

Cuyahoga River downstream of Tinkers Creek
August 17, 2009

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	1	0.162	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	20	3.150	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	2	0.412	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	49	5.400	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	23	2.737	Highly Tolerant	1	Eroded fin
<i>Minytrema melanops</i> Spotted Sucker	1	0.468	--	0	--
<i>Cyprinus carpio</i> Common carp	6	9.720	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	1	0.006	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	2	0.022	--	0	--
<i>Notropis cornutus</i> Common shiner	43	0.264	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	72	0.300	--	0	--
<i>Notropis stramineus</i> Sand shiner	4	0.012	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	45	0.206	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	5	0.032	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	4	2.370	--	0	--

Cuyahoga River downstream of Tinkers Creek
August 17, 2009

<i>Ictalurus natalis</i> Yellow bullhead	2	0.300	Highly Tolerant	0	--
<i>Morone americana</i> White perch	10	0.500	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	3	0.304	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	19	2.700	Moderately Intolerant	0	--
<i>Lepomis cyanellus</i> Green sunfish	2	0.144	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	3	0.190	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	1	0.042	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	4	0.095	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	10	0.048	Moderately Intolerant	0	--
<i>Etheostoma caeruleum</i> Rainbow darter	2	0.014	Moderately Intolerant	0	--
<i>Etheostoma nigrum</i> Johnny darter	2	0.014	--	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	3	3.866	Moderately Tolerant	0	--
Totals	<u>339</u>	<u>33.478</u>		<u>1</u>	

*DELT anomalies were observed on 0.295 % of the fish collected.
 Index of Biotic Integrity (IBI) = 44 (Very Good)
 Modified Index of Well-Being (MIwb) 9.7 (Exceptional)
 Shannon Diversity Index, wt. 2.524
 Shannon Diversity Index, no. 2.229
 N 500
 B 39.73

Cuyahoga River downstream of Tinkers Creek
September 15, 2009

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>DELT Anomalies</u>	
				<u>#</u>	<u>Descrip</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	5	1.100	--	0	--
<i>Oncorhynchus mykiss</i> Rainbow trout	3	7.218	--	0	--
<i>Moxostoma erythrurum</i> Golden redhorse	22	2.765	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	69	7.564	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	27	3.420	Highly Tolerant	0	--
<i>Minytrema melanops</i> Spotted Sucker	1	0.535	--	0	--
<i>Cyprinus carpio</i> Common carp	7	14.000	Highly Tolerant	0	--
<i>Carassius auratus</i> Goldfish	1	0.250	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	3	0.010	--	0	--
<i>Notropis cornutus</i> Common shiner	110	0.195	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	94	0.380	--	0	--
<i>Notropis stramineus</i> Sand shiner	6	0.010	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	36	0.104	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	1	0.011	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	3	4.350	--	0	--

Cuyahoga River downstream of Tinkers Creek
September 15, 2009

<i>Ictalurus natalis</i> Yellow bullhead	2	0.240	Highly Tolerant	0	--
<i>Morone americana</i> White perch	9	0.590	--	0	--
<i>Pomoxis annularis</i> White crappie	1	0.130	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	5	0.390	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	23	2.960	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	2	0.010	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	3	0.090	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.060	Moderately Tolerant	0	--
<i>Perca flavescens</i> Yellow perch	2	0.052	--	0	--
<i>Percina caprodes</i> Northern logperch darter	7	0.090	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	39	0.092	Moderately Intolerant	0	--
<i>Etheostoma caeruleum</i> Rainbow darter	7	0.014	Moderately Intolerant	0	--
<i>Etheostoma nigrum</i> Johnny darter	4	0.008	--	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	2	2.850	Moderately Tolerant	0	--
Totals	<u>495</u>	<u>49.488</u>		<u>0</u>	

*DELT anomalies were observed on	0	% of the fish collected.
Index of Biotic Integrity (IBI) =	46	(Very Good)
Modified Index of Well-Being (MIwb)	10.0	(Exceptional)
Shannon Diversity Index, wt.	2.469	
Shannon Diversity Index, no.	2.243	
N	814	

