

**Cuyahoga River Downstream of Tinkers Creek
8/2/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 696 miles²
River Mile: 16.20**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	6	0.586	--	0	--
<i>Ictiobus bubalus</i> Smallmouth buffalo	1	3.320	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	7	2.300	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	25	3.500	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	17	2.982	Highly Tolerant	0	--
<i>Minytrema melanops</i> Spotted Sucker	3	0.760	--	0	--
<i>Cyprinus carpio</i> Common carp	17	24.130	Highly Tolerant	1	Mouth lesion
<i>Notropis cornutus</i> Common shiner	1	0.002	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	15	0.076	--	0	--
<i>Pimephales notatus</i> Bluntnose minnow	9	0.022	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	5	4.100	--	1	Eroded barbel
<i>Pylodictis olivaris</i> Flathead Catfish	2	0.240	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	1	0.090	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	13	1.430	Moderately Intolerant	0	--
<i>Lepomis cyanellus</i> Green sunfish	4	0.170	Highly Tolerant	0	--

**Cuyahoga River Downstream of Tinkers Creek
8/2/07**

<i>Lepomis macrochirus</i> Northern bluegill sunfish	8	0.330	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	2	0.018	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	3	0.010	Moderately Intolerant	0	--
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Totals	<u>139</u>	<u>44.066</u>		<u>2</u>	

*DELT anomalies were observed on 1.439 % of the fish collected.
 Index of Biotic Integrity (IBI) = 30 (Fair)
 Modified Index of Well-Being (MIwb) 8.5 (Marginally Good)
 Shannon Diversity Index, wt. 2.528
 Shannon Diversity Index, no. 1.641
 N 184
 B 33.52

Cuyahoga River Downstream of Tinkers Creek

9/7/07

Collection Distance: 0.5 km

Collection Method: Boat Electroshocking

Drainage Area: 696 miles²

River Mile: 16.20

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	7	0.902	--	0	--
<i>Ictiobus bubalus</i> Smallmouth buffalo	2	2.960	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	8	2.566	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbreast	1	0.332	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	47	6.100	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	13	2.214	Highly Tolerant	0	--
<i>Minytrema melanops</i> Spotted Sucker	1	0.004	--	0	--
<i>Cyprinus carpio</i> Common carp	19	31.910	Highly Tolerant	0	--
<i>Notropis cornutus</i> Common shiner	71	0.172	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	10	0.040	--	0	--
<i>Notropis stramineus</i> Sand shiner	2	0.003	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	2	0.004	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	1	0.950	--	0	--
<i>Ictalurus natalis</i> Yellow perch	1	0.200	Highly Tolerant	1	Mouth lesion
<i>Pomoxis nigromaculatus</i> Black crappie	1	0.100	--	0	--

**Cuyahoga River Downstream of Tinkers Creek
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<i>Ambloplites rupestris</i> Northern rockbass	2	0.220	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	29	2.660	Moderately Intolerant	0	--
<i>Lepomis cyanellus</i> Green sunfish	4	0.102	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	14	0.842	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	2	0.180	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	12	0.215	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	5	0.012	Moderately Intolerant	0	--
Totals	<u>254</u>	<u>52.688</u>		<u>1</u>	

*DELT anomalies were observed on 0.394 % of the fish collected.
 Index of Biotic Integrity (IBI) = 48 (Exceptional)
 Modified Index of Well-Being (MIwb) 8.7 (Marginally Good)
 Shannon Diversity Index, wt. 2.344
 Shannon Diversity Index, no. 1.524
 N 430
 B 36.52

**Cuyahoga River Upstream of Mill Creek
07/16/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 710 miles²
River Mile: 11.95**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	9	0.710	--	0	--
<i>Carpionodes cyprinus</i> Central quillback carpsucker	2	1.642	--	0	--
<i>Moxostoma anisurum</i> Silver Redhorse	1	1.520	Moderately Intolerant	0	
<i>Moxostoma erythrurum</i> Golden redhorse	6	1.080	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	23	2.330	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	15	0.672	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	18	22.654	Highly Tolerant	0	--
<i>Carassius auratus</i> Goldfish	4	1.172	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	1	0.002	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	34	0.122	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	20	0.058	--	0	--
<i>Notropis stramineus</i> Sand shiner	6	0.018	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	3	0.010	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	6	11.080	--	2	Mouth & barbel lesions
<i>Ictalurus natalis</i> Yellow bullhead	4	0.433	Highly Tolerant	1	Multiple- lesion & tumor

