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4-30-2009

### Stream Biomonitoring on High Street, Randolph

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#### Recommended Citation

Randolph Community Middle School, Randolph, Massachusetts (2009). *Stream Biomonitoring on High Street, Randolph*. In Watershed Access Lab Projects. Project 62.  
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# Stream Bio-monitoring on High St., Randolph, MA

Presented By:

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# Introduction:

- Stream ecology depends greatly on context: place, environmental conditions, season, and species.
- Ecosystems include people, and rivers that have always been magnets for human settlement, providing water resources, transportation, and hydropower.
- Almost all running waters today show some evidence of modification due to human activities.  
(J.D Allan and M. Castillo, 2007)



# Purpose or Objective:

The main objective of this study is to:

- A. identify the different species of macro-invertebrates in order to assess the quality of the water.

# Scope and Limitation:

Due to time constraints, the season (late winter), and murkiness of the sample, this study is limited only to:

- A. The first level classification of the macro-invertebrates
- B. Less than the recommended 200-organism sub sampling procedure for General Study protocol.



# The Process:

- I. Collecting of Samples





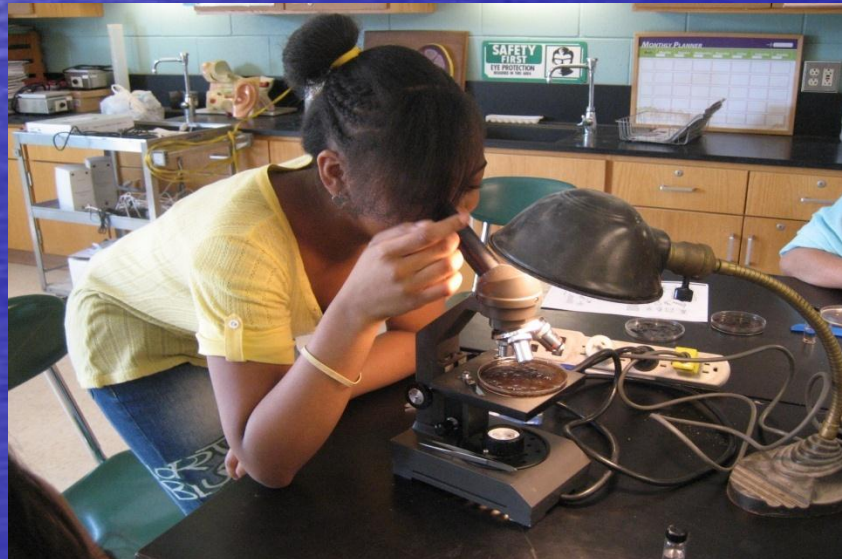
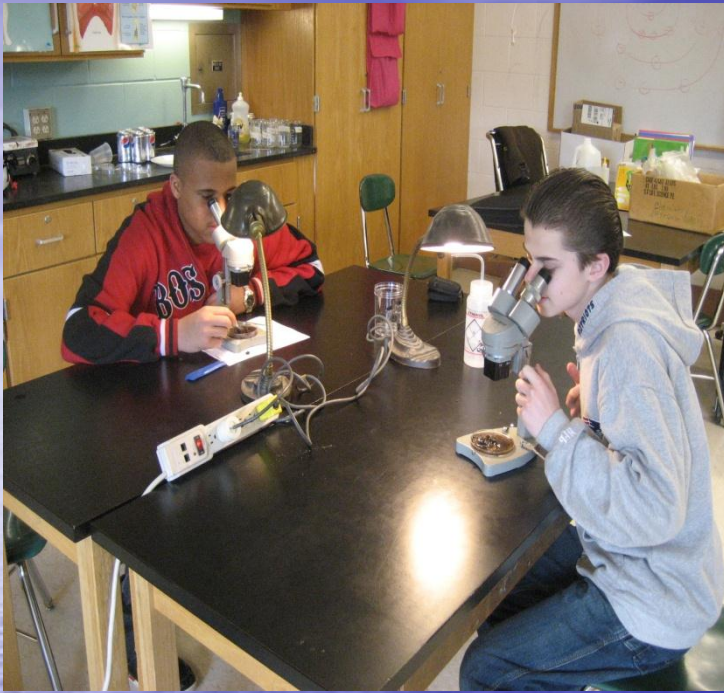