Cuyahoga River downstream of Tinkers Creek
September 15, 2009

B

47.15

Cuyahoga River upstream of Mill Creek
August 17, 2009

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	4	0.650	--	0	--
<i>Moxostoma anisurum</i> Silver Redhorse	2	0.684	Moderately Intolerant	0	
<i>Moxostoma erythrurum</i> Golden redhorse	18	2.364	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	3	0.846	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	37	2.250	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	30	2.800	Highly Tolerant	1	Lesion
<i>Cyprinus carpio</i> Common carp	11	16.820	Highly Tolerant	0	--
<i>Carassius auratus</i> Goldfish	3	0.830	Highly Tolerant	1	Lesion
<i>Semotilus atromaculatus</i> Creek chub	3	0.006	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	8	0.054	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	82	0.216	--	0	--
<i>Notropis stramineus</i> Sand shiner	45	0.096	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	24	0.075	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	6	0.008	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	1	0.240	Highly Tolerant	1	Lesion

Cuyahoga River upstream of Mill Creek
August 17, 2009

<i>Morone americana</i> White perch	6	0.210	--	0	--
<i>Pomoxis nigromaculatus</i> Black crappie	1	0.150	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	3	0.310	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	12	2.200	Moderately Intolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.062	Moderately Tolerant	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	4	0.200	Moderately Tolerant	0	--
<i>HYBRID</i> Bluegill X Pumpkinseed	1	0.082	--	0	--
<i>Percina caprodes</i> Northern logperch darter	4	0.040	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	6	0.014	Moderately Intolerant	0	--
<i>Etheostoma nigrum</i> Johnny darter	7	0.016	--	0	--
<i>Neogobius melanostomus</i> Round goby	1	0.008	--	0	--
Totals	<u>323</u>	<u>31.231</u>		<u>3</u>	

*DELT anomalies were observed on 0.929 % of the fish collected.
 Index of Biotic Integrity (IBI) = 38 (Marginally Good)
 Modified Index of Well-Being (MIwb) 8.9 (Good)
 Shannon Diversity Index, wt. 2.538
 Shannon Diversity Index, no. 1.782
 N 486
 B 20.32

Cuyahoga River upstream of Mill Creek
September 15, 2009

River Mile: 11.95

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>DELT Anomalies</u>	
				<u>#</u>	<u>Descrip</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	5	1.300	--	0	--
<i>Moxostoma anisurum</i> Silver Redhorse	1	1.440	Moderately Intolerant	0	
<i>Moxostoma erythrurum</i> Golden redhorse	13	1.730	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	2	0.245	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	35	2.150	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	10	1.830	Highly Tolerant	0	--
<i>Minytrema melanops</i> Spotted Sucker	1	0.004	--	0	
<i>Cyprinus carpio</i> Common carp	12	28.740	Highly Tolerant	0	--
<i>Carassius auratus</i> Goldfish	5	1.320	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	40	0.200	--	0	--
<i>Notropis cornutus</i> Common shiner	2	0.005	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	58	0.192	--	0	--
<i>Notropis stramineus</i> Sand shiner	62	0.120	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	35	0.154	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	8	0.030	--	0	--
<i>Ictalurus nebulosus</i> Brown bullhead	1	0.170	Highly Tolerant	0	--

Cuyahoga River upstream of Mill Creek
September 15, 2009

<i>Morone americana</i> White perch	15	1.480	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	1	0.105	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	10	1.750	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.020	--	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	5	0.225	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	8	0.130	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	4	0.015	Moderately Intolerant	0	--
<i>Etheostoma nigrum</i> Johnny darter	4	0.012	--	0	--
<i>Neogobius melanostomus</i> Round goby	1	0.010	--	0	--
<i>Noturus flavus</i> Stonecat Madtom	1	0.010	Intolerant	0	
Totals	<u>340</u>	<u>43.387</u>		<u>0</u>	

*DELT anomalies were observed on 0 % of the fish collected.
 Index of Biotic Integrity (IBI) = 38 (Marginally Good)
 Modified Index of Well-Being (MIwb) 8.6 (Marginally Good)
 Shannon Diversity Index, wt. 2.567
 Shannon Diversity Index, no. 1.468
 N 522
 B 19.37

