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Water '98 Snapshot

An Earth Week Survey of
the Delaware River Basin



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This report was prepared by the Delaware River Basin Commission on behalf of the co-sponsors of *Water Snapshot '98*—New Jersey Department of Environmental Protection, Pennsylvania Department of Environmental Protection, Pennsylvania Department of Conservation and Natural Resources, New York Department of Environmental Conservation, Delaware Department of Natural Resources and Environmental Control, the Delaware Riverkeeper Network, the Upper Delaware Council, and the U.S. Environmental Protection Agency's Regions II and III.

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Volunteerism at Its Best

Once again bracketing Earth Day, from April 17 through April 26, 1998, *Water Snapshot '98* brought hundreds of volunteers out to their local streambanks and bridges to take a “snapshot” of the waters of the Delaware River Basin. As in *Water Snapshot's* first two successful years, young and old, experienced and first-time samplers, tested the waters of every corner of the basin—from the brooks of New York's Catskill Mountains, the headwaters of the Delaware River; from the Delaware's tidal streams; from streams and lakes in the Pennsylvania and New Jersey portions of the watershed; and from rural, suburban, and urban waters throughout the basin.

Water Snapshot was an idea conceived in 1995 at a meeting to promote volunteer monitoring programs in the Delaware River Basin. What if folks all over the basin collected water quality samples during the same time period? What if that time period overlapped Earth Day, giving people an opportunity to express their concern for clean water by actually sampling it? This simple but powerful idea came to fruition in 1996 when, for the first time, hundreds of people put aside their normal routines and dipped into a

favorite waterway somewhere in the Delaware River Basin.

While not meeting all the requirements of a scientifically valid study, *Water Snapshot* is an outstanding undertaking nonetheless. Besides allowing comparison of water quality from year to year by the participants, the information gathered provides a good record of the public's interest in the quality of the basin's waters.

During *Water Snapshot '98*, 490 sampling events were completed on 221 water bodies, mostly rivers and streams, but also 28 lakes and 3 ponds. Many participants gathered samples from boats. The sampling generated several thousand individual bits of data on the physical and chemical makeup of the water and on the physical appearance of the stream corridors.

Overall, water quality was found to be very good again, and the level of interest continues to grow. Encouraged by their personal contribution to the water quality database, many of the original volunteers during *Water Snapshot '96* participated again in 1997. And in 1998. Others joined them: staff from 11 county health departments and from federal and state environmental agencies; members of 50 citizen and water-

shed groups and volunteer monitoring programs; students from 56 schools, from first-grade through college ecology classes; employees of 5 private water supply and 2 manufacturing companies; girl scouts and members of other youth groups and environmental education programs; and staff of the Delaware Bay Schooner Project.

These volunteers collected samples, filled out data sheets, and submitted them to the Delaware River Basin Commission (DRBC) for analysis and publication. Some sent photos as well—of their waterway and themselves.

This report is theirs: their pictures, their data, their waters.



LEFT: Nicki Tomasello, a student at Governor Mifflin High School, performs a dissolved oxygen test on the waters of Wyomissing Creek in West Reading, Pa. (Photo: J. Shidisky, Schuylkill River Greenway Association)



BELOW: The redback salamander (*Plethodon cinereus*) is one of millions of critters that inhabit the Delaware River.

Collecting and Analyzing Samples

The selection of water quality parameters for the initial Water Snapshot was a critical decision, since the program's participants would vary from highly scientific organizations to elementary school programs using simple test kits and

litmus paper. A small suite of "core" parameters consisting of air and water temperature, pH, dissolved oxygen, nitrate, and phosphate was chosen and proven effective. The data form also asked participants what type of equipment they used.

Recognizing that most programs sampled additional parameters, the planning committee included five optional parameters in 1997: alkalinity, carbon dioxide, coliform, conductivity, and turbidity. In 1998, a visual assessment of conditions in small wadeable streams was added.

Support from the Top

On April 21, 1998, New Jersey Governor Christine Todd Whitman, Delaware River Basin commissioners and executive director, and a Girl Scout troop from Delran, N.J., joined the staff of the Delaware Bay Schooner Project on the restored oyster schooner *A.J. Meerwald*, to collect water quality samples from the Delaware River at Burlington, N.J.

Project members of this sailing classroom focused their onboard educational program on water quality, watersheds, oystering, and plankton. With wind in their hair and sun on their faces, the vessel's crew and 45 passengers deployed an otter trawl to collect aquatic life and

hauled up buckets of river water to test and record data—not just for educational purposes, not just for fun, but to be part of the Delaware River Basin's largest water quality monitoring program to date.

Based on the data presented in Appendix A, dissolved oxygen levels that day at Burlington were quite good, ranging from 7.0 to 12.0 milligrams per liter (mg/l). Levels above 6.0 mg/l fully support fish and other aquatic life. Air temperature ranged from 14.5°C (58°F) to 23°C (73°F), setting the stage for a perfect sampling day on the water.

A Multi-State Effort

A few days later in the upper reaches of the basin in New York State, Margaretville Central School District joined forces with the Catskill Center for Conservation and Development to sample the East Branch of the Delaware River. They, too, found healthy levels of dissolved oxygen. Unlike conditions on April 21 at Burlington, however, it was a cool spring day, with air temperature reaching only 10°C (50°F). Not surprisingly, the water registered only 4°C (39.2°F).

In another area of the basin, several students from Lower Nazareth Elementary School joined their science teacher, Mark Atwood, to study the water quality of a local creek in



FAR LEFT: The Delaware Bay Schooner Project, a nonprofit organization, uses New Jersey's official tall ship, *A.J. Meerwald*, as a sailing classroom. (Photo: Sarah Ruppert)

LEFT: A member of Delran Girl Scout Troop 6452 and Bob Shinn, Commissioner of the New Jersey Department of Environmental Protection and New Jersey Commissioner of the DRBC, look on as Governor Christine Todd Whitman performs a dissolved oxygen test on water from the Delaware River.

Northampton County, which feeds into Bushkill Creek, which in turn empties into the Delaware River at Easton, Pa.

While working with maps to study the topography of the creek's watershed in relation to the Bushkill Creek, the students discovered that the creek was unnamed. So in February 1998, the students and several parents visited the Lenni Lenape Museum in Allentown, Pa., to gather historical information relevant to naming their creek. During their research, they also learned a great deal about the Lenape language. Many of the names of places in Northampton County come from the Lenape language: Catasaugua—thirsty earth; Coplay—smooth running stream; Lehigh—where there are forks in the stream; Pocono—stream between mountains; and Monocacy—stream with large bends.

Upon further research, the water quality group learned that the unnamed creek did in fact have a name ... Engler's Creek, from the name of one of the original settlers of the area. Engler's farm was at one time located at the headwaters of this small creek.

The group also has a new name: *Wuschginkwall Genachihat M'bi*, which, when translated from the Lenni Lenape language, means "eyes

watching water." For that is what they do every week—use their eyes to help evaluate the pH, dissolved oxygen, turbidity, volume of flow, phosphates, and temperature.

Some Caveats

A unique feature of Water Snapshot continues with this report. With so many diverse groups participating, each with different monitoring objectives and levels of experience, and co-sponsors wanting to recognize everyone's efforts equally, all data are lumped together, regardless of the precision of the analytical methods or expertise (or lack thereof) of the analyst. Therefore, there can be no pretense that basinwide summaries are true "scientific" facts.

The participants certainly are able to use the data they have contributed to Water Snapshot to make valid observations for their own individual programs. We're sure most of the volunteers understand the purpose of this caveat. We hope that this report gives everyone an appreciation of the number of people and organizations involved in monitoring water quality, and that the participants gain a lift through publication of their data.

Any participants concerned that the data they provided fall in the outer ranges of the data presented

here should double-check their analytical techniques, review the expiration dates on reagents, capture duplicate samples for comparison in the future, see what types of activities occur upstream from their sampling sites, and double-check their data-reporting methods.

Appendix A contains all the monitoring data submitted, grouped by sub-basin, and the names of the participants who supplied the data. Appendix B provides the names, addresses, and phone numbers of the *Water Snapshot '98* participants, and Appendix C contains the data sheet they used.

Though many participants contributed additional physical and chemical monitoring data, only a small portion of the data could be recorded in Appendix A. Monitoring the basin's stream biota is popular, providing participants a wealth of information on long-term conditions in a given stream. However, because of the different monitoring methods used, summarizing the data meaningfully for *Water Snapshot '98* was infeasible.

Furthermore, not all the monitoring data collected during *Water Snapshot '98* have been included because of space considerations. The following agencies will gladly share the data they have collected:

- The U.S. Geological Survey maintains automatic water quality monitors at a number of sites in the basin, including four sites on the mainstem Delaware: Trenton, river mile (RM) 135; Philadelphia, RM 100; Chester, RM 82; and Reedy Island, RM 55. These monitors automatically analyze four parameters every quarter hour every day of the year.
- Another unique monitoring program uses a hydroacoustic process to count migrating American shad passing beneath the Route 202 Lambertville–New Hope Bridge (RM 150). Fishery biologist Mark Boriek of the New Jersey Department of Environmental Protection reported that 287,025 shad were counted during *Water Snapshot '98*—73 percent of the total run for the year.
- In addition, the DRBC, the basin states, the U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers all had specialized monitoring programs underway somewhere in the basin.

The Delaware River Basin

The Delaware River Basin is a fairly small watershed in comparison with those of other major U.S. rivers. In land area, the basin drains 13,539 square miles, which is only 0.4 percent of the total U.S. land area. However, the basin seems much larger, considering the fact that almost 7 percent of the U.S. population depends upon it as a primary source of water. Blessed by 44 inches of rainfall a year, the basin is able to support not only the 7.3 million residents within its boundaries, but another 10 million outside the basin in New York City and northern New Jersey. The Delaware Basin also supplies many industrial, agricultural, commercial, and recreational water needs.

Not long ago, the many demands placed upon the Delaware River nearly killed it. In addition to serving as a water supply for so many people and their activities, the river also served as an open sewer. At the height of World War II, many reaches of the river were devoid of life due to lack of oxygen.

Since then, the river has been brought back to life. Much of the credit for the restoration of the tidal river (the estuary) has been given to the DRBC. With the passage of the

federal Clean Water Act in 1972, the states and the U.S. EPA have also played a major role in pollution control throughout the basin. These agencies have not been alone in their heroic efforts.

Since the 1970s' environmental movement, government agencies have been aided greatly by watchful citizen monitors. Recognizing that government alone cannot preserve the outstanding water quality found in reaches of the Delaware, individual citizens have banded together in many instances to take "ownership" of their local waterways, and are working to preserve their valuable water resources for future generations. Just as the Delaware River Basin is composed of many smaller watersheds, the citizen monitors listed in the appendices of this document contribute to a much larger collective effort.

A Tour of the Delaware River Watershed

Along its 330-mile path to the Atlantic Ocean, the Delaware River collects water from ecologically diverse tributaries, influenced by wide-ranging natural and human-induced conditions that dictate its water quality. The major tributaries

to the Delaware are the Lehigh and Schuylkill Rivers in Pennsylvania. Both of these watersheds have been subject to by-products of intensive coal mining in their headwaters. Major towns along each tributary include: Allentown, Bethlehem, and Easton along the Lehigh River, and Pottsville, Reading, Pottstown, Norristown, and Philadelphia along the Schuylkill River.

The cold, clear, highly oxygenated mountain streams of the New York Catskill Mountains form the headwaters of the Delaware River Basin, draining into the East and West Branches of the Delaware River, which meet at Hancock, N.Y. This northern region is known to geologists as the glacier-carved upland physiographic province. This area is home to the Upper Delaware National Scenic and Recreational River, as well as the Middle Delaware Scenic and Recreational River, both of which have been included in the National Wild and Scenic Rivers System. Once the river breaks through the main ridge of the Appalachians at the Delaware Water Gap, it flows through broad valleys past the rolling hills of the Piedmont. Here the streams are a bit less sloped, flow is a little slower, light penetration is greater, the substrate is less influenced by the glacial

origin of the rock, and the land includes less forest and more farmland and suburban sprawl.

Past the fall line at Trenton, the river flows through the coastal plain of New Jersey, southeastern Pennsylvania, and Delaware in the tidal Delaware Estuary. The major influence on water quality in the Lower Delaware is urbanization. The river flows past Trenton, Camden, Philadelphia, Chester, and Wilmington—a highly populated urban complex with major ports and industries. Tributaries along this reach of the river have felt the effects of a few hundred years of development and industrialization, and must accommodate further rapid growth in their headwaters now that the U.S. population has shifted out of the cities and into the ever-growing suburbs. Many of these tributaries are especially in need of protection by citizen monitors, and are close to most of our back yards.

Below Wilmington, the river widens into the Delaware Bay, where the land is flat, the shores are marshy, and agriculture dominates the inland landscape. Some industry exists where petrochemical and power plants require cooling water, but most other human-induced effects on water quality originate

from poultry and vegetable farming. Feeder streams flow slowly, meander, and are generally warmer than the mountain streams in Pennsylvania and New York. Major tributaries to the bay include the Salem, Cohansey, and Maurice Rivers (a National Wild and Scenic River) in

New Jersey, and the Chesapeake & Delaware Canal and the Smyrna, Leipsic, Murderkill, and Broadkill Rivers in Delaware. The bay is heavily influenced by the tides, which may cause great variation in local water quality. Before feeding into the Atlantic Ocean between Cape

May, N.J., and Cape Henlopen, Del., the bay encompasses an extremely rich and diverse ecosystem known for its fisheries, horseshoe crabs, and huge flocks of migratory birds.



