MONROE COUNTY

WATER QUALITY STUDY 2005

Volume I of II– Executive Summary

MONROE COUNTY PLANNING COMMISSION

TABLE OF CONTENTS

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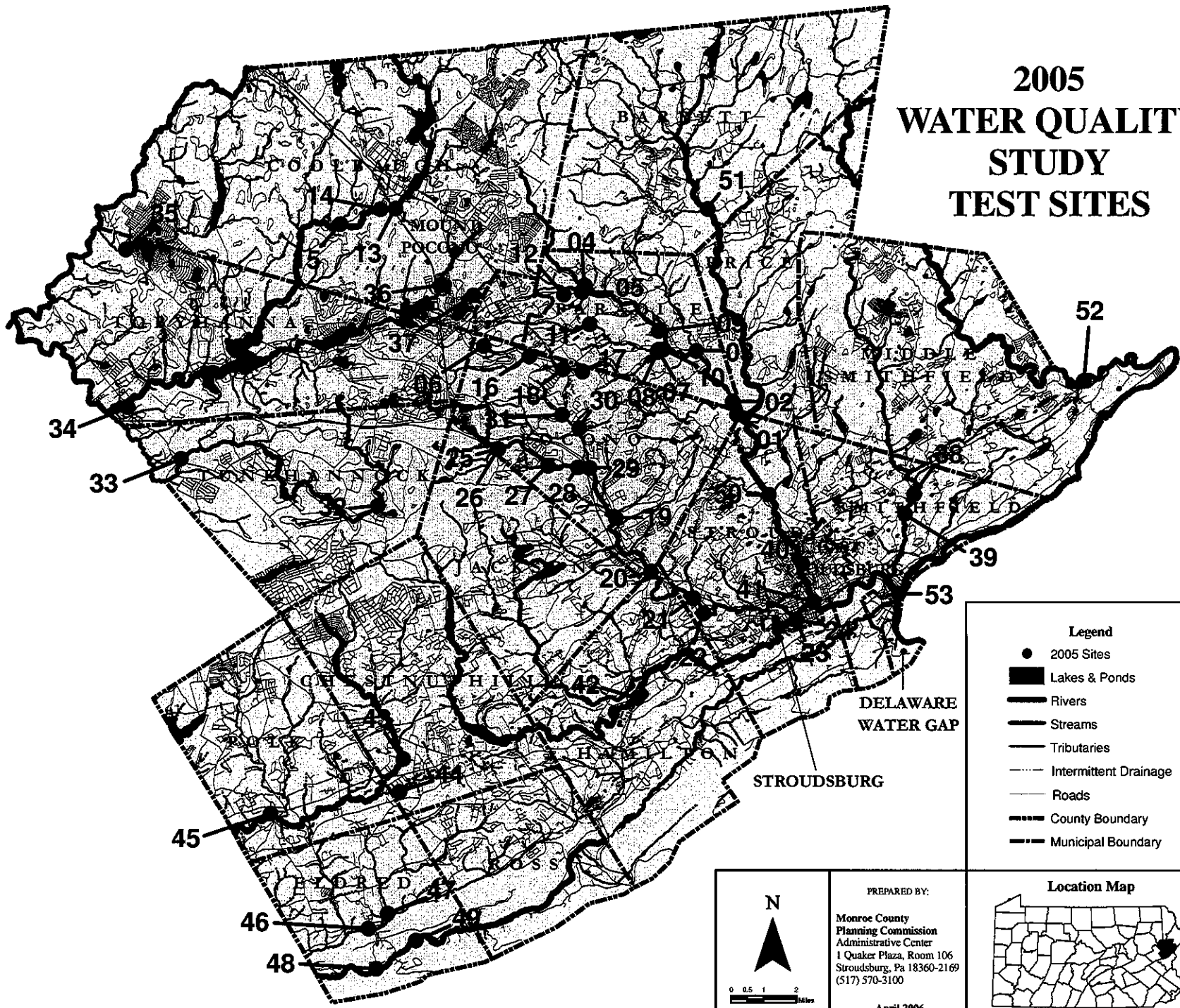
2005 WATER QUALITY STUDY TEST SITES

SITE NUMBER	SITE ID
01	PARACR03
02	BUTZRU01
03	CRCRPA01
04	DEHOCR04
05	PARACR04
06	INDIRU01
07	FOHIRU01
08	SWIFCR06
09	SWIFCR02
10	PARACR01
11	FOHIRU09
12	FOHIRU04
13	TOBYCR17
14	TOBYCR18
15	TOBYCR01
16	SWIFCR07
17	SWIFCR05
18	SWIFCR03
19	BULGRU01
20	POCOCR15
21	POCOCR18
22	POCOCR22
23	POCOCR14
24	MCMICR21
25	DRSARU01
26	POCOCR20
27	POCOCR16
28	POCOCR17
29	POCOCCR19
30	SCOTCR04
31	SCOTCR05
32	TUNKCR06
33	TUNKCR03
34	TOBYCR14
35	TROUCR02
36	HAWKRU01
37	RED_RU03
38	MARSCR08
39	MARSCR09
40	SAMCR10
41	MCMICR30
42	MCMICR28
43	POHOCR07
44	WEIRCR01
45	POHCOR06
46	BUCKCR01
47	PRINRU01
48	AQUACR09
49	AQUACR10
50	BRODCR12
51	BRODCR01
52	BUSHCR07
53	BRODCR13



INTRODUCTION AND BACKGROUND

The annual water quality study in Monroe County has produced a solid foundation for both quantitative and qualitative analysis of the County's surface water. The main objective of this effort has been to develop procedures that specifically address intra-county water quality problems for the purpose of documentation and rectification and to continue efforts to establish baseline data for streams which have not previously been sampled. Since the study's inception, over 250 individual sites have been tested and many of these have been sampled during three or more years. The data collected provides the information necessary for analysis of the County's surface water.

The annual water quality studies began in 1985. The first four years the study consisted of two basic hydrologic surveys: (1) groundwater (wells) and (2) surface water (streams). The groundwater resources were analyzed for chemical properties, while the surface water testing included a macroinvertebrate analysis and physical parameters as well as a chemical analysis. The data obtained during this period was the result of a combined effort on the part of the Planning Commission, the then Department of Environmental Resources and professional certified laboratories. The groundwater portion of the study was discontinued in 1989 and the Study has focused solely on surface water since that time.

The 1993 Monroe County Surface Water Study marked a significant change in the way that the County looks at its surface water. In this year, the County began the process of integrating the US Environmental Protection Agency's (EPA) Rapid Bioassessment Protocols (RBPs). The RBPs examine water quality as it relates to the macroinvertebrate community and their habitat. This not only allows one to examine the existing quality of a stream, but it also gives insight into the potential quality of that stream.