Cuyahoga River downstream of Mill Creek
 July 16, 2009

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>
<i>Moxostoma erythrum</i> Golden redhorse	12	1.950	Moderately Intolerant	0
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	3	0.325	Moderately Intolerant	0
<i>Hypentelium nigricans</i> Northern hog sucker	74	8.480	Moderately Intolerant	0
<i>Catostomus commersonii</i> Common white sucker	28	3.151	Highly Tolerant	0
<i>Cyprinus carpio</i> Common carp	2	5.470	Highly Tolerant	0
<i>Semotilus atromaculatus</i> Creek chub	3	0.006	Highly Tolerant	0
<i>Notropis atherinoides</i> Common Emerald shiner	55	0.050	--	0
<i>Cyprinella spiloptera</i> Spotfin shiner	66	0.324	--	0
<i>Notropis stramineus</i> Sand shiner	20	0.035	Moderately Intolerant	0
<i>Pimephales notatus</i> Bluntnose minnow	4	0.010	Highly Tolerant	0
<i>Campostoma anomalum</i> Central stoneroller minnow	1	0.002	--	0
<i>Ictalurus punctatus</i> Channel catfish	9	7.350	--	3
<i>Ictalurus natalis</i> Yellow bullhead	1	0.240	Highly Tolerant	1
<i>Morone americana</i> White perch	11	0.340	--	0
<i>Ambloplites rupestris</i> Northern rockbass	3	0.240	--	0

Cuyahoga River downstream of Mill Creek
July 16, 2009

<i>Micropterus dolomieu</i> Smallmouth bass	36	6.535	Moderately Intolerant	0
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.055	Moderately Tolerant	0
<i>HYBRID</i> Bluegill X Pumpkinseed	2	0.030	--	0
<i>Percina caprodes</i> Northern logperch darter	16	0.170	Moderately Intolerant	0
<i>Aplodinotus grunniens</i> Freshwater drum	1	0.400	Moderately Tolerant	0
Totals	<u>348</u>	<u>35.163</u>		<u>4</u>

*DELT anomalies were observed on 1.149425 % of the fish collected.

Index of Biotic Integrity (IBI) = 44 (Very Good)

Modified Index of Well-Being (MIwb) 9.4 (Very Good)

Shannon Diversity Index, wt. 2.299956

Shannon Diversity Index, no. 1.961754

N 594

B 51.832

Cuyahoga River downstream of Mill Creek
September 14, 2009

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>DELT Anomalies</u>	
				<u>#</u>	<u>Descrip</u>
<i>Dorosoma cepedianum</i> Eastern gizzard shad	3	0.500	--	0	--
<i>Oncorhynchus mykiss</i> Rainbow trout	1	3.000	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	2	0.600	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	6	0.650	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	90	12.160	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	26	3.870	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	6	14.010	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	7	0.030	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	6	0.050	--	0	--
<i>Notropis cornutus</i> Common shiner	11	0.040	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	25	0.100	--	0	--
<i>Notropis stramineus</i> Sand shiner	49	0.112	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	4	0.025	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	12	0.030	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	2	2.450	--	0	--

Cuyahoga River downstream of Mill Creek
September 14, 2009

<i>Ictalurus natalis</i> Yellow bullhead	2	0.200	Highly Tolerant	0	--
<i>Morone americana</i> White perch	11	0.120	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	3	0.300	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	36	6.100	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.050	--	0	--
<i>Percina caprodes</i> Northern logperch darter	10	0.180	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	7	0.320	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	2	1.800	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	2	0.050	--	0	--
Totals	<u>324</u>	<u>46.747</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)	9.6	(Very Good)
Shannon Diversity Index, wt.	2.466	
Shannon Diversity Index, no.	1.999	
N	530	
B	50.88	

Cuyahoga River upstream of Southerly WWTC
July 14, 2009

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>Carpiodes cyprinus</i> Central quillback carpsucker	1	0.198	--	0	--
<i>Moxostoma erythrurum</i> Golden redhorse	22	3.344	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	1	0.210	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	76	7.800	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	34	3.200	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	17	35.400	Highly Tolerant	1	Eroded fin
<i>Carassius auratus</i> Goldfish	1	0.250	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	1	0.060	Highly Tolerant	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	44	0.236	--	0	--
<i>Notropis stramineus</i> Sand shiner	23	0.072	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	23	0.073	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	9	0.062	--	0	--
<i>Ctenophargngodon idella</i> Grass carp	1	5.650	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	10	8.180	--	2	Eroded barbels, tail
<i>Ictalurus natalis</i> Yellow bullhead	2	0.210	Highly Tolerant	0	--

Cuyahoga River upstream of Southerly WWTC
July 14, 2009

<i>Ictalurus nebulosus</i> Brown bullhead	1	0.261	Highly Tolerant	0	--
<i>Morone chrysops</i> White bass	5	0.250	--	0	--
<i>Morone americana</i> White perch	5	0.470	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	2	0.110	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	7	1.500	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.050	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	1	0.034	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.080	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	13	0.144	Moderately Intolerant	0	--
<i>Etheostoma nigrum</i> Johnny darter	1	0.001	--	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	2.200	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	5	0.110	--	0	--
Totals	<u>308</u>	<u>70.155</u>		<u>3</u>	