**Cuyahoga River Upstream of Mill Creek
07/16/07**

<i>Morone chrysops</i> White bass	1	0.072	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	5	0.450	Moderately Intolerant	0	--
<i>Lepomis cyanellus</i> Green sunfish	1	0.050	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	3	0.128	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	3	0.130	Moderately Tolerant	0	--
<i>HYBRID</i> Green SF X Pumpkinseed	1	0.032	--	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	3	3.250	Moderately Tolerant	0	--
Totals	<u>169</u>	<u>47.615</u>		<u>3</u>	

*DELT anomalies were observed on 1.775 % of the fish collected.
 Index of Biotic Integrity (IBI) = 28 (Fair)
 Modified Index of Well-Being (MIwb) 9.0 (Good)
 Shannon Diversity Index, wt. 2.584
 Shannon Diversity Index, no. 1.719
 N 244
 B 45.18

Cuyahoga River Upstream of Mill Creek

09/07/07

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 710 miles²
River Mile: 11.95**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	2	0.040	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	16	0.954	Moderately Intolerant	1	Eroded caudal & dorsa
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	15	0.698	Moderately Intolerant	1	Eroded tail
<i>Hypentelium nigricans</i> Northern hog sucker	16	0.950	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	18	6.312	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	32	61.360	Highly Tolerant	1	Deformed fin
<i>Carassius auratus</i> Goldfish	1	0.350	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	1	0.004	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	10	0.050	--	0	--
<i>Notropis cornutus</i> Common shiner	5	0.032	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	33	0.090	--	0	--
<i>Notropis stramineus</i> Sand shiner	28	0.061	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	23	0.054	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	4	2.840	--	1	Fin lesion
<i>Ambloplites rupestris</i> Northern rockbass	2	0.172	--	0	--

**Cuyahoga River Upstream of Mill Creek
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<i>Micropterus dolomieu</i> Smallmouth bass	8	0.722	Moderately Intolerant	0	--
<i>Lepomis gulosus</i> Warmouth sunfish	1	0.060	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	2	0.060	Highly Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	9	0.372	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	2	0.030	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	1	0.008	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	2	2.350	Moderately Tolerant	0	--
Totals	<u>230</u>	<u>77.569</u>		<u>4</u>	

*DELT anomalies were observed on 1.739 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) 7.9 (Fair)
 Shannon Diversity Index, wt. 2.615
 Shannon Diversity Index, no. 0.92
 N 306
 B 18.86

**Cuyahoga River Downstream of Mill Creek
7/16/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 730 miles²
River Mile: 11.30**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	1	0.074	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	2	0.790	Moderately Intolerant	1	Deformed tail
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	2	0.872	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	53	5.810	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	15	1.340	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	24	52.660	Highly Tolerant	2	Deformed fin & tail
<i>Notropis atherinoides</i> Common Emerald shiner	12	0.048	--	0	--
<i>Notropis cornutus</i> Common shiner	2	0.004	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	5	0.050	--	0	--
<i>Pimephales notatus</i> Bluntnose minnow	1	0.004	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	28	0.034	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	14	12.212	--	3	Eroded barbel Mouth & body lesions
<i>Ictalurus natalis</i> Yellow bullhead	1	0.250	Highly Tolerant	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	18	3.158	Moderately Intolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	2	0.100	Moderately Tolerant	0	--

**Cuyahoga River Downstream of Mill Creek
7/16/07**

<i>Lepomis gibbosus</i> Pumpkinseed sunfish	1	0.074	Moderately Tolerant	0	--
<i>Perca flavescens</i> Yellow perch	1	0.050	--	0	--
<i>Percina caprodes</i> Northern logperch darter	3	0.062	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	3	1.250	Moderately Tolerant	0	--
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Totals	<u>188</u>	<u>78.842</u>		<u>6</u>	

*DELT anomalies were observed on 3.191 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) 8.2 (Marginally Good)
 Shannon Diversity Index, wt. 2.26
 Shannon Diversity Index, no. 1.174
 N 294
 B 49.18

