

Summary Biological Assessment of the North Fork Yellow Creek in the Vicinity of the Hammondsville AMD Site

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prepared for

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Ohio EPA collected fish and macroinvertebrate data from sites in the North Fork Yellow Creek and Yellow Creek during 2002 to assess the impact from an AMD source which enters the North Fork near the town of Hammondsville at RM 0.23. Results are summarized in the attainment table (Table 1). Also attached are the Qualitative Habitat Evaluation Index (QHEI), Index of Biotic Integrity (IBI), and Invertebrate Community Index (ICI) summary tables (Tables 2-4) and site data for the fish and macroinvertebrate collections (Tables 5 and 6). Both the North Fork and Yellow Creek are designated Warmwater Habitat (WWH) in the Ohio Water Quality Standards.

Physical habitat conditions in the North Fork and Yellow Creek as measured by the QHEI were very good to exceptional and consequently indicated that a sufficient number of high-quality habitat attributes existed to support biological communities expected for the respective WWH aquatic life use designations. Scores ranged from 70.0 to 89.5. Attributes associated with WWH streams were prevalent at all sampling locations with only a few moderate influence negative attributes affecting the majority of the sites, specifically channel embeddedness due to sand and other fines from coal mining.

Fish collections at all sites in the North Fork and Yellow Creek reflected good quality, diverse communities; IBI and MIwb scores were near or exceeding the ecoregional biocriteria at all sites including downstream from the AMD seep near the mouth of the North Fork and in Yellow Creek downstream from the North Fork confluence. However, at these latter two sites, slight index departures occurred in the form of non-significant departures of the MIwb score (North Fork) and IBI score (Yellow Creek). These departures were considered relatively minor and reflected a negligible impact from the AMD source. The lower than expected IBI score for Yellow Creek downstream from the confluence with the North Fork was driven by the first-pass score and may be attributable to a combination of elevated stream flow and avoidance of the AMD discharge. Yellow Creek downstream from the North Fork was considerably more discolored from AMD discharge on the first pass (06/27/2002) than on the second pass (09/05/2002).

Macroinvertebrates followed a pattern similar to the fish with good to very good ICI scores and communities present at all sites except the site in the North Fork downstream from the AMD source. With the exception of this site, communities were well populated with macroinvertebrates including 45 to 56 total taxa and 13 to 17 taxa of pollution sensitive mayflies, caddisflies, and stoneflies. At the site downstream from the AMD source (RM 0.2), overall total taxa diversity was fairly similar to the immediate upstream site but overall organism density and taxa diversity of the more sensitive mayfly and caddisfly taxa were both noticeably reduced. This resulted in an ICI score (20) below ecoregional expectations and reflected a fair quality community. The observation of a pervasive precipitate silt cover throughout the stream reach below the AMD source was evidence of its impact on the stream bottom habitat and probably was the most important factor affecting the macroinvertebrate community.

Overall, full attainment of the WWH aquatic life use designation was documented in the North Fork upstream from the AMD site and in Yellow Creek upstream and downstream from the North Fork confluence. Partial attainment was documented in the short North Fork reach downstream from the AMD site due to the measured decline in the macroinvertebrate community.

Table 1. Attainment status of the designated Warmwater Habitat (WWH) aquatic life use for Yellow Creek and the North Fork Yellow Creek based on biological sampling conducted during 2002.

RIVER MILE	IBI	MIwb	ICI^a	QHEI	Attainment Status	Site Location
Fish/Invert.						
<i>Yellow Cr. (2002) Western Allegheny Plateau (WAP) - WWH (existing)</i>						
3.7/3.8	49	9.5	44	77.0	FULL	Upst. North Fork
3.4/3.4	42 ^{ns}	8.6	VG	81.5	FULL	Dst. North Fork
<i>N. Fk. Yellow Cr. (2002) Western Allegheny Plateau (WAP) - WWH (existing)</i>						
6.2/6.2	45	8.8	46	89.5	FULL	Salineville-Hazel Rd. reference
2.2/2.2	46	8.7	36	78.0	FULL	Upst. Irondale reference
0.3/0.3	49	9.2	G	70.0	FULL	Upst. AMD source
0.2/0.2	47	8.1 ^{ns}	20*	76.5	PARTIAL	Dst. AMD source

Ecoregion Biocriteria: Western Allegheny Plateau (WAP)
(from OAC 3745-1-07, Table 7-16)

INDEX	WWH	EWH	MWH^b
IBI-Wading	44	50	24
MIwb - Wading	8.4	9.4	5.5
ICI	36	46	30

- a Narrative interpretation of qualitative, multihabitat composite macroinvertebrate sample used in lieu of ICI score when artificial substrate data are unavailable or determined to be unacceptable (G-good, VG-very good).
- b Modified Warmwater Habitat for mine affected areas.
- * Significant departure from ecoregion biocriterion; poor and very poor results are underlined.
- ns Nonsignificant departure from ecoregion biocriterion (≤ 4 IBI and ICI units, ≤ 0.5 MIwb units).

Table 2. QHEI summary matrix for sampling locations in the North Fork Yellow Creek study area, 2002.