*DELT anomalies were observed on 0.974 % of the fish collected.
 Index of Biotic Integrity (IBI) = 38 (Marginally Good)
 Modified Index of Well-Being (MIwb) 9.2 (Very Good)
 Shannon Diversity Index, wt. 2.507
 Shannon Diversity Index, no. 1.761
 N 434
 B 48.87

Cuyahoga River upstream of Southerly WWTC
September 11, 2009

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	3	0.040	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	7	1.960	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	15	0.874	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	130	10.770	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	62	5.580	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	1	1.500	Highly Tolerant	0	--
<i>Carassius auratus</i> Goldfish	1	0.104	Highly Tolerant	0	--
<i>Rhinichthys atratulus</i> Western blacknose dace	1	0.004	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	12	0.030	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	3	0.010	--	0	--
<i>Notropis cornutus</i> Common shiner	3	0.012	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	27	0.093	--	0	--
<i>Notropis stramineus</i> Sand shiner	10	0.022	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	23	0.095	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	105	0.300	--	0	--

Cuyahoga River upstream of Southerly WWTC
September 11, 2009

<i>Ictalurus punctatus</i> Channel catfish	5	4.700	--	1	Eroded barbels
<i>Ictalurus natalis</i> Yellow bullhead	5	0.625	Highly Tolerant	0	--
<i>Morone americana</i> White perch	4	0.420	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	1	0.130	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	15	5.200	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	2	0.026	--	0	--
<i>Lepomis gulosus</i> Warmouth sunfish	1	0.050	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	1	0.021	Highly Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	6	0.066	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	4	0.011	Moderately Intolerant	0	--
<i>Etheostoma nigrum</i> Johnny darter	2	0.004	--	0	--
<i>Neogobius melanostomus</i> Round goby	11	0.056	--	0	--
Totals	<u>460</u>	<u>32.703</u>		<u>1</u>	

*DELT anomalies were observed on 0.217 % of the fish collected.
 Index of Biotic Integrity (IBI) = 40 (Good)
 Modified Index of Well-Being (MIwb) 9.5 (Very Good)
 Shannon Diversity Index, wt. 2.298
 Shannon Diversity Index, no. 1.968
 N 678
 B 48.54

Cuyahoga River upstream of Southerly WWTC
 October 15, 2009

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>Oncorhynchus mykiss</i> Rainbow trout	2	1.300	--	0	--
<i>Moxostoma erythrurum</i> Golden redhorse	2	0.385	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	1	0.655	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	63	6.760	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	53	3.110	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	1	2.090	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	1	0.005	Highly Tolerant	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	9	0.052	--	0	--
<i>Notropis stramineus</i> Sand shiner	24	0.034	Moderately Intolerant	0	--
<i>Ericymba buccata</i> Silverjaw minnow	1	0.004	--	0	--
<i>Pimephales notatus</i> Bluntnose minnow	12	0.047	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	190	0.550	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	5	6.490	--	2	Eroded barbel, multiple
<i>Ictalurus natalis</i> Yellow bullhead	2	0.102	Highly Tolerant	0	--
<i>Ambloplites rupestris</i> Northern rockbass	2	0.130	--	0	--

Cuyahoga River upstream of Southerly WWTC
October 15, 2009

<i>Micropterus dolomieu</i> Smallmouth bass	7	2.560	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	2	0.070	--	0	--
<i>Lepomis gibbosus</i> Pumpkinseed sunfish	1	0.052	Moderately Tolerant	0	--
<i>Perca flavescens</i> Yellow perch	2	0.150	--	0	--
<i>Percina caprodes</i> Northern logperch darter	1	0.015	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	5	0.051	--	0	--
Totals	<u>386</u>	<u>24.612</u>		<u>2</u>	

*DELT anomalies were observed on 0.518 % of the fish collected.

