

Cuyahoga River Upstream of Mill Creek

August 5, 2016

River Mile: 11.95

Collection Method: Boat Electrofishing

Drainage Area: 709 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	6	0.5	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	11	6.911	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	2	0.7	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	8	1.3	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	8	0.042	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	5	11.339	Highly Tolerant	1	Deformity
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	22	0.11	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	56	0.17	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	11	0.017	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	1	0.008	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	1	0.008	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	7	6.81	--	2	Erosion & Lesion
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	0.35	--	0	---
74-001	<i>Morone chrysops</i> White bass	4	0.32	--	0	---
74-003	<i>Morone americana</i> White perch	1	0.025	--	0	---

Cuyahoga River Upstream of Mill Creek

August 5, 2016

River Mile: 11.95

77-002	<i>Pomoxis nigromaculatus</i> Black crappie	3	0.48	--	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.01	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	8	2.78	Moderately Intolerant	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	2	0.03	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.078	Moderately Tolerant	0	---
77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	1	0.03	Moderately Tolerant	0	---
80-003	<i>Perca flavescens</i> Yellow perch	1	0.032	--	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.003	--	0	---
	Totals	<u>162</u>	<u>32.053</u>		<u>3</u>	

*DELT anomalies were observed on	1.85	% of the fish collected.
Index of Biotic Integrity (IBI) =	38	(Marginally Good)
Modified Index of Well-Being (MIwb) =	8.8	(Good)
Shannon Diversity Index, no.	2.371	
Shannon Diversity Index, wt.	1.784	
N	288	
B	41.21	

Cuyahoga River Upstream of Mill Creek
September 28, 2016
River Mile: 11.95
Collection Method: Boat Electrofishing
Drainage Area: 709 miles²
Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	13	2.405	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	7	1.982	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	12	2.295	Moderately Intolerant	1	Lesion
40-016	<i>Catostomus commersonii</i> Common white sucker	3	0.03	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	4	6.801	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	16	0.08	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	54	0.119	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	3	0.012	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	1	0.004	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	2	0.035	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	2	1.3	--	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.045	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	14	2.39	Moderately Intolerant	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	1	0.062	--	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	1	0.05	Highly Tolerant	0	---

Cuyahoga River Upstream of Mill Creek

September 28, 2016

River Mile: 11.95

77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	2	0.138	Moderately Tolerant	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	1	0.008	Moderately Intolerant	0	---
80-022	<i>Etheostoma caeruleum</i> Rainbow darter	1	0.002	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	1	1.1	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.002	--	0	---
	Totals	<u>140</u>	<u>18.860</u>		<u>1</u>	

*DELT anomalies were observed on	0.71	% of the fish collected.
Index of Biotic Integrity (IBI) =	40	(Good)
Modified Index of Well-Being (MIwb) =	8.4	(Marginally Good)
Shannon Diversity Index, no.	2.157	
Shannon Diversity Index, wt.	1.909	
N	260	
B	23.95	

Cuyahoga River Downstream of Mill Creek

August 5, 2016

River Mile: 11.30

Collection Method: Boat Electrofishing

Drainage Area: 730 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	58	1.528	--	0	---
40-005	<i>Carpiodes cyprinus</i> Central quillback carpsucker	1	0.005	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	4	1.556	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	6	1.749	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	11	2.519	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	12	1.24	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	1	5.2	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	12	0.05	--	0	---
43-026	<i>Notropis cornutus</i> Common shiner	3	0.04	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	49	0.168	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	38	0.063	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	2	0.01	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	3	0.013	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	8	10.225	--	0	---
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	2	--	0	---

Cuyahoga River Downstream of Mill Creek

August 5, 2016

River Mile: 11.30

74-001	<i>Morone chrysops</i> White bass	1	0.12	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	12	1.82	Moderately Intolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.028	Moderately Tolerant	0	---
77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	1	0.03	Moderately Tolerant	0	---
80-002	<i>Sander vitreus</i> Walleye	1	0.21	--	0	---
80-003	<i>Perca flavescens</i> Yellow perch	1	0.03	--	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	3	0.021	--	0	---
	Totals	<u>229</u>	<u>28.625</u>		<u>0</u>	