River Mile	QHEI	Gradient (ft/mile)	WWH Attributes										MWH Attributes										Total MLL MWH Attributes	(MWH HL+1)/(MWH+1) Ratio	(MWH ML+1)/(MWH+1) Ratio				
			Key QHEI Components										High Influence					Moderate Influence											
			No Channelization or Recovered Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Substrates	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low-Normal Overall Embeddedness	Max Depth > 40 cm	Low-Normal Riffle Embeddedness	Total WWH Attributes	Channelized or No Recovery Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40 cm (WD, HW)	Total HL MWH Attributes	Recovering Channel	Heavy/Moderate Silt Cover	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development				Low Sinuosity	Only 1-2 Cover Types	Intermittent and Poor Pools	No Fast Current
(06-900) Yellow Creek																													
Year: 2002																													
3.7	77.0	5.67	#	#	#	#	#	#	#	#	7				0												2	0.13	0.38
3.4	81.5	5.67	#	#	#	#	#	#	#	#	9				0												1	0.10	0.20
(06-910) North Fork Yellow Creek																													
Year: 2002																													
6.2	89.5	16.39	#	#	#	#	#	#	#	#	9				0												0	0.10	0.10
2.2	78.0	18.35	#	#	#	#	#	#	#	#	9				0												2	0.10	0.30
0.3	70.0	18.35	#	#	#	#	#	#	#	#	8				0												5	0.11	0.67
0.2	76.5	18.35	#	#	#	#	#	#	#	#	8				0												2	0.11	0.33

Table 3. IBI metrics and scores for sampling locations in the North Fork Yellow Creek study area, 2002.

River Mile	Type	Date	Drainage area (sq mi)	Number of					Percent of Individuals					Rel.No. minus tolerants /(0.3km)	IBI	Modified Iwb	
				Total species	Sunfish species	Sucker species	Intolerant species	Darter species	Simple Lithophils	Tolerant fishes	Omni-vores	Top carnivores	Insect-ivores				DELT anomalies
Yellow Creek - (06900)																	
Year: 2002																	
3.70	D	06/27/2002	164	22(3)	2(3)	4(3)	4(3)	5(3)	35(3)	17(5)	15(5)	5.3(5)	63(5)	0.0(5)	522(3)	46	9.0
3.70	D	09/04/2002	164	26(5)	2(3)	4(3)	7(5)	6(5)	45(5)	9(5)	19(3)	4.6(3)	63(5)	0.0(5)	1167(5)	52	9.9
3.40	D	06/27/2002	224	21(3)	3(3)	4(3)	2(1)	2(1)	31(3)	38(1)	37(1)	4.6(3)	52(3)	0.0(5)	224(3)	30	7.6
3.40	D	09/05/2002	224	33(5)	3(3)	5(5)	6(5)	5(3)	44(5)	6(5)	9(5)	6.1(5)	64(5)	0.0(5)	582(3)	54	9.6
N. Fk. Yellow Creek - (06910)																	
Year: 2002																	
6.20	D	06/27/2002	41	22(5)	3(3)	4(5)	4(3)	4(3)	33(3)	24(5)	22(3)	0.7(1)	29(3)	0.0(5)	1365(5)	44	8.8
6.20	D	09/05/2002	41	23(5)	2(3)	4(5)	5(5)	5(5)	30(3)	27(3)	22(3)	1.0(1)	36(3)	0.0(5)	1133(5)	46	8.8
2.20	E	08/08/2002	56	22(5)	2(3)	3(3)	5(5)	5(5)	35(3)	20(5)	20(3)	4.5(3)	42(3)	0.1(3)	900(5)	46	8.7
0.30	E	08/08/2002	59	20(3)	3(3)	4(5)	3(3)	2(1)	58(5)	7(5)	6(5)	7.1(5)	69(5)	0.9(3)	446(3)	46	8.9
0.30	D	09/05/2002	59	27(5)	2(3)	5(5)	6(5)	6(5)	52(5)	11(5)	11(5)	3.4(3)	63(5)	0.2(3)	704(3)	52	9.5
0.20	D	08/08/2002	59	24(5)	4(5)	3(3)	3(3)	4(3)	60(5)	18(5)	12(5)	3.3(3)	70(5)	0.0(5)	479(3)	50	8.5
0.20	D	09/05/2002	59	22(5)	4(5)	3(3)	4(3)	2(1)	45(5)	12(5)	31(3)	0.8(1)	59(5)	0.0(5)	639(3)	44	7.6

na - Qualitative data, Modified Iwb not applicable.

▲ - IBI is low end adjusted.

* - < 200 Total individuals in sample

** - < 50 Total individuals in sample

● - One or more species excluded from IBI calculation.

Table 4. ICI metrics and scores for sampling locations in the North Fork Yellow Creek study area, 2002.

River Mile	Drainage Area (sq mi)	Number of				Percent:					Qual. EPT	Eco-region	ICI
		Total Taxa	Mayfly Taxa	Caddisfly Taxa	Dipteran Taxa	Mayflies	Caddisflies	Tanytarsini	Other Dipt/NI	Tolerant Organisms			
Yellow Creek (06-900)													
Year: 2002													
3.80	164.0	33(4)	6(4)	5(6)	16(4)	16.8(4)	2.4(2)	43.3(6)	36.0(4)	0.0(6)	12(4)	4	44
North Fork Yellow Creek (06-910)													
Year: 2002													
6.20	41.0	27(4)	7(4)	3(4)	14(4)	23.1(4)	1.6(2)	51.9(6)	23.4(6)	3.3(6)	15(6)	4	46
2.20	56.0	29(4)	7(4)	3(4)	13(2)	20.9(4)	4.7(2)	27.5(4)	46.7(2)	5.0(6)	12(4)	4	36
0.20	59.0	29(4)	4(2)	0(0)	17(4)	8.8(2)	0.0(0)	22.4(4)	59.6(2)	27.2(0)	8(2)	4	20

Table 5. Fish community results by sampling location in the North Fork Yellow Creek survey area, 2002.

