

DISCUSSION

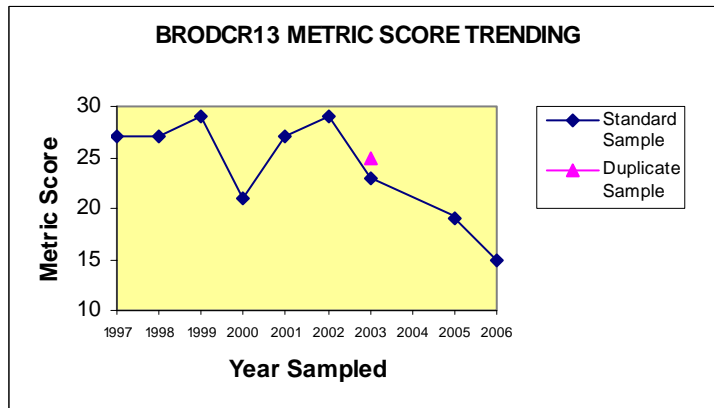
It should be noted that the weather patterns that occurred during the 2006 study contributed to flows which were generally higher than expected for this time of year. This was a stark contrast to the 2005 study which had flows that were generally lower than expected.

This year, 17 sites (or 30.35%) ranked as optimal, 23 sites (or 41.07%) ranked as slightly impaired, 12 sites (or 21.4%) ranked as moderately impaired, while 4 sites (or 7.14%) ranked as severely impaired.

The Rapid Bioassessment Protocols have begun to indicate impairments at several locations in the County. These impairments are indicated by low or decreasing biological assessment scores. The potentially impaired sites and probable cause of impairment are as follows:

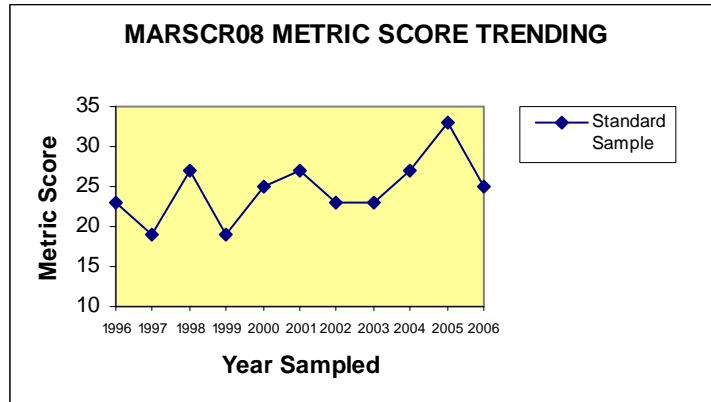
Brodhead Creek Watershed

Brodhead Creek (BRODCR13) upstream of its confluence with the Delaware River shows signs of serious impairment. The stream channel again exhibits signs of alteration due to extreme flooding events. This site has continued to exhibit a large amount of fungus/algae in combination with a type of papery/wood pulp substance that is found on the stream bottom. This site is downstream of several wastewater treatment plants which may contribute to the severe impairment found.



Forest Hills Run (FOHIRU09) downstream of Carlton Road again shows signs of severe impairment, (biological assessment score of 15) a decrease of 6 points. Elevated fecal coliform counts were documented at this site. This stream is most likely experiencing impairment due a combination of lake effect and sewer and fertilizer enrichment. The dominant taxon at this site was Chironomids. Located upstream of this site are a golf course, lake and a sewer plant which are all potential contributors to the degrading effects by both point and non-point sources. It is recommended that a nutrient management program be initiated on the property upstream of this site.

Marshalls Creek (MARSCR08) Approximately 50 yards upstream of bridge on Route 209, near Jay Park Plaza, (biological assessment score of 25) a decrease of 8 points. The cause is unknown.



