

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 in 2008 the BRWP started doing monitoring in the spring and in the fall. The monitoring involves identifying the macroinvertebrates found at each site. 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 organisms in 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. Organisms in 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) is ***pollution tolerant***. This group 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 2010 Macroinvertebrate Monitoring

The BRWP decided not place Hester-Dendy collectors this year. Past efforts have not shown a significant difference between using Hester-Dendy collectors as opposed to not using them. In addition, so many of them were washed away or messed with that it became a waste of time.

Heavy rains during June prevented any monitoring until July. The data was entered into the Stream Quality form described above. Individual Assessment forms for each site can be obtained by contacting the BRWP.

Blanchard River

Of the nine sites monitored during the spring on the Blanchard River, four sites had a SQA of good, three sites were fair, one site was poor, and one site was excellent. At all nine sites on the river, the largest number of taxa (60%) 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 bodes well for the water quality of the river. The substrate of the Blanchard River is mainly bedrock. The lack of 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. Also, by not being able to do any monitoring until July, some of the species may have already hatched and reached adulthood.

Water temperature, pH, and Dissolved oxygen (DO) were measured during the spring and fall in the Blanchard River. The results from the spring monitoring were temperature 77-83⁰F, DO 3.7-8.1 ppm, and pH 3.7-8.1.

Little rain during August and September resulted in very low water levels for the fall monitoring. All nine sites monitored during the spring had water in the fall that allowed the BRWP to identify the macroinvertebrates present. Two sites had a SQA of excellent, three sites were fair, three sites were good, and the riffle dam east of Croy St. had a SQA that was poor. Like in the spring, the highest taxa of macroinvertebrates were present in the ***least pollution tolerant*** group, 47% to 38% to 15%. The results from the fall monitoring were temperature 72-75⁰F, DO 2.9-7.9 ppm, and pH 7.2-8.3.

(A summary of the Water Quality Monitoring Results for 2010 are shown in the chart on the page 3.)

Lye Creek

All four sites located on Lye Creek showed a Stream Quality Assessment in the fair range. Again, most of the taxa were species from the most sensitive to pollution (62.5%). 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 Lye Creek is mainly bedrock. The lack of 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. Also, by not being able to do any monitoring until July, some of the species may have already hatched and reached adulthood. In addition, Lye Creek is under a maintenance county that results in periodical “dip out” of the channel which destroys the habitat for the macroinvertebrates. Water temperature, pH, and Dissolved oxygen (DO) were measured during the spring in Lye Creek. The results from the spring monitoring were temperature 77-83⁰F, DO 5.36-12.2 ppm, and pH 7.0-7.5.

Little rain during August and September resulted in very low water levels for the fall monitoring. Site LC-4 located on TR 172 had no water. Of the other three sites, one site had a SQA of fair while the other two sites were good. Like the spring results, the ***least tolerant to pollution*** group show the highest percentage of taxa 55.6%. The results from the fall monitoring were temperature 69-74⁰F, DO 2.8-5.4 ppm, and pH 7.9-8.1.

The Outlet

There were three sites monitored on The Outlet during 2010. The bridge at site on the south branch of The Outlet on CR 11 was being replaced in the spring and could not be monitored. All sites showed a poor SQA. The Outlet lacks significant riffles and habitats for macroinvertebrates. Still, Mayfly Nymphs and Caddisfly Nymphs were found in The Outlet sites. These two macroinvertebrates belong to the ***least pollutant tolerant*** group.

The fall monitoring was little again by the very low water levels. One site had no water and the other two very little. Site TO-1, where the bridge was being replaced in the spring, did show Mayfly and Caddisfly larvae. These two macroinvertebrates belong to the ***least pollutant tolerant*** group.

Riley Creek

The BRWP started monitoring on Riley Creek and Little Riley in the Riley Creek subwatershed (HUC 0410008-050). There were seven monitoring sites on Riley Creek and two on Little Riley Creek. Due to the high water levels in the entire watershed, monitoring could not start until early July. Two of sites in Riley Creek had a SQA in the good range and five sites were in the fair range. Again most of the taxa were from the ***least pollutant tolerant*** groups (45% to 18% to 36%). The high number of pollution tolerant taxa was probably due to the high decomposition of organic material taking place. The results from the spring monitoring were temperature 83-89⁰F and pH 8.6-8.9.

Riley Creek reported similar results during the fall monitoring. The ***least pollutant tolerant*** group had the highest number of taxa with 50%. Site 050-3 had no water. Of the remaining six sites, three sites had a SQA of good while the other three scored in the fair range. The results from the fall monitoring were temperature 53-56⁰F, DO 7.4-10.9 ppm, and pH 8.0-8.4.

Little Riley Creek

Only two sites were studied on Little Riley Creek. During the spring one site had a SQA in the poor range while the other site was fair. Three species from the ***least pollutant tolerant group*** were identified. Little Riley Creek had very little flow due to a low water level. None of the sites could be monitored in the fall due to the lack of water.

(A summary of the Water Quality Monitoring Results for 2010 are shown in the chart on the next page.)

Water Quality Monitoring Results

	Spring 2010	Fall 2010	KEY to Information
Blanchard River Sites			
BR 020-1 Riffle Dam east Blanchard Ave.	Poor-6	Fair-11	Green - Water Quality Excellent (>22)
BR 020-2 North of Intersection TR208/TR234	Good-20	Good-17	Red - Water Quality is Good (17-22)
BR 020-3 Riverbend 2000' East of TR241	Good-19	Good-17	Blue - Water Quality is Fair (11-16)
BR 020-4 South of the Bridge on TR 207	Excellent-23	Excellent-25	Brown - Water Quality is Poor (<11)
BR 020-5 Private Dam at the Curve TR 173	Good-21	Fair-15	
BR 020-6 TR 166 just West Rieck Center	Fair-16	Good-17	
BR 020-7 SR 37 1/4 South of Bridge	Good-18	Excellent-22	
BR 030-1 Riffle Dam east of Cory St. bridge	Fair-13	Poor-10	
BR 030-2 Liberty Street Riffle Dam	Fair-14	Fair-16	
Lye Creek Sites			
LC-2 West Bridge Hancock Co. Fairgrounds	Fair-15	Poor-10	
LC-2a Joyce Bostwick farm of SR 37	Fair-15	Fair-14	
LC-3 Elm Grove Cemetery SR 37/TR 234	Fair-14	Good-17	
LC-4 TR 167 on north side of bridge	Fair-12	no water	
The Outlet(2) Sites			
TO-020-1 TR 255 north of CR 7	Poor-10	Poor-8	
TO-020-2 CR 11 South Branch	n/a	Poor-4	
TO-020-3 TR 264	Poor-3	no water	
Riley Creek			
RC 050-1 Road 6 east of Road L	Fair-11	Good-19	
RC 050-2 Road 6 south of Road M	Good-17	Good-19	
RC 050-3 SR 12 in Pandora Park	Fair-11	no water	
RC 050-4 Road R east of Road 5	Fair-16	Fair-15	
RC 050-5 Phillips Rd. south of Bixel Rd.	Fair-16	Fair-15	
RC 050-6 Spring St. just east of Riley St.	Good-19	Good-17	
RC 050-7 College Ave. just north of stadium	Fair-15	Fair-13	
Little Riley Creek			
LR 1 East of Elm Street bridge	Poor-10	no water	
LR 2 East of bridge at Bentley Rd. and Campus Dr.	Fair-12	no water	