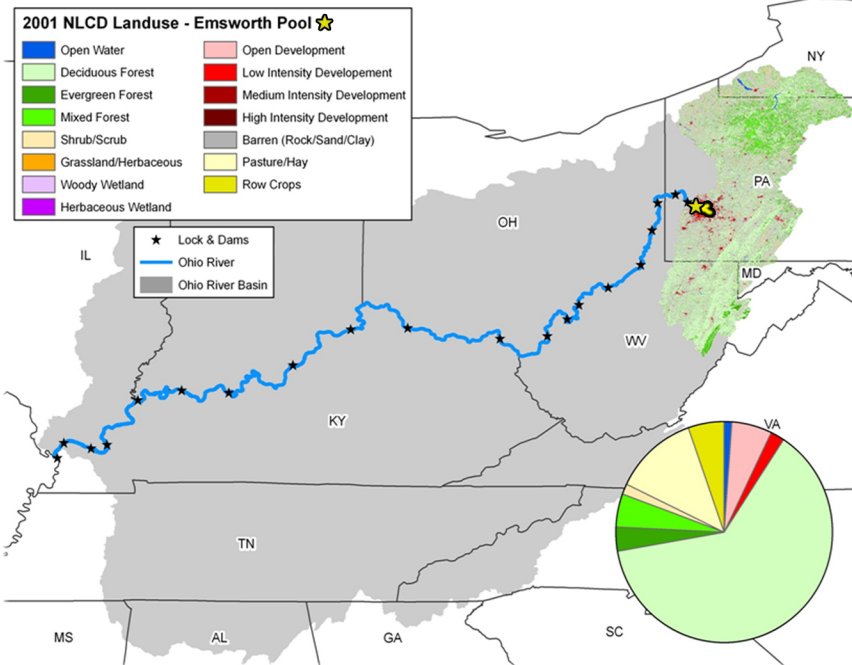
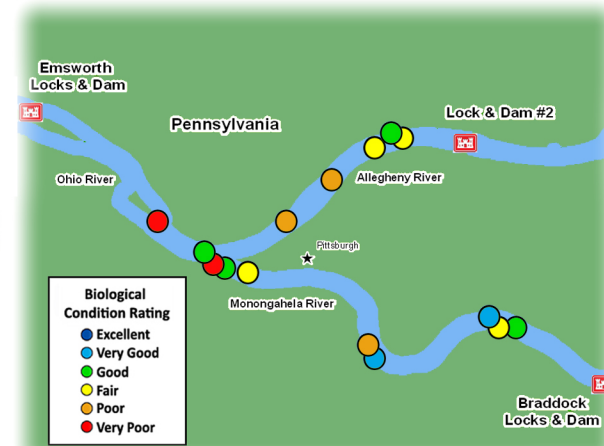
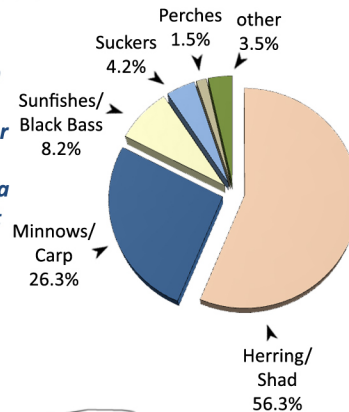