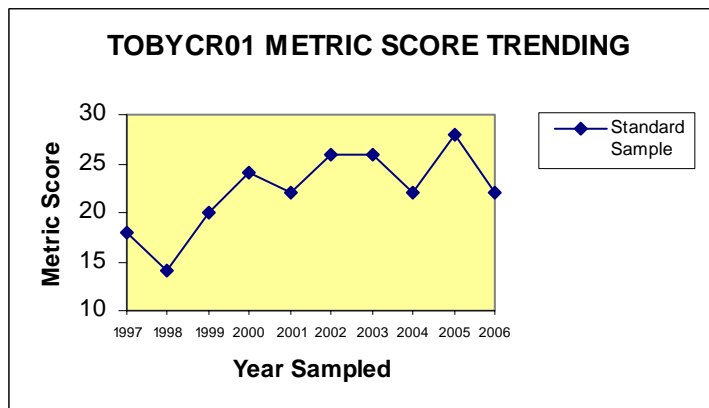
Paradise Creek (PARACR01) Approximately 50 yards upstream of Lower Swiftwater Road, (biological assessment score of 25) a decrease of 8 points. This may be due to lake effect/ dredging and shifting substrates.

Paradise Creek (PARACR03) Approximately 150 yards upstream of the old railroad bridge over Route 191, (biological assessment score of 27/25, (a replicate sample was taken here) a decrease from 35 last year. This result is probably indicative of the large rain events and shifting substrates which correspond to loss of habitat.

Sambo Creek (SAMBCR10) Approximately 100 yards upstream of the mouth, next to East Stroudsburg South High School, (biological assessment score of 17) a decrease of 8 points and is severely impaired. This cause is unknown.

Tobyhanna Creek Watershed

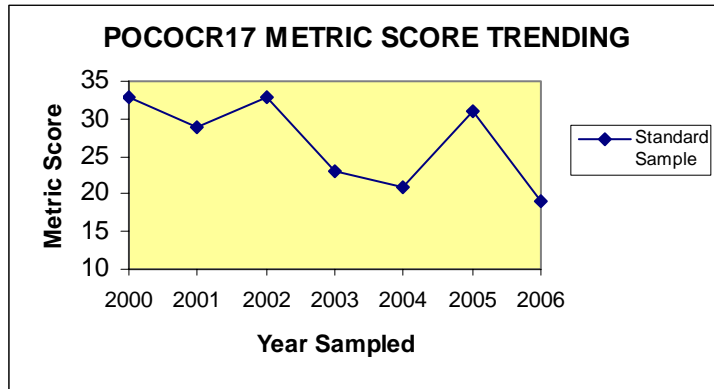
Tobyhanna Creek (TOBYCR01) downstream of the bridge on Route 423 in State Game Lands 127 registered a decrease of 6 points in the biological assessment score. This site has recovered from prior impairment, however, these results demonstrate that the STP mixing zone may have expanded its zone of impairment to Warnertown.



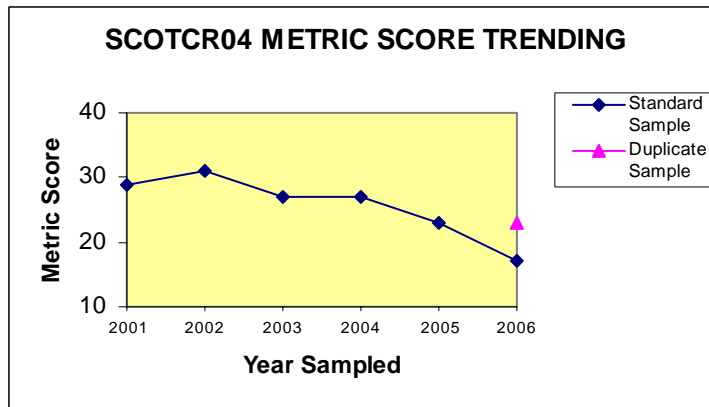
McMichael Creek Watershed

McMichael Creek (MCMICR28) downstream of Pleasant Valley Manor shows signs of moderate impairment (biological assessment score of 21) which is the same as last year, a continuing trend. Further testing should be continued to eliminate potential sources of impairment. A possible monitoring option is to deploy a meter which is capable of recording several parameters over an extended period of time at predetermined intervals during various flow regimes.

