19 | 15.54 \pm 9.15 | 9.27 \pm 0.34 | 0.762 | 0.330 \pm 0.118 | 0.284 \pm 0.139 | 0.995 \pm 0.796 |
| LB3 | GS | 88 \pm 10 | 14.14 \pm 3.86 | 7.69 \pm 3.06 | 0.501 \pm 0.166 | 0.367 \pm 0.157 | 0.352 \pm 0.121 | 1.053 \pm 0.247 |
| LB4 | LS | 96 \pm 3 | 20.06 \pm 2.05 | 8.85 \pm 3.08 | 0.175 \pm 0.018 | 0.225 \pm 0.146 | 0.094 \pm 0.004 | 0.329 \pm 0.242 |
| LB4 | GS | 115 \pm 19 | 34.29 \pm 18.31 | 4.64 \pm 3.72 | 0.158 \pm 0.075 | 0.084 \pm 0.051 | 0.066 \pm 0.029 | 0.308 \pm 0.155 |
| LB4 | YBH | 143 | 45.08 | 3.65 | N.D. | 0.080 | 0.061 | 0.141 |

Figure 1. Mean PCB concentrations in longear sunfish from Big Bayou Creek, collected March 16-18, 2004.

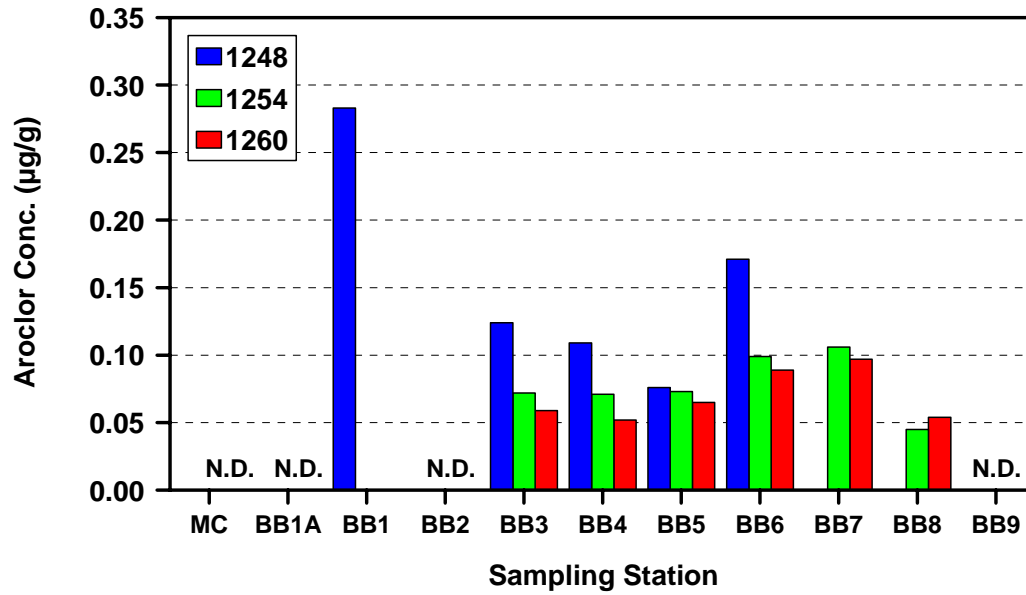


Figure 2. Mean total PCB concentrations in longear sunfish from Big Bayou Creek, collected March 16-18, 2004.