Emsworth Pool - 2012

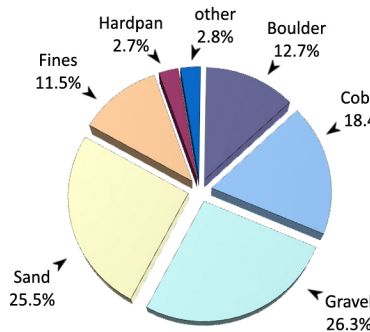
Emsworth Locks and Dam is the first lock system on the Ohio River below the confluence of the Allegheny and Monongahela rivers. The main stem portion of the pool is 6.2 miles long, extending from Pittsburgh Point (ORM 0.0) to Emsworth Locks and Dam (ORM 6.2). For the purpose of our biological assessment we extended this area beyond the confluence upstream to the first dams on the Allegheny (6.2 miles) and Monongahela rivers (11.2 miles). The Ohio River portion of the pool averages 1,456 feet wide and 21 feet deep (ORSANCO 1994). The entirety of the pool lies in Pennsylvania, in an area where the immediate land use consists of residential and industrial development (9.2%). However, the larger area draining into the pool is largely forested (68.9%) with some agricultural uses (17.3%). The shorelines of the main stem portion of Emsworth are highly modified; the tributaries are also modified, but to a lesser extent.



walleye (*Sander vitreus*)



Locations of the 15 randomly chosen electrofishing sites in Emsworth Pool



smallmouth bass (*Micropterus dolomieu*)

Site Performance

Site No.	River Mile	Habitat Class	ORFIn Exp	ORFIn Obs	mORFIn Score
1	ALL 5.2	B	46.71	52.98	27.5
2	ALL 5.2	A	50.03	56.48	30.8
3	ALL 4.6	D	41.80	42.97	21.5
4	ALL 3.3	C	44.55	39.81	16.7
5	ALL 1.8	B	46.71	45.00	18.1
6	MON 8.7	D	46.71	63.09	44.9
7	MON 8.2	C	44.55	47.52	23.9
8	MON 8.1	A	50.03	67.50	44.9
9	MON 5.1	A	50.03	71.21	48.7
10	MON 4.8	C	44.55	39.11	16.2
11	MON 0.8	B	46.71	53.33	27.9
12	MON 0.3	A	50.03	56.09	30.2
13	OH 0.1	B	46.71	31.43	7.2
14	OH 0.4	C	44.55	55.75	34.0
15	OH 1.7	A	50.03	33.22	7.2
Average Pool mORFIn Score					26.6

Emsworth Pool - Results Overview

Sampling Results

Environmental Measures

Dominant Habitat Class: A - dominated by coarse substrates
Notable Measures: Marinas/docks and recreational uses dominate stretches of the "Three Rivers" area

Biological Measures

Total No. of Fish Species: 46
Average No. of Individuals: 108
Dominant Family (*minus herring/shad*): Minnows/Carp
Dominant Species (*minus shad/shiners*): smallmouth bass
Threatened and Endangered Species: mooneye & longear sunfish
Rare Ohio River Mainstem Species: streamline chub
Notable Catch: large ornamental common carp (a.k.a. "koi")