*DELT anomalies were observed on	0.00	% of the fish collected.
Index of Biotic Integrity (IBI) =	34	(Fair)
Modified Index of Well-Being (MIwb) =	9.2	(Very Good)
Shannon Diversity Index, no.	2.27	
Shannon Diversity Index, wt.	2.031	
N	422	
B	44.31	

Cuyahoga River Downstream of Mill Creek

September 26, 2016

River Mile: 11.30

Collection Method: Boat Electrofishing

Drainage Area: 730 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	37	5.45	--	0	---
40-005	<i>Carpodes cyprinus</i> Central quillback carpsucker	6	0.03	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	10	2.895	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	5	3.315	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	21	3.75	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	11	0.065	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	1	1.814	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	26	0.108	--	0	---
43-025	<i>Notropis chrysocephalus</i> Striped shiner	8	0.022	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	30	0.089	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	4	0.008	Moderately Intolerant	0	---
43-042	<i>Pimephales promelas</i> Northern fathead minnow	1	0.01	Highly Tolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	3	0.01	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	21	0.15	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	7	5.6	--	0	---

Cuyahoga River Downstream of Mill Creek

September 26, 2016

River Mile: 11.30

74-001	<i>Morone chrysops</i> White bass	1	0.17	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	15	5.925	Moderately Intolerant	1	Lesion
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.04	Moderately Tolerant	0	---
80-002	<i>Sander vitreus</i> Walleye	1	0.28	--	0	---
80-015	<i>Etheostoma blenniodes</i> Greenside darter	2	0.008	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	1	2.1	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	2	0.025	--	0	---
	Totals	<u>214</u>	<u>31.864</u>		<u>1</u>	

*DELT anomalies were observed on	0.47	% of the fish collected.
Index of Biotic Integrity (IBI) =	34	(Fair)
Modified Index of Well-Being (MIwb) =	9.7	(Exceptional)
Shannon Diversity Index, no.	2.567	
Shannon Diversity Index, wt.	2.146	
N	392	
B	59.88	

Cuyahoga River Upstream of Southerly WWTC

September 2, 2016

River Mile: 10.75

Collection Method: Boat Electrofishing

Drainage Area: 743 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	11	0.9	--	0	---
40-005	<i>Carpoides cyprinus</i> Central quillback carpsucker	2	0.014	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	16	2.068	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	3	2.48	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	25	3.48	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	5	0.551	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	10	30.391	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	13	0.048	--	0	---
43-026	<i>Notropis cornutus</i> Common shiner	3	0.09	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	10	0.044	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	4	0.01	Moderately Intolerant	0	---
43-039	<i>Ericymba buccata</i> Silverjaw minnow	1	0.004	--	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	3	0.01	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	42	0.308	--	0	---
43-047	<i>Ctenophargngodon idella</i> Grass carp	2	12.701	--	0	---

Cuyahoga River Upstream of Southerly WWTC

September 2, 2016

River Mile: 10.75

47-002	<i>Ictalurus punctatus</i> Channel catfish	13	13.148	--	2	Erosion
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	1.86	--	0	---
74-003	<i>Morone americana</i> White perch	2	0.077	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	16	5.4	Moderately Intolerant	0	---
77-016	<i>HYBRID</i> Green SF X Pumpkinseed	1	0.052	--	0	---
80-002	<i>Sander vitreus</i> Walleye	1	0.37	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	4	0.07	Moderately Intolerant	0	---
80-015	<i>Etheostoma blenniodes</i> Greenside darter	1	0.004	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	6	7.257	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	4	0.029	--	0	---
Totals		<u>199</u>	<u>81.366</u>		<u>2</u>	

*DELTA anomalies were observed on	1.01	% of the fish collected.
Index of Biotic Integrity (IBI) =	36	(Marginally Good)
Modified Index of Well-Being (MIwb) =	9.7	(Exceptional)
Shannon Diversity Index, no.	2.707	
Shannon Diversity Index, wt.	1.939	
N	344	
B	75.11	

Cuyahoga River Downstream of Southerly WWTC

September 2, 2016

River Mile: 10.10

Collection Method: Boat Electrofishing

Drainage Area: 744 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	17	2.67	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	7	1.034	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	6	2.076	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	16	1.725	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	2	0.275	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	4	5.443	Highly Tolerant	0	---
43-011	<i>Rhinichthys atratulus</i> Blacknose dace	3	0.014	Highly Tolerant	0	---
43-013	<i>Semotilus atromaculatus</i> Creek chub	1	0.004	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	6	0.028	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	14	0.036	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	13	0.039	Moderately Intolerant	0	---
43-042	<i>Pimephales promelas</i> Northern fathead minnow	1	0.002	Highly Tolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	6	0.012	Highly Tolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	10	6.35	--	4	Erosion
74-001	<i>Morone chrysops</i> White bass	1	0.28	--	0	---