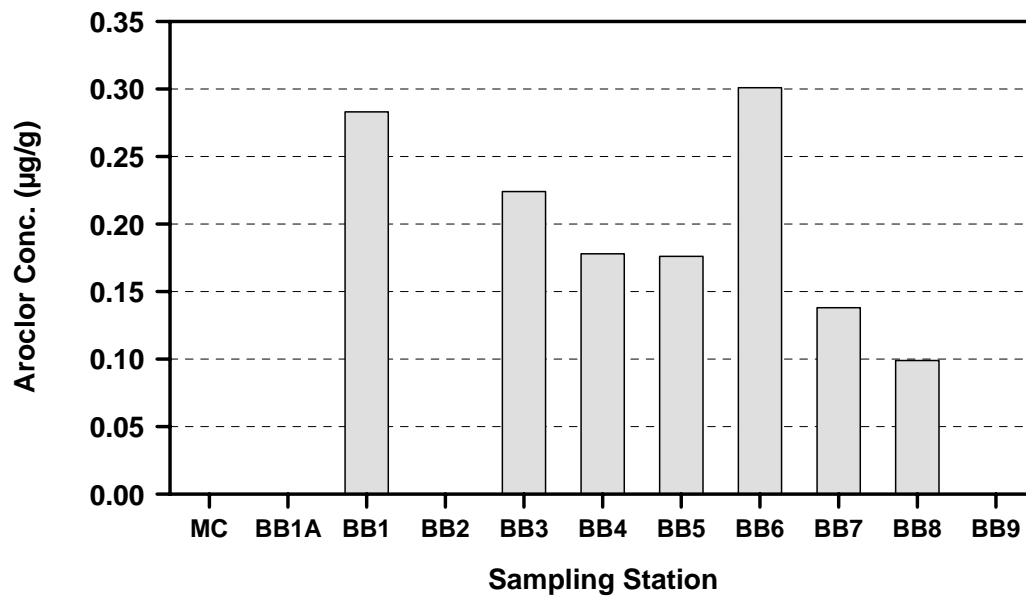


Figure 3. PCB concentrations in green sunfish from Big Bayou Creek, collected March 16-18, 2004.

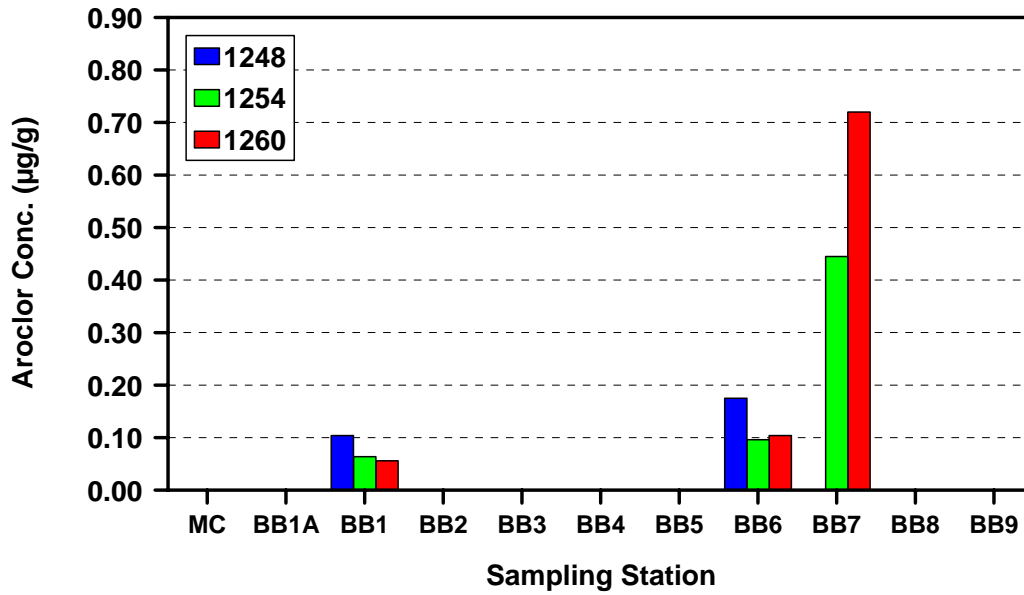


Figure 4. Mean total PCB concentrations in green sunfish from Big Bayou Creek, collected March 16-18, 2004.