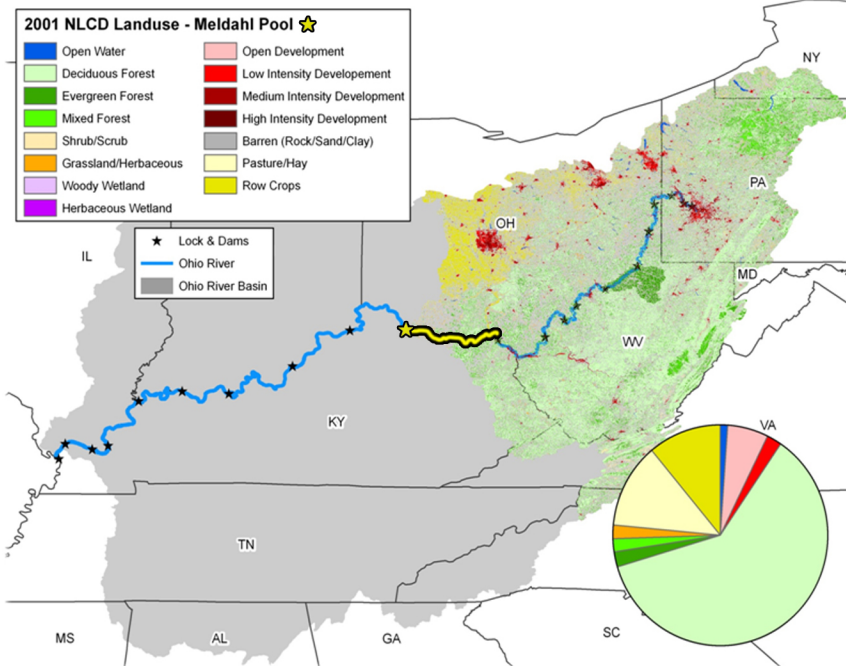
Assessment Results

Highest scoring ORFIn metric (*minus DELTs*): Centrarchid Species
Lowest scoring ORFIn metric: Great River Species
Sites Above 25th percentile (i.e. mORFIn Score = 20): 11
Sites Below 25th percentile (i.e. mORFIn Score = 20): 4
Aquatic Life-Use Designation: Met

Overall Biological Condition Rating: Fair

Meldahl Pool - 2012

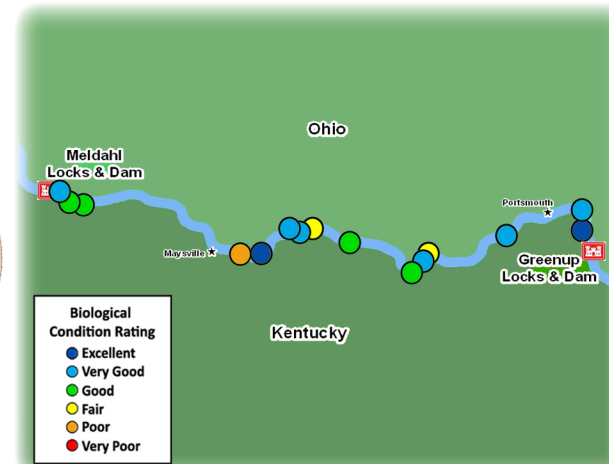
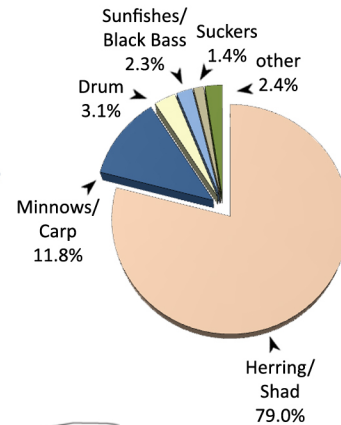
Meldahl pool is 95.2 miles long, extending from Greenup Locks and Dam (ORM 341.0) to Meldahl Locks and Dam (ORM 436.2). The pool has a gradient drop of 0.3 feet per mile, averages 1,603 feet wide and 23 feet deep. The pool flows adjacent to the states of Ohio and Kentucky. The shorelines of this pool support a moderate degree of aquatic vegetation in the littoral zone. The Meldahl pool receives water from eight sub-basins: the Scioto and Little Scioto rivers, Pine, Tygarts, Kinniconick, Ohio Brush, Eagle, and White Oak creeks with a combined tributary drainage area of 8,340 square miles (ORSANCO 1994). Meldahl pool lies in a portion of the Ohio River where the land use consists primarily of deciduous forest (59.3%), but is also impacted by row crops (10.8%) and pasture lands (12.1%). Historically, Meldahl is consistently rated as one of the better pools on the Ohio River.



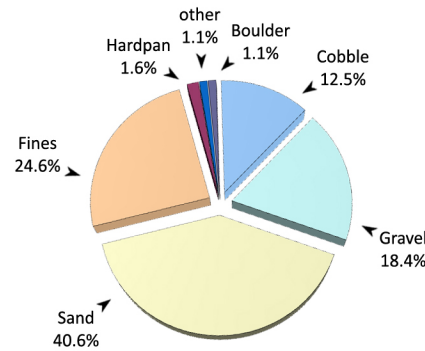
Land-use types within the Meldahl Pool watershed



sauger (*Sander canadensis*)