Index of Biotic Integrity (IBI) =	30	(Fair)
Modified Index of Well-Being (MIwb)	8.7	(Good)
Shannon Diversity Index, wt.	1.727	
Shannon Diversity Index, no.	1.98	
N	620	
B	35.81	

Cuyahoga River downstream of Southerly WWTC
 July 14, 2009

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>Moxostoma erythrurum</i> Golden redbhorse	12	1.865	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	27	2.702	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	30	4.378	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	13	28.210	Highly Tolerant	1	Eroded tail
<i>Notropis atherinoides</i> Common Emerald shiner	18	0.057	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	37	0.096	--	0	--
<i>Notropis stramineus</i> Sand shiner	31	0.045	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	63	0.125	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	44	0.056	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	1	0.200	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	1	0.180	Highly Tolerant	0	--
<i>Morone chrysops</i> White bass	9	0.525	--	0	--
<i>Morone americana</i> White perch	16	0.675	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	1	0.052	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	12	2.040	Moderately Intolerant	0	--

Cuyahoga River downstream of Southerly WWTC
July 14, 2009

<i>Micropterus salmoides</i> Largemouth bass	1	0.002	--	0	--
<i>Percina caprodes</i> Northern logperch darter	8	0.075	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	0.670	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	2	0.006	--	0	--
	<hr/>	<hr/>			
Totals	<u>327</u>	<u>41.959</u>		<u>1</u>	

*DELT anomalies were observed on 0.306 % of the fish collected.

Index of Biotic Integrity (IBI) = 26 (Fair)

Modified Index of Well-Being (MIwb) 8.2 (Fair)

Shannon Diversity Index, wt. 2.47

Shannon Diversity Index, no. 1.279

N 404

B 16.77

Cuyahoga River downstream of Southerly WWTC
September 11, 2009

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>Moxostoma erythrurum</i> Golden redbhorse	8	2.090	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	6	0.562	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	50	3.584	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	39	6.750	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	2	9.270	Highly Tolerant	0	--
<i>Rhinichthys atratulus</i> Western blacknose dace	2	0.005	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	18	0.040	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	4	0.026	--	0	--
<i>Notropis cornutus</i> Common shiner	4	0.014	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	28	0.108	--	0	--
<i>Notropis stramineus</i> Sand shiner	52	0.110	Moderately Intolerant	0	--
<i>Pimephales promelas</i> Northern fathead minnow	1	0.004	Highly Tolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	47	0.172	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	46	0.092	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	7	5.075	--	0	--

Cuyahoga River downstream of Southerly WWTC
September 11, 2009

<i>Ictalurus natalis</i> Yellow bullhead	2	0.165	Highly Tolerant	0	--
<i>Morone chrysops</i> White bass	2	0.180	--	0	--
<i>Morone americana</i> White perch	22	1.400	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	12	5.350	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	2	0.028	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	2	0.054	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.056	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	7	0.085	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	1	0.004	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	2	2.250	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	13	0.094	--	0	--
Totals	<u>380</u>	<u>37.568</u>		<u>0</u>	

*DELT anomalies were observed on 0 % of the fish collected.
 Index of Biotic Integrity (IBI) = 34 (Fair)
 Modified Index of Well-Being (MIwb) 9.7 (Exceptional)
 Shannon Diversity Index, wt. 2.643
 Shannon Diversity Index, no. 2.135
 N 464
 B 39.23

Cuyahoga River downstream of Southerly WWTC
 October 15, 2009

River Mile: 10.10

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>DELTA Anomalies #</u>	<u>Description</u>
<i>Oncorhynchus mykiss</i> Rainbow trout	2	0.882	--	0	--
<i>Moxostoma erythrurum</i> Golden redbreast	9	3.173	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	18	1.800	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	21	4.320	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	2	3.590	Highly Tolerant	0	--
<i>Rhinichthys atratulus</i> Western blacknose dace	5	0.010	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	6	0.020	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	21	0.120	--	0	--
<i>Notropis cornutus</i> Common shiner	7	0.025	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	94	0.190	--	0	--
<i>Notropis stramineus</i> Sand shiner	125	0.273	Moderately Intolerant	0	--
<i>Pimephales promelas</i> Northern fathead minnow	2	0.010	Highly Tolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	50	0.116	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	51	0.162	--	0	--
<i>Ctenopharyngodon idella</i> Grass carp	2	16.890	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	13	17.060	--	3	Eroded barbels

Cuyahoga River downstream of Southerly WWTC
October 15, 2009

<i>Ictalurus natalis</i> Yellow bullhead	2	0.135	Highly Tolerant	0	--
<i>Morone americana</i> White perch	17	1.060	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	17	6.550	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.008	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	1	0.030	Highly Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	1	0.012	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	3	0.010	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	1.320	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	12	0.086	--	0	--
<i>Gambusia affinis</i> Western Mosquitofish	1	0.001	--	0	--
Totals	<u>484</u>	<u>57.853</u>		<u>3</u>	