Margaretville Central School District sixth-grade class and teacher Karen Underwood get some pointers from M.J. Reiss, director of education for the Catskill Center for Conservation and Development.

Sampling by Sub-Basins

For the purpose of picturing the geographic extent of sampling that occurred during *Water Snapshot '98*, samples were grouped according to the Delaware River Basin sub-basin from which they were collected (see Appendix A). This created a visual summary of the sampling coverage.

The following descriptions of the sub-basins include their major tributaries and summaries of the monitoring activities that took place in each.

Sub-Basin 1: Upper Basin (NY and PA)

Drainage in Sub-basin 1 encompasses New York, Pennsylvania, and a very small part of New Jersey, including tributaries entering the Delaware River above the U.S. Geological Survey (USGS) streamflow gauge at Montague, N.J., located at the Delaware's river mile (RM) 246.3. The approximate drainage area totals 3,422 square miles. In New York, the major tributaries to the Delaware River include: East Branch Delaware River, West Branch Delaware River, Callicoon Creek, Tenmile River, Mongaup River, and the Neversink River. In Pennsylvania, major tributaries

include: Equinunk Creek, Lackawaxen River, and Shohola Creek. Sub-basin 1 includes the National Park Service Upper Delaware Scenic and Recreational River. There were 30 sampling events in 1998, 6 fewer than in 1997, with 18 in New York and 12 in Pennsylvania. Twenty-three different streams were sampled, just over 10 percent of the total streams sampled. Ten of the 18 New York collections were made by Margaretville Central School students on their first day back from vacation, at 6:00 P.M. These samples were from the headwaters of the East Branch Delaware River, upstream from Pepacton Reservoir. The Pennsylvania Department of Environmental Protection contributed data from 6 samples in the Pennsylvania portion of Sub-basin 1.

Sub-Basin 2: Middle Delaware (NJ and PA)

Drainage in New Jersey and Pennsylvania occurs between the streamflow gauge at Montague, N.J. (RM 246.3), and the gauge at Riegelsville, N.J. (RM 174.8), and excludes the Lehigh River watershed. The approximate drainage area is 1,542 square miles. In New Jersey,

major tributaries include: Flat Brook, Paulins Kill, Pequest River, Pohatcong Creek, Lopatcong Creek, and the Musconetcong River. Pennsylvania tributaries include: Sawkill Creek, Raymondskill Creek, Dingmans Creek, Bushkill, Brodhead Creek, Cherry Creek, Martins Creek, and Bushkill Creek. Sub-basin 2 includes the Middle Delaware Scenic and Recreational River. Eighty-two samples were taken from locations in Sub-basin 2, including 71 from Pennsylvania, the majority taken in the Brodhead Creek watershed by the Brodhead Watershed Association.

Sub-Basin 3: Lehigh River Watershed (PA)

The Lehigh River drainage area encompasses 1,364 square miles, entering the Delaware River at Easton, Pa. Tributaries to the Lehigh include: Tobyhanna Creek, Bear Creek, Black Creek, Nesquehoning Creek, Mahoning Creek, Pohopoco Creek, Lizard Creek, Aquashicola Creek, Hokendaqua Creek, Little Lehigh Creek, Monocacy Creek, and Saucon Creek. Led by the Tobyhanna Creek Watershed Association and the schools associated with the Jacobsburg Environmental Education Center, 59 sampling events were recorded in 1998, a 44

percent increase over 1997. Twenty-nine streams were sampled.

Sub-Basin 4: Lower Delaware to Trenton (NJ & PA)

This is the drainage area composed mostly of small Delaware River tributaries located between the USGS gauge at Riegelsville, N.J. (RM 174.8), and the USGS gauge at Trenton, N.J. (RM 134.3). The approximate drainage area is 452 square miles. New Jersey tributaries include: Harihokake Creek, Nishisakawick Creek, Copper Creek, Warford Creek, Lockatong Creek, Wickecheoke Creek, Alexauken Creek, Swan Creek, Moore Creek, Fiddler Creek, Jacobs Creek, and Gold Run. Pennsylvania tributaries include: Cooks Creek, Gallows Run, Tinicum Creek, Tohickon Creek, Hickory Creek, Paunna-cussing Creek, Rabbit Run, Dark Hollow Run, Pidcock Creek, Jericho Creek, Houghs Creek, Dyers Creek, and Buck Creek. The Tinicum Conservancy and DRBC staff performed the bulk of the 19 sampling events in Sub-basin 4—a 73 percent increase over 1997.

Sub-Basin 5: Upper Estuary Tributaries (PA)

This is the drainage area in Pennsylvania between the Trenton gauge

(RM 134.3) and the Pennsylvania–Delaware state boundary near Marcus Hook, Pa. (RM 78.8). This sub-basin excludes the Schuylkill River watershed above Fairmount Dam in Philadelphia, Pa. The confluence of the Schuylkill into the Delaware (RM 92.5) divides Sub-basin 5 into minor basins 5A (upstream of the Schuylkill) and 5B (downstream of the Schuylkill). The approximate combined drainage area of Sub-basin 5 is 678 square miles. Tributaries to the Delaware River located in Sub-basin 5A include: Mill Creek, Neshaminy Creek, Poquessing Creek, Pennypack Creek, and Frankford Creek. Sub-basin 5B trib-

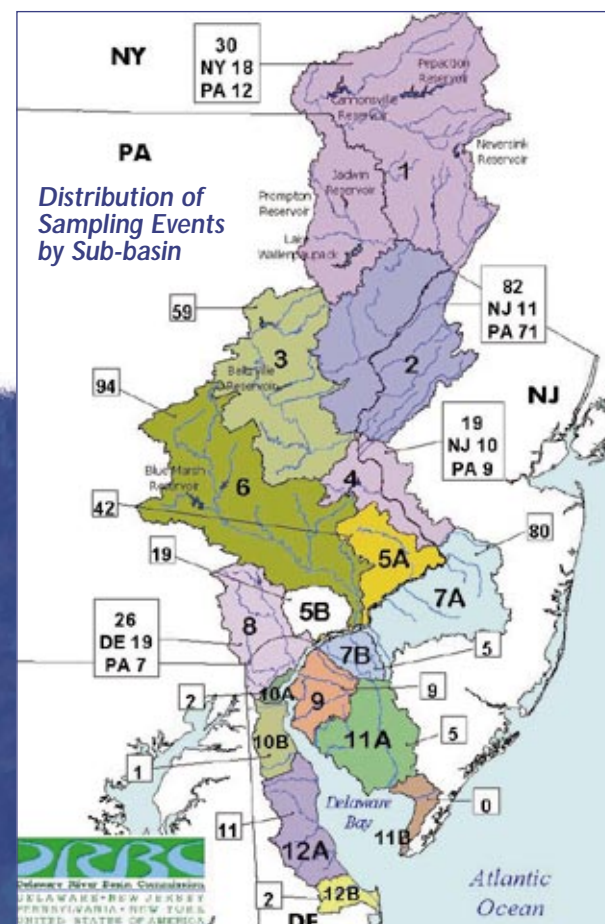
utaries to the Delaware River include: Darby Creek, Crum Creek, Ridley Creek, Chester Creek, and Marcus Hook Creek. A total of 61 sampling events were recorded in 1998 (42 in 5A and 19 in 5B)—fewer in 5B than in 1997. In 5A, 11 samples were taken from the Delaware River, many in the Bristol, Pa., area, including those collected during sailings of the *A.J. Meerwald* (see also Sub-basin 7A). The Neshaminy Creek basin was sampled 11 times, by the Riverkeeper Network, Charles Boehm Middle School, Neshaminy High School, Philadelphia Suburban Water Co., and the North Penn Water Author-

ity. Twenty-two streams were sampled in Sub-basin 5.

Sub-Basin 6: Schuylkill River Watershed (PA)

This is the Schuylkill River watershed above Fairmount Dam in Philadelphia, Pa. The Schuylkill River empties into the Delaware River at RM 92.5. Fairmount Dam is located at Schuylkill River Mile 8.5. Below Fairmount Dam, the Schuylkill River is tidal and different in character from the upstream drainage area. The approximate drainage area is 1,893 square

miles. Major tributaries to the Schuylkill River include: West Branch Schuylkill River, Little Schuylkill River, Maiden Creek, Tulpehocken Creek, Manatawny Creek, French Creek, Pickering



State Distribution of Water Snapshot '98 Sampling

As in the past, the majority of streams and lakes sampled were in the Pennsylvania portion of the basin, as was the number of sampling events. Of the 221 sites sampled, 136 (62 percent) were in Pennsylvania, 20 more than in 1997. The number of New Jersey sites sampled rose 100 percent, increasing from 23 to 47; the number in Delaware increased by a third; and New York was stable.

Basin States	% and Number of Sampling Events			Number of Sites Sampled	
	1996	1997	1998	1997	1998
Pennsylvania	51%	67%	64% (313)	116	136 (62%)
Delaware	7%	9%	7% (34)	17	23 (10%)
New York	13%	10%	4% (18)	16	15 (7%)
New Jersey	28%	13%	25% (125)	23	47 (21%)
TOTAL	99%	99%	100% (490)	172	221 (100%)

Creek, Perkiomen Creek (including Unami Creek, Swamp Creek, East Branch Perkiomen Creek, and Skip-pack Creek), and Wissahickon Creek. In 1996, the Schuylkill River was under-represented in sampling effort (the main stem was sampled just once). In 1997, the Schuylkill River watershed was sampled 88

times and was ranked number 1. In 1998 it was first again with 94 samplings. Thirty-nine tributary streams were sampled, down from 49; the main stem Schuylkill River was sampled 18 times. The Schuylkill River Greenway Association and the Montgomery County Health

Department led the way in the number of samples collected.

Sub-Basin 7: Upper Estuary Tributaries (NJ)

In New Jersey, this is the drainage area located between the USGS gauge at Trenton (RM 134.3) and the point opposite the Pennsylvania-Delaware state boundary (RM 78.8) at Nortonville, N.J., which is just seaward of the mouth of Raccoon Creek. Sub-basin 7 is divided into Sub-basins 7A and 7B at a point just seaward of the mouth of Woodbury Creek in New Jersey (RM 91.6). The approximate combined drainage area of Sub-basin 7 is

1,019 square miles. Tributaries to the Delaware River in Sub-basin 7A include: Crosswicks Creek, Blacks Creek, Crafts Creek, Assiscunk Creek, Rancocas Creek, Swede Run, Pompeston Creek, Pennsauken Creek, Pohack Creek, Baldwin Run, Cooper River, Newton Creek, Big Timber Creek, and Woodbury Creek. Sub-basin 7B tributaries include: Little Mantua Creek, Mantua Creek, Clonmell Creek, Nehonsey Brook, Repaupo Creek, and Raccoon Creek. Sub-basin 7 experienced the biggest jump overall in the number of sampling events going from 19 in 1997 to 85 in 1998. All but 5 occurred in 7A. The Pond Road Middle School in Robinsville, N.J., gathered a bunch of samples on Miry Run and the Assunpink. The Delaware Bay schooner *A.J. Meerwald* was used for some concentrated sampling of the Delaware River around Burlington, N.J. EPA Region III and DRBC staff contributed Delaware River data as well. The Camden County Department of Health contributed data on 17 events from the Cooper River, Pennsauken Creek, Big Timber Creek, and others. Twenty-nine streams, or 13 percent of all the streams sampled, were in Sub-basin 7. For the first time data were contributed from sites in the Mantua



FAR LEFT: Michael Ambrose, a student in the sixth grade at Lower Nazareth Elementary School, works the net as his classmate Emma Belcastro turns the rocks in search of watery critters.

INSET: Emma Belcastro checks the pH of Engler Creek, a fast-moving stream that runs through the forest in Jacobsburg Environmental Education Center.

Creek watershed (7B), thanks to the Mantua Creek Watershed Association.

Sub-Basin 8: Brandywine–White Clay-Christina (PA, DE)

This is the drainage area in Pennsylvania and Delaware between the Pennsylvania–Delaware state boundary at Marcus Hook, Pa. (RM 78.8), and a point just seaward of the mouth of the Christina River in Delaware (RM 70.7). The approximate drainage area is 591 square miles. Tributaries include: Naaman's Creek, Christina River, White Clay Creek, Red Clay Creek, West

Branch Brandywine Creek, East Branch Brandywine Creek, and the Brandywine Creek. Three more collections were made in 1998 vs. 1997 for a total of 26, 19 of which came from the Delaware portion. The Delaware Nature Society and Delaware Stream Watch collected the bulk of the samples in Delaware, while the Brandywine Valley Association collected nearly all of those from Sub-basin 8 PA. Seventeen different streams were sampled.