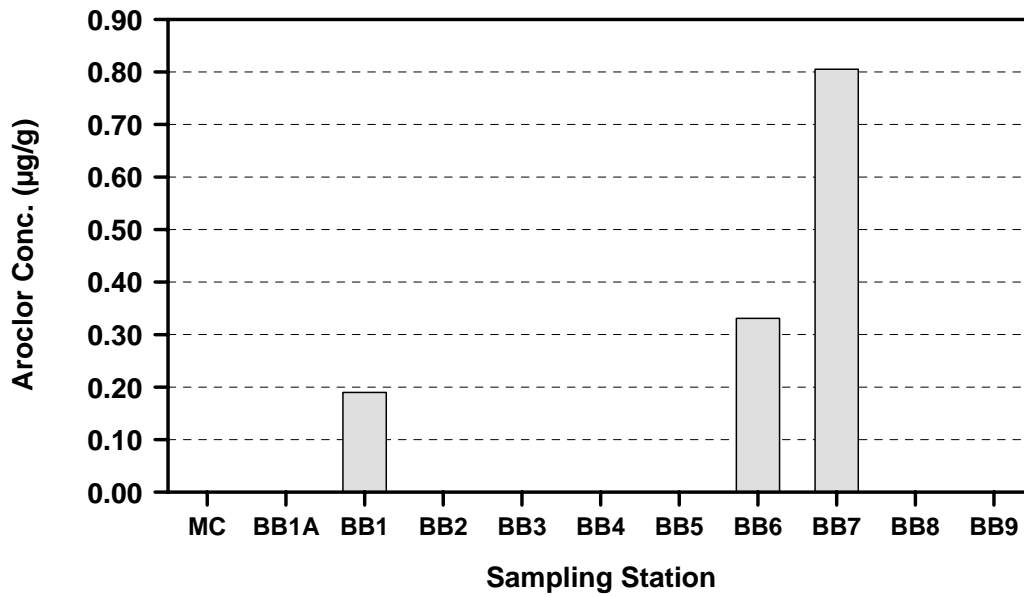


Figure 5. Mean PCB concentrations in longear sunfish from Little Bayou Creek, collected March 16-18, 2004.

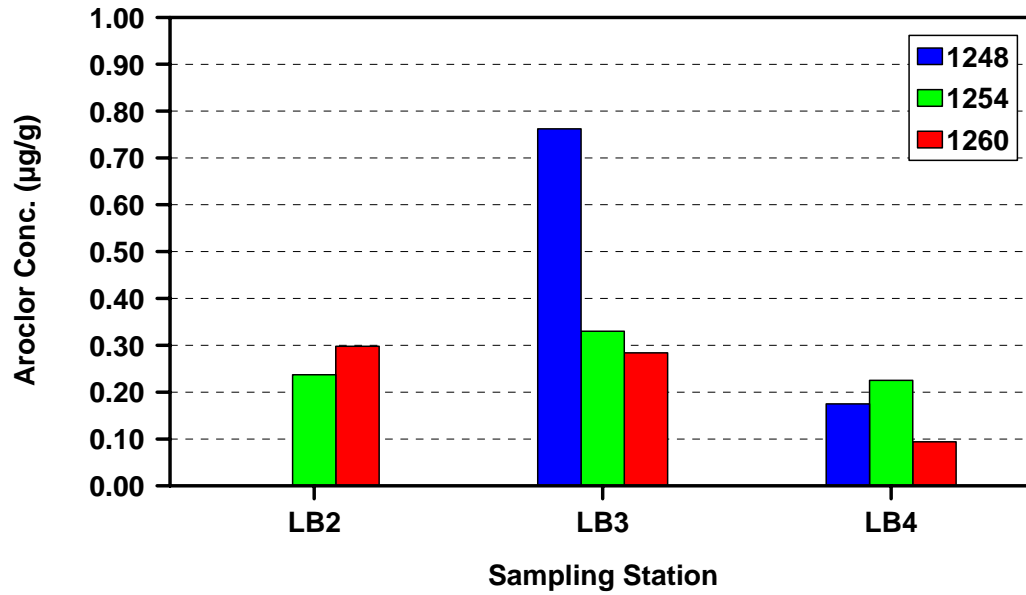


Figure 6. Mean total PCB concentrations in longear sunfish from Little Bayou Creek, collected March 16-18, 2004.