Species List

River Code: 06-900	Stream: Yellow Creek	Sample Date: 2002
River Mile: 3.70	Location: upst. North Fork	Date Range: 06/27/2002
Time Fished:	Drainage: 164.0 sq mi	Thru: 09/04/2002
Dist Fished: 0.40 km	Basin: Central Ohio River Tribs	No of Passes: 2
		Sampler Type: D

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Gizzard Shad		O	M	89	66.75	7.01	1.31	8.13	19.58
Black Redhorse	R	I	S I	6	4.50	0.47	0.65	4.07	145.33
Golden Redhorse	R	I	S M	61	45.75	4.81	2.95	18.34	64.46
Shorthead Redhorse	R	I	S M	11	8.25	0.87	0.34	2.11	41.22
Northern Hog Sucker	R	I	S M	101	75.75	7.96	3.52	21.88	46.46
Common Carp	G	O	M T	1	0.75	0.08	0.09	0.54	115.00
River Chub	N	I	N I	12	9.00	0.95	0.09	0.54	9.58
Creek Chub	N	G	N T	6	4.50	0.47	0.20	1.24	44.33
Emerald Shiner	N	I	S	17	12.75	1.34	0.03	0.21	2.67
Silver Shiner	N	I	S I	9	6.75	0.71	0.03	0.16	3.67
Rosyface Shiner	N	I	S I	57	42.75	4.49	0.07	0.43	1.62
Striped Shiner	N	I	S	171	128.25	13.48	0.70	4.35	5.45
Spotfin Shiner	N	I	M	34	25.50	2.68	0.07	0.43	2.70
Sand Shiner	N	I	M M	167	125.25	13.16	0.44	2.74	3.52
Mimic Shiner	N	I	M I	36	27.00	2.84	0.04	0.24	1.44
Silverjaw Minnow	N	I	M	1	0.75	0.08	0.00	0.02	3.00
Bluntnose Minnow	N	O	C T	136	102.00	10.72	0.28	1.72	2.70
Central Stoneroller	N	H	N	176	132.00	13.87	0.76	4.72	5.75
Rock Bass	S	C	C	21	15.75	1.65	0.98	6.11	62.40
Smallmouth Bass	F	C	C M	39	29.25	3.07	3.01	18.69	102.74
Spotted Bass	F	C	C	1	0.75	0.08	0.05	0.30	65.00
Bluegill Sunfish	S	I	C P	10	7.50	0.79	0.07	0.43	9.20
Logperch	D	I	S M	17	12.75	1.34	0.10	0.61	7.65
Greenside Darter	D	I	S M	35	26.25	2.76	0.05	0.31	1.89
Banded Darter	D	I	S I	23	17.25	1.81	0.03	0.16	1.44
Variagate Darter	D	I	S I	1	0.75	0.08	0.02	0.10	22.00
Rainbow Darter	D	I	S M	17	12.75	1.34	0.02	0.13	1.65
Fantail Darter	D	I	C	12	9.00	0.95	0.01	0.07	1.18
Freshwater Drum			M P	1	0.75	0.08	0.20	1.26	270.00
Mottled Sculpin		I	C	1	0.75	0.08	0.00	0.01	1.00
<i>Mile Total</i>				1,269	951.75		16.08		
<i>Number of Species</i>				30					
<i>Number of Hybrids</i>				0					

Species List

River Code: 06-900	Stream: Yellow Creek	Sample Date: 2002
River Mile: 3.40	Location:	Date Range: 06/27/2002
Time Fished: 2100 sec	Drainage: 224.0 sq mi	Thru: 09/05/2002
Dist Fished: 0.40 km	Basin: Central Ohio River Tribs No of Passes: 2	Sampler Type: D

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Gizzard Shad		O	M	17	12.75	2.61	0.86	10.33	67.59
Rainbow Trout	E		N	1	0.75	0.15	0.23	2.70	300.00
Black Redhorse	R	I	S I	4	3.00	0.61	0.22	2.65	73.50
Golden Redhorse	R	I	S M	50	37.50	7.67	1.42	17.02	37.88
Shorthead Redhorse	R	I	S M	5	3.75	0.77	0.09	1.13	25.00
Northern Hog Sucker	R	I	S M	71	53.25	10.89	0.75	9.04	14.16
White Sucker	W	O	S T	2	1.50	0.31	0.00	0.05	3.00
River Chub	N	I	N I	20	15.00	3.07	0.17	1.98	11.00
Creek Chub	N	G	N T	8	6.00	1.23	0.02	0.26	3.50
Emerald Shiner	N	I	S	16	12.00	2.45	0.02	0.24	1.67
Silver Shiner	N	I	S I	8	6.00	1.23	0.02	0.19	2.63
Rosyface Shiner	N	I	S I	3	2.25	0.46	0.00	0.05	1.67
Striped Shiner	N	I	S	72	54.00	11.04	0.20	2.35	3.64
Spotfin Shiner	N	I	M	20	15.00	3.07	0.03	0.39	2.15
Sand Shiner	N	I	M M	66	49.50	10.12	0.05	0.61	1.02
Mimic Shiner	N	I	M I	3	2.25	0.46	0.00	0.05	2.00
Silverjaw Minnow	N	I	M	1	0.75	0.15	0.00	0.03	3.00
Bluntnose Minnow	N	O	C T	105	78.75	16.10	0.08	1.01	1.08
Central Stoneroller	N	H	N	91	68.25	13.96	0.66	7.91	9.67
Brook Silverside		I	M M	3	2.25	0.46	0.00	0.03	1.00
Rock Bass	S	C	C	8	6.00	1.23	0.18	2.13	29.58
Smallmouth Bass	F	C	C M	12	9.00	1.84	1.16	13.92	129.08
Spotted Bass	F	C	C	11	8.25	1.69	0.23	2.73	27.55
Largemouth Bass	F	C	C	3	2.25	0.46	0.56	6.74	250.00
Bluegill Sunfish	S	I	C P	18	13.50	2.76	0.10	1.19	7.33
Longear Sunfish	S	I	C M	1	0.75	0.15	0.00	0.03	3.00
Pumpkinseed Sunfish	S	I	C P	1	0.75	0.15	0.01	0.09	10.00
Sauger	F	P	S	1	0.75	0.15	0.19	2.25	250.00
Walleye	F	P	S	1	0.75	0.15	0.18	2.20	245.00
Yellow Perch			M	1	0.75	0.15	0.01	0.17	19.00
Logperch	D	I	S M	5	3.75	0.77	0.02	0.25	5.40
Greenside Darter	D	I	S M	3	2.25	0.46	0.00	0.05	2.00
Banded Darter	D	I	S I	3	2.25	0.46	0.00	0.05	1.67
Rainbow Darter	D	I	S M	12	9.00	1.84	0.01	0.14	1.25
Fantail Darter	D	I	C	1	0.75	0.15	0.00	0.02	2.00
Freshwater Drum			M P	4	3.00	0.61	0.84	10.11	281.25
Mottled Sculpin		I	C	1	0.75	0.15	0.00	0.01	1.00
<i>Mile Total</i>				652	489.00		8.35		
<i>Number of Species</i>				37					
<i>Number of Hybrids</i>				0					