Sub-Basin 9: Lower Estuary Tributaries (NJ)

In New Jersey, this is the drainage area between Delaware River RM 78.8 at Nortonville, N.J., and the mouth of the Delaware River (head of Delaware Bay) at Hope Creek Monument (opposite Liston Point, Del.) at RM 48.2. The approximate drainage area of Sub-basin 9 is 257 square miles. Tributaries include: Oldmans Creek, Salem River, and Alloways Creek. Nine sampling

events on 5 water bodies were recorded in 1998; 6 of the events were on the Delaware River. The Salem County Watershed Task Force sampled Alloways Creek, Salem River, and Oldmans Creek.

Sub-Basin 10: Lower Estuary Tributaries (DE)

In Delaware, this is the drainage area from a point just seaward of the mouth of the Christina River (RM 70.7) to the mouth of the



LEFT: Brent Eyler, from the Glenside Weldon Environmental Science Club, checks Secchi depth at Sandy Run.

RIGHT: *Water Snapshot '98* monitors take a break from sampling at Eshbach Boat Launch, eight miles south of Dingmans Ferry Bridge off of Pennsylvania Route 209. Left to right: Noelle Kalipetis, Katie Koenig, Elizabeth Brune, Jillian Van Winkle, Victoria Turso, Rose Indoe, and Kellyanne Tomasula.



Delaware River (head of Delaware Bay) at Liston Point (RM 48.2). This sub-basin is broken into minor Sub-basins 10A and 10B at the Chesapeake & Delaware Canal (RM 58.9). The approximate combined drainage area of Sub-basin 10 is 166 square miles. Tributaries to the Delaware Estuary in Sub-basin

10 include: Red Lion Creek, Dragon Creek, C&D Canal, Augustine Creek, Appoquinimink River, Hangmans Run, and Blackbird Creek.

Sub-Basin 11: Delaware Bay Tributaries (NJ)

In New Jersey, this sub-basin includes the drainage area from the

Hope Creek Monument (head of Delaware Bay) at RM 48.2 to the mouth of Delaware Bay at Cape May, N.J. (RM 0). Sub-basin 11 is divided into minor basins 11A and 11B, just below the confluence of the Maurice River (RM 21.02). The combined drainage area of Sub-basin 11 is 769 square miles. Tributaries to Delaware Bay located in Sub-basin 11 include: Stowe Creek, Cohansey River, Cedar Creek, Nantuxent Creek, Oranoaken Creek, Dividing Creek, Maurice River, West Creek, Dennis Creek, Fishing Creek, and the Cape May Canal. Five sampling events occurred in Sub-basin 11, all in 11A. The Mau-

rice River, which is included in the National Wild and Scenic Rivers System, was sampled twice, once by the Riverkeeper Network and once by the Salem County Watershed Task Force. The Cohansey River watershed, which includes the town of Bridgeton, N.J., was sampled just once.

Sub-Basin 12: Delaware Bay Tributaries (DE)

In Delaware, this sub-basin includes the drainage area between the head of Delaware Bay at Liston Point (RM 48.2) and the mouth of Delaware Bay at Cape Henlopen (RM 0). Sub-basin 12 is divided into minor basins 12A and 12B at a point just seaward of the St. Jones River (RM 23.7). The combined drainage area of Sub-basin 12 is 612 square miles. Tributaries to Delaware Bay in Sub-basin 12 include: Smyrna River, Leipsic River, Mahon River, Little River, St. Jones River, Murderkill River, Mispillion River, Broadkill Creek, and Roosevelt Inlet (entrance to the Lewes & Rehoboth Canal). Thirteen collections were taken from sites located in Sub-basin 12, 4 from the Delaware River. Ten different water bodies were sampled. The Delaware Department of Natural Resources and Environmental Control collected most of the samples. Connie Belisle and the Milford Middle School contributed data as well.

Pond Life DATA WORKSHEET

Draw organism here:

Length: 1.5 cm

Color: White, brown, orange

Shape: flat

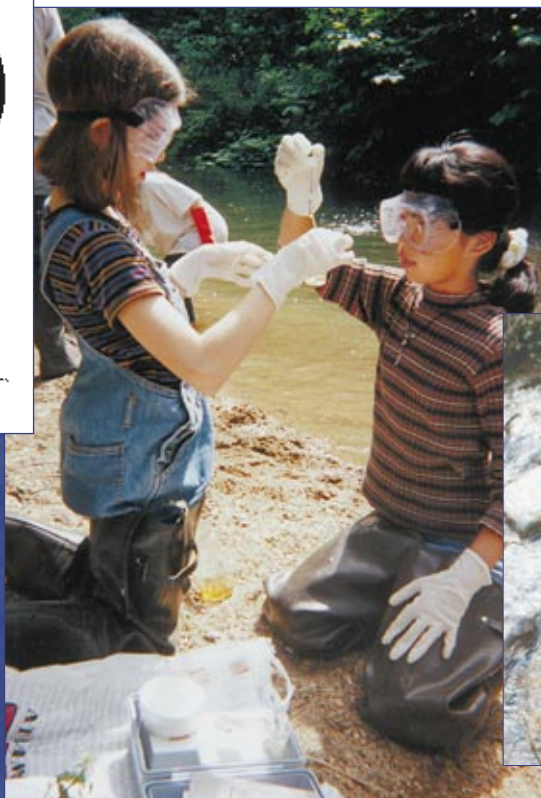
Number of eyes: 2 eyes

Number of appendages: None

What does this organism eat?: algae

Plant, animal, or other: Animal

Name of this organism: Larva of a Frog



RIGHT: Kim Reynolds and Lauren Zito, from the Glenside Weldon Environmental Science Club, perform a dissolved oxygen test at Sandy Run.

FAR RIGHT: The students from Lower Nazareth Elementary School couldn't keep Thor out of the water!



Water Quality Findings— Basinwide

Included in the water quality data form used by the participants of *Water Snapshot '98* between April 17 and 26, 1998, are spaces for water temperature, dissolved oxygen, pH, nitrate, and phosphate (see Appendix C). This section presents their find-

ings throughout the Delaware River Basin.

Water Temperature

Temperature is an important determinant of the biological community that can exist in a body of

water. Most fish and other aquatic life require specific temperature ranges to thrive. Temperature affects the concentration of oxygen that can be dissolved in water, with higher concentrations occurring with colder temperatures. Sometimes, however, local conditions such as weather patterns can mask real

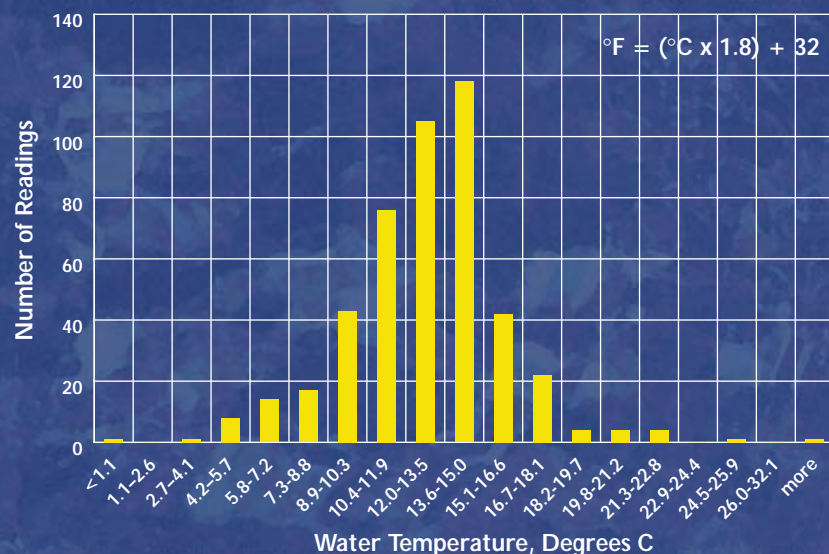
differences revealed during long-term monitoring.

Dissolved Oxygen

The amount of oxygen that can be dissolved into water depends on the temperature of the water. For any given temperature, under natural conditions, a maximum level of oxy-

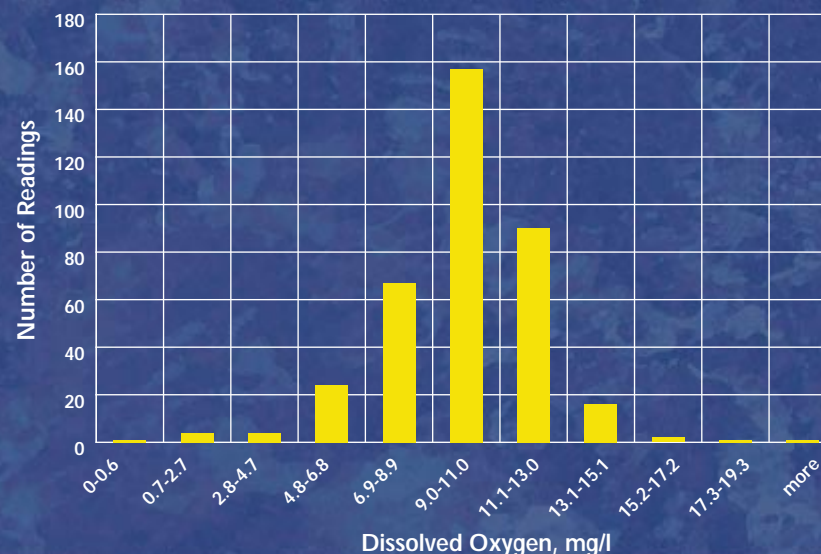
Frequency of Water Temperature Values in the Delaware River Basin

Water Snapshot '98 participants recorded water temperature 454 times, with a range in value from 1°C (33.8°F) to nearly 34°C (93.2°F). The majority of the recordings—85 percent—were between 9°C (48°F) and 16°C (61°F). There was no readily apparent pattern to the data as far as the location of the high and low values in the basin or within a watershed. Local conditions, such as the time of sampling and preceding weather conditions, will serve to mask real differences that would show up over longer periods of monitoring. Overall, temperatures ran higher (average 12.8°C, or 55°F) than in 1997 (10.9°C, or 51.6°F), but closer to 1996 (13.6°C, or 56.5°F).



Frequency of Dissolved Oxygen Values in the Delaware River Basin

Participants made 361 tests to determine dissolved oxygen concentrations in the basin's waters. The results ranged from lower than 1 to as high as 40 mg/l (single values), with 86 percent between 7 and 13 mg/l. Many of the low values seem to occur in the mid-part of the basin (Sub-basins 5, 6, and 7) in developed areas. Saturation levels at some of these sites ranged from 20 to 60 percent. Oxygen levels greater than 13 mg/l seem to be found more in Sub-basins 2, 4, 5A, and 6, including a few on the mainstem Delaware River. Saturation levels rose to as high as 150 percent at these locations, indicating supersaturation. The average of all samples was 9.9 mg/l, which at the average temperature of 12.8°C (55°F) yields a 97 percent level of oxygen saturation, in agreement with the pattern of temperature and oxygen levels seen in 1996 and 1997.





gen can be dissolved in the water, which is called the saturation value. As the temperature of water rises, its saturation value falls; if the temperature falls, the saturation value rises, allowing greater concentrations of dissolved oxygen.

In natural streams, the concentration of oxygen generally will be above 90 percent—but less than 100

percent—of the saturation value because of naturally occurring organic material in the water. Oxygen levels can rise above 100 percent saturation temporarily when aquatic plants produce oxygen during daytime photosynthesis. On the deficit side, pollution by discharges of oxygen-demanding materials like improperly treated sewage can dras-

tically lower the concentration of dissolved oxygen.