*DELT anomalies were observed on 0.62 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) 9.7 (Exceptional)
 Shannon Diversity Index, wt. 2.404
 Shannon Diversity Index, no. 1.95
 N 722
 B 61.41

Cuyahoga River upstream of Big Creek
September 4, 2009

Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 745 miles²
River Mile: 8.60

<u>Species</u>	<u>Number</u>	<u>Weight (kg)</u>	<u>Pollution Tolerance</u>	<u>#</u>	<u>DELT Anomalies Description</u>
<i>Moxostoma erythrurum</i> Golden redbhorse	8	2.254	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	165	7.580	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	25	1.120	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	7	16.400	Highly Tolerant	0	--
<i>Rhinichthys atratulus</i> Western blacknose dace	11	0.030	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	11	0.042	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	8	0.050	--	0	--
<i>Notropis cornutus</i> Common shiner	1	0.006	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	65	0.382	--	1	Deformity
<i>Notropis stramineus</i> Sand shiner	108	0.330	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	12	0.036	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	59	0.200	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	4	3.000	--	0	--
<i>Morone americana</i> White perch	5	0.218	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	6	1.600	Moderately Intolerant	0	--

Cuyahoga River upstream of Big Creek
September 4, 2009

<i>Percina caprodes</i> Northern logperch darter	14	0.120	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	1	1.300	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	6	0.060	--	0	--
<i>Noturus flavus</i> Stonecat Madtom	1	0.003	Intolerant	0	
	<hr/>	<hr/>			
Totals	<u>517</u>	<u>34.731</u>		<u>1</u>	

*DELT anomalies were observed on 0.193 % of the fish collected.

Index of Biotic Integrity (IBI) = 40 (Good)

Modified Index of Well-Being (MIwb) 8.9 (Good)

Shannon Diversity Index, wt. 2.105

Shannon Diversity Index, no. 1.67

N 880

B 33.65

Cuyahoga River upstream of Big Creek
October 14, 2009

Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 745 miles²
River Mile: 8.60

<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	0.060	--	0	--
<i>Oncorhynchus mykiss</i> Rainbow trout	2	4.500	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	7	0.260	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbreast	2	1.620	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	131	8.490	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	24	1.836	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	4	15.110	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	18	0.100	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	60	0.098	--	0	--
<i>Notropis stramineus</i> Sand shiner	65	0.142	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	30	0.100	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	15	0.055	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	6	6.650	--	1	Deformed barbel
<i>Ambloplites rupestris</i> Northern rockbass	2	0.550	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	7	3.350	Moderately Intolerant	0	--

Cuyahoga River upstream of Big Creek
October 14, 2009

<i>Micropterus salmoides</i> Largemouth bass	2	0.070	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	1	0.062	Highly Tolerant	0	--
<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.132	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	4	0.028	--	0	--
Totals	<u>382</u>	<u>43.213</u>		<u>1</u>	

*DELT anomalies were observed on 0.262 % of the fish collected.

Index of Biotic Integrity (IBI) = 40 (Good)

Modified Index of Well-Being (MIwb) 9.0 (Good)

Shannon Diversity Index, wt. 2.068

Shannon Diversity Index, no. 1.873

N 634

B 43.15

Cuyahoga River upstream of Big Creek
July 14, 2009

Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 746 miles²
River Mile: 8.20

<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	2	0.190	--	0	--
<i>Carpionodes cyprinus</i> Central quillback carpsucker	2	1.410	--	0	--
<i>Moxostoma erythrum</i> Golden redbreast	8	1.260	Moderately Intolerant	1	Lesion
<i>Hypentelium nigricans</i> Northern hog sucker	14	1.401	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	91	2.040	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	1	1.280	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	59	0.116	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	38	0.248	--	0	--
<i>Notropis stramineus</i> Sand shiner	2	0.004	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	32	0.066	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	33	0.036	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	6	6.250	--	4	Eroded barbels
<i>Morone americana</i> White perch	10	0.340	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	8	2.300	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.002	--	0	--

Cuyahoga River upstream of Big Creek
July 14, 2009

<i>Percina caprodes</i> Northern logperch darter	1	0.030	Moderately Intolerant	0	--
<i>Aplodinotus grunniens</i> Freshwater drum	2	1.950	Moderately Tolerant	0	--
<i>Neogobius melanostomus</i> Round goby	4	0.040	--	0	--
		<hr/>			
Totals	<u>314</u>	<u>18.963</u>		<u>5</u>	

*DELT anomalies were observed on 1.592 % of the fish collected.