**Cuyahoga River Downstream of Mill Creek
9/6/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 730 miles²
River Mile: 11.30**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	9	1.500	--	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	4	0.649	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	74	9.354	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	11	2.072	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	12	29.884	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	1	0.004	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	21	0.078	--	0	--
<i>Pimephales notatus</i> Bluntnose minnow	1	0.002	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	11	8.810	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	20	2.636	Moderately Intolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.060	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	13	0.190	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	2	0.006	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	1.100	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	1	0.006	--	0	--

Cuyahoga River Downstream of Mill Creek
9/6/07

	<u> </u>	<u> </u>	
Totals	<u>182</u>	<u>56.351</u>	<u>0</u>
*DELT anomalies were observed on	0	% of the fish collected.	
Index of Biotic Integrity (IBI) =	44	(Very Good)	
Modified Index of Well-Being (MIwb)	8.3	(Marginally Good)	
Shannon Diversity Index, wt.	1.99		
Shannon Diversity Index, no.	1.453		
N	314		
B	48.77		

**Cuyahoga River Upstream of Southerly WWTC
7/16/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 743 miles²
River Mile: 10.75**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	15	1.300	--	2	Dorsal & mouth lesions
<i>Ictiobus cyprinellus</i> Bigmouth buffalo	2	9.072	--	1	Eroded tail
<i>Ictiobus bubalus</i> Smallmouth buffalo	1	4.536	--	0	--
<i>Carpiodes cyprinus</i> Central quillback carpsucker	1	0.250	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	4	0.700	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbreast	1	0.210	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	48	6.219	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	14	2.106	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	39	94.887	Highly Tolerant	1	Lesion
<i>Semotilus atromaculatus</i> Creek chub	2	0.020	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	5	0.040	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	7	0.044	--	0	--
<i>Notropis stramineus</i> Sand shiner	1	0.004	Moderately Intolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	2	0.004	--	0	--
<i>Ctenopharyngodon idella</i> Grass carp	3	21.772	--	1	Deformed spine

**Cuyahoga River Upstream of Southerly WWTC
7/16/07**

<i>Ictalurus punctatus</i> Channel catfish	20	23.140	--	7	Eroded barbels Lesions
<i>Ictalurus natalis</i> Yellow bullhead	2	0.464	Highly Tolerant	0	--
<i>Morone americana</i> White perch	1	0.100	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	7	0.524	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.004	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	2	0.040	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	16	0.622	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	2	0.062	Moderately Tolerant	0	--
<i>HYBRID</i> Green SF X Pumpkinseed	2	0.022	--	0	--
<i>Perca flavescens</i> Yellow perch	1	0.038	--	0	--
<i>Percina caprodes</i> Northern logperch darter	5	0.100	Moderately Intolerant	0	--
Totals	<u>204</u>	<u>166.280</u>		<u>12</u>	

*DELT anomalies were observed on 5.882 % of the fish collected.

Index of Biotic Integrity (IBI) =	30	(Fair)
Modified Index of Well-Being (MIwb)	9.0	(Good)
Shannon Diversity Index, wt.	2.512	
Shannon Diversity Index, no.	1.454	
N	278	
B	93.74	

**Cuyahoga River Upstream of Southerly WWTC
09/06/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 743 miles²
River Mile: 10.75**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	30	3.660	--	2	Eroded mouth
<i>Moxostoma erythrurum</i> Golden redhorse	6	0.007	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	5	0.279	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	51	5.858	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	30	5.262	Highly Tolerant	3	Lesions
<i>Minytrema melanops</i> Spotted Sucker	2	0.004	--	0	
<i>Cyprinus carpio</i> Common carp	4	2.400	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	1	0.004	Highly Tolerant	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	32	0.108	--	0	--
<i>Notropis stramineus</i> Sand shiner	2	0.004	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	6	0.008	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	4	4.540	--	2	Eroded barbel Mouth lesion
<i>Ictalurus natalis</i> Yellow bullhead	10	0.961	Highly Tolerant	3	Eroded barbel Lesions
<i>Morone americana</i> White perch	4	0.462	--	0	--
<i>Pomoxis nigromaculatus</i> Black crappie	1	0.112	--	0	--