In general, dissolved oxygen levels above 6 milligrams per liter of water (6 mg/l)—equivalent to 6 parts oxygen to one million parts water—provide full support of fish and other aquatic life. Levels of 4 or 5 mg/l are often acceptable, but levels lower than that lead to reduc-

tions in aquatic life. The exact requirement for dissolved oxygen varies by species, with some being very tolerant and others being intolerant of—and, thus, more susceptible to—the effects of water pollution.

pH

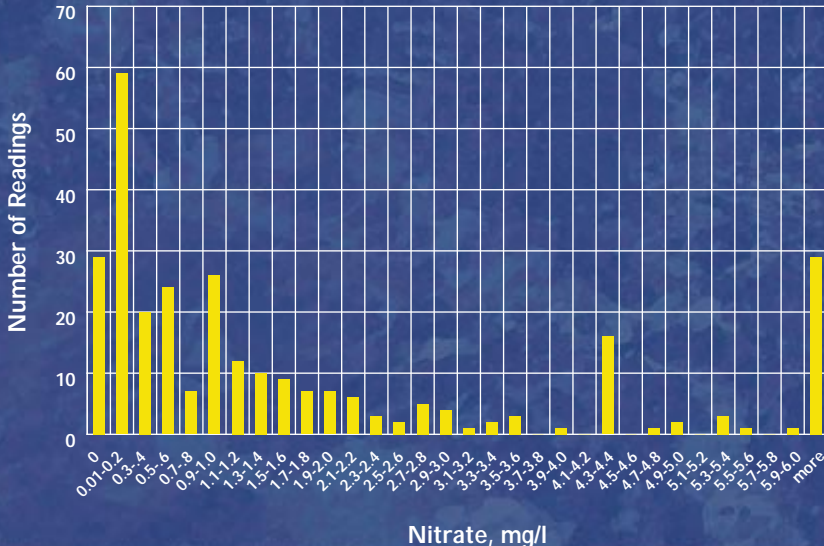
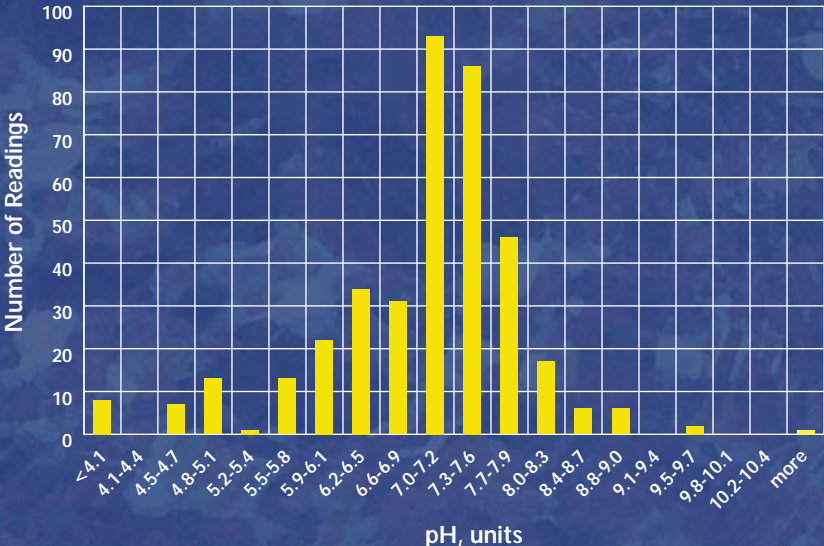
pH is a measure of the acid/alkaline relationship in a water sample.

Frequency of pH Values in the Delaware River Basin

A total of 386 analyses for pH were performed in 1998, 11 percent more than in 1997. Eighty-seven percent of the pH samples fell between 6 and 9 units. Of the 13 percent outside the range, only 3 exceeded 9 units, and these exhibited supersaturation of oxygen and a possible source of contamination. Of the 29 samples lower than 5.4, more than half were recorded by the Pond Road Middle School on Miry Run, a branch of the Assumpink Creek in Sub-basin 7A NJ. A half dozen low values were recorded in Sub-basin 3 PA, high in the Poconos in the tannic acid-rich Tunkhannock Creek area.

Distribution of Nitrate Concentrations in the Delaware River Basin

Of the 299 nitrate analyses performed, 55 percent were 1.0 mg/l or lower, and 4 percent exceeded 10 mg/l. The bulk of the lowest values recorded were from Sub-basins 2 PA and 3 PA. Readings above 0.4 mg/l were often seen in the mid-portion of the basin, in Sub-basins 6, 4, 8, and 7. The highest values, exceeding 35 mg/l, were observed on tributaries to the Brodhead Creek (Sub-basin 2 PA) and around Dublin, Pa. (6 PA).



pH values range on a scale of zero to 14 units, with 7 being neutral. A pH level of about 6 to 9 units is generally favored by aquatic life, especially fish. Algae and rooted plants in a stream modify pH levels through the photosynthesis and respiration processes. If plants are active, wide swings in pH levels can be observed over a 24-hour period,

with low values experienced at night and high values experienced at midday. These swings are caused by the plants' consumption and release of carbon dioxide. Instream pH levels can also be affected by acid and alkaline chemicals from industry, mining, and other man-made sources, as well as by natural sources, such as limestone deposits (bedrock)

and tannic acid (produced by certain vegetation).

Values of pH below 6 should be viewed with concern, unless a natural condition exists that can explain them. On the Pocono Plateau, in the Tobyhanna & Tunkhannock Creek watersheds, the water is acidic and appears tea-colored. The area is dominated by thick stands of pine, and the ground is boggy wetlands. The reason for low pH values in these streams is the tannic acid from the pine trees.

undesirable plant growth with their deleterious impacts on water quality, an appropriate level of nutrients is one of the driving forces of the aquatic ecosystem.

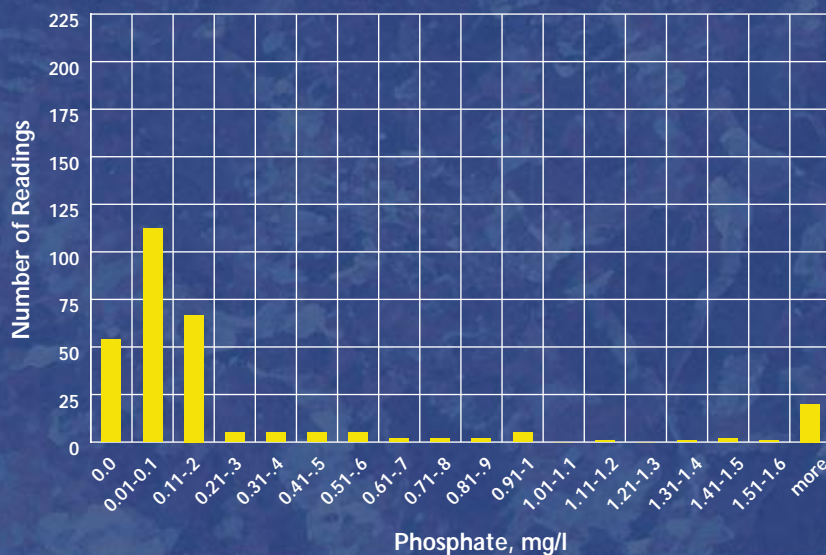
Determining the optimum levels of these nutrients in water is extremely complex. A concentration of nitrate or phosphate that causes problems in one stream might not cause similar problems in another. Nitrate and phosphate levels are also complex because they are constantly being taken up and released by aquatic life, being exchanged with stream bed sediments, and undergoing various other transformations.

Natural nitrate concentrations rarely exceed 10 mg/l. Most are lower than 1 mg/l, especially during periods of high plant production. Concentrations in drinking water higher than 20 mg/l may pose a health hazard to babies and other small mammals.

Man-made sources of phosphate include fertilizers, domestic sewage, and detergents. In natural unpolluted water, phosphate levels are generally very low, and its presence usually determines the extent of plant growth.

Distribution of Phosphate Concentrations in the Delaware River Basin

Of the 301 phosphate analyses performed in the Delaware River Watershed, 82 percent were below 0.4 mg/l, and 17 percent were at zero. Ten percent of the values recorded were above 1.0 mg/l, and nearly all came from Sub-basins 5 PA, 6 PA, and 7A NJ.



Nitrate and Phosphate

Nitrogen and phosphorus are necessary for aquatic plant growth, which in turn supports the rest of the aquatic food chain. Both of these nutrients were sampled, and recorded herein, as the concentrations of nitrate and phosphate, common compounds of nitrogen and phosphorus with oxygen.

These nutrients are derived from a variety of natural and artificial sources, including decomposition of plant and animal materials, man-made fertilizers, and sewage. While excessive nutrients might cause

Water Quality Findings— Delaware River

Small headwater streams flow out of springs, down mountainsides, and through fields and wetlands to join with other headwater streams. These larger streams flow into other streams, until ultimately a tributary flows into the Delaware River

somewhere along its route to the Atlantic Ocean. The water quality of the mainstem Delaware River thus integrates water quality and other attributes of hundreds of watersheds that drain to it. In light of this role and the fact that 14 percent of all

the samples collected during 1998 were taken from the river, we now focus on a picture of the river presented by *Water Snapshot '98*.

The Delaware River and Bay were sampled 67 times at 56 different locations during 1998—an increase in the number of locations, but a slight decrease in the number

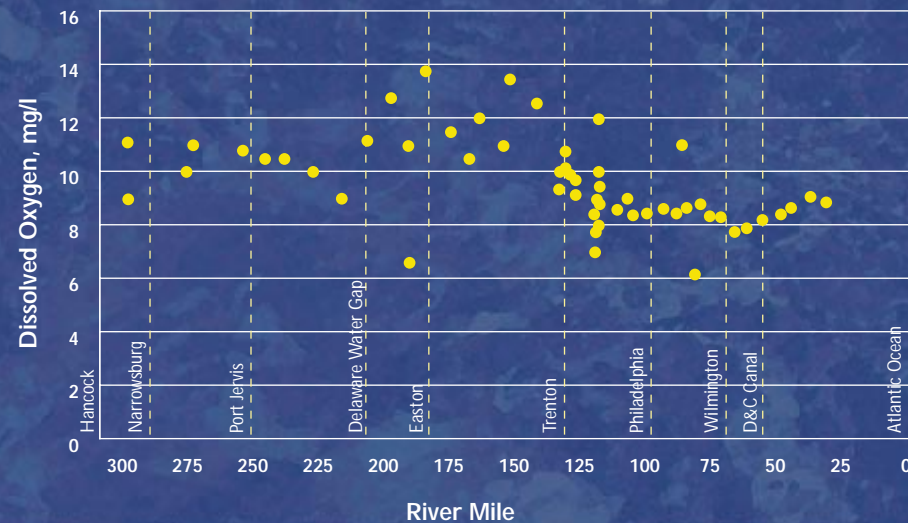
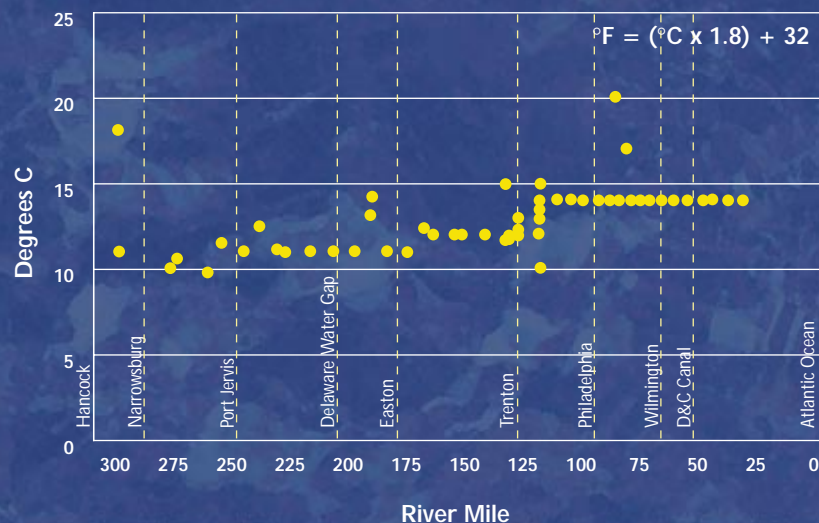
of times compared to 1997. During the first Water Snapshot in 1996, the river was sampled 48 times. The 1998 samples were analyzed by 14 different entities, with Delaware's Department of Natural Resources and Environmental Control, the DRBC, and the oyster schooner *A.J. Meerwald* gathering the most.

Frequency of Water Temperature Values in the Delaware River

River water temperature ranged between 10°C (50°F) and 20°C (68°F), with a slight increase proceeding from the upper reaches of the nontidal section, down to Trenton (RM 133). In the tidal river and bay (RM 133–0), the temperature was a couple of degrees higher than in the nontidal reach. This pattern is similar to those of 1996 and 1997. The extremely tight band of temperatures at 14°C (57.2°F) between RM 110 and RM 30 was recorded by the Delaware Department of Natural Resources and Environmental Control during a one-day boat run up the center of the channel.

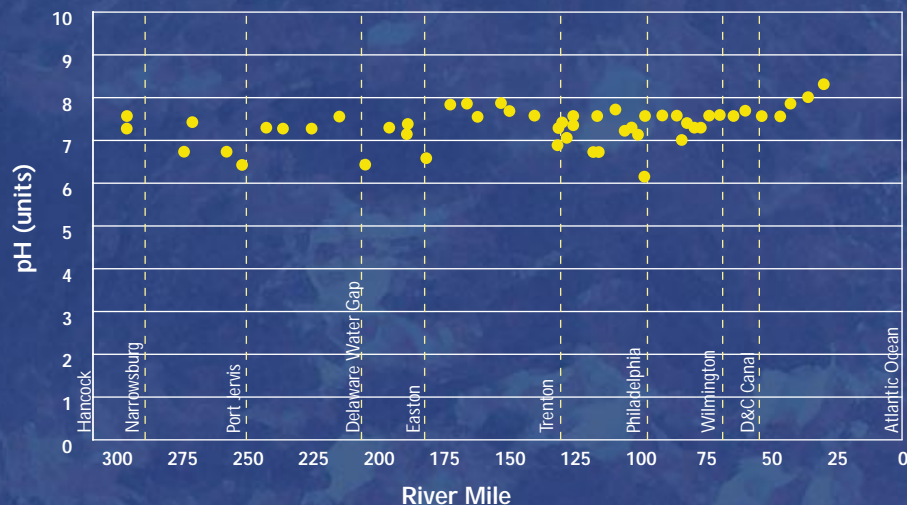
Frequency of Dissolved Oxygen Values in the Delaware River

The dissolved oxygen values in 62 samplings ranged from 6.2 to 13.8 mg/l. Levels were in the ranges of 9–11 mg/l in the reach upstream from the Delaware Water Gap, and 11–13 mg/l in the reach from the Gap to Trenton. Downstream from Trenton and through most of the tidal river, levels dipped into the 8–9 range in mid-channel samples—the effects of warmer water, the discharge of oxygen-demanding wastewater, and stormwater runoff. As in the past, dissolved oxygen levels dipped downriver from Wilmington, Del., around RM 66, in this sampling falling below 80 percent. Saturation levels were in the 90 percent range in the upper tidal river, and near and above 100 percent in the Upper Delaware.