Index of Biotic Integrity (IBI) =	24	(Poor)
Modified Index of Well-Being (MIwb)	8.9	(Good)
Shannon Diversity Index, wt.	2.149	
Shannon Diversity Index, no.	2.107	
N	352	
B	30.39	

Cuyahoga River upstream of Big Creek
September 4, 2009

Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 746 miles²
River Mile: 8.20

<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	11	1.100	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	1	0.003	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	6	1.612	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	36	1.340	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	34	3.083	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	1	2.920	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	12	0.030	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	10	0.056	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	39	0.097	--	0	--
<i>Notropis stramineus</i> Sand shiner	93	0.185	Moderately Intolerant	0	--
<i>Notropis volucellus</i> Mimic Shiner	1	0.002	Common Intolerant	0	--
<i>Ericymba buccata</i> Silverjaw minnow	1	0.003	--	0	--
<i>Pimephales promelas</i> Northern fathead minnow	1	0.003	Highly Tolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	39	0.100	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	35	0.078	--	0	--

Cuyahoga River upstream of Big Creek
September 4, 2009

<i>Ictalurus punctatus</i> Channel catfish	2	0.600	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	1	0.075	Highly Tolerant	0	--
<i>Morone americana</i> White perch	23	1.160	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	15	4.550	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	1	0.035	--	0	--
<i>Lepomis cyanellus</i> Green sunfish	4	0.056	Highly Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	1	0.015	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	1	0.008	Moderately Intolerant	0	--
<i>Etheostoma nigrum</i> Johnny darter	1	0.002	--	0	--
<i>Neogobius melanostomus</i> Round goby	9	0.049	--	0	--
Totals	<u>378</u>	<u>17.162</u>		<u>0</u>	

*DELT anomalies were observed on 0 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) 9.2 (Very Good)
 Shannon Diversity Index, wt. 2.469
 Shannon Diversity Index, no. 2.109
 N 508
 B 19.37

Cuyahoga River upstream of Big Creek
October 14, 2009

Collection Distance: 0.5 km
Collection Method: Boat Electroshocking
Drainage Area: 746 miles²
River Mile: 8.20

<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	2	0.575	--	0	--
<i>Oncorhynchus mykiss</i> Rainbow trout	2	2.085	--	0	--
<i>Moxostoma erythrum</i> Golden redhorse	2	0.560	Moderately Intolerant	1	Erosion
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	2	1.250	Moderately Intolerant	1	Erosion
<i>Hypentelium nigricans</i> Northern hog sucker	18	2.340	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	12	2.300	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	4	8.400	Highly Tolerant	0	--
<i>Rhinichthys atratulus</i> Western blacknose dace	1	0.020	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	7	0.070	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	67	0.098	--	0	--
<i>Notropis stramineus</i> Sand shiner	3	0.020	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	13	0.033	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	3	4.700	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	17	6.865	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	3	0.150	--	0	--

Cuyahoga River upstream of Big Creek
October 14, 2009

<i>Lepomis macrochirus</i> Northern bluegill sunfish	2	0.140	Moderately Tolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	2	0.040	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	4	0.050	--	0	--
		<hr/>			
Totals	<u>164</u>	<u>29.696</u>		<u>2</u>	

*DELT anomalies were observed on 1.22 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) 8.6 (Marginally Good)
 Shannon Diversity Index, wt. 2.124
 Shannon Diversity Index, no. 1.979
 N 256
 B 33.62

Cuyahoga River downstream of Big Creek
July 14, 2009

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	13	3.000	--	5	Eroded mouths
<i>Moxostoma erythrurum</i> Golden redbhorse	6	1.450	Moderately Intolerant	0	--
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	6	1.000	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	27	2.675	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	18	6.326	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	6	13.800	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	1	0.002	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	2	0.008	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	7	0.052	--	0	--
<i>Pimephales notatus</i> Bluntnose minnow	10	0.070	Highly Tolerant	0	--
<i>Ictalurus punctatus</i> Channel catfish	3	3.950	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	1	0.350	Highly Tolerant	0	--
<i>Morone chrysops</i> White bass	2	0.120	--	0	--
<i>Morone americana</i> White perch	5	0.320	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	1	0.140	--	0	--

Cuyahoga River downstream of Big Creek
July 14, 2009

<i>Micropterus dolomieu</i> Smallmouth bass	2	0.625	Moderately Intolerant	0	--
<i>Percina caprodes</i> Northern logperch darter	10	0.116	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	6	0.082	--	0	--
		<hr/>			
Totals	<u>126</u>	<u>34.086</u>		<u>5</u>	