Cuyahoga River Downstream of Southerly WWTC

September 2, 2016

River Mile: 10.10

77-004	<i>Micropterus dolomieu</i> Smallmouth bass	11	4.367	Moderately Intolerant	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	1	0.035	Highly Tolerant	0	---
80-002	<i>Sander vitreus</i> Walleye	1	0.275	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	5	0.12	Moderately Intolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	5	0.09	--	0	---
	Totals	<u>130</u>	<u>24.875</u>		<u>4</u>	

*DELT anomalies were observed on	3.08	% of the fish collected.
Index of Biotic Integrity (IBI) =	32	(Fair)
Modified Index of Well-Being (MIwb) =	9.2	(Very Good)
Shannon Diversity Index, no.	2.68	
Shannon Diversity Index, wt.	1.993	
N	214	
B	38	

Cuyahoga River Upstream of Big Creek
September 2, 2016
River Mile: 8.60
Collection Method: Boat Electrofishing
Drainage Area: 745 miles²
Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	5	0.475	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	14	0.044	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	6	1.61	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	29	2.562	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	8	0.095	Highly Tolerant	0	---
43-011	<i>Rhinichthys atratulus</i> Blacknose dace	3	0.009	Highly Tolerant	0	---
43-013	<i>Semotilus atromaculatus</i> Creek chub	1	0.004	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	24	0.09	--	0	---
43-026	<i>Notropis cornutus</i> Common shiner	4	0.015	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	11	0.037	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	16	0.031	Moderately Intolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	39	0.226	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	8	5.244	--	1	Erosion
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	2.268	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	2	1.278	Moderately Intolerant	0	---

**Cuyahoga River Upstream of Big Creek
September 2, 2016**

		River Mile:	8.60			
77-006	<i>Micropterus salmoides</i> Largemouth bass	2	0.475	--	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.045	Moderately Tolerant	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	5	0.05	Moderately Intolerant	0	---
80-015	<i>Etheostoma blenniodes</i> Greenside darter	3	0.015	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	1	0.058	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	20	0.02	--	0	---
Totals		<u>203</u>	<u>14.651</u>		<u>1</u>	

*DELT anomalies were observed on 0.49 % of the fish collected.
 Index of Biotic Integrity (IBI) = 38 (Marginally Good)
 Modified Index of Well-Being (MIwb) = 9.1 (Good)
 Shannon Diversity Index, no. 2.557
 Shannon Diversity Index, wt. 1.902
 N 342
 B 29.05

Big Creek Upstream of Big Creek
October 6, 2016
River Mile: 8.60
Collection Method: Boat Electrofishing
Drainage Area: 745 miles²
Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	10	0.47	--	0	---
40-005	<i>Carpodes cyprinus</i> Central quillback carpsucker	9	0.08	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	19	2.035	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	8	0.495	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	61	4.36	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	1	0.007	Highly Tolerant	0	---
43-011	<i>Rhinichthys atratulus</i> Blacknose dace	4	0.008	Highly Tolerant	0	---
43-013	<i>Semotilus atromaculatus</i> Creek chub	1	0.006	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	89	0.298	--	0	---
43-026	<i>Notropis cornutus</i> Common shiner	3	0.016	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	9	0.015	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	42	0.068	Moderately Intolerant	0	---
43-042	<i>Pimephales promelas</i> Northern fathead minnow	2	0.007	Highly Tolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	4	0.013	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	24	0.149	--	0	---

Big Creek Upstream of Big Creek

October 6, 2016

River Mile: 8.60

		River Mile:	8.60			
47-002	<i>Ictalurus punctatus</i> Channel catfish	4	1.89	--	0	---
70-001	<i>Labidesthes sicculus</i> Brook silverside	1	0.004	Moderately Intolerant	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	4	1.115	Moderately Intolerant	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	1	0.01	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	2	0.078	Moderately Tolerant	0	---
80-002	<i>Sander vitreus</i> Walleye	2	0.75	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	1	0.006	Moderately Intolerant	0	---
80-015	<i>Etheostoma blenniodes</i> Greenside darter	1	0.004	Moderately Intolerant	0	---
80-024	<i>Etheostoma flabellare</i> Barred Fantail darter	1	0.003	--	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	15	0.037	--	0	---
	Totals	<u>318</u>	<u>11.924</u>		<u>0</u>	