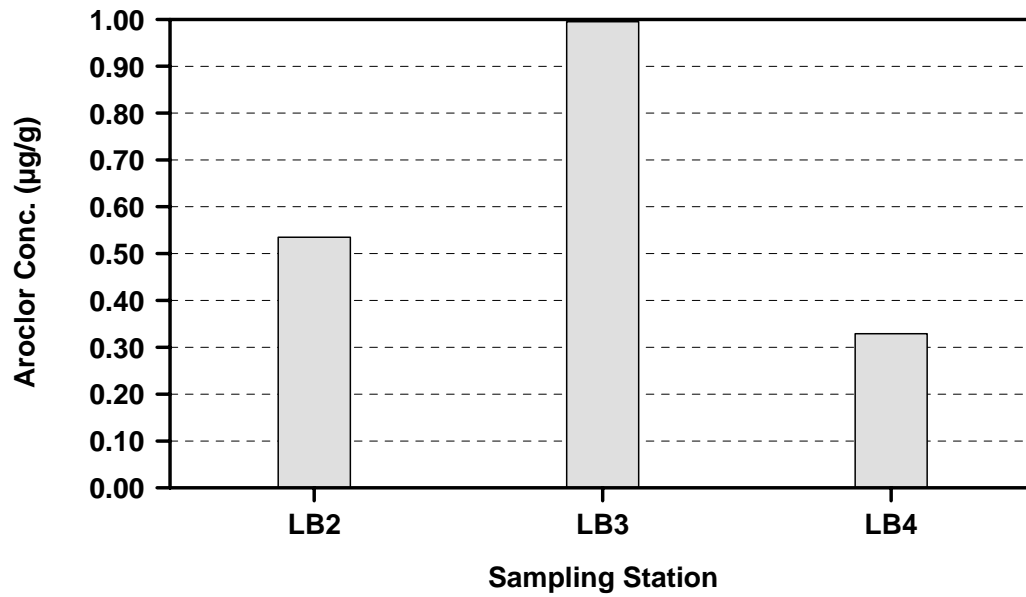


Figure 7. PCB concentrations in green sunfish from Little Bayou Creek, collected March 16-18, 2004.

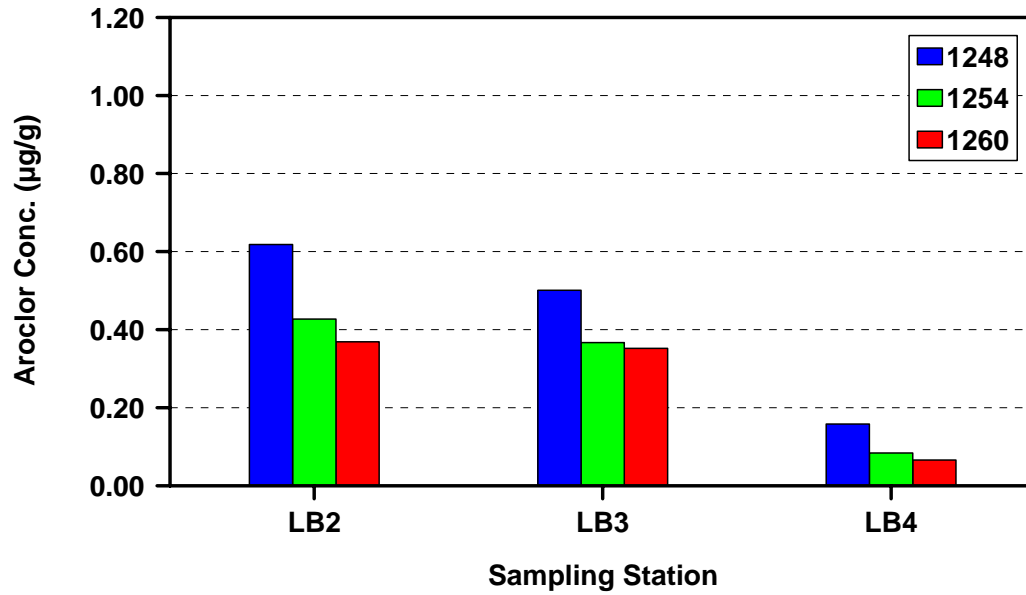


Figure 8. Mean total PCB concentrations in green sunfish from Little Bayou Creek, collected March 16-18, 2004.

