

Cuyahoga River Upstream of SR82
August 2, 2017
River Mile: 20.75
Collection Method: Boat Electrofishing
Drainage Area: 583 miles²
Collection Distance: 0.595 km

Code	Species	Number	Weight (kg)	Pollution Tolerance	#	DELT Anomalies Description
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	8	0.675	--	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	12	0.82	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	95	21.77	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	2	6.577	Highly Tolerant	0	---
43-026	<i>Notropis cornutus</i> Common shiner	17	0.31	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	20	0.1	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	8	0.05	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	61	0.195	Highly Tolerant	0	---
43-044	<i>Campostoma anomalum</i> Central stoneroller minnow	4	0.08	--	0	---
47-004	<i>Ictalurus natalis</i> Yellow bullhead	20	1.75	Highly Tolerant	0	---
74-003	<i>Morone americana</i> White perch	29	0.74	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	3	1.96	Moderately Intolerant	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	8	0.49	--	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	10	0.265	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	37	0.375	Moderately Tolerant	0	---

Cuyahoga River Upstream of SR82

August 2, 2017

River Mile: 20.75

77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	13	0.4	Moderately Tolerant	0	---
80-003	<i>Perca flavescens</i> Yellow perch	1	0.03	--	0	---
	Totals	<u>348</u>	<u>36.587</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) =	7.6	(Fair)
Shannon Diversity Index, no.	2.321	
Shannon Diversity Index, wt.	1.46	
N	220.2	
B	8.891	

Cuyahoga River Downstream of Tinkers Creek

July 19, 2017

River Mile: 16.20

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	47	3.05	--	0	0
40-005	<i>Carpiodes cyprinus</i> Central quillback carpsucker	2	2.722	--	0	---
40-008	<i>Moxostoma anisurum</i> Silver Redhorse	2	0.85	Moderately Intolerant	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	7	5.443	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	21	2.205	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	36	2.75	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	1	0.5	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	9	17.579	Highly Tolerant	0	---
43-026	<i>Notropis cornutus</i> Common shiner	4	0.052	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	64	0.224	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	4	0.013	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	1	0.008	Highly Tolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	17	23.03	--	0	---
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	6	11.885	--	0	---
74-003	<i>Morone americana</i> White perch	3	0.15	--	0	---

**Cuyahoga River Downstream of Tinkers Creek
July 19, 2017**

River Mile: 16.20

77-003	<i>Ambloplites rupestris</i> Northern rockbass	2	0.375	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	22	3.188	Moderately Intolerant	0	---
77-006	<i>Micropterus salmoides</i> Largemouth bass	1	0.2	--	0	---
77-008	<i>Lepomis cyanellus</i> Green sunfish	9	0.11	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	12	0.255	Moderately Tolerant	0	---
77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	2	0.05	Moderately Tolerant	0	---
80-002	<i>Sander vitreus</i> Walleye	2	1.134	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	1	0.02	Moderately Intolerant	0	---
80-015	<i>Etheostoma blenniodes</i> Greenside darter	1	0.006	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	2	3.175	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	3	0.043	--	0	---
Totals		<u>281</u>	<u>79.017</u>		<u>0</u>	

*DELT anomalies were observed on	0.00	% of the fish collected.
Index of Biotic Integrity (IBI) =	50	(Exceptional)
Modified Index of Well-Being (MIwb) =	10.2	(Exceptional)
Shannon Diversity Index, no.	2.521	
Shannon Diversity Index, wt.	2.137	
N	510	
B	121.3	

**Cuyahoga River Upstream of Mill Creek
 July 19, 2017
 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	15	1.1	--	0	---
37-003	<i>Esox lucius</i> Northern pike	1	3.175	--	0	---
40-008	<i>Moxostoma anisurum</i> Silver Redhorse	2	0.809	Moderately Intolerant	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	11	4.99	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	5	0.28	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	8	0.95	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	3	0.66	Highly Tolerant	1	Lesion
43-001	<i>Cyprinus carpio</i> Common carp	7	21.319	Highly Tolerant	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	34	0.143	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	17	0.036	Moderately Intolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	13	18.37	--	0	---
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	2	1.07	--	0	---
74-003	<i>Morone americana</i> White perch	7	0.41	--	0	---
77-002	<i>Pomoxis nigromaculatus</i> Black crappie	1	0.125	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	8	3.22	Moderately Intolerant	1	Lesion

**Cuyahoga River Upstream of Mill Creek
July 19, 2017**

River Mile: 11.95

85-001	<i>Aplodinotus grunniens</i> Freshwater drum	1	0.5	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.015	--	0	---
Totals		<u>136</u>	<u>57.172</u>		<u>2</u>	