*DELT anomalies were observed on 0.00 % of the fish collected.
 Index of Biotic Integrity (IBI) = 44 (Very Good)
 Modified Index of Well-Being (MIwb) = 9.0 (Good)
 Shannon Diversity Index, no. 2.338
 Shannon Diversity Index, wt. 1.937
 N 580
 B 23.67

Cuyahoga River Downstream of Big Creek

September 6, 2016

River Mile: 7.00

Collection Method: Boat Electrofishing

Drainage Area: 786 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	22	3.7	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	15	2.352	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	1	0.02	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	3	0.625	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	2	1.375	Highly Tolerant	0	---
43-013	<i>Semotilus atromaculatus</i> Creek chub	1	0.005	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	20	0.05	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	1	0.006	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	1	0.003	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	7	0.008	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	1	0.007	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	11	8.64	--	0	---
47-004	<i>Ictalurus natalis</i> Yellow bullhead	1	0.008	Highly Tolerant	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.015	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	6	1.85	Moderately Intolerant	0	---

Cuyahoga River Downstream of Big Creek

September 6, 2016

River Mile: 7.00

77-006	<i>Micropterus salmoides</i> Largemouth bass	1	0.125	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	1	0.008	Moderately Intolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	3	0.05	--	0	---
	Totals	<u>98</u>	<u>18.855</u>		<u>0</u>	

*DELT anomalies were observed on	0.00	% of the fish collected.
Index of Biotic Integrity (IBI) =	30	(Fair)
Modified Index of Well-Being (MIwb) =	8.2	(Fair)
Shannon Diversity Index, no.	2.266	
Shannon Diversity Index, wt.	1.566	
N	168	
B	34.82	

Cuyahoga River Downstream of Big Creek

October 6, 2016

River Mile: 7.00

Collection Method: Boat Electrofishing

Drainage Area: 786 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
10-004	<i>Lepisosteus osseus</i> Longnose Gar	1	0.25	--	0	---
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	111	2.85	--	1	Deformity
25-002	<i>Oncorhynchus mykiss</i> Rainbow trout	7	19.956	--	0	---
40-005	<i>Carpoides cyprinus</i> Central quillback carpsucker	1	0.008	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redbhorse	6	1.74	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	5	0.1	Moderately Intolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	1	2.041	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	322	0.906	--	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	1	0.003	Highly Tolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	6	10.23	--	0	---
70-001	<i>Labidesthes sicculus</i> Brook silverside	5	0.01	Moderately Intolerant	0	---
74-003	<i>Morone americana</i> White perch	2	0.115	--	0	---
77-001	<i>Pomoxis annularis</i> White crappie	1	0.1	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	10	3.68	Moderately Intolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	2	0.002	Moderately Tolerant	0	---

Cuyahoga River Downstream of Big Creek

October 6, 2016

		River Mile:	7.00			
80-011	<i>Percina caprodes</i> Northern logperch darter	1	0.03	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	1	1.78	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	2	0.005	--	0	---
Totals		<u>485</u>	<u>43.806</u>		<u>1</u>	

*DELTA anomalies were observed on	0.21	% of the fish collected.
Index of Biotic Integrity (IBI) =	36	(Marginally Good)
Modified Index of Well-Being (MIwb) =	8.1	(Fair)
Shannon Diversity Index, no.	1.111	
Shannon Diversity Index, wt.	1.649	
N	944	
B	43.37	