## II. Sorting of Species





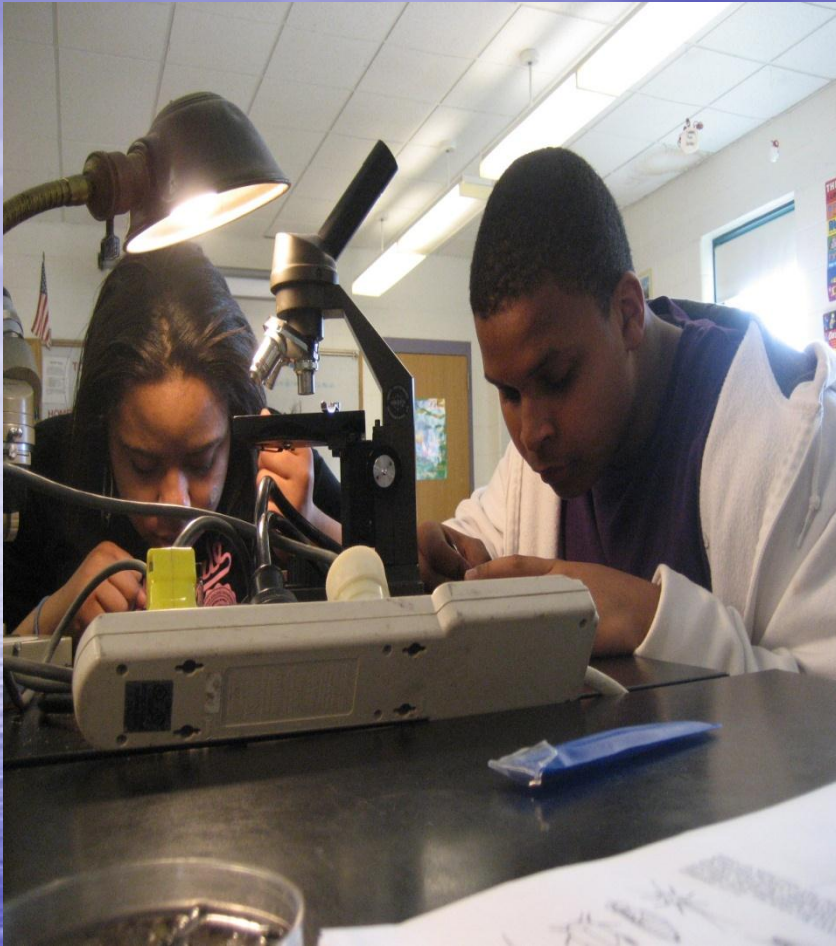




# III. Identification of Species





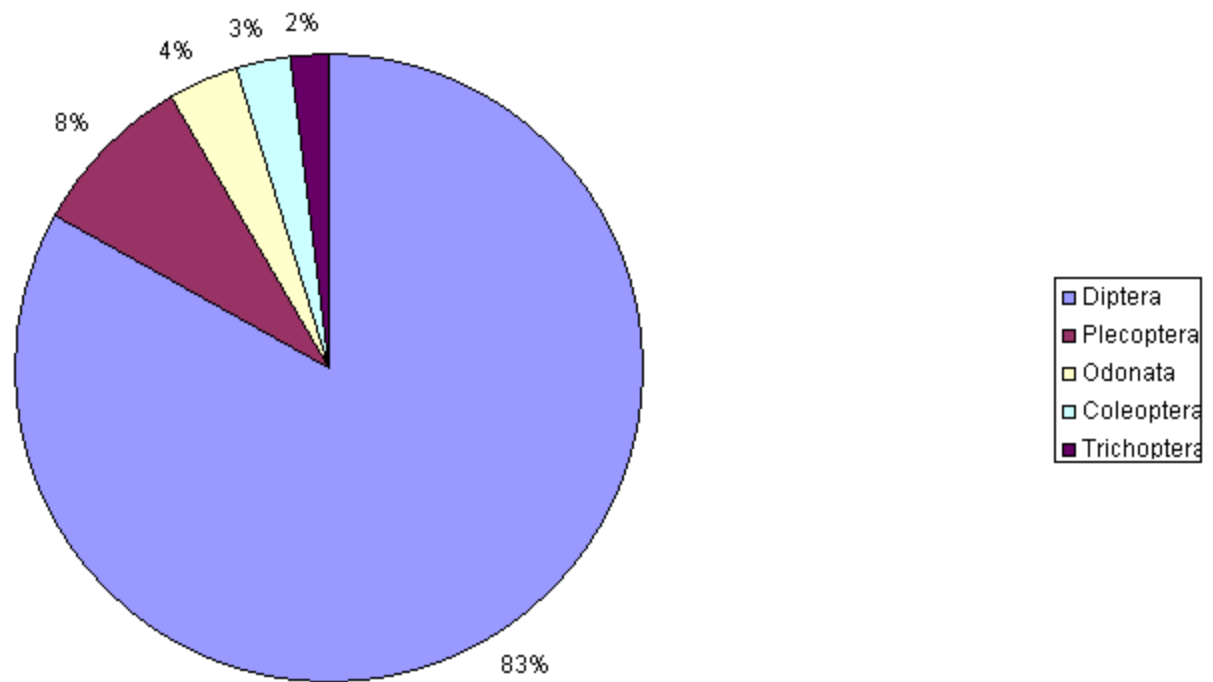


# Data and Analysis:

Stream Biomonitoring: Level 1 Major Group Biotic Index Data Sheet							
Site Code: <b>High St., Randolph, MA</b>				River or Stream: <b>HIGH ST.</b>			
Dated Sampled:				Collectors: <b>Justin M, Eric B, Jayme G, Kaliegh L, Ronelle H.</b>			
MAJOR GROUP	Count Replicate 1	Count Replicate 2	Count Replicate 3	Avg. Count Per Group	Avg. Org. Density	Group Tol. Value	TOL X AVG Org. Density
Ephemeroptera	1			1 x2	2	2(4)	4
Plecoptera	9			9 x2	18	1	18
Trichoptera	2			2 x2	4	3	12
Diptera: Chironomidae	86			86 x2	172	7	1,204
Diptera: Other							
Odonta	4			4 x2	8	5	40
Megaloptera	1			1 x2	2	2	4
Coleoptera	3			3 x2	6	4	24
Hemiptera							
Amphipoda							
Isopoda							
Decapoda							
Gastropoda							
Pelecypoda							
Oligochaeta							
Hirudinea							
Turbellaria							
<b>TOTALS</b>	105			105	212		1,306
<b>Total Grids Picked</b>							
<b>DAF = Density Adjustment factor</b>	2			2			
<b>Major Group Biotic Index = sum of tolerance (tolerance x Avg.Org. Density Values for group) /sum of Avg. Org. Density</b>					<b>MGBI =</b>	6.16	



## TOP FIVE FAMILIES



# Conclusion:

After a few weeks of collecting and sorting insects, we found out that Diptera is the most abundant species found in High St. We interpret the result of this study in different ways:

- 1.) This could mean that these organisms (Diptera) are able to endure the living conditions of the stream.
- 2.) Since there is an abundant number of Diptera, this could mean that there could be fewer fish in the stream because Diptera are sources of food by the fish.



# Con't.

- 3.) This could also mean that Diptera can withstand the harsh winter weather as compared to the other species.
- 4.) There is a lot of Diptera probably because we caught them right after their breeding season.
- 5.) Based on the tolerance value of each group, we believe that the water in this stream is not healthy since there were only a few variety of other species being collected. The species that have low tolerance to the type of water probably did not survive.