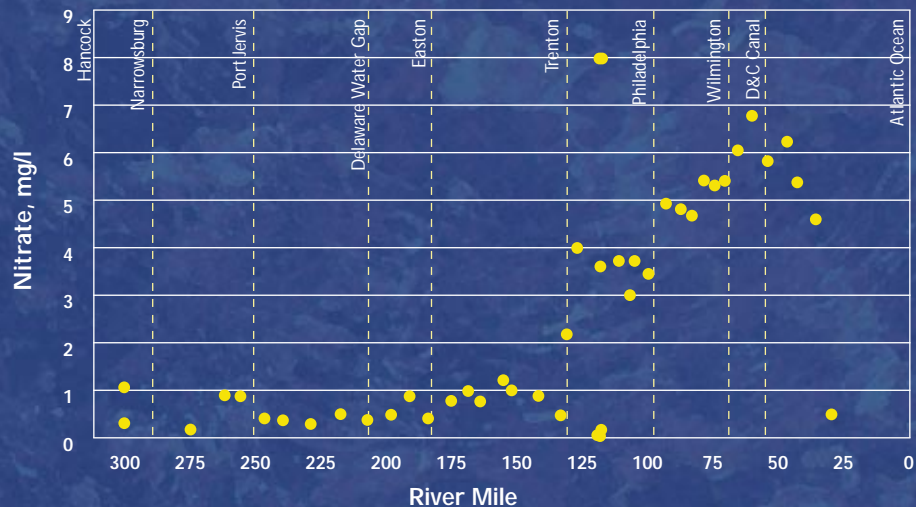
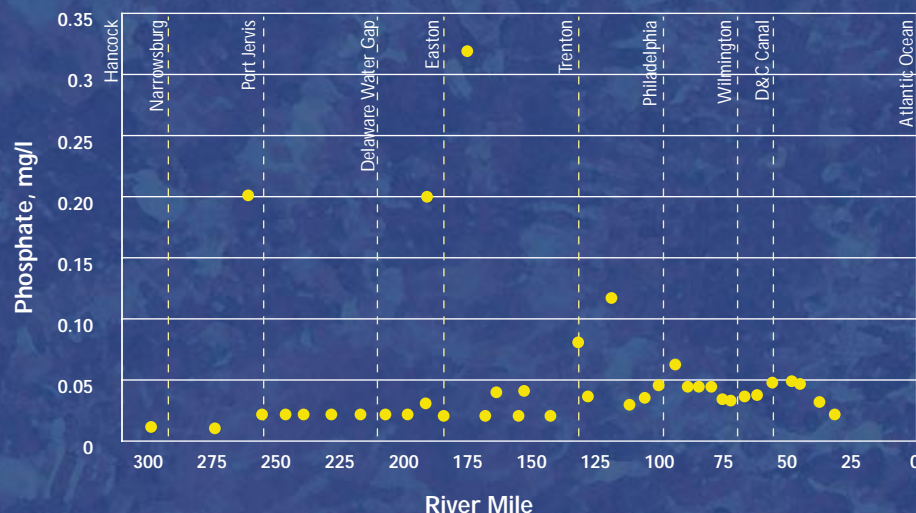
Frequency of pH Values in the Delaware River

Participants determined the pH of the river in 62 samplings, producing a fairly tight range of values along the length of the river, from a low of 6.6 to a high of 8.1 units. There appeared to be no link between the pH values observed and the photosynthetic activity of plants in the nontidal reach (as speculated in *Water Snapshot '97*), nor indications of pollution incidents. As in *Water Snapshot '96*, a slight rise occurred in the bay area.



Distribution of Phosphate Concentrations in the Delaware River

Participants determined the concentration of phosphate in the Delaware River on 39 occasions. Most values were lower than 0.05 mg/l. The nontidal reach produced values around 0.02 mg/l, except for a few that were tenfold higher. Values in the tidal reach were slightly higher at around 0.04, but were lower again down in the bay. Estuary values were two- to threefold lower than in 1997 and five- to tenfold lower than in 1996.



Distribution of Nitrate Concentrations in the Delaware River

During 50 sampling events of the Delaware River in 1998, nitrate concentrations lower than 1.0 mg/l were detected in the nontidal section. However, concentrations downstream of Trenton in the tidal river increased nearly sevenfold in the estuary, before declining in the upper bay. Decreases in nitrate concentrations in the upper section of Delaware Bay (after mile 55) are due to dilution by seawater, as seen in 1996 and 1997.

In the past, ammonia forms of nitrogen dominated the Delaware Estuary. Today, the upgrading of wastewater treatment plants has resulted in a system dominated by nitrate—a good trend. Delran Middle School students recorded the highest (8) and lowest (0) values on successive days while aboard the *A.J. Meerwald* at RM 118.

Visual Assessment Results

At the suggestion of Pennsylvania Department of Environmental Protection staff, the *Water Snapshot '98* planning committee decided to include a new element to the tools used in Water Snapshot. Participants were asked to perform a visual assessment of physical conditions in the stream and stream corridor in seven categories and to rate the water quality according to criteria on the data sheet (see Appendix C).

This new element makes it easier for first-time volunteers to participate, supplements the data produced by traditional water chemistry monitoring methods, and provides insight into the effects of land use on the basin's small streams. The response to its inclusion was positive, and opens up the possibility of volunteer involvement in future long-term stream corridor monitoring studies in the basin. Here's the

picture produced by the visual assessment.

Participants performed the visual assessment during 285 of the sampling events, or on nearly 60 percent of the outings, and 162 different streams were assessed at one or more locations. Three quarters of the streams were rated as Excellent or Good in all seven categories. Twenty-three percent were rated Excellent in the Overall Rating category, and 4 percent as Poor.

Only four streams were rated as Excellent in all categories: Dyberry

Creek, East Br. (1 PA), Frame Cabin Run (Tobyhanna Creek Watershed, 3 PA), Spruce Mt. Run (2 PA), and Tohickon Creek (4 PA). The Schuylkill River at Tuscorora, Pa. (6 PA) received the lowest rating of all streams, with 4 Poor and 3 Marginal scores. The Schuylkill River Greenway Association noted the presence of a pipe discharging raw sewage at the site and gray-colored stream water ... yet a small trout and a wood duck nest were in the same area!

The visual assessment proved to be a very effective tool and raises the possibility of citizens making important future contributions to



Students from Pond Road School test the waters and review the data they recorded.



studies of our stream corridors. For example, volunteers might be asked to keep records of periodic measurements of the distance between a stream and special survey stakes.

The DRBC would also like Water Snapshot participants to track down photos showing a known stream as it appeared in the past. The older the picture, the better. Old deeds showing the center line of a stream are also welcome. For now, we're just asking you to be on the lookout for these "real" photos. This activity is at a very early stage of development. We'll provide details as soon as we develop it further.

RIGHT: A moment of hilarity is shared by DRBC staffers Anne Zamonski, Pamela Merritt, and one of Water Snapshot's creators, Richard Albert, as *Water Snapshot '98* co-author Susan Weisman dons her huge yellow boots to step into the Delaware River at Milford Beach, Pa.



BELOW, RIGHT: Ann Schnur uses a kick net to identify macroinvertebrates in Ontelaunee (Maiden) Creek, south of Mosserville, Pa., in Lehigh County. Visual assessment of the stream 50 yards upstream and 50 yards downstream of the site yielded Excellent ratings on instream cover (habitat for fish and aquatic organisms), fine-particle sediments (rocks in the stream are not surrounded by fine sediments), and flow patterns (four velocity/depth patterns present). However, other factors lowered the overall rating to Good: condition of banks and coverage (some small areas of erosion, mostly healed over), some disruption to the streambank, and some litter. (Photo: J. Snidisky, Schuylkill River Greenway Association)



Results of the Visual Assessment (*% of streams assessed*)

One of the results from the negative side of the visual assessment is the fact that 41 percent of the streams analyzed received Marginal or Poor ratings due to the narrowness of the vegetated riparian zone. On the positive side, 82 percent of the streams have Good or Excellent habitat for aquatic biota (instream cover), and 77 percent received Good or Excellent ratings for the absence of litter.

Sampling Category	Excellent	Good	Marginal	Poor	Total
Instream Cover	37	45	13	5	100
Fine Sediment	23	53	12	12	100
Flow Patterns	25	35	29	11	100
Bank Condition	27	57	12	4	100
Disruption of Riparian Zone	33	47	14	6	100
Width of Riparian Zone	24	35	26	15	100
Litter	33	44	19	4	100
OVERALL RATING	23	55	18	4	100

All the data are in. Water Snapshot '98 has been developed, and the image is clear: The public's interest in monitoring water quality in the Delaware Basin continues to grow, and the quality of the water throughout most of the basin is very good overall.

Our many thanks to all Water Snapshot participants. We look forward to your future involvement in producing report cards on the health of the Delaware River and the waterways in its drainage area.





Appendix A

APPENDIX A WATER SNAPSHOT '98 DATA

Sub-basin	Stream/lake	Location	Organization or Individual	Date	Air Temp (°C)	H2O Temp (°C)	pH (units)	Dissolved Oxygen (mg/l)	Phosphate (mg/l)	Nitrate (mg/l)	VISUAL ASSESSMENT							
											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
1 NY	Batavia Kill	Denver, NY	Margaretville Central School	4/27	7.0	6	7	12.0	0.3		E	E	E	E	G	P	E	G
1 NY	Beaver Brook	Rte. 97 Bridge	National Park Service - Upper Delaware	4/22	22.0	11.8	6.7	10.4	<.01	<.02	G	G	G	G	G	M	G	G
1 NY	Binnekil River	Bridge St. Bridge	Margaretville Central School	4/26	26.0	17	6.5	5.8			M	G	P	P	P	P	M	P
1 NY	Bushkill	Fleischmanns, NY near Depot St.	Margaretville Central School	4/27	16.0	7	6.8	10.2			E	E	G	G	E	E	G	E
1 NY	Bushkill - Lake Switzerland	Waterfall at Dam	Margaretville Central School	4/27	0.0	5	6.5	9.0		0.1								
1 NY	Delaware River	RM277 At Roebling Bridge	Eagle Institute - Mackenzie Elementary School	4/24	32.0	10	7	10.0										
1 NY	Delaware River	RM274 Barryville Bridge	National Park Service - Upper Delaware	4/22	22.0	10.6	7.5	11.0	<.01	0.2	G	G	M	E	E	G	G	G
1 NY	Delaware River	RM261 Confluence of Mongaup River	Eagle Institute - Mackenzie Elementary School	4/22	21.8	9.8	7		>0.2	>.88								
1 NY	Dry Brook	Arkville, NY	Margaretville Central School	4/27	17.0	5	6.5	11.0			G	G	G	E	G	G	E	G
1 NY	East Br. Delaware R. trib.	Bridge at Post Office, Margaretville	Margaretville Elementary School	4/16	22.0	10	5.5	10.1		<.01	E	E	E	E	E	G		G
1 NY	East Br. Delaware R. trib.	Denver Vega Rd.	Margaretville Central School	4/27	10.0	4	7	12.0			E	E	P	M	P	P	E	M
1 NY	Halfway Brook	Brook Rd. Barryville by Rt. 55	Eagle Institute - Mackenzie Elementary School	4/22	21.0	10.2	6		0.2	>.44								
1 NY	Huckleberry Brook	Old Fish Hatchery	Margaretville Central School	4/26	12.0	5	6.5	10.5			E	E	M	G	E	G	E	G
1 NY	Millbrook	Where Millbrook meets Delaware @ Pond Eddy Bridge	Eagle Institute - Mackenzie Elementary School	4/25	12.0	6	7	11.0										
1 NY	Rider Hollow Stream	Hardenburgh, NY	Margaretville Central School	4/27	9.0	6	6.5	13.0			G	G	M	P	P	P	E	G
1 NY	Ten Mile River	.2 miles upstream from mouth of Ten Mile River	National Park Service - Upper Delaware	4/22	17.0	9.8	6.5	10.9	0	0.1	G	E	E	E	E	M	E	E
1 NY	Vly Creek	Halcott, NY	Margaretville Central School	4/27	13.0	14	7.4	8.8	0.044	1.2	G	G	E	M	G	G	E	G
1 NY	West Branch Delaware River	South Kortright Central School	South Kortright Central School	4/17	15.6	11.1	7	9.0		<1	E	G	G	G	G	G	G	G
1 NY	West Branch Delaware River	1 mile N. of covered bridge on Rt. 10 Delhi, NY	Joan C. Fredericks	4/17	15.6						P		G	G	E	G	G	G
1 NY	West Branch Delaware River	20 miles below source, Delhi, NY	Joan C. Fredericks	4/21	11.1						P		P	G/M	G/M	G	E	G

Note: A few data sheets were received with data collected well after (and before) the dates for Water Snapshot. The data is included for information, but could not be used in the analysis.