The 1994 and 1995 studies continued the process of integrating EPA's Rapid Bioassessment Protocols. During these two years many decisions were made. In order to determine which streams could be compared as similar, the EPA's ecoregion format was chosen instead of watershed boundaries. Due to the large size of the ecoregions, the County refined the EPA system into subecoregions. The decision was then made to use reference conditions instead of a reference site. When a single reference site is used, all other sampling stations on that stream must be compared to that location. The reference condition incorporates reference sites from various streams within a subecoregion, sharing similar ecological conditions to create a scoring scheme, called a metric. The metrics are used to rank all sampling stations from that subecoregion.

It was determined during these years that a definite difference could be seen in larger streams versus smaller streams. The study team then decided to break the subecoregions into two smaller categories; streams with a drainage basin of less than 10 square miles and streams with a drainage basin greater than 10 square miles. The 10 square mile threshold approximates the point in drainage area size where a change is seen in the canopy cover of a stream. The canopy cover determines the amount of sunlight reaching the streambed which has a profound affect on the stream's ecology. Streams having less than 10 square miles in drainage area generally have greater canopy cover and the primary food source in these streams is leaf litter. Streams having greater than 10 square miles in drainage area generally have wider channels allowing more sunlight to reach the streambed and photosynthesis becomes the primary energy source that affects the macroinvertebrate community. This does not mean that each subecoregion will have two scoring schemes since the Northern Sandstone Ridges subecoregion is comprised solely of streams that are less than 10 square miles in drainage area. Once the proper subecoregion and size of the drainage area of a site is

determined, the proper metrics can be applied. In 1995, the initial scoring schemes were created and covered approximately two thirds of the streams in the County.

From 1996 through 1999 the County concentrated on establishing reference conditions. The study team examined the areas that remained with no scoring scheme, the Northern Shale Valleys and Slopes and Northern Sandstone Ridges. The final scoring scheme (Northern Sandstone Ridges) was completed in 1998. It should be noted that this scoring scheme was developed using a limited number of sites and will be refined in the future. Also during the 1998 study, the County began research on the remediation of impacts and restoration of any impaired sites that may be found.

In 2000, the Delaware River Basin Commission (DRBC) received a grant to conduct a goal based watershed management project in the Pocono Creek Watershed. The project included an analysis of existing information and data gaps and a need for more data was identified. As a result the 2000 Water Quality Study contained additional sites to address this need.

In the 2001 study, it was determined that not every site needed chemical samples taken for lab analysis. Sites that are tested annually and which consistently showed good water quality no longer have chemical samples taken. The ability of the macroinvertebrate analysis to indicate impairment well after a possible incident and to track possible impairment trends at monitoring sites allowed the study to rely less on chemical testing.

The next change to the Study took place in 2003 when the County changed from a subjective evaluation of the stream bottom to an objective format (pebble counts). The addition of pebble counts allows for analysis of the bed load of a stream. The 2003 Study also included sites in support of the Paradise Creek Watershed Management Plan.

The design of the report was reconfigured in 2004 and 2005. The Study now consists of an Executive Summary as well as Technical Appendices.

The study now supports two Watershed Management Plans, the Pocono Creek Pilot Project and the Paradise Creek Watershed Management Plan. These studies utilize water quality data as a tool for determining current conditions of a watershed as well as to indicate success of the management plans after completion. The initial work conducted for these plans is to determine any data gaps and work to obtain any necessary data. Local input is garnered to determine future goals for each watershed. All available data is then analyzed to determine existing conditions for a picture of watershed health. The analysis is then utilized to determine tools by which to reach the goals that were identified. The County Study has proven to be an invaluable resource of existing data for these plans and is intended to be the tool used to monitor Plan success.

With reference conditions for all the streams in Monroe County defined, the Planning Commission now has an invaluable tool by which to assess the ecological condition of our surface water resources. The database being generated will allow for long term trending of water quality. This information can then be used to address chronic problem areas with recommendations for remediation.

RESULTS

Aquashicola Creek Watershed

Aquashicola Creek (HQ-CWF, MF)

SITE ID: AQUACR09 **MUNICIPALITY:** Eldred Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 100 yards upstream of Mountain Road bridge, near County border.

LATITUDE: 40° 49' 45.95" **LONGITUDE:** -75° 26' 45.17"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995

Water chemistry samples for lab analysis were not collected at this site. Temperature was slightly elevated at this site. A habitat score of 215 placed this site in the optimal category. The biological assessment score of 35 placed this site in the optimal category for the Northern Shale Valleys and Slopes > 10 square miles scoring scheme.

SITE ID: AQUACR10 **MUNICIPALITY:** Eldred Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: At the Kunkletown Rod and Gun Club, immediately downstream of bridge on the private drive.

LATITUDE: 40° 50' 28.58" **LONGITUDE:** -75° 25' 24.34"

YEARS TESTED: 2005, 2004

Temperature was slightly elevated at this site. The habitat score of 202 placed this site in the optimal category. The biological assessment score of 33 placed this site in the optimal category for the Northern Shale Valleys and Slopes, Riffle/Run >10 square miles scoring scheme.

Buckwha Creek (CWF)

SITE ID: BUCKCR01 **MUNICIPALITY:** Eldred Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 200 yards downstream of stone bridge in Kunkletown.

LATITUDE: 40° 50' 50.15" **LONGITUDE:** -75° 27' 03.63"

YEARS TESTED: 2005, 1994, 1992, 1991, 1990, 1985

Temperature was slightly elevated at this site. The habitat score of 186 placed this site in the optimal-suboptimal category. The biological assessment score of 31 placed this site in the optimal category for the Northern Shale Valleys and Slopes, Riffle/Run >10 square miles scoring scheme.

Princess Run

SITE ID: PRINRU01 **MUNICIPALITY:** Eldred Township

SUBECOREGION: Northern Shale Valleys and Slopes < 10 square miles

SITE LOCATION: Immediately downstream of Fiddletown Road.

LATITUDE: 40° 51' 13.03" **LONGITUDE:** -75° 26' 22.29"

YEARS TESTED: 2005, 1994, 1990, 1985

This stream is not classified in Title 25 of the Pennsylvania Code. Princess Run flows into the Buckwha Creek which is classified CWF, MF.

Temperature was slightly elevated at this site. The habitat score of 181 placed this site in the suboptimal-optimal category. The biological assessment score of 25 placed this site in the slightly impaired category for the Pocono Northern Shale Valleys and Slopes < 10 square miles scoring scheme.

Brodhead Creek Watershed

Brodhead Creek (HQ-CWF / TSF, MF)

SITE ID: BRODCR01 **MUNICIPALITY:** Barrett Township

SUBECOREGION: Low Pocono > 10 square miles

SITE LOCATION: Approximately 50 yards upstream of Brinker's Bridge, at the intersection of S.R. 447 and Mill Creek Road.

LATITUDE: 4°1 09' 52.13" **LONGITUDE:** -75° 14' 27.35"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1985

All parameters tested at this site were within acceptable limits. This site had a habitat score of 181 which placed this site in the suboptimal-optimal category. The biological assessment score was 33, ranking in the optimal category for the Low Pocono, Riffle/Run >10 square miles scoring scheme. This site demonstrates consistent trending for macroinvertebrates.

