

METHODOLOGY

In order to establish consistency, the same parameters that have been used in previous years were again utilized in 2007.

As in the past, several parameters were tested on site with field equipment as follows:

Volume Flow	Flow Mate, Global Water Flow Probe
Temperature	HACH Model Sension 6 Dissolved Oxygen Meter
D.O.	HACH Model Sension 6 Dissolved Oxygen Meter
pH	Oakton pH pen
Conductivity	Oakton Conductivity / TDS / °C / °F Data Meter - CON 410 Series
T.D.S.	Oakton Conductivity / TDS / °C / °F Data Meter - CON 410 Series

The following is a list of test parameter methodologies and detection limits which were utilized by Prosser Laboratories in the analysis of the stream samples.

<u>TEST</u>	<u>METHOD</u>	<u>REPORT LIMIT</u>
pH	SM 4500HB	1.00 units
Alkalinity	SM 2320B	2.00 mg/l
Total Hardness	SM 2340C	2.00 mg/l
Nitrate + Nitrite as N	SM 4500F AUTO	0.050 mg/l
Nitrate-N	SM 4500F AUTO	0.050 mg/l
Nitrite-N	SM 4500B SPEC.	0.005 mg/l
Ammonia-N	QC10-107-06-1-K	0.100 mg/l
Total Phosphorous	SM 4500 - PF	0.050 mg/l
Chloride	EPA 325.3	2.00 mg/l
Acidity	SM18 2310B	5.00 mg/l
Total Suspended Solids	SM 2540D	2.00 mg/l
Fecal Coliform	SM 9222D	10 CFU/100 ml

The benthic macroinvertebrates were collected by a standardized method. At each site two generalized kick samples were taken using a 1meter x 1meter seine. One kick is taken from a riffle in the stream and one kick is taken from a run. The entire sample is combined and stabilized immediately with an alcohol solution. The sample is then taken to the Monroe County Conservation District office where it is subsampled. A plastic square form of four inches by four inches is placed in the pan to provide a random subsample. A minimum sub-sample of 100 organisms is desired for a valid analysis. A professional entomologist then identified the macroinvertebrates contained in each subsample.

The macroinvertebrates are picked without the aid of magnification. Several samples are picked at random for a debris sample. The specifics of the macroinvertebrate analysis as it relates to the RBPs are discussed in Appendix A of this report.

Debris samples were conducted on approximately ten percent of the samples. The debris analysis is a tool for determining the percent of macroinvertebrates which may be missed during the initial analysis, a form of quality assurance and quality control (qa/qc). For the debris sample analysis a lighted magnifying lens was employed (this may contribute to a larger than expected percentage of missed individuals).

Pebble Counts were conducted on the cross section of each stream (wetted area), generally in close proximity to the individuals conducting the flow study. The individual measuring the particles would take a step reach down without looking and measure the first particle touched along its indeterminate axis. The particles were measured with an Al-Sci Field Sieve/Gravelometer and sand gauge. This procedure was repeated, sometimes making several trips back and forth across the stream in a straight line until 100 particles were measured. The percentages are calculated and graphed in the office using a Microsoft Excel spread sheet.

The flow measurements were conducted by stretching a tape measure across the stream to measure the width of the stream (wetted area). The stream is then divided into sections allowing for a minimum of ten measurement points. The average velocity is read at each of the measurement points. If the measurement points are less than two feet in depth, one reading is taken at six tenths of the depth from the bottom. If the measurement point is greater than two feet in depth, two readings are taken, one at two tenths of the depth from the bottom and one at eight tenths of the depth from the bottom. When measuring the average velocity, if no flow registers on the meter it is recorded as a zero. The cross sectional area is calculated in the office using the computer program GraphPad Prism. The average velocity measurements are averaged and multiplied by the cross sectional area to determine the volume of flow for each stream.

During the field sampling, the water samples collected for laboratory analysis were stored in a cooler with both ice packs and ice cubes in order to stabilize the samples and then transported to Prosser Laboratories for testing.

In order to maintain consistency, two weeks in the middle of August were selected for sampling as a result of long-term flow data analysis of Monroe County streams. The end of August and the beginning of September tend to be the period of lowest flow and of optimum biological activity. Low flow testing was chosen because streams are most vulnerable to pollution at this time.

The Planning Commission Staff correlated the final data.