**Cuyahoga River Upstream of Southerly WWTC
09/06/07**

<i>Ambloplites rupestris</i> Northern rockbass	2	0.252	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	18	3.580	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.004	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	1	0.020	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	3	0.150	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	8	0.262	Moderately Tolerant	0	--
<i>HYBRID</i> Green SF X Pumpkinseed	1	0.020	--	0	--
<i>Perca flavescens</i> Yellow perch	1	0.030	--	0	--
<i>Percina caprodes</i> Northern logperch darter	7	0.110	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	2	0.004	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	0.475	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	2	0.040	--	0	--
Totals	<u>235</u>	<u>28.616</u>		<u>10</u>	

*DELT anomalies were observed on 4.255 % of the fish collected.
 Index of Biotic Integrity (IBI) = 36 (Marginally Good)
 Modified Index of Well-Being (MIwb) 9.5 (Very Good)
 Shannon Diversity Index, wt. 2.578
 Shannon Diversity Index, no. 2.166
 N 352
 B 38.88

**Cuyahoga River Upstream of Southerly WWTC
10/08/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 743 miles²
River Mile: 10.75**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	53	6.770	--	0	--
<i>Oncorhynchus mykiss</i> Rainbow trout	1	0.610	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	51	0.362	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbreast	12	2.253	Moderately Intolerant	1	Eroded tail
<i>Hypentelium nigricans</i> Northern hog sucker	113	8.625	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	130	3.820	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	1	2.800	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	10	0.027	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	18	0.090	--	0	--
<i>Notropis cornutus</i> Common shiner	4	0.029	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	11	0.028	--	0	--
<i>Notropis stramineus</i> Sand shiner	91	0.190	Moderately Intolerant	0	--
<i>Ericymba buccata</i> Silverjaw minnow	1	0.004	--	0	--
<i>Pimephales notatus</i> Bluntnose minnow	46	0.115	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	26	0.085	--	0	--

**Cuyahoga River Upstream of Southerly WWTC
10/08/07**

<i>Ictalurus punctatus</i> Channel catfish	5	5.280	--	2	Eroded barbel
<i>Labidesthes sicculus</i> Brook silverside	1	0.003	Moderately Intolerant	0	--
<i>Morone americana</i> White perch	2	0.270	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	8	1.945	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.008	--	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.002	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	2	0.050	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	9	0.152	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	2	0.005	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	0.600	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	5	0.035	--	0	--
<i>Notropis dorsalis</i> Bigmouth Shiner	1	0.002	--	0	
Totals	606	34.160		3	

*DELT anomalies were observed on 0.495 % of the fish collected.
 Index of Biotic Integrity (IBI) = 36 (Marginally Good)
 Modified Index of Well-Being (MIwb) 9.8 (Exceptional)
 Shannon Diversity Index, wt. 2.376
 Shannon Diversity Index, no. 2.122
 N 822
 B 52.97

**Cuyahoga River Downstream of Southerly WWTC
7/16/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 744 miles²
River Mile: 10.10**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	1	0.072	--	0	--
<i>Ictiobus bubalus</i> Smallmouth buffalo	1	4.140	--	1	Mouth lesion
<i>Moxostoma anisurum</i> Silver Redhorse	1	0.440	Moderately Intolerant	0	
<i>Moxostoma erythrurum</i> Golden redhorse	8	3.650	Moderately Intolerant	2	Deformed tail Body lesion
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	3	0.850	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	20	2.300	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	72	5.588	Highly Tolerant	2	Opercle & tail lesion
<i>Cyprinus carpio</i> Common carp	6	10.850	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	124	0.108	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	48	0.125	--	0	--
<i>Notropis cornutus</i> Common shiner	1	0.002	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	9	0.048	--	0	--
<i>Notropis stramineus</i> Sand shiner	7	0.020	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	9	0.032	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	7	0.014	--	0	--

**Cuyahoga River Downstream of Southerly WWTC
7/16/07**

<i>Ictalurus punctatus</i> Channel catfish	14	9.902	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	5	1.272	Highly Tolerant	1	Deformed fin
<i>Morone americana</i> White perch	4	0.310	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	4	0.410	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	8	2.812	Moderately Intolerant	0	--
<i>Lepomis cyanellus</i> Green sunfish	1	0.030	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	6	0.250	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	4	0.112	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	3	0.050	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	2	0.004	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	1.350	Moderately Tolerant	0	--
Totals	<u>369</u>	<u>44.741</u>		<u>6</u>	

*DELT anomalies were observed on 1.626 % of the fish collected.