SITE ID: BRODCR12 **MUNICIPALITY:** Stroud Township

SUBECOREGION: Low Pocono > 10 square miles

SITE LOCATION: Approximately 100 yards downstream of the bridge on S.R. 191, near its intersection with S.R. 447.

LATITUDE: 41° 02' 10.75" **LONGITUDE:** -75° 12' 35.32"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1989, 1997, 1996, 1995

The temperature was elevated above maximum levels and a habitat score of 191 placed this site in the optimal-suboptimal category. The biological assessment score of 33 placed this site in the optimal category for the Low Pocono, Riffle/Run >10 square miles scoring scheme. This site continues to exhibit consistent trending for

macroinvertebrates.

SITE ID: BRODCR13 **MUNICIPALITY:** Smithfield Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 200 yards upstream of its mouth where it meets the Delaware River. DWGNRA boundary control point.

LATITUDE: 40° 59' 26.95" **LONGITUDE:** -75° 08' 06.47"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998

The temperature was elevated above maximum levels and a habitat score of 182 placed this site in the optimal-suboptimal category. The biological assessment score of 19 placed this site in the moderately impaired category for the Northern Shale Valleys and Slopes > 10 square miles scoring scheme. The macroinvertebrate trending indicates a 10 point drop over four years. It was noted that the stream channel had shifted and most rocks were slimy.

Butz Run (HQ-CWF)

SITE ID: BUTZRU01 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 50 yards upstream of confluence with Paradise Creek.

LATITUDE: 41° 04' 41.20" **LONGITUDE:** -75° 13' 44.50"

YEARS TESTED: 2005, 2004, 2003

All parameters tested at this site were within acceptable limits. A habitat score of 202 placed this site in the optimal category. The biological assessment score of 23 placed this site in the moderately impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme. Very low flow conditions were present during sampling.

Cranberry Creek (Paradise Creek Watershed) (HQ-CWF)

SITE ID: CRCRPA01 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 75 yards upstream of Browns Hill Road.

LATITUDE: 41° 06' 03.80" **LONGITUDE:** -75° 14' 58.60"

YEARS TESTED: 2005, 2004

Temperature was slightly elevated at this site. A habitat score of 178 placed this site in the suboptimal category. The biological assessment score of 29 placed this site in the slightly impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

Devils Hole Creek (EV)

SITE ID: DEHOCR04 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 15 yards upstream of confluence with Paradise Creek.

LATITUDE: 41° 07' 54.00" **LONGITUDE:** -75° 18' 50.00"

YEARS TESTED: 2005, 2004, 2003

This site is being studied as part of the Paradise Creek Watershed Management Plan. All field parameters tested at this site were within acceptable limits. A habitat score of 169 placed this site in the suboptimal category. The biological assessment score of 33 placed this site in the optimal category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

Forest Hills Run (HQ-CWF)

SITE ID: FOHIRU01 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 25 yards upstream of Lower Swiftwater Road.

LATITUDE: 41° 06' 03.10" **LONGITUDE:** -75° 16' 20.40"

YEARS TESTED: 2005, 2004, 2003, 1991, 1985

The conductivity and temperature levels were elevated at this site. A habitat score of 175 placed this site in the suboptimal category. The biological assessment score of 29 placed this site in the slightly impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

SITE ID: FOHIRU04 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 75 yards upstream of stream crossing at Mt. Airy Lodge parking lot.

LATITUDE: 41° 06' 46.00" **LONGITUDE:** -75° 19' 34.90"

YEARS TESTED: 2005, 2003, 1990

The conductivity level was elevated at this site again. A habitat score of 172 placed this site in the suboptimal category. The biological assessment score of 21 placed this site in the moderately impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

SITE ID: FOHIRU09 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 25 yards downstream of Carlton Road.

LATITUDE: 41° 06' 51.00" **LONGITUDE:** -75° 18' 42.30"

YEARS TESTED: 2005, 2004, 2003

The temperature and fecal coliform levels at this site were elevated again. A habitat score of 175 placed this site in the optimal category. The biological assessment score of 21 placed this site in the moderately impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme. The stream bottom at this site continues to be covered with slime.

Marshalls Creek (HQ-CWF)

SITE ID: MARSCR08 **MUNICIPALITY:** Smithfield Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 50 yards upstream of bridge on Route 209, south of Twin Falls Road.

LATITUDE: 41° 02' 05.17" **LONGITUDE:** -75° 07' 26.94"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996

The temperature was elevated and the dissolved oxygen level was extremely low. This site had a habitat score of 181, placing it in the optimal-suboptimal category. The biological assessment score of 33 placed this site in the optimal category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme.

SITE ID: MARSCR09 **MUNICIPALITY:** Smithfield Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 25 yards upstream of bridge on County Bridge Road.

LATITUDE: 41° 01' 32.77" **LONGITUDE:** -75° 07' 50.92"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996

This site continues to display a temperature slightly above the recommended maximum. A habitat score of 182 placed this site in the optimal-suboptimal category. Two biological samples were taken at this site for qa/qc purposes. The biological assessment score for both sample A and B was 25 placing this site in the slightly impaired category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme.

Paradise Creek (HQ-CWF)

SITE ID: PARACR01 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono > 10 square miles

SITE LOCATION: Approximately 50 yards upstream of Lower Swiftwater Road.

LATITUDE: 41° 06' 07.30" **LONGITUDE:** -75° 16' 07.60"

YEARS TESTED: 2005, 2004, 2003, 1988, 1985

The temperature was elevated at this site. A habitat score of 179 placed this site in the suboptimal category. The biological assessment score of 33 placed this site in the optimal category for the Low Pocono, Riffle/Run > 10 square miles scoring scheme.

SITE ID: PARACR03 **MUNICIPALITY:** Stroud Township

SUBECOREGION: Low Pocono > 10 square miles

SITE LOCATION: Approximately 150 yards upstream of the old railroad bridge over Route 191.

LATITUDE: 41° 04' 19.60" **LONGITUDE:** -75° 13' 36.40"

YEARS TESTED: 2005, 2004, 2003, 1995, 1985

Temperature was elevated at this site. A habitat score of 200 placed this site in the optimal category. The biological assessment score of 35 placed this site in the optimal category for the Low Pocono, Riffle/Run > 10 square miles scoring scheme.

SITE ID: PARACR04 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 50 yards downstream of confluence of Tank Creek and Yankee Run.

LATITUDE: 41° 07' 43.80" **LONGITUDE:** -75° 18' 57.80"

YEARS TESTED: 2005, 2004, 2003, 1985

All parameters tested at this site were within acceptable limits. A habitat score of 173 placed this site in the suboptimal category. The biological assessment score of 33 placed this site in the optimal category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

Sambo Creek (CWF, MF)

SITE ID: SAMBCR10 **MUNICIPALITY:** East Stroudsburg Borough

SUBECOREGION: Northern Shale Valleys and Slopes < 10 square miles

SITE LOCATION: Approximately 100 yards upstream of the mouth.

