

## *Water Quality Monitoring Program*

The Blanchard River Watershed Partnership (BRWP) started a Water Quality Monitoring Program in the fall of 2007. The BRWP used the Ohio Scenic Rivers Stream Quality Assessment Form for the basis of collecting the data. Starting 2008 the BRWP starting doing monitoring in the spring and in the fall. The monitoring involves identifying the macroinvertebrates found at each sites. Macroinvertebrates are under rocks and debris in stream riffle areas. The macroinvertebrates are grouped into three categories based on the tolerance of the macroinvertebrate to pollution.

The first group (1) are *very sensitive* to any pollution. This group includes Water Penny larvae, Mayfly nymphs, Stonefly nymphs, Dobsonfly larvae, Caddisfly larvae, Riffle beetle adult, and Gilled snails. The second group (2) are *somewhat sensitive* to any pollution. This group includes Damselfly nymphs, Dragonfly nymphs, Crane fly larvae, Beetle larvae, Crayfish, Scuds, Clams, Sowbugs (isopods). The third group (3) are *pollution tolerant*. This groups includes Blackfly larvae, Aquatic worms, Midge larvae, Pouch snails, and Leech. At each site the number of each species identified was counted and recorded on the assessment form.

To determine the overall water quality, the number of taxa in each group was determined. The number of group 1 taxa was multiplied by three; group 2 by 2; and group 3 by 1. The product of each group was added together to determine the Cumulative Index Value. *Stream Quality Assessment (SQA)* was based on the following basis: Excellent (>22), Good (17-22), Fair (11-16), and Poor (<11).

### *Summary 2008 Macroinvertebrate Monitoring*

On May 19th. and 21st., Hester-Dendy collectors were placed at 3 sites on Lye Creek and 6 sites on the Blanchard River identified as suitable by the BRWP Stream Observation Walk and the OEPA sampling sites. Final collection of data included not only the Hester-Dendy collectors, but also kick seine nets and hand rock sampling.

Only data from 8 of the 9 sites were collected by the BRWP volunteers. Heavy rains during June washed away 5 of the Hester-Dendy units. Lye Creek site LC-1 was destroyed by the flooding and local people walking through the area. This site will not be used again. The data was entered into the Stream Quality form described above. Individual Assessment forms for each side can be obtained by contacting the BRWP.

Of the six sites on the Blanchard River, 3 sites a SQA of good and 3 sites were fair. At all six sites on the river, the largest number of taxa (79.2%) were from the most sensitive group to pollution. Although taxa richness, prevented all of the sites from ranking excellent, the fact that each of the sites had the most taxa in the most sensitive group holds well for the water quality of the river. The substrate of the Blanchard River is mainly bedrock. The lack diversity in the type of macroinvertebrates could be attributed to the lack of specific habitat that some of the macroinvertebrates need. The heavy rains in June may have washed some of the macroinvertebrates downstream and the species did not have enough time to re-colonize before the collection.

Of the two sites on Lye Creek, 1 site was excellent and 1 site was good. Again, most of the taxa were species from the most sensitive to pollution (50%).

During the fall Water Quality Monitoring, 14 sites were set-up; 9 on the Blanchard River, 3 on Lye Creek, and 2 on The Outlet. Hester-Dendy collectors were placed at the sites between September 1-9. Collection started on October 7, 2008. There was very little rainfall in the area during August and September. The water level was very low in all streams with some places of little or no flow.

Of the nine sites on the Blanchard River, 47.9% of the taxa were from the most sensitive group. There were 23 more taxa observed in the fall. The increase occurred the most in the least sensitive group. This group contain the species that eat the detritus (dead) organic material that is found in the water. It is reasonable to expect an increase in the number from this group due to there being more detritus material in the river during the fall. Over-all the water quality of the river still remains high.

Of the three sites on Lye Creek, 1 site was excellent and 2 sites were good. Again, most of the taxa were species from the most sensitive to pollution (50%).

During the fall of 2008, the BRWP starting a water quality monitoring on The Outlet (2). The Outlet has very few riffles and shows a high amount of sedimentation. As a result, the habitat needed for macroinvertebrates is very poor, as noted in the Ohio EPA TMDL study from 2005. Only 2 sites were monitored in the fall. Both of these sites showed an over-all SQM rating that was in the poor range. The site on TR. 255 did have 2/3 taxa from the most sensitive group. The other site located at CR. 11 had no taxa from the most sensitive group. There were 2 taxa from the moderate sensitive group and 1 from the least sensitive group.

The Chart below summarizes the Water Quality at each site for 2008.

## Water Quality Monitoring Results - The Outlet/Lye Creek Watershed

<b>Blanchard River Sites</b>	<b>2008 Spring</b>	<b>2008 Fall</b>
BR 020-1 Riffle Dam east Blanchard Ave.	<b>Fair-16</b>	<b>Fair-14</b>
BR 020-2 North of Intersection TR208/TR234	<b>Good-17</b>	<b>Good-17</b>
BR 020-3 Riverbend 2000' East of TR241	<b>Fair-12</b>	<b>Fair-13</b>
BR 020-4 South of the Bridge on TR 207	<b>Good-22</b>	<b>Good-17</b>
BR 020-5 Private Dam at the Curve TR 173	<b>Fair-13</b>	<b>Good-21</b>
BR 020-6 TR 166 just West Rieck Center	<b>Good-22</b>	<b>Excellent-23</b>
BR 020-7 SR 37 1/4 South of Bridge	<b>n/a</b>	<b>Excellent-23</b>
<b>Lye Creek Sites</b>		
LC-2 West Bridge Hancock Co. Fairgrounds	<b>n/a</b>	<b>Good-20</b>
LC-2a Joyce Bostwick farm of SR 37	<b>n/a</b>	<b>n/a</b>
LC-3 Elm Grove Cemetery SR 37/TR 234	<b>n/a</b>	<b>Good-18</b>
LC-4 TR 167 on north side of bridge	<b>n/a</b>	<b>n/a</b>
<b>The Outlet(2) Sites</b>		
TO-020-1 TR 255 north f CR 7	<b>n/a</b>	<b>Poor-8</b>
TO-020-2 CR 11 South Branch	<b>n/a</b>	<b>Poor-5</b>