Species List

River Code: 06-910	Stream: North Fork Yellow Creek	Sample Date: 2002
River Mile: 6.20	Location:	Date Range: 06/27/2002
Time Fished:	Drainage: 41.0 sq mi	Thru: 09/05/2002
Dist Fished: 0.40 km	Basin: Central Ohio River Tribs No of Passes: 2	Sampler Type: D

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Black Redhorse	R	I	S	I	4	3.00	0.18	0.56	3.93	188.00
Golden Redhorse	R	I	S	M	36	27.00	1.61	0.34	2.39	12.69
Northern Hog Sucker	R	I	S	M	96	72.00	4.29	2.15	14.97	29.87
White Sucker	W	O	S	T	109	81.75	4.87	1.57	10.92	19.18
River Chub	N	I	N	I	4	3.00	0.18	0.08	0.53	25.25
Blacknose Dace	N	G	S	T	14	10.50	0.63	0.03	0.19	2.64
Creek Chub	N	G	N	T	66	49.50	2.95	0.80	5.58	16.20
Silver Shiner	N	I	S	I	3	2.25	0.13	0.01	0.07	4.33
Rosyface Shiner	N	I	S	I	47	35.25	2.10	0.08	0.54	2.21
Striped Shiner	N	I	S		325	243.75	14.52	1.47	10.22	6.02
Spotfin Shiner	N	I	M		2	1.50	0.09	0.00	0.02	2.00
Sand Shiner	N	I	M	M	3	2.25	0.13	0.00	0.02	1.33
Silverjaw Minnow	N	I	M		3	2.25	0.13	0.00	0.02	1.33
Bluntnose Minnow	N	O	C	T	383	287.25	17.11	0.61	4.26	2.13
Central Stoneroller	N	H	N		917	687.75	40.97	5.07	35.30	7.37
Rock Bass	S	C	C		6	4.50	0.27	0.39	2.73	87.17
Smallmouth Bass	F	C	C	M	12	9.00	0.54	0.41	2.82	44.92
Green Sunfish	S	I	C	T	1	0.75	0.04	0.03	0.22	41.00
Bluegill Sunfish	S	I	C	P	7	5.25	0.31	0.06	0.40	10.86
Hybrid X Sunfish					1	0.75	0.04	0.06	0.45	85.00
Johnny Darter	D	I	C		3	2.25	0.13	0.00	0.02	1.00
Greenside Darter	D	I	S	M	25	18.75	1.12	0.04	0.28	2.12
Banded Darter	D	I	S	I	2	1.50	0.09	0.00	0.02	1.50
Rainbow Darter	D	I	S	M	42	31.50	1.88	0.05	0.36	1.62
Fantail Darter	D	I	C		13	9.75	0.58	0.02	0.15	2.14
Mottled Sculpin		I	C		114	85.50	5.09	0.52	3.63	6.11
<i>Mile Total</i>					2,238	1,678.50		14.36		
<i>Number of Species</i>					25					
<i>Number of Hybrids</i>					1					

Species List

River Code: 06-910	Stream: North Fork Yellow Creek	Sample Date: 2002
River Mile: 2.20	Location:	Date Range: 08/08/2002
Time Fished: 1800 sec	Drainage: 56.0 sq mi	
Dist Fished: 0.20 km	Basin: Central Ohio River Tribs No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Golden Redhorse	R	I	S	M	38	57.00	5.05	4.71	31.46	82.68
Northern Hog Sucker	R	I	S	M	27	40.50	3.59	0.78	5.20	19.23
White Sucker	W	O	S	T	1	1.50	0.13	0.06	0.42	42.00
River Chub	N	I	N	I	6	9.00	0.80	0.11	0.70	11.67
Silver Shiner	N	I	S	I	1	1.50	0.13	0.00	0.02	2.00
Rosyface Shiner	N	I	S	I	60	90.00	7.98	0.11	0.75	1.24
Striped Shiner	N	I	S		102	153.00	13.56	1.22	8.15	7.98
Spotfin Shiner	N	I	M		1	1.50	0.13	0.01	0.03	3.00
Sand Shiner	N	I	M	M	18	27.00	2.39	0.04	0.23	1.28
Mimic Shiner	N	I	M	I	13	19.50	1.73	0.02	0.14	1.09
Bluntnose Minnow	N	O	C	T	149	223.50	19.81	0.56	3.77	2.52
Central Stoneroller	N	H	N		253	379.50	33.64	3.29	21.98	8.67
Yellow Bullhead		I	C	T	2	3.00	0.27	0.69	4.61	230.00
Rock Bass	S	C	C		8	12.00	1.06	0.26	1.76	21.88
Smallmouth Bass	F	C	C	M	26	39.00	3.46	2.83	18.92	72.65
Bluegill Sunfish	S	I	C	P	1	1.50	0.13	0.13	0.85	85.00
Johnny Darter	D	I	C		2	3.00	0.27	0.00	0.02	1.00
Greenside Darter	D	I	S	M	15	22.50	1.99	0.05	0.32	2.13
Banded Darter	D	I	S	I	8	12.00	1.06	0.02	0.15	1.88
Rainbow Darter	D	I	S	M	10	15.00	1.33	0.03	0.18	1.80
Fantail Darter	D	I	C		1	1.50	0.13	0.00	0.01	1.00
Mottled Sculpin		I	C		10	15.00	1.33	0.05	0.35	3.50
<i>Mile Total</i>					752	1,128.00		14.98		
<i>Number of Species</i>					22					
<i>Number of Hybrids</i>					0					