Locations of the 15 randomly chosen electrofishing sites in Meldahl Pool



freshwater drum (*Aplodinotus grunniens*)

Site Performance

Site No.	River Mile	Habitat Class	ORFIn Exp	ORFIn Obs	mORFIn Score
1	344.6	A	50.03	82.18	60.0
2	348.0	C	44.55	65.51	43.6
3	360.8	E	39.59	63.65	45.5
4	374.2	D	41.80	43.35	22.0
5	374.8	C	44.55	65.49	43.6
6	376.3	E	39.59	57.81	38.4
7	387.3	E	39.59	55.48	35.7
8	392.7	D	41.80	46.71	26.2
9	394.9	D	41.80	59.76	41.7
10	395.1	E	39.59	66.31	48.8
11	402.6	E	39.59	70.33	60.0
12	405.3	C	44.55	42.88	18.8
13	431.5	D	41.80	52.51	33.4
14	433.0	E	39.59	57.39	37.9
15	434.7	C	44.55	64.24	42.6

Average Pool mORFIn Score 39.9

Meldahl Pool - Results Overview

Sampling Results

Environmental Measures

Dominant Habitat Class: E - deep sand/fines
Notable Measures: high occurrence of woody structure

Biological Measures

Total No. of Fish Species: 41
Average No. of Individuals: 191
Dominant Family (*minus herring/shad*): Minnows/Carp
Dominant Species (*minus shad/shiners*): freshwater drum
Threatened and Endangered Species: channel darter (T)
Rare Ohio River Mainstem Species: slenderhead darter
Notable Catch: walleye (more common upstream)

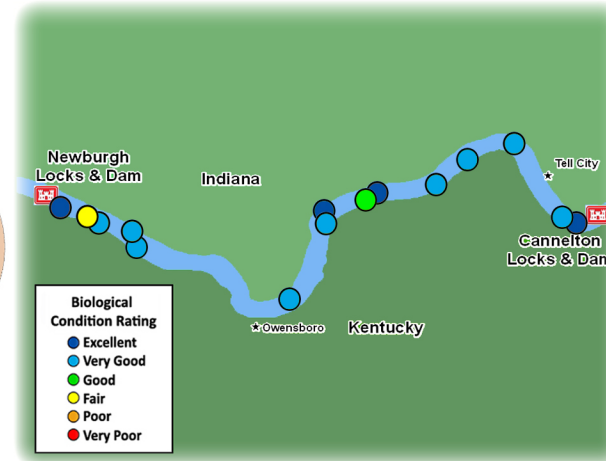
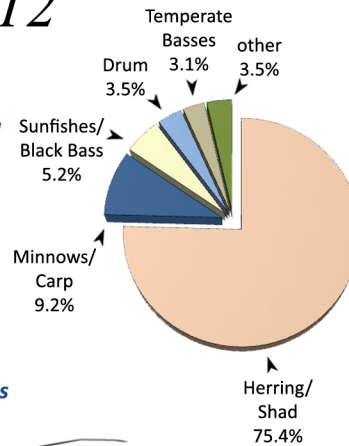
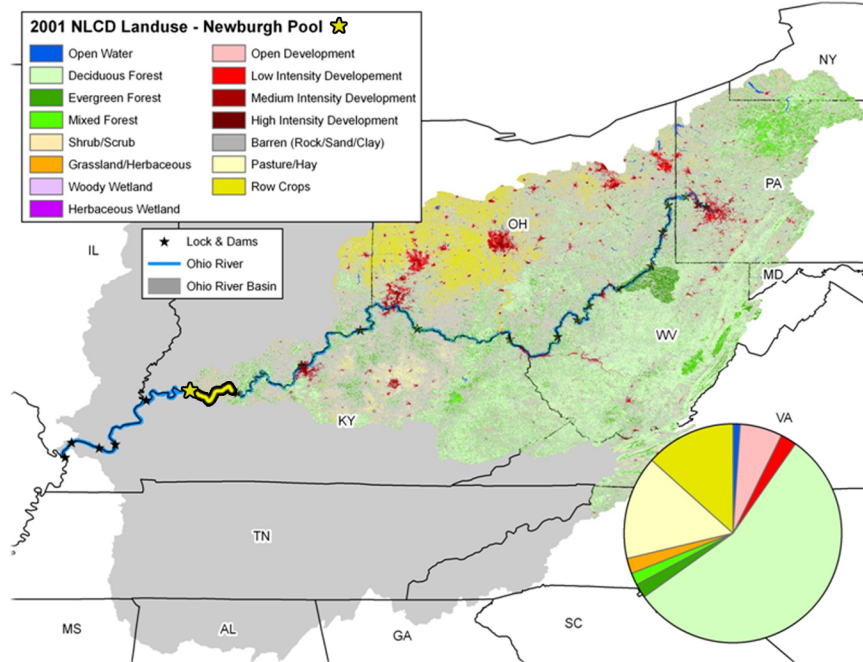
Assessment Results