LATITUDE: 41° 00' 17.75" **LONGITUDE:** -75° 11' 27.43"

YEARS TESTED: 2005, 2004

This site demonstrated slightly elevated temperature, conductivity and total dissolved solids readings. A habitat score of 165 placed this site in the suboptimal category. The biological assessment score of 25 placed this site in the slightly impaired category for the Northern Shale Valleys and Slopes, Riffle/Run <10 square miles scoring scheme.

Swiftwater Creek (HQ-CWF)

SITE ID: SWIFCR02 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 25 yards downstream of its confluence with Forest Hills Run.

LATITUDE: 41° 06' 03.70" **LONGITUDE:** -75° 16' 16.70"

YEARS TESTED: 2005, 2004, 2003, 1988

Temperature, conductivity and total dissolved solids readings were elevated at this site. A habitat score of 150 placed this site in the suboptimal category. The biological assessment score of 27 placed this site in the slightly impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

SITE ID: SWIFCR03 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Immediately downstream of old bridge at the Swiftwater Inn (S.R. 611).

LATITUDE: 41° 05' 39.90" **LONGITUDE:** -75° 19' 41.70"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1991, 1990, 1988

All water chemistry parameters tested at this site were within acceptable limits. This site placed in the suboptimal category with a habitat score of 177. A biological assessment score of 27 placed this site in the slightly impaired category for the Low Pocono, Riffle/Run <10 square miles scoring scheme.

SITE ID: SWIFCR05 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 200 yards downstream of sanofi pasteur property.

LATITUDE: 41° 05' 41.00" **LONGITUDE:** -75° 18' 34.10"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1991, 1990

All water chemistry parameters tested at this site were within acceptable limits. A habitat score of 178 placed this site in the suboptimal category for the habitat analysis. A biological assessment score of 33 placed this site in the optimal category for the Low Pocono, Riffle/Run <10 square miles scoring scheme.

SITE ID: SWIFCR06 **MUNICIPALITY:** Paradise Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 20 yards upstream of its confluence with Forest Hills Run.

LATITUDE: 41° 06' 06.80" **LONGITUDE:** -75° 16' 18.80"

YEARS TESTED: 2005, 2004, 2003, 1991

Temperature, conductivity and total dissolved solids readings were elevated at this site. A habitat score of 185 placed this site in the optimal-suboptimal category. The biological assessment score of 25 placed this site in the moderately impaired category for the Low Pocono, Riffle/Run > 10 square miles scoring scheme.

SITE ID: SWIFCR07 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 75 yards upstream of S.R. 314.

LATITUDE: 41° 06' 02.00" **LONGITUDE:** -75° 20' 51.39"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001

All field parameters tested at this site were within acceptable limits. A habitat score of 206 placed this site in the optimal category. The biological assessment score of 29 placed this site in the optimal category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

Bushkill Creek Watershed

Bushkill Creek (HQ-TSF)

SITE ID: BUSHCR07 **MUNICIPALITY:** Middle Smithfield Township

SUBECOREGION: Low Pocono > 10 square miles

SITE LOCATION: Approximately 100 yards downstream of Fernwood/Middle Smithfield STP discharge, DWGNRA boundary control point.

LATITUDE: 41° 05' 03.30" **LONGITUDE:** -75° 01' 20.96"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1991

This site demonstrated a slightly elevated temperature reading again this year. A habitat score of 202 placed this site in the optimal category. The biological assessment score of 31 placed this site in the optimal category for the Low Pocono, Riffle/Run >10 square miles scoring scheme.

McMichael Creek Watershed

Bulgers Run (HQ-CWF)

SITE ID: BULGRU01 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 25 yards downstream of Learn Road

LATITUDE: 41° 01' 40.45" **LONGITUDE:** -75° 17' 58.85"

YEARS TESTED: 2005

This site is a new site added to investigate complaints. Conductivity, chlorides and total dissolved solids were elevated at this site. The habitat score of 127 is unsupportive of an optimal biological community. The biological assessment score was 23 placing it in the moderately impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme. Blood red chironomids were evident in the macroinvertebrate community, which is indicative of a sewer outfall. A rancid odor was detected during sampling.

Dry Sawmill Run (HQ-CWF)

SITE ID: DRSARU01 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately one half mile south of Sullivan Trail at its intersection with Brookdale Road.

LATITUDE: 41° 06' 96.80" **LONGITUDE:** -75° 37' 26.30"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1997

This site is being tested as part of the Pocono Creek Pilot Project. Conductivity was elevated at this site. A habitat score of 183 placed this site in the optimal-suboptimal category. A biological assessment score of 19 placed this site in the moderately impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme. The biological community was dominated by chironomids. This site demonstrated low flow.

Indian Run (HQ-CWF)

SITE ID: INDIRU01 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Immediately upstream of Fairview Ave.

LATITUDE: 41° 06' 20.88" **LONGITUDE:** -75° 22' 27.05"

YEARS TESTED: 2005, 2003, 1998, 1997

All water chemistry parameters tested at this site were within acceptable limits. A habitat score of 211 placed this site in the optimal category. The biological assessment score of 33 placed this site in the optimal category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

McMichael Creek (EV / HQ-CWF / TSF)

SITE ID: MCMICR21 **MUNICIPALITY:** Stroudsburg Borough

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 30 yards downstream of its confluence with Pocono Creek.

LATITUDE: 40° 58' 47.75" **LONGITUDE:** -75° 11' 45.02"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995

No chemical samples were taken at this site. Temperature at this site was elevated. The habitat score of 175 placed it in the suboptimal category. The biological assessment score of 23 placed this site in the moderately impaired category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme. The biological score is indicative of normal trending at this site. A bi-modal transport was identified in the pebble count. The composition of the stream channel had changed, a prevalence of sand was noted which was probably due to flooding events.

SITE ID: MCMICR28 **MUNICIPALITY:** Hamilton Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Adjacent to County soccer fields, upstream of Appenzell Creek.

LATITUDE: 40° 56' 50.10" **LONGITUDE:** -75° 17' 23.80"

YEARS TESTED: 2005, 2004, 2003

The temperature was elevated above the maximum levels and the habitat score of 165 placed it in the suboptimal category. The biological assessment score of 25 placed this site in the slighly impaired category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme.

SITE ID: MCMICR30 **MUNICIPALITY:** Stroudsburg Borough

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 300 yards downstream of Stroudsburg STP discharge.

LATITUDE: 40° 59' 16.63" **LONGITUDE:** -75° 11' 06.75"

YEARS TESTED: 2005, 2004

All water chemistry parameters tested at this site were within acceptable limits. The habitat score of 169 placed it in the suboptimal category. The biological assessment score of 21 placed this site in the moderately impaired category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme. The biological community was dominated by one species (chironomids).