Species List

River Code: 06-910	Stream: North Fork Yellow Creek	Sample Date: 2002
River Mile: 0.30	Location:	Date Range: 08/08/2002
Time Fished: 2400 sec	Drainage: 59.0 sq mi	Thru: 09/05/2002
Dist Fished: 0.35 km	Basin: Central Ohio River Tribs No of Passes: 2	Sampler Type: E D

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Gizzard Shad		O	M	2	1.50	0.24	0.01	0.04	5.00
Black Redhorse	R	I	S I	56	51.25	8.04	6.61	31.18	129.89
Golden Redhorse	R	I	S M	99	85.00	13.33	3.53	16.64	41.30
Shorthead Redhorse	R	I	S M	3	2.50	0.39	0.17	0.78	66.67
Northern Hog Sucker	R	I	S M	86	71.25	11.17	1.22	5.74	16.62
White Sucker	W	O	S T	3	2.25	0.35	0.02	0.11	10.00
River Chub	N	I	N I	7	6.00	0.94	0.36	1.68	52.57
Creek Chub	N	G	N T	7	5.75	0.90	0.05	0.23	8.75
Silver Shiner	N	I	S I	1	0.75	0.12	0.00	0.00	1.00
Rosyface Shiner	N	I	S I	3	2.25	0.35	0.00	0.01	1.33
Striped Shiner	N	I	S	80	66.25	10.39	0.47	2.21	6.76
Spotfin Shiner	N	I	M	2	2.00	0.31	0.01	0.03	3.50
Sand Shiner	N	I	M M	22	16.50	2.59	0.02	0.08	1.09
Mimic Shiner	N	I	M I	24	21.00	3.29	0.02	0.09	0.92
Silverjaw Minnow	N	I	M	1	1.00	0.16	0.00	0.01	2.00
Bluntnose Minnow	N	O	C T	67	54.00	8.47	0.08	0.39	1.54
Central Stoneroller	N	H	N	155	126.25	19.80	1.13	5.30	8.89
Rock Bass	S	C	C	13	11.75	1.84	0.60	2.82	53.23
Smallmouth Bass	F	C	C M	21	18.00	2.82	4.04	19.06	233.62
Green Sunfish	S	I	C T	1	1.00	0.16	0.02	0.09	20.00
Bluegill Sunfish	S	I	C P	8	7.50	1.18	0.30	1.43	42.38
Walleye	F	P	S	1	0.75	0.12	0.23	1.09	308.00
Logperch	D	I	S M	4	3.75	0.59	0.05	0.21	12.00
Johnny Darter	D	I	C	4	3.00	0.47	0.00	0.01	1.00
Greenside Darter	D	I	S M	23	18.25	2.86	0.05	0.24	2.62
Banded Darter	D	I	S I	21	15.75	2.47	0.02	0.10	1.29
Rainbow Darter	D	I	S M	33	24.75	3.88	0.03	0.14	1.21
Fantail Darter	D	I	C	7	5.25	0.82	0.01	0.03	1.29
Freshwater Drum			M P	2	1.75	0.27	2.15	10.14	1,225.00
Mottled Sculpin		I	C	14	10.75	1.69	0.03	0.12	2.36
<i>Mile Total</i>				770	637.75		21.21		
<i>Number of Species</i>				30					
<i>Number of Hybrids</i>				0					

Species List

River Code: 06-910	Stream: North Fork Yellow Creek	Sample Date: 2002
River Mile: 0.20	Location: dst. AMD source	Date Range: 08/08/2002
Time Fished:	Drainage: 59.0 sq mi	Thru: 09/05/2002
Dist Fished: 0.40 km	Basin: Central Ohio River Tribs No of Passes: 2	Sampler Type: D