### KEY to Information

**Green - Water Quality Excellent (>22)**

**Red - Water Quality is Good (17-22)**

**Brown - Water Quality is Fair (11-16)**

**Black - Water Quality is Poor (<11)**

## *Macroinvertebrate Seasonal Frequency - 2008*

*The Outlet/Lye Creek  
HUC 04100008-020*

*Blanchard River sites*

	Spring			Fall			2008 Avg.
	Frequency/Percentage			Frequency/Percentage			
<b>Pollution Sensitive</b>	<b>F</b>	<b>S</b>	<b>P</b>	<b>F</b>	<b>S</b>	<b>P</b>	
Water Penny Larvae	5	6	83.3%	2	7	28.6%	53.9%
Mayfly Nymph	6	6	100.0%	7	7	100.0%	100.0%
Stonefly Nymph	1	6	12.5%	0	0	---	6.25%
Dobsonfly Nymph							
Caddisfly Nymph	6	6	100.0%	7	7	100.0%	100.0%
Riffle Beetle Adult	6	6	100.0%	6	7	71.4%	92.3%
Gilled Snail	4	6	66.7%	6	7	71.4%	76.9%
<b>Pollution Intermediate</b>							
Damselfly Nymph	0	6	0.0%	5	7	71.4%	38.7%
Dragonfly Nymph	0	6	0.0%	1	7	14.3%	7.7%
Cranefly Nymph							
Beetle Larvae							
Crayfish	4	6	66.7%	4	7	57.1%	61.5%
Scuds							
Clam	1	6	16.3%	5	7	71.4%	46.2%
Sowbug	0	6	0.0%	1	7	14.3%	7.7%
<b>Pollution Tolerant</b>							
Blackfly Larvae							
Aquatic Worms	1	6	16.7%	2	7	28.6%	23.1%
Midge Larvae	0	6	0.0%	4	7	57.1%	30.8%
Pouch Snail							
Leech	2	6	33.3%	6	7	85.7%	61.5%

## *Macroinvertebrate Seasonal Frequency*

*The Outlet/Lye Creek Watershed  
HUC 04100008-020  
Lye Creek Sites*

	Spring			Fall			2008 Avg.
	Frequency/Percentage			Frequency/Percentage			
<b>Pollution Sensitive</b>	<b>F</b>	<b>S</b>	<b>P</b>	<b>F</b>	<b>S</b>	<b>P</b>	
Water Penny Larvae	2	2	100.0%	1	3	33.3%	60.0%
Mayfly Nymph	2	2	100.0%	3	3	100.0%	100.0%
Stonefly Nymph							
Dobsonfly Nymph							
Caddisfly Nymph	2	2	100.0%	3	3	100.0%	100.0%
Riffle Beetle Adult	2	2	100.0%	3	3	100.0%	100.0%
Gilled Snail	1	2	50.0%	3	3	100.0%	80.0%
<b>Pollution Intermediate</b>							
Damselfly Nymph	2	2	100.0%	2	3	66.7%	80.0%
Dragonfly Nymph							
Cranefly Nymph							
Beetle Larvae							
Crayfish	2	2	100.0%	3	3	100.0%	100.0%
Scuds	0	2			2	3	66.7%
Clam	2	2	100.0%	1	3	33.3%	60.0%
Sowbug	0	2	---	1	3	33.3%	33.3%
<b>Pollution Tolerant</b>							
Blackfly Larvae							
Aquatic Worms	1	2	50.0%	1	3	33.3%	40.0%
Midge Larvae	1	2	50.0%	3	3	100.0%	80.0%
Pouch Snail	0	2	---	1	3	33.3%	20.0%
Leech	1	2	50.0%	3	3	100.0%	80.0%

## *Macroinvertebrate Seasonal Frequency - 2008*

*The Outlet/Lye Creek  
HUC 04100008-020*

*The Outlet sites*

	Spring			Fall			2008 Avg.
	Frequency/Percentage			Frequency/Percentage			
<b>Pollution Sensitive</b>	<b>F</b>	<b>S</b>	<b>P</b>	<b>F</b>	<b>S</b>	<b>P</b>	
Water Penny Larvae		<b>N</b>					
Mayfly Nymph		<b>O</b>		1	2	50.0%	50.0%
Stonefly Nymph							
Dobsonfly Nymph		<b>T</b>					
Caddisfly Nymph		<b>E</b>		1	2	50.0%	50.0%
Riffle Beetle Adult		<b>S</b>					
Gilled Snail		<b>T</b>					
Pollution Intermediate		<b>I</b>					
Damselfly Nymph		<b>N</b>					
Dragonfly Nymph		<b>G</b>					
Cranefly Nymph		<b>D</b>					
Beetle Larvae		<b>O</b>					
Crayfish		<b>N</b>		2	2	100.0%	100.0%
Scuds		<b>E</b>					
Clam		<b>O</b>		1	2	50.0%	50.0%
Sowbug		<b>N</b>					
Pollution Tolerant							
Blackfly Larvae		<b>S</b>					
Aquatic Worms		<b>I</b>					
Midge Larvae		<b>T</b>					
Pouch Snail		<b>E</b>					
Leech		<b>S</b>		1	2	50.0%	50.0%