*DELT anomalies were observed on	1.47	% of the fish collected.
Index of Biotic Integrity (IBI) =	34	(Fair)
Modified Index of Well-Being (MIwb) =	9.0	(Good)
Shannon Diversity Index, no.	2.39	
Shannon Diversity Index, wt.	1.736	
N	236	
B	69.54	

Cuyahoga River Downstream of Mill Creek
July 20, 2017
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	3	0.29	--	0	---
40-005	<i>Carpiodes cyprinus</i> Central quillback carpsucker	4	0.15	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	17	2.96	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	9	1.775	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	20	2.36	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	1	0.02	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	1	0.41	Highly Tolerant	0	---
43-002	<i>Carassius auratus</i> Goldfish	1	0.09	Highly Tolerant	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	109	0.32	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	3	0.018	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	2	0.016	Highly Tolerant	0	---
43-047	<i>Ctenopharyngodon idella</i> Grass carp	1	0	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	11	12.488	--	0	---
74-003	<i>Morone americana</i> White perch	1	0.025	--	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.11	--	0	---

Cuyahoga River Downstream of Mill Creek

July 20, 2017

River Mile: 11.30

77-004	<i>Micropterus dolomieu</i> Smallmouth bass	17	4.55	Moderately Intolerant	1	Lesion
77-006	<i>Micropterus salmoides</i> Largemouth bass	1	0.01	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	3	0.035	Moderately Intolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	4	0.05	--	0	---
Totals		<u>209</u>	<u>25.677</u>		<u>1</u>	

*DELT anomalies were observed on	0.48	% of the fish collected.
Index of Biotic Integrity (IBI) =	38	(Marginally Good)
Modified Index of Well-Being (MIwb) =	8.4	(Marginally Good)
Shannon Diversity Index, no.	1.82	
Shannon Diversity Index, wt.	1.601	
N	396	
B	50.13	

Cuyahoga River Upstream of Southerly WWTC
July 20, 2017
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	1	0.06	--	0	---
40-004	<i>Ictiobus bubalus</i> Smallmouth buffalo	2	5.67	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	2	1.6	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	9	1.415	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	24	1.95	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	3	1.05	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	10	25.628	Highly Tolerant	0	---
43-026	<i>Notropis cornutus</i> Common shiner	3	0.03	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	41	0.144	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	3	0.003	Moderately Intolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	2	0.006	Highly Tolerant	0	---
43-047	<i>Ctenopharyngodon idella</i> Grass carp	3	32.205	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	14	15.876	--	0	---
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	2.268	--	0	---
74-001	<i>Morone chrysops</i> White bass	1	0.85	--	0	---

**Cuyahoga River Upstream of Southerly WWTC
July 20, 2017**

River Mile: 10.75

74-003	<i>Morone americana</i> White perch	11	0.22	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	2	2.71	Moderately Intolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	3	0.035	Moderately Tolerant	0	---
77-016	<i>HYBRID</i> Green SF X Pumpkinseed	1	0.03	--	0	---
80-002	<i>Sander vitreus</i> Walleye	1	0.7	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	15	0.17	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	2	2.268	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.005	--	0	---
Totals		<u>155</u>	<u>94.893</u>		<u>0</u>	

*DELT anomalies were observed on	0.00	% 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, no.	2.471	
Shannon Diversity Index, wt.	1.857	
N	248	
B	71.5	

Cuyahoga River Downstream of Southerly WWTC
July 20, 2017
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	29	1.5	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	5	3.835	Moderately Intolerant	1	Erosion
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	13	1.305	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	15	1.245	Moderately Intolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	5	16.103	Highly Tolerant	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	21	0.08	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	2	0.008	Moderately Intolerant	0	---
43-042	<i>Pimephales promelas</i> Northern fathead minnow	2	0.01	Highly Tolerant	0	---
43-043	<i>Pimephales notatus</i> Bluntnose minnow	5	0.015	Highly Tolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	8	6.804	--	0	---
47-004	<i>Ictalurus natalis</i> Yellow bullhead	2	0.115	Highly Tolerant	0	---
47-007	<i>Pygodictis olivaris</i> Flathead Catfish	1	3.175	--	0	---
74-003	<i>Morone americana</i> White perch	1	0.02	--	0	---
77-002	<i>Pomoxis nigromaculatus</i> Black crappie	1	0.05	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	14	3.37	Moderately Intolerant	2	Lesion

