



Field Data Sheet

CMC Macroinvertebrate Monitoring Program

Sampling Information

Record the information about today's sampling event in the boxes below.

Monitor Name(s)	Biology 131 A Field Natural History			
Date	September 5, 2017		Time	2:00 P.M.
Stream Name	Enola Run Site #2		Site Name	Enola Run #2
Weather Conditions	Clear	Partly Cloudy	Cloudy	Fog/Haze
Precipitation	None		Drizzle	Rain

Site Information

Draw a diagram of the 100-foot stream reach you have chosen to monitor. Record the latitude and longitude coordinates of the upstream and downstream endpoints.



Picture from downstream looking upstream of assessed stream section.











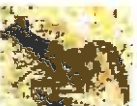

















Upstream	Lat: 40° 16' 46.66"	Long: 76° 56' 0.44"
Downstream	Lat: 40° 16' 47.79"	Long: 76° 56' 0.45"



Identification & Scoring Sheet

CMC Macroinvertebrate Monitoring Program

Rare (R) = 1 – 9 organisms
 Common (C) = 10 – 99 organisms
 Dominant (D) = ≥ 100 organisms

Group I Sensitive	Count	Group II Somewhat Sensitive	Count	Group III Tolerant	Count
Water Penny Larvae 	9	Beetle Larvae 		Aquatic Worms 	3
Hellgrammites 		Clams 		Blackfly Larvae 	
Mayfly Nymphs  		Crane-fly Larvae 		Leeches 	
		Crayfish 			
Gilled Snails  		Damselfly Nymphs 		Midge Larvae  	
		Scuds 	20		
Riffle Beetles (adult) 		Sowbugs 		Snails 	1
Stonefly Nymphs   	10	Fishflies 		Site Designation:	
		Alderflies 			
Non Net-Spinning Caddisfly Larvae  	4	Net-Spinning Caddisfly Larvae 	161	Team Members:	

Calculating the Water Quality Score

(From EPA Volunteer Monitoring Methods Manual)

To calculate the water quality score:

1. Record the number of R's, C's, and D's found for each Macroinvertebrate Group in box A.
2. Multiply each number (A) by the weight factor listed (B) and record the number in box C.
3. Add the three numbers in box C to get a total value for each Macroinvertebrate Group.
4. Add the totals for all three Groups to get the water quality score for the stream reach monitored.

Group I Sensitive			Group II Somewhat Sensitive			Group III Tolerant					
A	B	C	A	B	C	A	B	C			
# R's	2	x 5.0	10	# R's	0	x 3.2	0	# R's	2	x 1.2	2.4
# C's	1	x 5.6	5.6	# C's	1	x 3.4	3.4	# C's	0	x 1.1	0
# D's	0	x 5.3	0	# D's	1	x 3.0	3.0	# D's	0	x 1.0	0
Group I Total =		15.6		Group II Total =		6.4		Group III Total =		1.2	

$$\text{Water Quality Score} = \frac{15.6}{\text{(Group I Total)}} + \frac{6.4}{\text{(Group II Total)}} + \frac{2.4}{\text{(Group III Total)}}$$

$$\text{Water Quality Score} = 24.4$$

Water Quality Scores	
> 40	Good
water quality	

Stream Physics and Chemistry

Water Temperature 19 °C Conductivity 87.5 μS/cm pH 7.5

Total Hardness__292 mg/L Ca++ hardness _____200 mg/L_ alkalinity____220.5mg/L

Nitrogen____>0.6 Mg/L Phosphates__0.1 mg/L

Silica___10ppm CO₂____7.5ppm Dissolved Oxygen____4.5 mg/L

ALLARM has verified Nitrate and Orthophosphate calculations.

This segment of Enola Run was just below the closed landfill. There is evidence of some leachate (see below)

from the old landfill, however there does not seem to an impact on the stream macro-invertebrates.

The stream at the upper edge of the old landfill is also below the good level for Macro-invertebrates.

Many minnows were observed and one dead crayfish was found.

Notes and pictures with captions.. Rocky bottom.

Upstream there exists residual leachate from the former East Pennsboro Landfill. This is an unlined landfill that was closed down by DER (Department of Environmental Resources) in 1970. There was extensive leaching at that time and a methane collection network had to be installed. The methane production from the landfill has declined significantly since the 1970s and can no longer be used as a power source.

Leachate into Enola Run just upstream of sample site.



Leachate at base of old landfill adjacent to Enola Run.