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Sub-basin	Stream/lake	Location	Organization or Individual	Date	Air Temp (°C)	H2O Temp (°C)	pH (units)	Dissolved Oxygen (mg/l)	Phosphate (mg/l)	Nitrate (mg/l)	VISUAL ASSESSMENT (E=Excellent, G=Good, M=Marginal, P=Poor)							
											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
1 NY	West Branch Delaware River	1mile N. of covered bridge on Rt.10 Delhi, NY	Joan C. Fredericks	4/23	15.6						G	G	E	G	G/M			
1 NY	West Branch Delaware River	1mile N. of covered bridge on Rt.10 Delhi, NY	Joan C. Fredericks	4/26	22.2						G	G	E	G/M	G	G	G	G
1 PA	Calkins Creek	100 m downstream of River Road Bridge	National Park Service - Upper Delaware	4/22	15.0	8.4	7.7	11.4	0.02	0.2	G	G	M	G	G	M	G	E
1 PA	Delaware River	RM299 Damascus, PA	Department of Environmental Protection	4/23	15.0	11	7.6	9.0	0.01	1.1	G	E	E	G	G	G	E	G
1 PA	Delaware River	RM255 Rt. 209 and 6 Bridge	Department of Environmental Protection	4/22	15.0	11.5	6.8	10.8	0.062	0.8	G	E	G	G	G	M	M	G
1 PA	Delaware River	RM299 Bridge on PA Rte. 371	National Park Service - Upper Delaware	4/22	15.0	18	7.4	11.1	<.01	0.3	G	G	M	G	G	G	G	G
1 PA	Delaware River	RM246 Milford Beach	Delaware River Basin Commission	4/23	17.0	11	7.4	10.5	<.02	0.4								
1 PA	Dyberry Creek - East Branch	Gameland Parking Lot on 4009	Department of Environmental Protection	4/23	15.0	9	7.6	10.5	0.06	0.6	E	E	E	E	E	E	E	E
1 PA	Hemlock Lake	Little Camp Beach - North Side	Hemlock Farm Lake Watch	4/18	5.6	12	7	10.4	0.58	0.0								
1 PA	Lackawaxen River	Rte. 509 Bridge	National Park Service - Upper Delaware	4/22	20.0	11	7.4	11.5	<.01	0.1	G	G	E	G	G	M	G	G
1 PA	Lackawaxen River	Rt. 590 Bridge	Department of Environmental Protection	4/22	14.0	10.5	6.8	11.0	0.06	0.4	E	E	E	G	G	M	M	G
1 PA	Pleasant Mount Fish Culture Station	Pleasant Mount Hatchery effluent to Lackawaxen River	Pennsylvania Fish and Boat Commission	4/20	12.8	9.4	7	10.8	0.29	0.0								
1 PA	Wallenpaupack Creek	Twp. Road T353 Bridge	Department of Environmental Protection	4/22	17.0	11.5	6.5	10.8	0.03	0.5	E	E	E	E	E	E	G	E
1 PA	West Branch Delaware River	Bridge on Route 191	Department of Environmental Protection	4/23	16.0	10	7.4	11.1	0.05	1.7	G	E	E	G	G	G	E	G
2 NJ	Big Flat Brook	Near Waterloo Village	Delaware Riverkeeper	4/25	22.5	13	7.5	11.0	<.2	<.88	E	G	E	G	G	G	G	G
2 NJ	Buttermilk Falls Stream	Sussex, NJ	Delaware River Basin Commission	4/23	17.0	9	7.4	11.6	<.02	0.1	G	E	E	E	M	E	E	E
2 NJ	Delaware River	RM184 Easton/Phillipsburg Bridge	Delaware River Basin Commission	4/22	23.0	11	6.9	13.8	<.02	0.4								
2 NJ	Delaware River	RM198 Belvidere Bridge	Delaware River Basin Commission	4/22	25.0	11	7.4	12.8	<.02	0.4								

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
2 NJ	Flatbrook	Approx. 100 yards South of Walpack Center Bridge	Walpack Valley Environmental Education Center	4/22	16.0	14	7.5	15.0	0	0.0	E	E	G	E	E	G	E	E
2 NJ	Lubber's Run	By bridge on Mansfield Drive	Byram Intermediate School Environment Club	4/21	19.0	17	8.5	11.0			G	M	M	E	E	M	G	G
2 NJ	Musconetcong	Hughesville Bridge (Warren, NJ)	Musconetcong Watershed Assoc. (MWA)	4/11	16.0	10	7.5	10.1		4.4	E	G	G	G	G	E	G	G
2 NJ	Musconetcong River	Last bridge before Delaware River	(MWA)	4/24	15.5	12.5	7.5	10.2	0	8.8								
2 NJ	Musconetcong River	Behind Bloomsbury Water Co.	(MWA)	4/19	12.5	12.5	7.5	9.9		4.4	G	G	P	G	E	G	G	G
2 NJ	Musconetcong River	100 yards from Rt 31 Bridge	(MWA)	4/24	22.2	14	8	10.0		4.4	E	E	G	M	M	M	G	G
2 NJ	Musconetcong River	Near Asbury Bridge	(MWA)	4/18	9.0	12	7.5	10.3			M	M	G	G	G	M	M	M
2 NJ	Musconetcong River	Point Mt. Rd. Bridge, Lebanon, NJ	John P. Brunner, MWA	4/18							E	G	G	G	E	E	E	
2 PA	Brodhead Creek	Rt 191 Bridge	Department of Environmental Protection	4/21	2.2	7.3	6.48	11.8	0.034	0.5	E	G	G	E	G	E	G	G
2 PA	Brodhead Creek	SR2028 Bridge	Department of Environmental Protection	4/21	11.1	9.5	7.44	11.8	0.062	0.9	G	G	G	E	E	G	G	G
2 PA	Brodhead Creek	Stroudsburg Water Authority	Brodhead Watershed Association	4/27	10.0	9	6.5		<.02	0.1								
2 PA	Brodhead Creek	Ahalomink, PA	Brodhead Watershed Association	4/26	7.0	7.5	6.7		<.02	0.2								
2 PA	Brodhead Creek	Behind Analomink Bar	Katharine Korb	4/5	7.0	7.5	6.7		>.5	>.2	E	E	M	E	E	E	E	E
2 PA	Brodhead Creek - Site 234	Above Paradise Creek Confluence	Brodhead Watershed Association	4/30	18.0	10	6.9											
2 PA	Brodhead Creek - Site 320A	Moose Lodge	Brodhead Watershed Association	4/27	11.0	9	6.3		<.02	0.0								
2 PA	Bulger's Creek	Rt. 611 & Bulger's Creek	Brodhead Watershed Association	5/26	24.0	16	6.9		0	0.7	P	G		G	M	M	P	M
2 PA	Bushkill Creek	6th St. & Rt. 22	Easton High School - S.A.V.E.	4/22	19.0	17	8	10.0	0	0.2	G	E	E	G	G	P	M	G
2 PA	Bushkill Creek	1 mile downstream from Tatamy	Muhlenberg College	4/26	21.0	15.3	8.9	15.0	0.1	0.1								G
2 PA	Bushkill Creek	T-523 Bridge	Department of Environmental Protection	4/21	7.5	8.4	7.1	11.4			G	G	G	E	E	E	G	G

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APPENDIX A WATER SNAPSHOT '98 DATA

Sub-basin	Stream/lake	Location	Organization or Individual	Date	Air Temp (°C)	H2O Temp (°C)	pH (units)	Dissolved Oxygen (mg/l)	Phosphate (mg/l)	Nitrate (mg/l)	VISUAL ASSESSMENT							
											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
2 PA	Bushkill Stream	Penn Pump Park	Wilson Area School District - Honors Biology	4/21	21.0	13	8	11.0	0.2	4.4	G	G	M	E	G	M	G	G
2 PA	Bushkill Stream	Main Parking Lot EE Center	Jacobsburg Environmental Education Center	4/19	9.0	12	7	14.0			G	G	G	G	G	M	M	G
2 PA	Cobble Creek	Above bridge	Brodhead Watershed Association	4/17	24.0	12	6.6			0.0	G	G	G	G	G	M	E	G
2 PA	Cobble Creek	Snowlane at Dick Moloney's	Brodhead Watershed Association	4/17	25.5	12	6.6			0.0	G	G	G	G	G	G	E	G
2 PA	Cranberry Run	Finkbeiner	Brodhead Watershed Association	4/17	27.0	14	6.3		0	0.8	G	G	G	G	E	E	E	G
2 PA	Cranberry Run	Fountain Court	Brodhead Watershed Association	4/17	24.5	14	6.25			0.0	E	G	G	G	E	E	E	E
2 PA	Cranberry Run	Halle Rd.	Brodhead Watershed Association	4/26	5.0	8	6.7		<.02	0.0								
2 PA	Cranberry Run	Off Hallet Road	Katherine Korb	4/5	5.0	8	6.7		>.5	0.0	P	M	P	G	E	E	E	M
2 PA	Deep Lake	Pocono Pines	Muhlenberg College	4/27	8.0	11	4.9	10.0	0	0.0								M
2 PA	Delaware River	RM191 Railroad trestle at PP&L Martins Creek Plant	Department of Environmental Protection	4/21	16.5	13.1	7.46	11.0	0.093	0.9	G	G	M	G	G	G	G	G
2 PA	Delaware River	RM191 PP&L Boat Launch, Martins Creek	Pennsylvania Power & Light Co.	4/17	19.0	14.2	7.3	6.6	0.2									
2 PA	Delaware River	RM231 Eshback Boat Launch 8 miles SO of Dingmans	Lenni Lanape Girl Scout Council	4/25	15.0	11.1					E	G	E	G	G	E	G	G
2 PA	Delaware River	RM228 Bushkill Access	Delaware River Basin Commission	4/23	17.0	11	7.4	10.0	<.02	0.3								
2 PA	Delaware River	RM207 Portland/Columbia Foot Bridge	Delaware River Basin Commission	4/22	26.0	11	6.8	11.2	<.02	0.4								
2 PA	Delaware River	RM239 Dingmans Ferry	Delaware River Basin Commission	4/23	13.0	12.4	7.4	10.5	<.02	0.4								
2 PA	Delaware River	RM217 Smithfield Beach	Delaware River Basin Commission	4/23	11.0	11	7.6	9.0	<.02	0.5								
2 PA	Dingman's Creek	50 feet downstream from Nichecronk Pond	YMCA Camp Speers - Eljabar	4/23	17.0		6.6				E	G	E	E	E	E	E	E
2 PA	Dry Run	50 ft. above bridge at Long	Spruce Lake Outdoor School	4/24	18.0	10	6.2		0	0.1	E	E	E	G	E	E	G	E
2 PA	Dry Sawmill Run	Higgins Property	Brodhead Watershed Association	5/26	21.0	16	6.2		0	0.0	M	G	G	G	G	G	E	G

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APPENDIX A WATER SNAPSHOT '98 DATA

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter
2 PA	Engler Creek	.25 mile East of State Park Road	Lower Nazareth Elementary School	4/22	18.0	17	7	9.0	<.2	1.0	E	G	G	E	E	E	E
2 PA	Flagler Run	Across from Olde Mill on Olde Mill Run Rd.	Brodhead Watershed Association	4/23	15.0	10	6.8		0.05	0.2	E	G	M	G	E	G	E
2 PA	Laurel Lake Run	Below Laurel Lake on Laurel Lake Road	Brodhead Watershed Association	4/18	25.0	15	7		0.2	35.2	P	G	P	M	M	P	E
2 PA	Little Bushkill Creek	1 mi. So. of Knittee's Hill Road	Pen Argyl High School	4/19	22.0	13	8.67	10.5		>.1	E	E	E	G	E	E	E
2 PA	Little Pocono Creek	Across street from Perkins at Henderson's	Brodhead Watershed Association	4/5	12.0	7.5	7.2		0	0.0	G	G	G	E	G	G	G
2 PA	McMichael Creek	Below Turkey Hill Road	Brodhead Watershed Association	4/27	21.0	12	7		>.02	0.1	G	G	E	E	G	G	E
2 PA	McMichael Creek - Site 1	McMichael, PA	Pohoqualine Fish Association	4/23	14.0	9	6.65		<.02	0.1	E	G	E	E	G	G	E
2 PA	McMichael Creek - Site 11	McInhaney Rd.	Pohoqualine Fish Association	4/23	12.0	10	6.76		<.02	0.3	E	G	G	G	M	G	G
2 PA	McMichael Creek - Site 12	Greenview Rd.	Pohoqualine Fish Association	4/23	12.5	10.5	6.84		<.02	0.3	E	G	G	G	G	M	G
2 PA	McMichael Creek - Site 4	Fish Hatchery Inlet	Pohoqualine Fish Association	4/23	14.0	9	6.45		<.02	0.1	E	G	E	E	E	E	E
2 PA	McMichael Creek - Site 7	Old Camp Alice Rd.	Pohoqualine Fish Association	4/23	14.0	9	6.49		<.02	0.2	E	G	G	E	G	G	G
2 PA	Middle Branch	20 ft. upstream from confluence with Spruce Mtn. Run	Spruce Lake Outdoor School	4/24	6.0	7	6.6		0	0.1	E	E	E	G	G	G	G
2 PA	Mill Run	Mill Road	Brodhead Watershed Association	4/17	26.0	10	6.15			0.0	G	M	P	G	M	P	E
2 PA	Old Mill McMichaels	Rt. 209 Monroe, PA	Jackie Roth	5/5	26.0	17	7.8				G	G	E	G	G	G	E
2 PA	Paradise Creek - Site 23D	Hulbert Hill Bridge	Brodhead Watershed Association	4/14		9			>.02	0.9							
2 PA	Paradise Creek - Site 233	Rt. 191 Tunnel	Brodhead Watershed Association	4/30	17.5	10.5	6.9										
2 PA	Pocono Creek	Behind Clark's Funeral Home Stroudsburg	Brodhead Watershed Association	4/5	12.0	7	7.2		0	0.0	G	G	M	E	E	G	E
2 PA	Pocono Creek	Off Wilke Rd. turnaround	Brodhead Watershed Association	4/26	21.0	15	6.4		0	0.1	E	G	M	G	E	E	E