Highest scoring ORFIn metric (*minus DELTs*): % Non-natives
Lowest scoring ORFIn metric: % Lithophils
Sites Above 25th percentile (i.e. mORFIn Score = 20): 14
Sites Below 25th percentile (i.e. mORFIn Score = 20): 1
Aquatic Life-Use Designation: Met

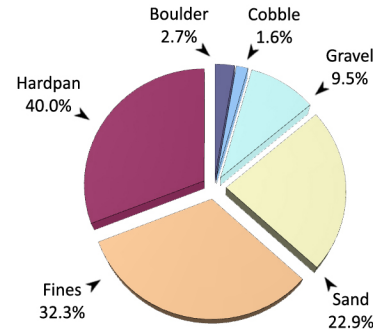
Overall Biological Condition Rating: Good

Newburgh Pool - 2012

Newburgh pool is 55.4 miles long, extending from Cannelton Locks and Dam (ORM 720.7) to Newburgh Locks and Dam (ORM 776.1). The pool has a gradient drop of 0.3 feet per mile and averages 2,477 feet wide and 28 feet deep. The pool flows adjacent to the states of Indiana and Kentucky. The Newburgh pool receives water from the following tributaries: Anderson River at mile point 731.5 with a drainage area of 276 square miles, Blackford Creek at mile point 742.2 with a drainage area of 124 square miles and Little Pigeon Creek with a drainage area of 415 square miles (ORSANCO 1994). The shorelines of this pool support a slight degree of aquatic vegetation in the littoral zones. Newburgh pool lies in a portion of the Ohio River where the land use consists primarily of deciduous forest (53.9%), but also has a considerable amount of row crops (13.1%) and pasture lands (14.9%).



Eroded clay banks are a common sight within Newburgh Pool, as shown here upstream of Owensboro, KY



spotted gar (*Lepisosteus oculatus*)

Site Performance

Site No.	River Mile	Habitat Class	ORFIn Exp	ORFIn Obs	mORFIn Score
1	722.4	D	41.80	76.22	59.1
2	723.4	E	39.59	61.60	43.0
3	730.6	B	46.71	66.92	42.6
4	734.4	D	41.80	57.91	40.0
5	737.5	D	41.80	68.21	49.7
6	741.3	D	41.80	77.02	60.0
7	742.6	D	41.80	56.58	38.4
8	745.5	D	41.80	70.66	52.5
9	746.4	D	41.80	65.26	46.9
10	754.4	C	44.55	61.23	40.1
11	768.1	E	39.59	60.98	42.2
12	769.5	D	41.80	68.02	49.5
13	772.1	D	41.80	61.05	42.9
14	772.4	D	41.80	44.96	24.0
15	774.6	D	41.80	75.80	58.6
Average Pool mORFIn Score					46.0