Pocono Creek (HQ-CWF)

SITE ID: POCOCR14 **MUNICIPALITY:** Stroudsburg Borough

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 50 upstream of its confluence with McMichaels Creek.

LATITUDE: 40° 58' 48.50" **LONGITUDE:** -75° 11' 46.60"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1995

This site continues to display elevated temperature levels. The habitat score of 188 placed this site in the suboptimal-optimal category. The biological assessment score of 29 placed this site in the slightly impaired category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme.

SITE ID: POCOCR15 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono > 10 square miles

SITE LOCATION: Approximately 25 yards upstream of the bridge on Rim Rock Drive.

LATITUDE: 41° 00' 13.00" **LONGITUDE:** -75° 16' 48.70"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999

Temperature was slightly elevated at this site. All other water chemistry parameters tested at this site were within acceptable limits. A habitat score of 178 placed this site in the suboptimal category. This site placed in the optimal category for the Low Pocono, Riffle/Run > 10 square miles scoring scheme with a biological assessment of 33.

SITE ID: POCOCR16 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 200 yards south of Mountain View Village, approximately 10 yards downstream of its confluence with Coolmoor Creek.

LATITUDE: 41° 03' 06.00" **LONGITUDE:** -75° 20' 16.90"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999

All water chemistry parameters tested at this site were within acceptable limits. A habitat score of 161 placed this site in the suboptimal category. This site scored a 27 in its biological assessment, which placed it in the slightly impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

SITE ID: POCOCR17 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 50 yards downstream of Sullivan Trail.

LATITUDE: 41° 03' 02.70" **LONGITUDE:** -75° 19' 15.80"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000

All water chemistry parameters tested at this site were within acceptable limits. A habitat score of 153 placed this site in the suboptimal category. This site ranked in the optimal category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme with a biological assessment score of 31.

SITE ID: POCOCR18 **MUNICIPALITY:** Stroud Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 50 yards downstream of Shafers School House Road.

LATITUDE: 40° 59' 27.60" **LONGITUDE:** -75° 15' 19.10"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000

Temperature was elevated at this site. The habitat score of 175 placed it in the suboptimal category. The biological assessment score of 28 placed this site in the slightly impaired category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme. An abundance of filamentous algae was noted on the stream bottom.

SITE ID: POCOCR19 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono > 10 square miles

SITE LOCATION: At the Crossings Factory Stores overflow parking area.

LATITUDE: 41° 03' 00.80" **LONGITUDE:** -75° 18' 49.70"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001

Temperature was slightly elevated at this site. All other water chemistry parameters tested at this site were within acceptable limits. A habitat score of 141 placed this site in the suboptimal category. The macroinvertebrate score of 31 placed this site in the optimal category for the Low Pocono, Riffle/Run > 10 square miles scoring scheme.

SITE ID: POCOCR20 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 15 yards downstream of its confluence with Wolf Swamp Run.

LATITUDE: 41° 03' 34.90" **LONGITUDE:** -75° 22' 11.80"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001

All water chemistry parameters tested at this site were within acceptable limits. A habitat score of 190 placed this site in the optimal-suboptimal category. The biological assessment score of 35 indicates slight impairment for the Low Pocono, Riffle/Run < 10 square miles scoring scheme.

SITE ID: POCOCR22 **MUNICIPALITY:** Hamilton Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Approximately 1 mile downstream of Shafers School House Rd.

LATITUDE: 40° 59' 03.32" **LONGITUDE:** -75° 14' 59.45"

YEARS TESTED: 2005, 2004

This site was the only site to be tested for heavy metals this year. Temperature was elevated at this site. The habitat score of 189 placed this site in the optimal-suboptimal category. All other water chemistry parameters tested at this site were within acceptable limits. The biological assessment score of 35 placed this site in the optimal category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme.

Scotrun Creek (HQ-CWF)

SITE ID: SCOTCR04 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 100 yards upstream of bridge at the Crossings Factory Stores overflow parking area.

LATITUDE: 41° 04' 05.30" **LONGITUDE:** -75° 19' 10.20"

YEARS TESTED: 2005, 2004, 2003

This site is being tested as part of the Pocono Creek Pilot Project. Conductivity was elevated at this site. The habitat score of 128 is unsupportive habitat (riparian impacts and lack of in stream cover). The biological assessment score of 23 placed this site in the moderately impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme. This site contained an abundance of silt.

SITE ID: SCOTCR05 **MUNICIPALITY:** Pocono Township

SUBECOREGION: Low Pocono < 10 square miles

SITE LOCATION: Approximately 10 yards downstream of Brookdale Road.

LATITUDE: 41° 04' 27.46" **LONGITUDE:** -75° 19' 46.30"

YEARS TESTED: 2005

This site was added for investigative purposes. Temperature and conductivity levels were elevated at this site. The habitat score of 143 placed this site in the suboptimal category. The biological assessment score of 17 placed this site in the severely impaired category for the Low Pocono, Riffle/Run < 10 square miles scoring scheme. This stream contained extremely low flow and the bottom was coated with algae.

Pohopoco Creek Watershed

Pohopoco Creek (CWF)

SITE ID: POHOCR06 **MUNICIPALITY:** Polk Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: At Berger Road (where stream bends to the west near the road) at the County line.

LATITUDE: 40° 53' 58.09" **LONGITUDE:** -75° 30' 24.70"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995

Water chemistry samples for lab analysis were not collected at this site. All water chemistry parameters tested at this site were within acceptable limits. The habitat score of 207 placed this site in the optimal category. The biological assessment score of 31 placed this site in the optimal category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme.

SITE ID: POHOCR07 **MUNICIPALITY:** Chestnuthill Township

SUBECOREGION: Northern Shale Valleys and Slopes > 10 square miles

SITE LOCATION: Immediately downstream of easterly bridge on Altemose Drive.

LATITUDE: 40° 55' 22.16" **LONGITUDE:** -75° 25' 40.53"

YEARS TESTED: 2005

All water chemistry parameters tested at this site were within acceptable limits. The habitat score of 193 placed this site in the optimal category. The biological assessment score of 27 placed this site in the slightly impaired category for the Northern Shale Valleys and Slopes, Riffle/Run > 10 square miles scoring scheme.

Weir Creek

SITE ID: WEIRCR01 **MUNICIPALITY:** Chestnuthill Township

SUBECOREGION: Northern Shale Valleys and Slopes < 10 square miles

SITE LOCATION: Approximately 25 yards upstream of County Park Rd.

LATITUDE: 40° 54' 29.40" **LONGITUDE:** -75° 25' 50.20"

YEARS TESTED: 2005, 2001, 2000

The dissolved oxygen level was lower than expected at this site. The habitat score of 193 placed this site in the optimal category. The biological assessment score was 23, which ranks in the moderately impaired category for the Northern Shale Valleys and Slopes, Riffle/Run < 10square miles scoring scheme.