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APPENDIX A WATER SNAPSHOT '98 DATA

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
2 PA	Pocono Creek	Behind "Village Store"	Brodhead Watershed Association	5/26	24.0	16	6.8		0	0.4	E	G	E	G	G	E	E	
2 PA	Pocono Creek	Bridge over Rum Rock Dr.	Brodhead Watershed Association	5/26	25.5	17	6.9		0	0.7	G	G	G	G	G	M	G	G
2 PA	Pocono Creek	At confluence with Pocono	Brodhead Watershed Association	4/18	25.0	12	7		0.2	35.2	G	G	E	G	E	G	E	E
2 PA	Pocono Creek	Below Monroe Cty Vo-Tech	Brodhead Watershed Association	4/18	25.0	13	7		0.2	35.2	G	G	E	G	E	E	E	E
2 PA	Pocono Creek	Mill Road	Brodhead Watershed Association	4/17	23.0	12.5	6.75			0.0	G	M	G	G	M	M	E	G
2 PA	Pocono Creek	Next to Billie's Diner - Rte. 611	Brodhead Watershed Association	4/17	24.0	12	6.9			0.0	G	G	G	G	G	M	G	G
2 PA	Pocono Creek	Scotrun Post Office	Brodhead Watershed Association	4/17	19.5	12	6.85			0.0	G	G	G	G	G	M	E	G
2 PA	Pocono Creek	200' upstream of Forest Lane	Tobyhanna Creek Watershed Association	4/18	16.0	14	6.4			1.0	G	G	M	G	E	E	E	G
2 PA	Pocono Creek	50' downstream of Hemlock Lane	Tobyhanna Creek Watershed Association	4/18	17.0	14	6.3			<.22	G	G	M	E	G	G	E	G
2 PA	Sambo East Branch	Upstream of bridge on North side of L. Valhalla	Brodhead Watershed Assoc.	4/26	8.0	12	7.3		0	0.0	G	G	M	G	G	M	G	G
2 PA	Sambo East Branch	150 yards upstream of Fawn Road Bridge	Brodhead Watershed Assoc.	4/26	6.0	11	7.2		0.24	0.0	G	G	M	G	E	M	E	G
2 PA	Sambo Headwaters	300 yards upstream of E. Stroudsbrug Reservoir	Brodhead Watershed Assoc.	4/26	7.0	8	6.4		0.2	0.0	G	G	M	G	G	G	E	G
2 PA	Sambo Lower Stem	Bridge west of Berwick Hts. Off Maple St.	Brodhead Watershed Assoc.	4/26	8.0	10	7.15		0.25	0.0	E	G	E	G	G	G	E	E
2 PA	Sambo Main Branch	225 yards below bridge (Fawn Road)	Brodhead Watershed Assoc.	4/26	8.0	12	6.85		0.14	0.0	E	E	G	G	G	E	E	E
2 PA	Sambo Middle, Main Stream	Bridge off Fawn Road	Brodhead Watershed Assoc.	4/26	9.0	11	6.85		0.2	0.0	E	G	G	G	M	M	G	G
2 PA	Site #523 Carey in Saylorburg	Behind Saylor's Lake	Brodhead Watershed Association	4/17	16.0	14	7		2	0.3	P	M	M	M	P	M	G	M
2 PA	Sober's Run	Belfast Rd. Bridge	Jacobsburg State Park	4/22	22.0	15	7	10.8		8.8	G	G	G	E	E	E	G	G
2 PA	Spruce Cabin Runcheck	Rt. 447 above bridge below Prices Pond	Brodhead Watershed Association	4/8	13.9	8.33	6.75				E	G	E	G	E	G	G	E

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
2 PA	Spruce Mountain Run	50 ft. upstream of Rt.447 at culvert pipe	Spruce Lake Outdoor School	4/25	6.0	7	6.4		0.1	0.1	E	E	E	E	E	E	E	
2 PA	Stoney Mud Run Creek	Rt. 447 @ bridge, Our site #121	Brodhead Watershed Association	4/8	13.9	8.89	6.25				E	E	E	E	E	G	E	
2 PA	Vandermark Creek	Milford	Delaware Valley HS Environmental Club	4/22	22.5	11.7	6.5	10.7	0	0.0	G	E	P	E	G	G	E	E
3 PA	Beaver Run	200 meters downstream from Packerton Dam Spillway	RSVP of Lehigh,Northampton&Carbon Counties	4/25	19.0	11	7.1	11.0	0.04	1.6	G	P	M	M	G	M	M	M
3 PA	Black Creek	5-1/2 miles upstream of Glen Onoko	Wildlands Conservancy/Parkland H.S.	4/26		9.01	4.93	11.2										
3 PA	Black River Run	20 meters upstream of Bridge crossing on Black River Rd.	Saucon Valley High School Ecology Class	4/24	21.5	13	7.2	9.9	0.02	0.3								
3 PA	Black River Run	10 meters downstream of bridge over Creek Road	Saucon Valley High School Ecology Class	4/24	16.5	11	6.8	11.4	0.35	0.1								
3 PA	Black River Run	Downstream of outflow channel South of I-78 overpass	Saucon Valley High School Ecology Class	4/24	17.0	11	7.7	9.2	0.6	0.7								
3 PA	Burk Mountain Creek	12 miles North of Glen Onoko	Wildlands Conservancy/Parkland H.S.	4/26		8.15	4.77	11.2										
3 PA	Dotters Run	100' upstream of Stillwater Lake	Tobyhanna Creek Watershed Association	4/18	16.0	12	5.8			<.22	E	G	G	E	E	G	E	E
3 PA	Frame Cabin Run	Just before confluence with Tobyhanna Creek	Tobyhanna Creek Watershed Association	4/18	18.0	12				<.22	E	E	E	E	E	E	E	E
3 PA	Germantown Creek/Ruddle's Run	Behind Jim Thorpe High School	Jim Thorpe Area High School	4/22	15.0	5	6	9.0	0.5	0.0	G	G	M	G	E	G	M	G
3 PA	Hawkey Run	100' upstream of Forest Lane	Tobyhanna Creek Watershed Association	4/18	14.0	12	6.2			1.5	E	G	G	E	E	E	G	E
3 PA	Hummeler Run	7090; NE Exit 7 Interstate 380	Tobyhanna Army Dept	4/23	10.0	15	7.06	8.8	0.4	7.0	G	G	G	G	G	G	G	G
3 PA	Hummeler Run /Tobyhanna Creek	1 mi. West Exit 7 Interstate 380	Tobyhanna Army Dept	4/23	20.0	13	7.48	8.6	0.05	3.0	E	G	G	E	E	E	E	E
3 PA	Jordan Creek	Martin Luther King Drive Bridge	Department of Environmental Protection	4/21	12.0	11.3	7.82	9.4	0.093	12.2	M	M	G	G	M	P	M	M
3 PA	Jordan Creek	1/4 mile from school	Allentown Central Catholic	5/20	22.0	19	8	11.5	<.25	<.2	G	G	M	M	M	G	P	G/M
3 PA	Kistler Run	50' upstream of Rt. 423	Tobyhanna Creek Watershed Association	4/19	7.0	5				<.22	M	M	M	M	E	E	M	M

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
3 PA	Lausanne Tunnel	Upstream from Jim Thorpe Train Station at discharge	Wildlands Conservancy/Parkland H.S.	4/26		11.83	6.05	5.2										
3 PA	Lehigh River	Allentown	L.V. Telephone Pioneers	4/23	10.0	11	7.5	10.1	0	0.4	G			E	E	M	M	M
3 PA	Lehigh River	Treichler's Bridge	Department of Environmental Protection	4/21	10.0	8.7	7.2	9.7	0.02	0.5	G	G	M	G	G	M	G	G
3 PA	Lehigh River	Rt. 115 Bridge	Department of Environmental Protection	4/21	10.0	8	6.2	11.3	0.03	0.3	E	E	E	E	E	G	G	E
3 PA	Lehigh River	Glendon Bidge	Department of Environmental Protection	4/21	13.0	10.5	7.55	9.6	0.05	0.9	G	G	G	G	G	M	G	G
3 PA	Lehigh River	50 meters upstream of confluence with Saucon Creek	Saucon Valley High School Ecology Class	4/23	14.0	13.3	6.8	10.0	0.73	1.1								
3 PA	Lehigh River	Northampton Boro Municipal Authority	Parkland High Sch./Lehigh River Watch	4/20		10.48	7.08	10.8										
3 PA	Lehigh River	.8 miles downstream from Sandy Run	Wildlands Conservancy/Parkland H.S.	4/26		10.045	6.16	10.6										
3 PA	Lehigh River	At discharge from Francis E. Walter Dam	Wildlands Conservancy/Parkland H.S.	4/26		10.81	6.09	10.6										
3 PA	Lehigh River	Below Buck Mountain Creek	Wildlands Conservancy/Parkland H.S.	4/26		9.94	6.11	10.9										
3 PA	Lehigh River	left bank 190ft. Downstream from bridge at East Weissport	Wildlands Conservancy/Parkland H.S.	4/26		11.27	6.6	10.2										
3 PA	Lehigh River	7.8 miles upstream at boat launching ramp	Telephone Pioneers	4/22	13.0	12	6.5	10.0	<.2	4.4	G	M	M	G	E	M	M	M
3 PA	Little Lehigh Creek	Pool Wildlife Sanctuary	Wildlands Conservancy/Emmaus High School	4/24		14	7.5	11.2	0.02	20.2								
3 PA	Lizard Creek	Ashfield Bridge	RSVP of Lehigh, Northampton & Carbon Counties	4/26	14.0	8	7.1	11.0	0.1	0.4	G	G	G	G	G	M	E	G
3 PA	Mahoning Creek	100 Yds. South of Ashtown Road Bridge	RSVP of Lehigh, Northampton & Carbon Counties	4/21	21.0	11	6.8	12.0	0.1	0.3	G	G	G	G	G	M	E	G
3 PA	Nesquehoning Creek	Next to Amtel Industries	RSVP of Lehigh, Northampton & Carbon Counties	4/22	23.0	12	6.3	11.0	0	0.1	E	G	E	G	M	P	M	M

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
3 PA	Nesquehoning Creek	Upstream of Jim Thorpe train station	Wildlands Conservancy/Parkland H.S.	4/26		10.58	6.22	10.1										
3 PA	Polk Valley Run	15 meters upstream of Saucon Reservoir Bridge	Saucon Valley High School Ecology Class	4/21	18.5	11.9	6.9	9.4	0.02	0.5								
3 PA	Polk Valley Run	Downstream side of Rt. 412 Bridge	Saucon Valley High School Ecology Class	4/21	15.0	11.2	7.3	9.8	0.03	0.9								
3 PA	Polk Valley Run	At Herman's Farm on Polk Valley Road	Saucon Valley High School Ecology Class	4/21	17.5	10.4	7.3	8.2	0.04	0.0								
3 PA	Polk Valley Run	20 meters downstream of Silver Creek Road	Saucon Valley High School Ecology Class	4/21	20.0	11.2	6.5	9.0	0.04	2.4								
3 PA	Sandy Run	.6 miles North of Hickory Run - at bridge	Wildlands Conservancy/Parkland H.S.	4/26		8.83	4.51	10.7										
3 PA	Saucon	Bethlehem	RSVP of Lehigh, Northampton & Carbon Counties	4/24	4.4	17	8.2	13.0	0.1	0.2	E	E	E	G	E	E	E	E
3 PA	Saucon Creek	100 meters upstream from confluence w/Lehigh River	Saucon Valley High School Ecology Class	4/23	14.0	12.4	7.1	11.3	0	1.1								
3 PA	Saucon Creek	20 meters North of bridge on Water Street	Saucon Valley High School Ecology Class	4/23	14.0	12	7.8	10.3	0.11	1.0								
3 PA	Saucon Creek	20 meters upstream of bridge at Meadows Road	Saucon Valley High School Ecology Class	4/23	14.0	12	7.8	9.3	0.12	1.0								
3 PA	Schoeneck Creek	NHS Footbridge	Shafer School	4/30	23.0	18	8.5				G	G		M	P	P	M	M
3 PA	Silver Creek	10 meters upstream of bridge on Reservoir Road	Saucon Valley High School Ecology Class	4/22	23.0	12.9	6.9	9.3	0.01	0.4								
3 PA	Silver Creek	Pavilion/picnic area across from Lost River Caverns	Saucon Valley High School Ecology Class	4/22	16.0	11	7.5	9.9	0.02	0.2								
3 PA	Silver Creek	5 meters upstream of Bridge on Petran Lane	Saucon Valley High School Ecology Class	4/22	23.0	13.1	7	9.1	0.05	0.3								
3 PA	Silver Creek	20 yards upstream from confluence with Saucon Creek	Saucon Valley High School Ecology Class	4/22	13.0	10.8	7.7	10.4	0.06	1.1								
3 PA	Tobyhanna Creek	Route 940 Bridge	Department of Environmental Protection	4/21	13.0	10	5.9	11.0	0.03	0.4	E	E	E	E	G	G	G	E
3 PA	Tobyhanna Creek (toby04)	1500' South of Tranco Pipeline	Tobyhanna Creek Watershed Association	4/18	10.0	5.6	6.1			0.1	G	G	G	G	E	E	E	G
3 PA	Tobyhanna Creek (toby05)	300' East of Rt 115 Bridge	Tobyhanna Creek Watershed Association	4/18	10.0	5.6	6.2		0.032	0.1	G	G	G	G	E	E	E	G