Pocono Creek (POCOCR17) downstream of Sullivan Trail shows signs of moderate impairment (biological score of 19) a decrease of 12 points. This could be related to water withdrawals.



Scotrun Creek (SCOTCR04) Approximately 100 yards upstream of bridge at the Crossings Factory Stores overflow parking area, (biological assessment score of 17/23; a replicate sample was taken here) a decrease from 23 last year. This may indicate the effects of the sewage treatment plant problems upstream.



RECOMMENDATIONS

It is recommended that the Water Quality Study continue to utilize and refine the Rapid Bioassessment Protocols developed specifically for the streams in the County by the US Environmental Protection Agency and Monroe County.

The following sites are recommended to be referred to DEP for further investigation:

BRODCR13 – Brodhead Creek, Approximately 200 yards upstream of its mouth where it meets the Delaware River. (DWGNRA boundary control point).

FOHIRU09 – Forest Hills Run, Approximately 25 yards downstream of Carlton Road.

MARSCR08 – Marshalls Creek, Approximately 50 yards upstream of bridge on Rte. 209.

PARACR01 – Paradise Creek, Approximately 50 yards upstream of Lower Swiftwater Road.

POCOCR17 – Pocono Creek, Approximately 50 yards downstream of Sullivan Trail.

TOBYCR01 – Tobyhanna Creek, Approximately 75 yards downstream of S.R. 423 bridge at east boundary of Warnertown and State Game Lands 127.

The Planning Commission and Conservation District should continue to partner with the five watershed organizations in the county to refine the study while making the greatest and most effective use of resources in conducting the study.

The study should continue to focus on monitoring sites developed for long term trending associated with detailed watershed assessments in the Pocono Creek and Paradise Creek watersheds and add additional trending sites in the future as detailed assessments are conducted in other watersheds.

Additional monitoring sites should be selected in consultation with the five watershed organizations in the county with priority given to sites that have shown either constant impairment or a downward trend. Continued monitoring at these sites should be geared toward determining the extent and possible causes of the impairment. Making these determinations will give the County and the watershed organizations the information they need to address potential mitigation and restoration activities.

PROJECT PARTICIPANTS

Lead Agency:

Monroe County Planning Commission
Project Director: John Woodling
Project Coordinator: Amy Lewis

Cooperating Agencies:

Pennsylvania Dept. of Environmental Protection - Bureau of Water Quality Management
Monroe County Conservation District
United States Environmental Protection Agency

Volunteers:

Bill Clark, Tom & Deb Brady, Donna and Al Barney, Michael Reisenwitz, Theresa Merli, and Bonnie Smith

Entomologist:

Carl Meyer

Professional Consultant:

David Scholtz
Prosser Laboratories
P.O. Box 118
Effort, PA 18330

ACKNOWLEDGMENTS

Monroe County has conducted an annual water quality study for the past twenty one years. Through the years the program has evolved and the annual report has been refined to provide a comprehensive analysis of the County's streams.

There are a number of people and organizations to be recognized for their efforts in this year's study:

– The continued professional support from Prosser Labs.

–sanofi pasteur has once again sponsored 2 sites along the Swiftwater Creek. Their continued support for the program and their commitment to the environment is appreciated.

–The County would like to thank the Brodhead Watershed Association for its continued support and financial assistance by sponsoring several sites in this year's study.

– The County would like to extend sincerest thanks to Bill Clark, Tom and Deb Brady, Donna and Al Barney, Theresa Merli, Bonnie Smith, Michael Reisenwitz, and the volunteers who gave many hours to assure that accuracy was maintained while collecting field data.

– Without the permission of private property owners, the number of sampling sites would be greatly reduced. The County thanks them for allowing access to their property.

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