Cuyahoga River at Head of Navigation Channel

July 28, 2016

River Mile: 5.90

Collection Method: Boat Electrofishing

Drainage Area: 787 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	36	2	--	0	---
40-002	<i>Ictiobus cyprinellus</i> Bigmouth buffalo	1	7.711	--	0	---
40-005	<i>Carpodes cyprinus</i> Central quillback carpsucker	3	0.18	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden rehorse	10	1.956	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	1	0.1	Highly Tolerant	0	---
40-018	<i>Minytrema melanops</i> Spotted Sucker	1	1.361	--	0	---
43-001	<i>Cyprinus carpio</i> Common carp	10	41.277	Highly Tolerant	0	---
43-002	<i>Carassius auratus</i> Goldfish	2	1.48	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	50	0.2	--	0	---
43-047	<i>Ctenopharyngodon idella</i> Grass carp	1	9.07	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	7	12.02	--	1	Lesion
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	2	5.897	--	0	---
74-001	<i>Morone chrysops</i> White bass	8	1.105	--	0	---
74-003	<i>Morone americana</i> White perch	10	0.312	--	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.26	--	0	---

Cuyahoga River at Head of Navigation Channel

July 28, 2016

River Mile: 5.90

77-004	<i>Micropterus dolomieu</i> Smallmouth bass	6	1.66	Moderately Intolerant	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	4	0.28	--	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	1	0.04	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.02	Moderately Tolerant	0	---
77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	3	0.125	Moderately Tolerant	0	---
80-003	<i>Perca flavescens</i> Yellow perch	3	0.12	--	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	2	2.495	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.005	--	0	---
Totals		<u>164</u>	<u>89.674</u>		<u>1</u>	

*DELT anomalies were observed on	0.61	% of the fish collected.
Index of Biotic Integrity (IBI) =	36	(Marginally Good)
Modified Index of Well-Being (MIwb) =	9.2	(Very Good)
Shannon Diversity Index, no.	2.33	
Shannon Diversity Index, wt.	1.888	
N	276	
B	74.78	

Cuyahoga River at Head of Navigation Channel

September 6, 2016

River Mile: 5.90

Collection Method: Boat Electrofishing

Drainage Area: 787 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	34	4.02	--	0	---
40-005	<i>Carpiodes cyprinus</i> Central quillback carpsucker	2	0.03	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	3	0.014	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	1	0.8	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	60	0.195	--	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	1	0.002	Highly Tolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	2	4.309	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	1	0.2	Moderately Intolerant	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	5	0.16	--	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	3	0.06	Highly Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.002	--	0	---
Totals		<u>113</u>	<u>9.792</u>		<u>0</u>	

*DELT anomalies were observed on 0.00 % of the fish collected.
 Index of Biotic Integrity (IBI) = 32 (Fair)
 Modified Index of Well-Being (MIwb) = 6.7 (Fair)
 Shannon Diversity Index, no. 1.338
 Shannon Diversity Index, wt. 1.218
 N 214
 B 17.86

Cuyahoga River at Restoration Site
August 24, 2016
River Mile: 2.75
Collection Method: Boat Electrofishing
Drainage Area: 806 miles²
Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	40	1.358	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	11	0.048	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	3	0.04	Highly Tolerant	0	---
40-018	<i>Minytrema melanops</i> Spotted Sucker	2	0.017	--	0	---
43-001	<i>Cyprinus carpio</i> Common carp	10	13.6	Highly Tolerant	3	Lesion
43-002	<i>Carassius auratus</i> Goldfish	13	7.7	Highly Tolerant	3	Lesion
43-003	<i>Notemigonus crysoleucas</i> Golden shiner	7	0.48	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	49	0.077	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	15	17.282	--	2	Lesion
47-005	<i>Ictalurus nebulosus</i> Brown bullhead	2	1.315	Highly Tolerant	2	Erosion
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	0.09	--	0	---
74-003	<i>Morone americana</i> White perch	6	0.175	--	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	17	2.44	--	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	5	0.13	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	7	0.47	Moderately Tolerant	1	Deformity

Cuyahoga River at Restoration Site

August 24, 2016

River Mile: 2.75

77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	7	0.3	Moderately Tolerant	0	---
80-003	<i>Perca flavescens</i> Yellow perch	2	0.13	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	1	0.003	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	1	0.3	Moderately Tolerant	0	---
	Totals	<u>199</u>	<u>45.955</u>		<u>11</u>	

*DELT anomalies were observed on	5.53 % of the fish collected.
Index of Biotic Integrity (IBI) =	26 (Fair)
Modified Index of Well-Being (MIwb) =	8.8 (Good)
Shannon Diversity Index, no.	2.394
Shannon Diversity Index, wt.	1.643
N	306
B	45.03