Newburgh Pool - Results Overview

Sampling Results

Environmental Measures

- Dominant Habitat Class: D - shallow sand/fines
- Notable Measures: higher water velocities in the upper reaches
- Biological Measures**
- Total No. of Fish Species: 44
- Average No. of Individuals: 184
- Dominant Family (*minus herring/shad*): Minnows/Carp
- Dominant Species (*minus shad/shiners*): freshwater drum
- Species of Concern: black buffalo (KY)
- Rare Ohio River Mainstem Species: spotted gar
- Notable Catch: large paddlefish

Assessment Results

- Highest scoring ORFIn metric (*minus DELTs*): % Tolerants
- Lowest scoring ORFIn metric: % Lithophils
- Sites Above 25th percentile (i.e. mORFIn Score = 20): 15
- Sites Below 25th percentile (i.e. mORFIn Score = 20): 0
- Aquatic Life-Use Designation: Met

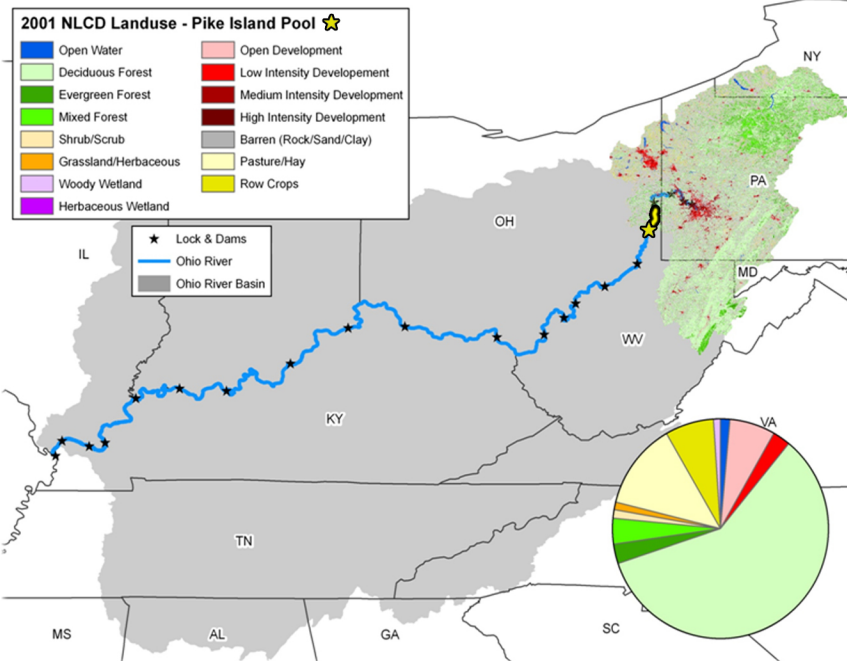
Overall Biological Condition Rating: Very Good



paddlefish (*Polyodon spathula*)