Tobyhanna Creek Watershed

Hawkey Run

SITE ID: HAWKRU01 **MUNICIPALITY:** Coolbaugh Township

SUBECOREGION: Pocono Plateau < 10 square miles

SITE LOCATION: Approximately 25 yards downstream of bridge on Holiday Drive.

LATITUDE: 41° 08' 00.70" **LONGITUDE:** -75° 23' 54.90"

YEARS TESTED: 2005, 1999

This stream is not classified in Title 25 of the Pennsylvania Code, but is a tributary to Upper Tunkhannock Creek which is classified HQ-CWF.

This Temperature was elevated at this site. All other water chemistry parameters tested at this site were within acceptable limits. A habitat score of 167 placed this site in the suboptimal category. The biological assessment score of 24 placed this site in the slightly impaired category for the Pocono Plateau < 10 square miles scoring scheme.

Red Run (HQ-CWF)

SITE ID: RED_RU03 **MUNICIPALITY:** Coolbaugh

SUBECOREGION: Pocono Plateau < 10 square miles

SITE LOCATION: Approximately 100 yards upstream of Industrial Park Dr.

LATITUDE: 41° 07' 44.61" **LONGITUDE:** -75° 22' 41.84"

YEARS TESTED: 2005, 2004, 2003, 2002

Temperature was slightly elevated at this site. The habitat score of 180 placed this site in the suboptimal category. The biological assessment score of 22 placed this site in the slightly impaired category for the Pocono Plateau, Riffle/Run < 10 square miles scoring scheme.

Tobyhanna Creek (HQ-CWF)

SITE ID: TOBYCR01 **MUNICIPALITY:** Coolbaugh Township

SUBECOREGION: Pocono Plateau > 10 square miles

SITE LOCATION: Approximately 75 yards downstream of S.R. 423 bridge at east boundary of Warnertown and State Game Lands 127.

LATITUDE: 41° 09' 43.52" **LONGITUDE:** -75° 27' 23.58"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1992, 1985

Temperature was elevated at this site. A habitat score of 201 placed it in the optimal category. The biological assessment score of 28 placed this site in the optimal category for the Pocono Plateau, Riffle/Run >10 square miles scoring scheme.

SITE ID: TOBYCR14 **MUNICIPALITY:** Tobyhanna Township

SUBECOREGION: Pocono Plateau > 10 square miles

SITE LOCATION: Immediately upstream of the S.R. 115 bridge, downstream of the STP.

LATITUDE: 41° 04' 57.61" **LONGITUDE:** -75° 35' 00.85"

YEARS TESTED: 2005, 1998

Temperature was elevated at this site. A habitat score of 192 placed it in the optimal category. The biological assessment score of 29 placed this site in the optimal category for the Pocono Plateau, Riffle/Run >10 square miles scoring scheme.

SITE ID: TOBYCR17 **MUNICIPALITY:** Coolbaugh Township

SUBECOREGION: Pocono Plateau > 10 square miles

SITE LOCATION: Approximately 25 yards upstream of Polly's Run, upstream of I. 380.

LATITUDE: 41° 10' 06.55" **LONGITUDE:** -75° 25' 25.10"

YEARS TESTED: 2005

Temperature was elevated at this site. A habitat score of 211 placed it in the optimal category. The biological assessment score of 20 placed this site in the slightly impaired category for the Pocono Plateau, Riffle/Run >10 square miles scoring scheme.

SITE ID: TOBYCR18 **MUNICIPALITY:** Coolbaugh Township

SUBECOREGION: Pocono Plateau > 10 square miles

SITE LOCATION: Approximately 800 yards upstream of confluence with Hummler Run.

LATITUDE: 41° 10' 05.90" **LONGITUDE:** -75° 25' 56.53"

YEARS TESTED: 2005

Temperature and fecal coliform levels were elevated at this site. A habitat score of 212 placed it in the optimal category. The biological assessment score of 26 placed this site in the slightly impaired category for the Pocono Plateau, Riffle/Run >10 square miles scoring scheme.

Trout Creek (HQ-CWF)

SITE ID: TROUCR02 **MUNICIPALITY:** Tobyhanna Township

SUBECOREGION: Pocono Plateau > 10 square miles

SITE LOCATION: Approximately 75 yards downstream of Locust Ridge Road

LATITUDE: 41° 09' 11.02" **LONGITUDE:** -75° 34' 55.78"

YEARS TESTED: 2005

Temperature was greatly elevated at this site. A habitat score of 190 placed it in the suboptimal-optimal category. The biological assessment score of 24 placed this site in the slightly impaired category for the Pocono Plateau, Riffle/Run >10 square miles scoring scheme.

Tunkhannock Creek (HQ-CWF)

SITE ID: TUNKCR03 **MUNICIPALITY:** Tunkhannock Township

SUBECOREGION: Pocono Plateau > 10 square miles

SITE LOCATION: Approximately 100 yards upstream of S.R. 115, near its intersection with S.R. 903.

LATITUDE: 41° 03' 30.20" **LONGITUDE:** -75° 33' 13.07"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993

Water chemistry samples for lab analysis were not collected at this site. Temperature was slightly elevated. This site placed in the suboptimal-optimal category with a habitat score of 188. The biological assessment score of 28 placed this site in the optimal category for the Pocono Plateau, Riffle/Run >10 square miles scoring scheme.

SITE ID: TUNKCR06 **MUNICIPALITY:** Tunkhannock Township

SUBECOREGION: Pocono Plateau Glide/Pool

SITE LOCATION: Approximately 1/2 mile upstream of the stone bridge on Hypsy Gap Road.

LATITUDE: 41° 02' 11.47" **LONGITUDE:** -75° 26' 18.89"

YEARS TESTED: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995

Due to the nature of this site (a slow moving, meandering, wetland stream) flow readings are not taken. Water chemistry samples for lab analysis were not collected at this site. Temperature readings were elevated while dissolved oxygen levels were low. The habitat score of 226 placed this site in the optimal category. The biological assessment score of 24 placed this site in the slightly impaired category for the Pocono Plateau, Glide/Pool scoring scheme.

DISCUSSION

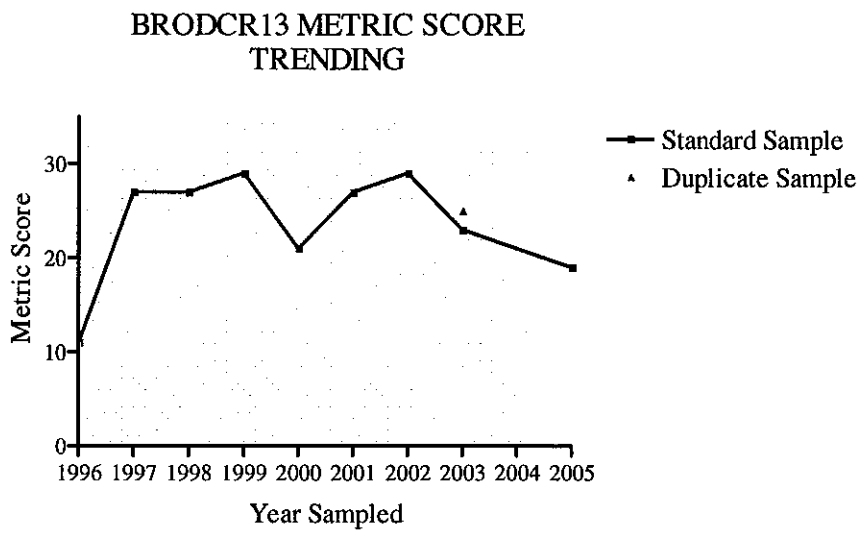
It should be noted that the weather patterns that occurred during the 2005 study contributed to flows which were generally lower than expected for this time of year. This was a stark contrast to 2004 and the spring of 2005 which had flows that were generally higher than expected.