Index of Biotic Integrity (IBI) =	34	(Fair)
Modified Index of Well-Being (MIwb)	9.3	(Very Good)
Shannon Diversity Index, wt.	2.272	
Shannon Diversity Index, no.	2.211	
N	296	
B	53.1	

**Cuyahoga River Downstream of Southerly WWTC
9/6/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 744 miles²
River Mile: 10.10**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	27	2.830	--	0	--
<i>Esox lucius</i> Northern pike	1	1.900	--	0	--
<i>Carpionodes cyprinus</i> Central quillback carpsucker	1	1.000	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	6	1.298	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbreast	6	2.406	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	43	4.728	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	47	7.493	Highly Tolerant	1	Body lesion
<i>Cyprinus carpio</i> Common carp	2	7.100	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	6	0.012	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	7	0.030	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	29	0.053	--	0	--
<i>Notropis stramineus</i> Sand shiner	14	0.009	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	19	0.032	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	2	0.004	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	4	4.040	--	1	Mouth lesion

**Cuyahoga River Downstream of Southerly WWTC
9/6/07**

<i>Ictalurus natalis</i> Yellow bullhead	5	0.682	Highly Tolerant	0	--
<i>Morone americana</i> White perch	4	0.546	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	2	0.300	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	21	4.092	Moderately Intolerant	0	--
<i>Lepomis cyanellus</i> Green sunfish	2	0.052	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	2	0.040	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	6	0.200	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	2	0.022	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	7	0.022	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	2	0.014	--	0	--
Totals	<u>267</u>	<u>38.905</u>		<u>2</u>	

*DELT anomalies were observed on 0.749 % of the fish collected.

Index of Biotic Integrity (IBI) =	34	(Fair)
Modified Index of Well-Being (MIwb)	9.8	(Exceptional)
Shannon Diversity Index, wt.	2.646	
Shannon Diversity Index, no.	2.322	
N	360	
B	45.95	

**Cuyahoga River Downstream of Southerly WWTC
10/8/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 744 miles²
River Mile: 10.75**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	27	5.650	--	0	--
<i>Moxostoma erythrurum</i> Golden redhorse	13	1.784	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	9	0.964	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	37	3.702	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	20	3.480	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	7	15.070	Highly Tolerant	0	--
<i>Rhinichthys atratulus</i> Western blacknose dace	1	0.002	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	28	0.065	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	24	0.106	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	62	0.095	--	0	--
<i>Notropis stramineus</i> Sand shiner	27	0.050	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	51	0.108	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	66	0.218	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	9	12.690	--	3	Eroded barbels & fin
<i>Ictalurus natalis</i> Yellow bullhead	4	0.575	Highly Tolerant	0	--

**Cuyahoga River Downstream of Southerly WWTC
10/8/07**

<i>Labidesthes sicculus</i> Brook silverside	1	0.002	Moderately Intolerant	0	--
<i>Morone americana</i> White perch	1	0.135	--	1	Lesion
<i>Ambloplites rupestris</i> Northern rockbass	1	0.180	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	22	4.620	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	4	0.228	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	2	0.083	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	3	0.012	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	2	0.086	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	4	0.035	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	2	0.008	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	1	0.012	--	0	--
Totals	<u>428</u>	<u>49.960</u>		<u>4</u>	

*DELT anomalies were observed on 0.935 % of the fish collected.
 Index of Biotic Integrity (IBI) = 36 (Marginally Good)
 Modified Index of Well-Being (MIwb) 9.9 (Exceptional)
 Shannon Diversity Index, wt. 2.665
 Shannon Diversity Index, no. 1.972
 N 626
 B 60.86

**Cuyahoga River Upstream of Big Creek
7/16/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 749 miles²
River Mile: 7.55**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	31	3.620	--	0	--
<i>Ictiobus cyprinellus</i> Bigmouth buffalo	1	4.570	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	3	0.311	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbreast	2	0.782	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	7	0.720	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	15	0.587	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	21	41.379	Highly Tolerant	1	Body lesion
<i>Carassius auratus</i> Goldfish	3	1.290	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	33	0.070	--	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	2	0.004	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	1	1.250	--	0	--
<i>Ictalurus natalis</i> Yellow perch	1	0.400	Highly Tolerant	1	Mouth lesion
<i>Morone americana</i> White perch	2	0.122	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	11	1.950	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.008	--	0	--

**Cuyahoga River Upstream of Big Creek
7/16/07**

<i>Percina caprodes</i> Northern logperch darter	2	0.032	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	3	0.008	--	0	--
	<hr/>	<hr/>			
Totals	<u>139</u>	<u>57.103</u>		<u>2</u>	

*DELT anomalies were observed on 1.439 % of the fish collected.