Cuyahoga River at Restoration Site
October 4, 2016
River Mile: 2.75
Collection Method: Boat Electrofishing
Drainage Area: 806 miles²
Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	49	1.14	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redbreast	7	0.12	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	7	0.315	Highly Tolerant	0	---
40-018	<i>Minytrema melanops</i> Spotted Sucker	1	0.025	--	0	---
43-001	<i>Cyprinus carpio</i> Common carp	4	8.96	Highly Tolerant	0	---
43-002	<i>Carassius auratus</i> Goldfish	3	2.1	Highly Tolerant	0	---
43-003	<i>Notemigonus crysoleucas</i> Golden shiner	5	0.105	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	62	0.15	--	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	1	0.005	Highly Tolerant	0	---
43-045	<i>HYBRID</i> Common Carp x Goldfish	1	3.18	Highly Tolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	6	9.05	--	1	Lesion
47-004	<i>Ictalurus natalis</i> Yellow bullhead	3	0.198	Highly Tolerant	0	---
47-005	<i>Ictalurus nebulosus</i> Brown bullhead	2	1.32	Highly Tolerant	0	---
70-001	<i>Labidesthes sicculus</i> Brook silverside	2	0.009	Moderately Intolerant	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.178	--	0	---

Cuyahoga River at Restoration Site

October 4, 2016

River Mile: 2.75

77-004	<i>Micropterus dolomieu</i> Smallmouth bass	4	0.34	Moderately Intolerant	1	Lesion
77-006	<i>Micropterus salmoides</i> Largemouth bass	14	3.32	--	1	Lesion
77-008	<i>Lepomis cyanellus</i> Green sunfish	2	0.07	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	10	0.22	Moderately Tolerant	0	---
77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	5	0.14	Moderately Tolerant	0	---
80-003	<i>Perca flavescens</i> Yellow perch	3	0.16	--	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	1	1.15	Moderately Tolerant	0	---
Totals		<u>193</u>	<u>32.255</u>		<u>3</u>	

*DELT anomalies were observed on	1.55	% of the fish collected.
Index of Biotic Integrity (IBI) =	32	(Fair)
Modified Index of Well-Being (MIwb) =	8.9	(Good)
Shannon Diversity Index, no.	2.228	
Shannon Diversity Index, wt.	2.045	
N	330	
B	32	

Cuyahoga River Upstream of Confluence with Lake Erie

August 24, 2016

River Mile: 0.20

Collection Method: Boat Electrofishing

Drainage Area: 696 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	36	1.102	--	9	Deformity
43-001	<i>Cyprinus carpio</i> Common carp	3	7.257	Highly Tolerant	0	---
43-003	<i>Notemigonus crysoleucas</i> Golden shiner	1	0.005	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	25	0.068	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	1	0.775	--	1	Lesion
47-004	<i>Ictalurus natalis</i> Yellow bullhead	1	0.48	Highly Tolerant	0	---
74-003	<i>Morone americana</i> White perch	3	0.065	--	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.08	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	5	1.125	Moderately Intolerant	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	10	0.5	--	0	---
Totals		<u>86</u>	<u>11.457</u>		<u>10</u>	

*DELT anomalies were observed on 11.63 % of the fish collected.

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

Modified Index of Well-Being (MIwb) = 6.4 (Poor)

Shannon Diversity Index, no. 1.581

Shannon Diversity Index, wt. 1.292

N 156

B 7.3

Cuyaoga River at Mouth of Ship Channel

October 4, 2016

River Mile: 0.20

Collection Method: Boat Electrofishing

Drainage Area: 813 miles²

Collection Distance: 0.5 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	DELT Anomalies #	Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	105	2.7	--	0	---
43-001	<i>Cyprinus carpio</i> Common carp	3	6.8	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	129	0.25	--	0	---
70-001	<i>Labidesthes sicculus</i> Brook silverside	1	0.005	Moderately Intolerant	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	7	1.65	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	4	0.04	Moderately Intolerant	0	---
Totals		<u>249</u>	<u>11.445</u>		<u>0</u>	

*DELT anomalies were observed on 0.00 % of the fish collected.
 Index of Biotic Integrity (IBI) = 26 (Fair)
 Modified Index of Well-Being (MIwb) = 6.2 (Poor)
 Shannon Diversity Index, no. 0.947
 Shannon Diversity Index, wt. 1.036
 N 492
 B 9.29