Pike Island Pool - 2012

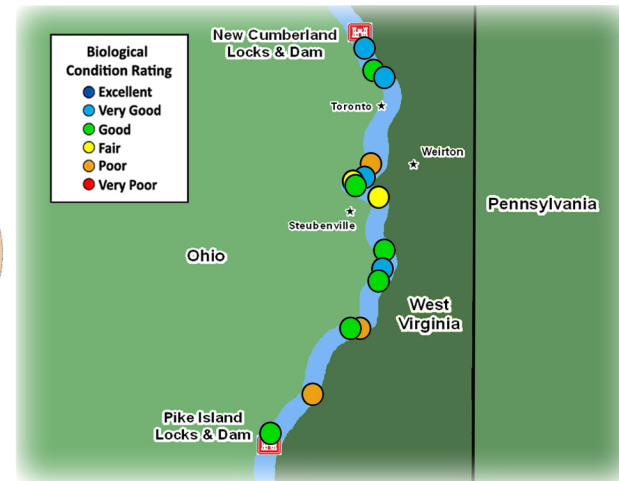
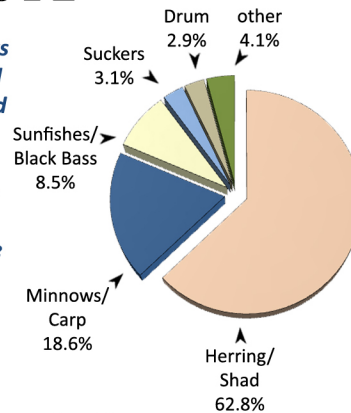
Pike Island pool is 29.8 miles long, extending from New Cumberland Locks and Dam (ORM 54.4) to Pike Island Locks and Dam (ORM 84.2). The pool has a gradient drop of 0.4 feet per mile and averages 1,338 feet wide and 19 feet deep (ORSANCO 1994). The pool flows adjacent to the states of West Virginia and Ohio. This pool lies in a portion of the Ohio River heavily influenced by industry with a large amount of barge activity. The shorelines of this pool support a moderate degree of aquatic vegetation, and littoral zones were dominated by invasive species (*Hydrilla* spp.). The Pike Island pool receives water from the following tributaries: Buffalo Creek at mile point 74.7 with a drainage area of 160 square miles, and Short Creek at mile point 81.4 with a drainage area of 147 square miles. These watersheds are primarily forested (64.4%), but also have a considerable amount of row crops (7.2%) and pasture lands (12.5%).



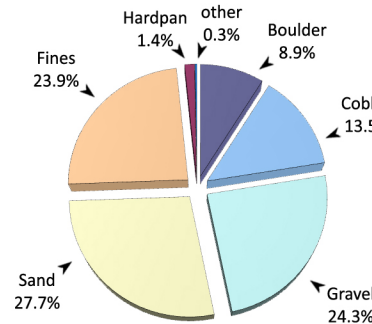
Land-use types within the Pike Island Pool watershed



northern pike (*Esox lucius*)



Locations of the 15 randomly chosen electrofishing sites in Pike Island Pool



Site Performance

Site No.	River Mile	Habitat Class	ORFIn Exp	ORFIn Obs	mORFIn Score
1	55.2	C	44.55	65.19	43.4
2	56.8	C	44.55	54.96	33.1
3	57.5	C	44.55	61.55	40.3
4	63.1	D	41.80	38.00	16.3
5	64.2	B	46.71	68.59	44.0
6	64.9	A	50.03	55.03	28.4
7	65.1	C	44.55	54.63	32.7
8	66.8	C	44.55	48.51	25.2
9	70.0	B	46.71	61.42	37.3
10	71.4	C	44.55	67.81	45.5
11	72.1	C	44.55	53.51	31.4
12	75.2	A	50.03	41.14	13.4
13	75.4	C	44.55	53.61	31.5
14	80.2	C	44.55	40.97	17.5
15	83.7	D	41.80	53.11	34.1

Average Pool mORFIn Score 31.6



bluegill (*Lepomis macrochirus*)

Pike Island Pool - Results Overview

Sampling Results

Environmental Measures

Dominant Habitat Class: C - equal mix of coarse and fines
 Notable Measures: abundant aquatic vegetation (15 of 15 sites)

Biological Measures

Total No. of Fish Species: 42
 Average No. of Individuals: 137
 Dominant Family (*minus herring/shad*): Minnows/Carp
 Dominant Species (*minus shad/shiners*): smallmouth bass
 Species of Concern: river redhorse (OH)
 Rare Ohio River Mainstem Species: rainbow darter
 Notable Catch: northern pike

Assessment Results

Highest scoring ORFIn metric (*minus DELTs*): % Non-natives
 Lowest scoring ORFIn metric: Great River Species
 Sites Above 25th percentile (i.e. mORFIn Score = 20): 12
 Sites Below 25th percentile (i.e. mORFIn Score = 20): 3
 Aquatic Life-Use Designation: Met

Overall Biological Condition Rating: Good