Index of Biotic Integrity (IBI) = 22 (Poor)

Modified Index of Well-Being (MIwb) 7.6 (Fair)

Shannon Diversity Index, wt. 2.188

Shannon Diversity Index, no. 1.148

N 188

B 26.63

**Cuyahoga River Upstream of Big Creek
9/6/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 749 miles²
River Mile: 7.55**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	4	1.522	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	10	0.024	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	7	0.330	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	2	0.180	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	18	6.580	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	6	11.610	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	5	0.020	Highly Tolerant	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	13	0.020	--	0	--
<i>Notropis stramineus</i> Sand shiner	4	0.014	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	22	0.032	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	1	0.002	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	1	2.500	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	1	0.100	Highly Tolerant	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	10	2.920	Moderately Intolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.050	Moderately Tolerant	0	--

**Cuyahoga River Upstream of Big Creek
9/6/07**

<i>Percina caprodes</i> Northern logperch darter	1	0.012	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	2	0.012	--	0	--
	<hr/>	<hr/>			
Totals	<u>108</u>	<u>25.928</u>		<u>0</u>	

*DELT anomalies were observed on 0 % of the fish collected.
 Index of Biotic Integrity (IBI) = 26 (Fair)
 Modified Index of Well-Being (MIwb) 7.6 (Fair)
 Shannon Diversity Index, wt. 2.407
 Shannon Diversity Index, no. 1.507
 N 108
 B 15.15

**Cuyahoga River Downstream of Big Creek
7/16/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 786 miles²
River Mile: 7.00**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	39	5.910	--	3	Eroded mouth
<i>Carpionodes cyprinus</i> Central quillback carpsucker	3	2.730	--	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	6	1.174	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	33	3.150	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	15	3.442	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	7	27.836	Highly Tolerant	1	Eroded tail & dorsal
<i>Semotilus atromaculatus</i> Creek chub	1	0.002	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	49	0.130	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	2	0.012	--	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	3	0.006	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	5	6.920	--	1	Eroded barbel
<i>Ictalurus natalis</i> Yellow bullhead	2	0.278	Highly Tolerant	0	--
<i>Morone chrysops</i> White bass	3	0.250	--	0	--
<i>Morone americana</i> White perch	1	0.062	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	7	2.312	Moderately Intolerant	0	--

**Cuyahoga River Downstream of Big Creek
7/16/07**

<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.062	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	7	0.090	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	4	0.012	--	0	--
		<hr/>			
Totals	<u>188</u>	<u>54.378</u>		<u>5</u>	

*DELT anomalies were observed on 2.66 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) 8.7 (Marginally Good)
 Shannon Diversity Index, wt. 2.218
 Shannon Diversity Index, no. 1.651
 N 316
 B 45.49

**Cuyahoga River Downstream of Big Creek
9/6/07**

**Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 786 miles²
River Mile: 7.00**

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	42	5.320	--	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	1	0.622	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	20	2.400	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	9	2.800	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	1	3.600	Highly Tolerant	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	3	0.012	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	1	2.100	--	0	--
<i>Morone americana</i> White perch	2	0.172	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	9	2.750	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	2	0.030	--	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.072	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	2	0.032	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	1	0.008	--	0	--
Totals	<u>94</u>	<u>19.918</u>		<u>0</u>	

*DELT anomalies were observed on 0 % of the fish collected.
Index of Biotic Integrity (IBI) = 34 (Fair)

Cuyahoga River Downstream of Big Creek
9/6/07

Modified Index of Well-Being (MIwb)	7.8	(Fair)
Shannon Diversity Index, wt.	1.736	
Shannon Diversity Index, no.	1.9	
N	162	
B	26.68	