This year, 23 sites out of 53 (43.4%) rank as optimal while only 1site (1.89%) ranks as severely impaired. In 2004, 48 sites were sampled with 20 (41.7%) ranked as optimal and 2 (4.2%) sites 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 trending charts (for sites with more than 5 years of consecutive data) and probable cause of impairment are as follows:

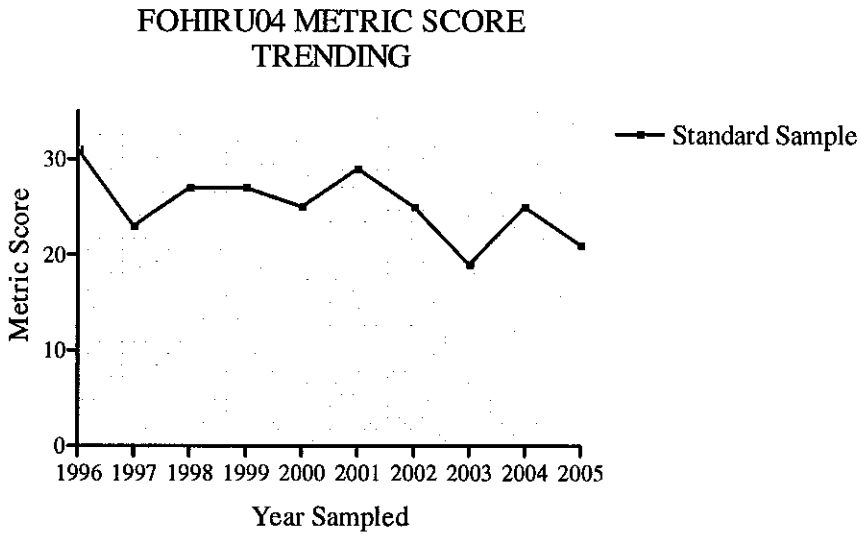
Brodhead Creek Watershed

Brodhead Creek (BRODCR13) upstream of its confluence with the Delaware River shows signs of moderate impairment. The stream channel at this site showed signs of alteration due to extreme flooding events. This site also contained a great deal of slime (possibly sewage fungus / algae) on the stream bottom. This site is located downstream of several wastewater treatment plants which may contribute to the impairment found.



Butz Run (BUTZRU01) upstream of confluence with the Pocono Creek shows signs of moderate impairment. Butz Run is a small stream which is fed by large shallow ponds in its headwaters and may never have enough time to fully recover from the thermal pollution.

Forest Hills Run (FOHIRU04) upstream of Woodland Road again shows signs of moderate impairment. The macroinvertebrate community was comprised of a low number of intolerant taxa. This site is located downstream of a wastewater treatment facility which is believed to be the major cause of impairment.

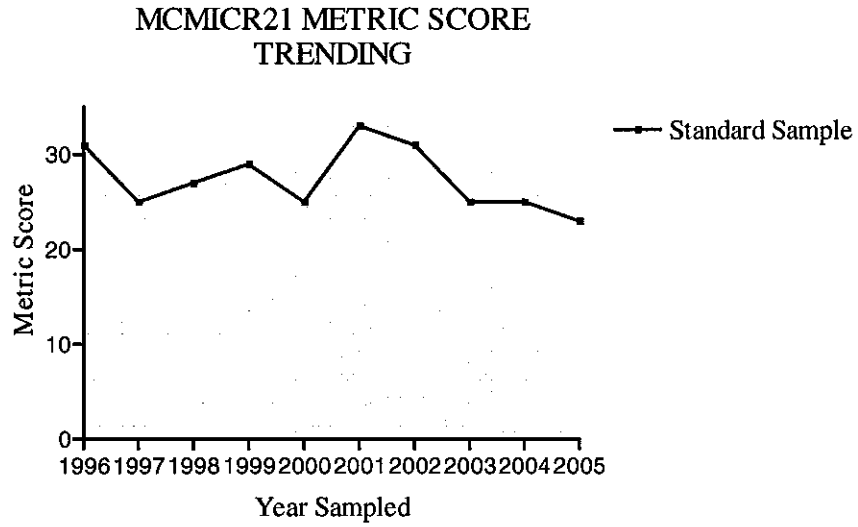


Forest Hills Run (FOHIRU09) downstream of Carlton Road again shows signs of moderate impairment. Elevated fecal coliform counts were documented at this site. This stream is most likely experiencing impairment due to low oxygen levels, nutrient enrichment and/or high levels of particulate matter. The dominant taxon in the sample was Hydrosychidae, a net spinning caddis which feeds on particulate matter. 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. A nutrient management program should be initiated on the property upstream of this site.

McMichael Creek Watershed

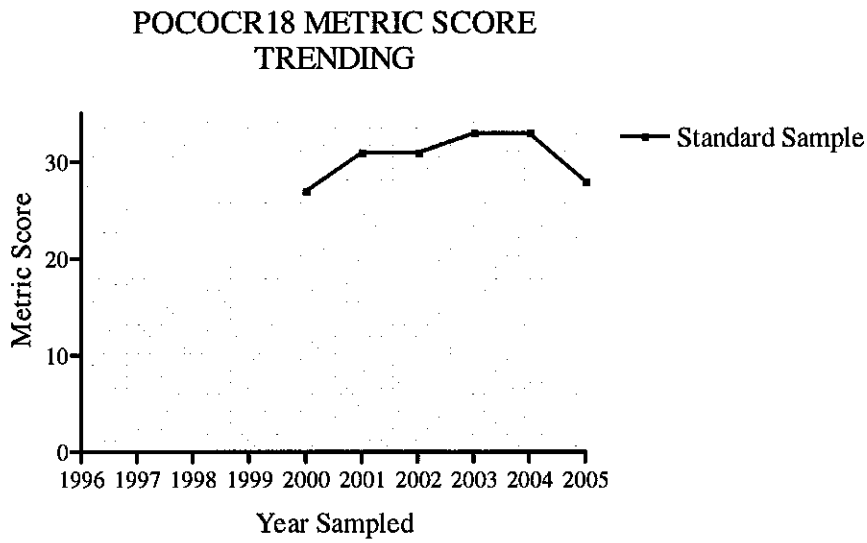
Bulgers Run (BULGRU01) downstream of Learn Road shows signs of moderate impairment. This impairment appears to be due to wastewater impacts as well as urbanization.