Cuyahoga River Downstream of Southerly WWTC

July 20, 2017

River Mile: 10.10

77-008	<i>Lepomis cyanellus</i> Green sunfish	2	0.038	Highly Tolerant	0	---
77-009	<i>Lepomis macrochirus</i> Northern bluegill sunfish	1	0.008	Moderately Tolerant	0	---
80-002	<i>Sander vitreus</i> Walleye	1	0.3	--	0	---
80-003	<i>Perca flavescens</i> Yellow perch	1	0.018	--	0	---
80-011	<i>Percina caprodes</i> Northern logperch darter	3	0.032	Moderately Intolerant	0	---
80-015	<i>Etheostoma blenniodes</i> Greenside darter	1	0.015	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	3	3.629	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.005	--	0	---
	Totals	<u>137</u>	<u>41.680</u>		<u>3</u>	

*DELT anomalies were observed on	2.19	% 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.	2.545	
Shannon Diversity Index, wt.	1.931	
N	238	
B	50.75	

**Cuyahoga River Upstream of Big Creek
 July 20, 2017
 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	6	0.7	--	0	---
40-008	<i>Moxostoma anisurum</i> Silver Redhorse	1	1.48	Moderately Intolerant	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	1	0.65	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	20	1.92	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	61	3.55	Moderately Intolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	1	1.588	Highly Tolerant	0	---
43-013	<i>Semotilus atromaculatus</i> Creek chub	1	0.002	Highly Tolerant	0	---
43-020	<i>Notropis atherinoides</i> Common Emerald shiner	2	0.017	--	0	---
43-026	<i>Notropis cornutus</i> Common shiner	1	0.015	--	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	30	0.115	--	0	---
43-034	<i>Notropis stramineus</i> Sand shiner	2	0.01	Moderately Intolerant	0	---
43-042	<i>Pimephales promelas</i> Northern fathead minnow	3	0.01	Highly Tolerant	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	10	12.304	--	1	Lesion
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	0.5	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	1	0.04	Moderately Intolerant	0	---

**Cuyahoga River Upstream of Big Creek
July 20, 2017**

		River Mile:	8.60			
80-011	<i>Percina caprodes</i> Northern logperch darter	8	0.08	Moderately Intolerant	0	---
80-015	<i>Etheostoma blenniodes</i> Greenside darter	1	0.01	Moderately Intolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	2	3.629	Moderately Tolerant	0	---
87-001	<i>Neogobius melanostomus</i> Round goby	1	0.008	--	0	---
Totals		<u>153</u>	<u>26.628</u>		<u>1</u>	

*DELT anomalies were observed on	0.65	% of the fish collected.
Index of Biotic Integrity (IBI) =	42	(Good)
Modified Index of Well-Being (MIwb) =	8.5	(Marginally Good)
Shannon Diversity Index, no.	1.955	
Shannon Diversity Index, wt.	1.748	
N	294	
B	50.04	

Cuyahoga River Downstream of Big Creek
July 20, 2017
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
01-005	<i>Petromyzon marinus</i> Sea Lamprey	1	0.02	--	0	---
20-003	<i>Dorosoma cepedianum</i> Eastern gizzard shad	127	7.432	--	0	---
40-010	<i>Moxostoma erythrurum</i> Golden redhorse	1	1.021	Moderately Intolerant	0	---
40-011	<i>Moxostoma macrolepidotum</i> Shorthead redhorse	6	0.31	Moderately Intolerant	0	---
40-015	<i>Hypentelium nigricans</i> Northern hog sucker	4	0.2	Moderately Intolerant	0	---
40-016	<i>Catostomus commersonii</i> Common white sucker	1	0.907	Highly Tolerant	0	---
43-001	<i>Cyprinus carpio</i> Common carp	1	10.886	Highly Tolerant	0	---
43-032	<i>Cyprinella spiloptera</i> Spotfin shiner	9	0.03	--	0	---
47-002	<i>Ictalurus punctatus</i> Channel catfish	2	4.082	--	0	---
47-004	<i>Ictalurus natalis</i> Yellow bullhead	1	0.07	Highly Tolerant	0	---
47-007	<i>Pylodictis olivaris</i> Flathead Catfish	1	0.16	--	0	---
77-003	<i>Ambloplites rupestris</i> Northern rockbass	1	0.095	--	0	---
77-004	<i>Micropterus dolomieu</i> Smallmouth bass	9	2.831	Moderately Intolerant	2	Lesion
77-013	<i>Lepomis gibbosus</i> Pumpkinseed sunfish	1	0.05	Moderately Tolerant	0	---
85-001	<i>Aplodinotus grunniens</i> Freshwater drum	2	3.175	Moderately Tolerant	0	---

Cuyahoga River Downstream of Big Creek

July 20, 2017

River Mile: 7.00

Totals

167

31.269

2

*DELT anomalies were observed on	1.20	% of the fish collected.
Index of Biotic Integrity (IBI) =	28	(Fair)
Modified Index of Well-Being (MIwb) =	7.6	(Fair)
Shannon Diversity Index, no.	1.083	
Shannon Diversity Index, wt.	1.797	
N	326	
B	38.77	