*DELT anomalies were observed on 3.968 % of the fish collected.
 Index of Biotic Integrity (IBI) = 24 (Poor)
 Modified Index of Well-Being (MIwb) 8.5 (Marginally Good)
 Shannon Diversity Index, wt. 2.515
 Shannon Diversity Index, no. 1.845
 N 158
 B 26.27

Cuyahoga River downstream of Big Creek
September 4, 2009

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	8	1.600	--	0	--
<i>Oncorhynchus mykiss</i> Rainbow trout	1	3.000	--	0	--
<i>Moxostoma erythrurum</i> Golden redbhorse	4	1.310	Moderately Intolerant	1	Lesion
<i>Moxostoma macrolepidotum</i> Shorthead redbhorse	6	0.355	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	34	4.100	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	11	4.354	Highly Tolerant	0	--
<i>Cyprinus carpio</i> Common carp	1	3.150	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	7	0.042	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	2	0.022	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	9	0.050	--	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	19	0.050	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	4	5.600	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	1	0.125	Highly Tolerant	1	Lesion
<i>Labidesthes sicculus</i> Brook silverside	1	0.004	Moderately Intolerant	0	--
<i>Morone americana</i> White perch	1	0.182	--	0	--

Cuyahoga River downstream of Big Creek
September 4, 2009

<i>Micropterus dolomieu</i> Smallmouth bass	10	6.200	Moderately Intolerant	0	--
<i>Micropterus salmoides</i> Largemouth bass	3	0.078	--	0	--
<i>Percina caprodes</i> Northern logperch darter	4	0.055	Moderately Intolerant	0	--
<i>Etheostoma blenniodes</i> Greenside darter	1	0.004	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	21	0.215	--	0	--
Totals	<u>148</u>	<u>30.496</u>		<u>2</u>	

*DELT anomalies were observed on 1.351 % of the fish collected.
 Index of Biotic Integrity (IBI) = 36 (Marginally Good)
 Modified Index of Well-Being (MIwb) 9.1 (Very Good)
 Shannon Diversity Index, wt. 2.489
 Shannon Diversity Index, no. 2.139
 N 210
 B 38.86

Cuyahoga River downstream of Big Creek
October 14, 2009

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	14	1.992	--	4	Erosions
<i>Moxostoma macrolepidotum</i> Shorthead redhorse	1	0.590	Moderately Intolerant	0	--
<i>Hypentelium nigricans</i> Northern hog sucker	23	2.980	Moderately Intolerant	0	--
<i>Catostomus commersonii</i> Common white sucker	5	2.740	Highly Tolerant	0	--
<i>Notemigonus crysoleucas</i> Golden shiner	3	0.022	Highly Tolerant	0	--
<i>Semotilus atromaculatus</i> Creek chub	3	0.020	Highly Tolerant	0	--
<i>Notropis atherinoides</i> Common Emerald shiner	94	0.400	--	0	--
<i>Notropis cornutus</i> Common shiner	1	0.006	--	0	--
<i>Cyprinella spiloptera</i> Spotfin shiner	4	0.012	--	0	--
<i>Notropis stramineus</i> Sand shiner	1	0.005	Moderately Intolerant	0	--
<i>Pimephales notatus</i> Bluntnose minnow	3	0.006	Highly Tolerant	0	--
<i>Campostoma anomalum</i> Central stoneroller minnow	1	0.005	--	0	--
<i>Ictalurus punctatus</i> Channel catfish	1	0.770	--	0	--
<i>Ictalurus natalis</i> Yellow bullhead	1	0.023	Highly Tolerant	0	--
<i>Labidesthes sicculus</i> Brook silverside	13	0.032	Moderately Intolerant	0	--

Cuyahoga River downstream of Big Creek
October 14, 2009

<i>Morone americana</i> White perch	1	0.010	--	0	--
<i>Ambloplites rupestris</i> Northern rockbass	1	0.130	--	0	--
<i>Micropterus dolomieu</i> Smallmouth bass	2	0.720	Moderately Intolerant	0	--
<i>Neogobius melanostomus</i> Round goby	9	0.074	--	0	--
	<hr/>	<hr/>			
Totals	<u>181</u>	<u>10.537</u>		<u>4</u>	

*DELT anomalies were observed on 2.21 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) 7.9 (Fair)
 Shannon Diversity Index, wt. 1.806
 Shannon Diversity Index, no. 1.857
 N 312
 B 15.28