McMichael Creek (MCMICR21) downstream of its confluence with the Pocono Creek shows signs of moderate impairment. Shifting habitat conditions and evidence of embedded sand throughout the stream were likely factors.

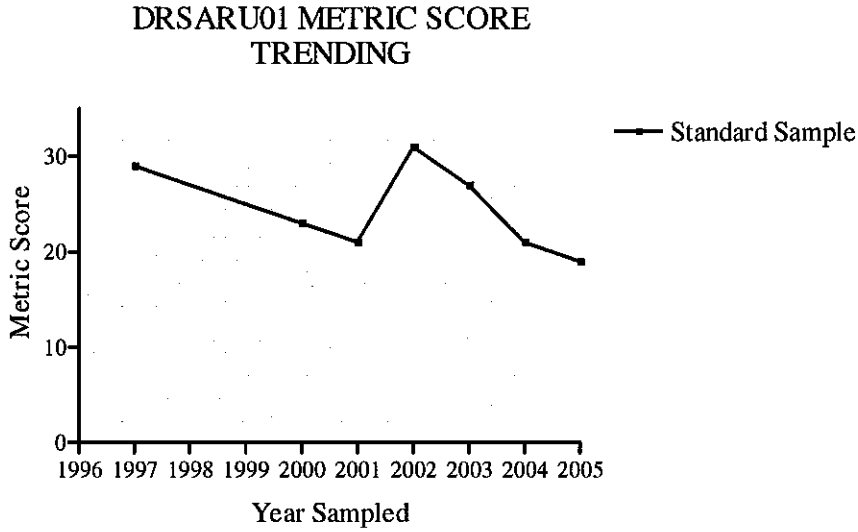


McMichael Creek (MCMICR30) downstream of the Stroudsburg STP shows signs of moderate impairment. The macroinvertebrate community was dominated by chironomids at this site. Impairment is most likely due to STP impacts.

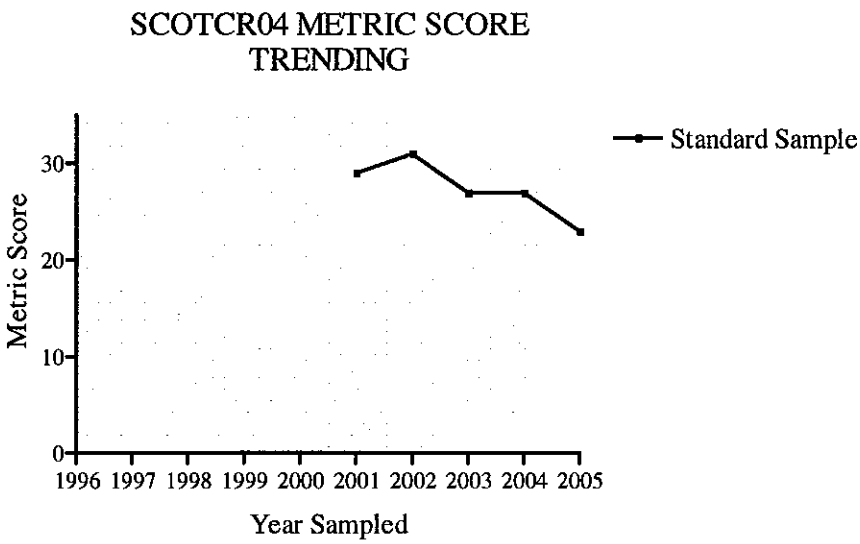
Pocono Creek (POCOCR18) downstream of Shafers School House Road showed a drop in biological assessment scoring. Filamentous algae was noted on the stream bottom. Filamentous algae can be indicative of nutrient enrichment. Impairment may be due to malfunctioning on lot septic systems.



Dry Sawmill Run (DRSARU01), approximately ½ mile south of Sullivan Trail at its intersection with Brookdale Road, shows signs of moderate impairment. The biological community was dominated by chironomids. This site demonstrated low flow. The cause of impairment at this site could not be determined. Sampling should also be conducted upstream of this site to determine the extent of impairment.



Scotrun Creek (SCOTRUCR04) upstream of the Crossings Factory Stores shows signs of moderate impairment. This site demonstrates a significant drop in trending. The impairment is due to an increase in siltation which was evident during sampling. This siltation appears to be the result of construction and urbanization.



Scotrun Creek (SCOTRUCR05) downstream of the Brookdale Road shows signs of severe impairment. The stream at this site was very small containing little flow and also may be showing impairment due to pond effects.

Pohopoco Creek Watershed

Weir Creek (WEIRCR01) upstream of County Park Road shows signs of moderate impairment. This site is a heavily vegetated low gradient meandering stream. The conditions found at this site appear to be normal for this site.

Tobyhanna Creek Watershed

Tobyhanna Creek (TOBYCR14) upstream of Polly's Run showed some impairment in the biological community. This may be due to a malfunctioning wastewater treatment facility. The biological community shows improvement as the stream flows past Hummler Run.

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:
TOBYCR17 – Tobyhanna Creek upstream of Polly's Run.
BRODCR13 – Brodhead Creek at the mouth.
MCMICR30 – McMichael Creek downstream of the Stroudsburg STP.
BULGRU01 – Bulgers Run downstream of Learn Road.
FOHIRU04 – Forest Hills Run upstream of Woodland Road.
FOHIRU09 – Forest Hills Run downstream of Carlton Road.
The impairments at the above sites appear to be directly related to wastewater treatment plant discharges.

DRSARU01 – Dry Sawmill Run approximately ½ mile south of Sullivan Trail.
The potential cause of impairment is unknown at this time.

The following site is recommended for further investigation by local monitoring groups or the County:
POCOCR18 – Pocono Creek downstream of Shafers School House Road.
This site demonstrated a significant drop in its biological score which may be due to enrichment. The investigation of this site may require additional sites upstream to identify the impaired reach.

The Planning Commission and Conservation District should continue to partner with the four 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 four watershed organizations in the County with priority given to sites that have shown either chronic 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

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Monroe County Planning Commission
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Project Coordinator: Eric Bartolacci

Cooperating Agencies:

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

Volunteers:

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ACKNOWLEDGMENTS

Monroe County has conducted an annual water quality study for the past twenty 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 support from Prosser Labs by providing sound, reliable data is appreciated.

– sanofi pasteur has once again sponsored the Swiftwater Creek portion of the project. Their continued support for the program and their commitment to the environment is appreciated.

– The County would like to extend sincerest thanks to Donna and Al Barney, Tom and Deb Brady, Tom Batista, Bill Clark, Theresa Merli, Andrew Schweitzer, Bonnie Smith and Edie Stevens, 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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