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Gizzard Shad		O	M	153	114.75	17.53	0.55	11.68	4.82
Golden Redhorse	R	I	S M	33	24.75	3.78	0.38	8.07	15.42
Northern Hog Sucker	R	I	S M	9	6.75	1.03	0.04	0.86	6.00
White Sucker	W	O	S T	28	21.00	3.21	0.83	17.60	39.68
River Chub	N	I	N I	7	5.25	0.80	0.11	2.26	20.29
Creek Chub	N	G	N T	76	57.00	8.71	0.40	8.52	7.08
Emerald Shiner	N	I	S	19	14.25	2.18	0.03	0.67	2.21
Silver Shiner	N	I	S I	5	3.75	0.57	0.01	0.18	2.20
Rosyface Shiner	N	I	S I	10	7.50	1.15	0.01	0.18	1.11
Striped Shiner	N	I	S	339	254.25	38.83	1.07	22.53	4.20
Spotfin Shiner	N	I	M	37	27.75	4.24	0.07	1.50	2.56
Sand Shiner	N	I	M M	40	30.00	4.58	0.04	0.78	1.23
Mimic Shiner	N	I	M I	5	3.75	0.57	0.00	0.06	0.75
Bluntnose Minnow	N	O	C T	15	11.25	1.72	0.03	0.53	2.20
Central Stoneroller	N	H	N	27	20.25	3.09	0.13	2.71	6.35
Rock Bass	S	C	C	4	3.00	0.46	0.10	2.12	33.50
Smallmouth Bass	F	C	C M	7	5.25	0.80	0.30	6.23	56.14
Spotted Bass	F	C	C	5	3.75	0.57	0.15	3.21	40.40
Largemouth Bass	F	C	C	1	0.75	0.11	0.12	2.53	160.00
Green Sunfish	S	I	C T	9	6.75	1.03	0.09	1.95	13.67
Bluegill Sunfish	S	I	C P	22	16.50	2.52	0.14	2.99	8.55
Pumpkinseed Sunfish	S	I	C P	9	6.75	1.03	0.09	1.95	13.67
Logperch	D	I	S M	6	4.50	0.69	0.04	0.79	8.33
Johnny Darter	D	I	C	2	1.50	0.23	0.00	0.04	1.00
Banded Darter	D	I	S I	1	0.75	0.11	0.00	0.02	1.00
Rainbow Darter	D	I	S M	2	1.50	0.23	0.00	0.06	2.00
Fantail Darter	D	I	C	1	0.75	0.11	0.00	0.02	1.00
Mottled Sculpin		I	C	1	0.75	0.11	0.00	0.05	3.00
<i>Mile Total</i>				873	654.75		4.74		
<i>Number of Species</i>				28					
<i>Number of Hybrids</i>				0					

Table 6. Macroinvertebrate community results by sampling location in the North Fork Yellow Creek survey area, 2002.

**Ohio EPA/DW Ecological Assessment Section
Macroinvertebrate Collection**

Collection Date: 08/13/2002 River Code: 06-900 RM: 3.80 Site: Yellow Creek upst. St. Rt. 213, upst.

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01900	<i>Nemertea</i>	+	87540	<i>Hemerodromia sp</i>	56
03360	<i>Plumatella sp</i>	1 +	96900	<i>Ferrissia sp</i>	1 +
03600	<i>Oligochaeta</i>	+	97601	<i>Corbicula fluminea</i>	+
08200	<i>Orconectes sp</i>	+			
08601	<i>Hydracarina</i>	+	No. Quantitative Taxa: 33		Total Taxa: 47
11130	<i>Baetis intercalaris</i>	15 +	No. Qualitative Taxa: 36		ICI: 44
12200	<i>Isonychia sp</i>	103 +	Number of Organisms: 3987		Qual EPT: 12
13400	<i>Stenacron sp</i>	+			
13561	<i>Stenonema pulchellum</i>	471 +			
13590	<i>Stenonema vicarium</i>	7			
16700	<i>Tricorythodes sp</i>	40 +			
17200	<i>Caenis sp</i>	32 +			
18700	<i>Hexagenia sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	8 +			
24900	<i>Gomphus sp</i>	+			
48410	<i>Corydalus cornutus</i>	8 +			
48620	<i>Nigronia serricornis</i>	+			
50315	<i>Chimarra obscura</i>	2 +			
52200	<i>Cheumatopsyche sp</i>	62 +			
52430	<i>Ceratopsyche morosa group</i>	+			
52540	<i>Hydropsyche dicantha</i>	23 +			
53800	<i>Hydroptila sp</i>	9 +			
59500	<i>Oecetis sp</i>	1			
60300	<i>Dineutus sp</i>	1 +			
68901	<i>Macronychus glabratus</i>	40			
69210	<i>Optioservus ampliatus</i>	+			
70600	<i>Antocha sp</i>	16 +			
74100	<i>Simulium sp</i>	16			
74673	<i>Atrichopogon websteri</i>	16			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	38 +			
78450	<i>Nilotanytus fimbriatus</i>	73 +			
80310	<i>Cardiocladius obscurus</i>	+			
80370	<i>Corynoneura lobata</i>	16			
80410	<i>Cricotopus (C.) sp</i>	75 +			
80430	<i>Cricotopus (C.) tremulus group</i>	38			
82101	<i>Thienemanniella taurocapita</i>	36			
82141	<i>Thienemanniella xena</i>	116 +			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	901 +			
84469	<i>Polypedilum (P.) illinoense group</i>	38			
85264	<i>Cladotanytarsus vanderwulpi group Type 4</i>	+			
85625	<i>Rheotanytarsus sp</i>	1577 +			
85752	<i>Sublettea coffmani</i>	38 +			
85821	<i>Tanytarsus glabrescens group sp 7</i>	113			

**Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection**

Collection Date: 08/13/2002 River Code: 06-900 RM: 3.40 Site: Yellow Creek

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
08601	<i>Hydracarina</i>	+	97601	<i>Corbicula fluminea</i>	+
11014	<i>Acentrella turbida</i>	+			
11130	<i>Baetis intercalaris</i>	+	No. Quantitative Taxa: 0		Total Taxa: 45
11670	<i>Procloeon irrubrum</i>	+	No. Qualitative Taxa: 45		ICI:
12200	<i>Isonychia sp</i>	+	Number of Organisms: 0		Qual EPT: 16
13000	<i>Leucrocuta sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13561	<i>Stenonema pulchellum</i>	+			
16700	<i>Tricorythodes sp</i>	+			
17200	<i>Caenis sp</i>	+			
18700	<i>Hexagenia sp</i>	+			
21300	<i>Hetaerina sp</i>	+			
24900	<i>Gomphus sp</i>	+			
25300	<i>Ophiogomphus sp</i>	+			
26700	<i>Macromia sp</i>	+			
48410	<i>Corydalus cornutus</i>	+			
48620	<i>Nigronia serricornis</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52430	<i>Ceratopsyche morosa group</i>	+			
52540	<i>Hydropsyche dicantha</i>	+			
57900	<i>Pycnopsyche sp</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
60300	<i>Dineutus sp</i>	+			
69210	<i>Optioservus ampliatus</i>	+			
69400	<i>Stenelmis sp</i>	+			
70600	<i>Antocha sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
80410	<i>Cricotopus (C.) sp</i>	+			
82730	<i>Chironomus (C.) decorus group</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	+			
84300	<i>Phaenopsectra obediens group</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
85265	<i>Cladotanytarsus vanderwulpi group Type 5</i>	+			
85625	<i>Rheotanytarsus sp</i>	+			
85711	<i>Stempellinella n.sp 1</i>	+			
85752	<i>Sublettea coffmani</i>	+			
85800	<i>Tanytarsus sp</i>	+			
85821	<i>Tanytarsus glabrescens group sp 7</i>	+			
95100	<i>Physella sp</i>	+			

**Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection**

Collection Date: 08/14/2002 River Code: 06-910 RM: 6.20 Site: North Fork Yellow Creek

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
03360	<i>Plumatella sp</i>	+	83840	<i>Microtendipes pedellus group</i>	51
03600	<i>Oligochaeta</i>	28 +	84450	<i>Polypedilum (Uresipedilum) flavum</i>	171 +
04685	<i>Placobdella ornata</i>	+	84460	<i>Polypedilum (P.) fallax group</i>	17
08200	<i>Orconectes sp</i>	+	84700	<i>Stenochironomus sp</i>	+
08601	<i>Hydracarina</i>	+	85500	<i>Paratanytarsus sp</i>	17
11125	<i>Pseudocloeon frondale</i>	1	85625	<i>Rheotanytarsus sp</i>	855 +
11130	<i>Baetis intercalaris</i>	1 +	85752	<i>Sublettea coffmani</i>	51
12200	<i>Isonychia sp</i>	37 +	85821	<i>Tanytarsus glabrescens group sp 7</i>	85
13400	<i>Stenacron sp</i>	93 +	86401	<i>Atherix lantha</i>	+
13521	<i>Stenonema femoratum</i>	+	87540	<i>Hemerodromia sp</i>	20
13561	<i>Stenonema pulchellum</i>	80 +	96002	<i>Helisoma anceps anceps</i>	+
13590	<i>Stenonema vicarium</i>	148 +	96900	<i>Ferrissia sp</i>	2 +
17200	<i>Caenis sp</i>	88 +			
21200	<i>Calopteryx sp</i>	2 +	No. Quantitative Taxa: 27		Total Taxa: 56
23909	<i>Boyeria vinosa</i>	+	No. Qualitative Taxa: 42		ICI: 46
24501	<i>Gomphidae</i>	+	Number of Organisms: 1943		Qual EPT: 15
33100	<i>Leuctra sp</i>	+			
48410	<i>Corydalus cornutus</i>	+			
48620	<i>Nigronia serricornis</i>	+			
50315	<i>Chimarra obscura</i>	+			
51600	<i>Polycentropus sp</i>	1			
52200	<i>Cheumatopsyche sp</i>	29 +			
52430	<i>Ceratopsyche morosa group</i>	1 +			
52530	<i>Hydropsyche depravata group</i>	+			
52540	<i>Hydropsyche dicantha</i>	+			
57900	<i>Pycnopsyche sp</i>	+			
59300	<i>Mystacides sp</i>	+			
60300	<i>Dineutus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
68901	<i>Macronychus glabratus</i>	+			
69210	<i>Optioservus ampliatus</i>	+			
69400	<i>Stenelmis sp</i>	+			
70600	<i>Antocha sp</i>	+			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	17			
77500	<i>Conchapelopia sp</i>	17			
77800	<i>Helopelopia sp</i>	34			
80310	<i>Cardiocladius obscurus</i>	+			
80370	<i>Corynoneura lobata</i>	12			
80420	<i>Cricotopus (C.) bicinctus</i>	17			
81690	<i>Paratrichocladius sp</i>	+			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	+			
82141	<i>Thienemanniella xena</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson & Bode, 1980)</i>	68			

**Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection**

Collection Date: 08/14/2002 River Code: 06-910 RM: 2.20 Site: North Fork Yellow Creek

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00401	<i>Spongillidae</i>	+	85821	<i>Tanytarsus glabrescens group sp 7</i>	104 +
03360	<i>Plumatella sp</i>	1	86401	<i>Atherix lantha</i>	1 +
03600	<i>Oligochaeta</i>	32 +	87540	<i>Hemerodromia sp</i>	12
08230	<i>Orconectes (Crockerinus) obscurus</i>	1 +	96900	<i>Ferrissia sp</i>	35 +
08601	<i>Hydracarina</i>	+			
11130	<i>Baetis intercalaris</i>	7 +	No. Quantitative Taxa: 29		Total Taxa: 48
12200	<i>Isonychia sp</i>	80 +	No. Qualitative Taxa: 35		ICI: 36
13400	<i>Stenacron sp</i>	14 +	Number of Organisms: 2029		Qual EPT: 12
13561	<i>Stenonema pulchellum</i>	24 +			
13590	<i>Stenonema vicarium</i>	79 +			
16700	<i>Tricorythodes sp</i>	12			
17200	<i>Caenis sp</i>	208 +			
24900	<i>Gomphus sp</i>	+			
34130	<i>Acroneuria frisoni</i>	+			
48410	<i>Corydalus cornutus</i>	3 +			
48620	<i>Nigronia serricornis</i>	+			
50315	<i>Chimarra obscura</i>	1 +			
51600	<i>Polycentropus sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	85 +			
52430	<i>Ceratopsyche morosa group</i>	9			
52540	<i>Hydropsyche dicantha</i>	+			
53800	<i>Hydroptila sp</i>	+			
60300	<i>Dineutus sp</i>	+			
68901	<i>Macronychus glabratus</i>	2			
69210	<i>Optioservus ampliatus</i>	+			
69400	<i>Stenelmis sp</i>	+			
70600	<i>Antocha sp</i>	+			
74100	<i>Simulium sp</i>	+			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	17			
77800	<i>Helopelopia sp</i>	35			
80310	<i>Cardiocladius obscurus</i>	+			
80370	<i>Corynoneura lobata</i>	24			
81690	<i>Paratrichocladius sp</i>	+			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	17			
82141	<i>Thienemanniella xena</i>	8			
82710	<i>Chironomus (C.) sp</i>	+			
83003	<i>Dicrotendipes fumidus</i>	+			
84440	<i>Polypedilum (Uresipedilum) aviceps</i>	17			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	713 +			
84460	<i>Polypedilum (P.) fallax group</i>	35			
85261	<i>Cladotanytarsus vanderwulpi group Type I</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
85625	<i>Rheotanytarsus sp</i>	418 +			
85752	<i>Sublettea coffmani</i>	35			

**Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection**

Collection Date: 08/13/2002 River Code: 06-910 RM: 0.30 Site: North Fork Yellow Creek

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01900	<i>Nemertea</i>	+	96900	<i>Ferrissia sp</i>	+
08200	<i>Orconectes sp</i>	+	98200	<i>Pisidium sp</i>	+
08601	<i>Hydracarina</i>	+			
11130	<i>Baetis intercalaris</i>	+	No. Quantitative Taxa: 0		Total Taxa: 45
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+	No. Qualitative Taxa: 45		ICI:
12200	<i>Isonychia sp</i>	+	Number of Organisms: 0		Qual EPT: 13
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
13561	<i>Stenonema pulchellum</i>	+			
17200	<i>Caenis sp</i>	+			
18600	<i>Ephemera sp</i>	+			
21200	<i>Calopteryx sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
25300	<i>Ophiogomphus sp</i>	+			
26700	<i>Macromia sp</i>	+			
48410	<i>Corydalus cornutus</i>	+			
48620	<i>Nigronia serricornis</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52430	<i>Ceratopsyche morosa group</i>	+			
52540	<i>Hydropsyche dicantha</i>	+			
53800	<i>Hydroptila sp</i>	+			
60300	<i>Dineutus sp</i>	+			
68700	<i>Dubiraphia sp</i>	+			
69210	<i>Optioservus ampliatus</i>	+			
69400	<i>Stenelmis sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	+			
79770	<i>Potthastia gaedii group</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson & Bode, 1980)</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
84700	<i>Stenochironomus sp</i>	+			
85230	<i>Cladotanytarsus mancus group</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
85625	<i>Rheotanytarsus sp</i>	+			
85752	<i>Sublettea coffmani</i>	+			
85800	<i>Tanytarsus sp</i>	+			
85821	<i>Tanytarsus glabrescens group sp 7</i>	+			
86401	<i>Atherix lantha</i>	+			
87540	<i>Hemerodromia sp</i>	+			
96002	<i>Helisoma anceps anceps</i>	+			

**Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection**

Collection Date: 08/13/2002 River Code: 06-910 RM: 0.20 Site: North Fork Yellow Creek dst. AMD

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	1	96900	<i>Ferrissia sp</i>	1
03600	<i>Oligochaeta</i>	46 +			
08200	<i>Orconectes sp</i>	+	No. Quantitative Taxa: 29		Total Taxa: 45
11001	<i>Baetidae</i>	1	No. Qualitative Taxa: 23		ICI: 20
12200	<i>Isonychia sp</i>	+	Number of Organisms: 250		Qual EPT: 8
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	1			
13590	<i>Stenonema vicarium</i>	1			
17200	<i>Caenis sp</i>	19 +			
18708	<i>Hexagenia bilineata</i>	+			
21200	<i>Calopteryx sp</i>	2 +			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	7			
23909	<i>Boyeria vinosa</i>	+			
48410	<i>Corydalus cornutus</i>	+			
48620	<i>Nigronia serricornis</i>	13 +			
52530	<i>Hydropsyche depravata group</i>	+			
52540	<i>Hydropsyche dicantha</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
59724	<i>Triaenodes injustus</i>	+			
68601	<i>Ancyronyx variegata</i>	+			
68901	<i>Macronychus glabratus</i>	1			
69210	<i>Optioservus ampliatus</i>	+			
74501	<i>Ceratopogonidae</i>	+			
77120	<i>Ablabesmyia mallochi</i>	10			
77500	<i>Conchapelopia sp</i>	6			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	10			
80204	<i>Brillia flavifrons group</i>	+			
80370	<i>Corynoneura lobata</i>	11			
81670	<i>Paraphaenocladus sp</i>	+			
82141	<i>Thienemanniella xena</i>	1			
83040	<i>Dicrotendipes neomodestus</i>	23			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	2			
84280	<i>Phaenopsectra sp or Tribelos sp</i>	4			
84315	<i>Phaenopsectra flavipes</i>	2			
84460	<i>Polypedilum (P.) fallax group</i>	21			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	6			
85500	<i>Paratanytarsus sp</i>	19			
85800	<i>Tanytarsus sp</i>	8 +			
85802	<i>Tanytarsus curticornis group</i>	2			
85821	<i>Tanytarsus glabrescens group sp 7</i>	23 +			
85840	<i>Tanytarsus guerlus group</i>	4			
87540	<i>Hemerodromia sp</i>	2			
96002	<i>Helisoma anceps anceps</i>	3 +			