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
3 PA	Trout Creek	Salisbury Twp.	Cheryl A. Petrakovich	4/22	16.7		7	10.0			E	E	M	G	E	G	G	E
3 PA	Tunkhannock Creek	50' upstream of bridge on Long Pond Rd.	Tobyhanna Creek Watershed Association	4/21	19.0	11.2	5.5	8.2		<.22	G	G	G	E	E	E	G	G
3 PA	Tunkhannock Creek	100' below Long Pond Road at Richards Drive	Tobyhanna Creek Watershed Association	4/21	18.0	12.8	4.7	9.1		<.22	G	M	M	G	G	G	G	G
3 PA	Tunkhannock Creek	100' above bridge on Rt. 115	Tobyhanna Creek Watershed Association	4/21	19.0	10.2	5.2	8.9	<.03	0.3	E	G	M	E	E	E	E	E
3 PA	Upper Tunkhannock Creek	Downstream of Tanglewood Dr.	Tobyhanna Creek Watershed Association	4/18	8.0	9				0.4	G	G	M	G	G	M	E	G
3 PA	Upper Tunkhannock Creek	50' below Millers Drive	Tobyhanna Creek Watershed Association	4/19	7.0	7				0.5	E	E	E	G	G	M	G	G
3 PA	Upper Tunkhannock Creek	Hamlock Road before Lake Naomi	Tobyhanna Creek Watershed Association	4/18	12.0	12				1.6	M	P	P	M		M	G	M
3 PA	Wagner Run	50' downstream of No. Shore Rd.	Tobyhanna Creek Watershed Association	4/18	8.9	9	5.5	11.0		0.2	G	G	M	E	E	E	E	G
3 PA	Wolf Spring Run	200' downstream of So. Shore Rd.	Tobyhanna Creek Watershed Association	4/18	11.0	6.5	5.7	11.6		0.4	G	G	M	E	E	E	E	E
4 NJ	Delaware River	RM184 Frenchtown/Black Eddy Bridge	Delaware River Basin Commission	4/21	23.5	12	7.6	12.0	0.04	0.8								
4 NJ	Delaware River	RM152 Stockton Bridge	Delaware River Basin Commission	4/21		12	7.7	13.5	0.04	1.0								
4 NJ	Delaware River	RM175 Riegelsville	Delaware River Basin Commission	4/22	21.0	11	7.8	11.5	0.32	0.8								
4 NJ	Delaware River	RM142 Washington Crossing Bridge	Delaware River Basin Commission	4/21	21.5	12	7.6	12.6	<.02	0.9								
4 NJ	Delaware River	RM168 Milford Bridge	Delaware River Basin Commission	4/22	20.0	12.4	7.8	10.5	<.02	1.0								
4 NJ	Delaware River	RM155 Bulls Island	Delaware River Basin Commission	4/21	29.0	12	7.8	11.0	<.02	1.2								
4 NJ	Gold Run	Bridge on Lower Ferry Road by Golf Course	Delaware River Basin Commission	4/21	27.0	14	7.8	13.0	0.13	0.5	G	G	P	G	P	P	M	M
4 NJ	Hakihokaki	Rt.519 Jimmy's Custard Stand	Holland Twp. School	4/29	24.0	14	7	9.0	4	None	G	E	E	G	G	M	G	G
4 NJ	Jacobs Creek	Bear Tavern Bridge	Washington Crossing Audubon Society	4/22	20.0	15	9		<0.2	2.8	E	M	M	G	G	G	M	G

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
4 NJ	West Portal Brook	Behind the Hoppock Middle School	Ethel Hoppock Middle School	4/24	18.0	11	7.5	9.8		2.2	G	G	E	G	G	G		
4 PA	Cooks Creek	Bridge North of Pleasant Valley Mill	Cooks Creek Watershed Association	4/26	8.0	10.5	7.5	10.6	<.2	4.4	E	E	G	G	G	G	E	E/G
4 PA	Cook's Creek	30' West of bridge crossing Cook's Creek	Cook's Creek Watershed Association	4/17	18.0	13	7.5	10.7	<0.2	4.4	E	G	E	G	G	G	G	G
4 PA	Delaware Estuary	RM133 Morrisville below RR bridge	USEPA, Region III	4/22	20.5	11.7	7.41	10.1										
4 PA	Swamp Creek	86' from Erwinna Covered	Tinicum Conservancy	4/28	17.8	13	5	9.8	<0.2	<0.2	E	E	E	M	M	M	E	G
4 PA	Tinicum Creek	1/4 mil. from Western terminus of Lily Valley Rd.	Tinicum Conservancy	4/18	15.0	11	5.5	10 pp	<0.2	**	E	E	E	E	E	G	E	E
4 PA	Tinicum Creek	1/4 mile from intersection @ Headquarters Road	Tinicum Conservancy	4/25	18.5	16.5	5.5	10 pp	0.2 pp	.2 pp	E	E	G	G	E	G	E	E
4 PA	Tohickon Creek	State Park Road Pipersville, PA	Tinicum Conservancy	4/18	17.0	13	5.5	>10	0.55	0.2	E	E	E	E	E	E	E	E
4 PA	Tohickon Creek	Stover State Park above walking bridge	Tinicum Conservancy	4/18	18.0	15	5.5				E	E	E	G	G	G	G	E
4 PA	Tohickon Creek	300' East of Stover-Myer Mill	Tinicum Conservancy	4/25	13.0	14	5.5	11.0	<.2	<.2	E	E	E	E	G	G	E	E
5a PA	Bartram's Garden Wetland	Newly built 2 acre tidal wetland	J. Bartram High School	4/26	12.0	11	7.5	15.0	0	0.0	M	M	P	G	G	G	M	M
5a PA	Cobbs Creek	Edge of 63rd St. and Cobbs Creek Pkwy	Philadelphia Youth Build Charter School	4/23	18.0	13	8	6.0	0	0.0	M	P	M	M	G	G	P	M
5a PA	Delaware River	RM111 Torresdale	DNREC	4/21	14.0	14	7.7	8.6	0.028	3.7								
5a PA	Delaware River	RM105 Betsy Ross Bridge	DNREC	4/21	14.0	14	7.4	8.4	0.035	3.7								
5a PA	Delaware River	RM100 Ben Franklin Bridge	DNREC	4/21	14.0	14	7.6	8.5	0.045	3.4								
5a PA	Delaware River	RM93 Navy Yard	DNREC	4/21	14.0	14	7.6	8.6	0.06	4.9								
5a PA	Delaware River	RM118 Burlington-Bristol Bridge	DNREC	4/21	14.0	14	7.6	8.9	0.117	3.6								
5a PA	Delaware River	RM119 Bristol, PA	Delaware Bay Schooner Project	4/22	14.5	12	7	7.8		0.0								
5a PA	Delaware River	RM119 Bristol Wharf Area	Delaware Bay Schooner Project	4/22	15.0	14	7	9.0		0.0								
5a PA	Delaware River	RM119 Bristol, PA	Delaware Bay Schooner Project	4/21	23.0	13.5		8.5		0.0								

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter
5a PA	Delaware River	RM133 Trenton Avenue Bridge - Morrisville	Pennsylvania DEP	4/22		15	7.12	9.4		0.5							
5a PA	Delaware River	RM119 Purex Plant Bristol, PA	Delaware Bay Schooner Project	4/21	15.0	13		7.0		8.0							
5a PA	Delaware River	RM103 State Road & Linden Ave.	Philadelphia Water Dept.	4/23	12.7		7.3										
5a PA	Lake in Franklin Roosevelt Park	Roosevelt Park in South Philadelphia	Philadelphia Youth Build Charter School	4/26	12.0	9	9	4.0	1	2.0	P	E	P	P	P	P	P
5a PA	Little Neshaminy Creek	Sacketts Ford Road	Philadelphia Suburban Water Co.	4/21	20.0	13.5	7.6	11.0	2.2	15.0							
5a PA	Martins Creek	Borders Park behind Tullytown Borough Hall	Delaware Riverkeeper Network	4/17	17.0	15.5	7	7.8	0.2	4.4	G	E	G	G	G	G	G
5a PA	Mill Creek	Creek Road at old Montessori School	Delaware Riverkeeper Network	4/24	22.0	15.5	8	12.1	0.2	8.8	E	G	E	G	G	G	E
5a PA	Mill Creek	Stump Bridge Road	Philadelphia Suburban Water Co.	4/21	18.0	12	7.2	11.0	2.23	7.9							
5a PA	Monoshone Creek	At Rittenhouse Town Historic Landmark	Philadelphia Youth Build Charter School	4/17	17.0	15	7	13.0	0.2	2.0	E	G	G	G			G
5a PA	Neshaminy Creek	Route 263 & Valley Road	Delaware Riverkeeper Network	4/20	10.5	13	7.5	9.4	0	6.2							
5a PA	Neshaminy Creek	Rushland Road	Philadelphia Suburban Water Co.	4/21	21.0	14	8.2	11.0	0.62	7.0							
5a PA	Neshaminy Creek	Bridge at border between Richboro & Wrightstown	Neshaminy H.S./Environ. Science Class	4/21	13.0	12	7.2	8.0		2.6	E	G	G	G	G	G	G
5a PA	Neshaminy Creek	Stone Arch Bridge @ canoe landing - Rt.263 & Valley Rd.	Delaware Riverkeeper Network	4/20	10.5	13	7.5	9.4		6.2							
5a PA	Neshaminy Creek	New Britain Park off Matthews Ave.	Delaware Riverkeeper Network	4/20	14.5	13	7.5	11.0		7.0							
5a PA	Neshaminy Creek	Playwicki Park	Charles Boehm Middle School	4/20	15.5	8	5.5	8.0	<.2	0.2	E	G	P	M	E	E	G
5a PA	Neshaminy Creek	Neshaminy State Park	Charles Boehm Middle School	4/20	13.0	9	5	7.0	<.2	0.3	E	G	M	G	E	E	P
5a PA	Neshaminy Creek - North Branch	Rt. 313	North Penn Water Authority	4/23	21.0	15	9	15.4	0.05	0.5	G	G	G	G	G	G	G
5a PA	Neshaminy Creek - North Branch	Old Easton Road	North Penn Water Authority	4/23	21.0	14	7.7	9.8	0.07	0.4	M	M	M	P	M	P	G

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	
5a PA	Neshaminy Creek - North Branch	Callowhill Road	North Penn Water Authority	4/23	21.0	11	7.6	12.2	0.08	0.6	G	G	G	G	G	G	G	G
5a PA	Pennypack Creek	Above waterfall at Veree Road	Little Flower High School	4/24		14	5		0.2		E	E	G	G	G	G	G	G
5a PA	Pennypack Creek	Veree Road Bridge	Little Flower High School	4/24		12	6		0.2		E	E	G	G	G	G	G	G
5a PA	Pennypack Creek	Frankford Ave.	Philadelphia Water Dept.	4/23	12.7		7.9	10.3	0.34	2.9	G	G	M	G	G	G	G	G
5a PA	Pennypack Creek	Lorimer Park	Glenside Weldon Environmental Science Club	4/18	13.0	14	7.3	8.0		8.8	G	G	G	G	G	M	E	G
5a PA	Pennypack Creek	Lorimer Park	Glenside Weldon Elementary School	4/18	13.0	14	7.3	8.0		8.8	G	G	G	G	G	M	E	G
5a PA	Pennypack Creek	Upstream side of Mason's Mill Bridge	Earthright, V.M.H.A., K.A.R.E.	4/18	30.0	15	7	8.0		12.0	M	P	P	M	M	M	M	M
5a PA	Pennypack Creek	1 mile from Willow Grove Naval Air Base	The College Settlement of Philadelphia	4/21	20.0	8.9					G	G	G	G	G	M	G	G
5a PA	Poquessing Creek	Junction of Poquessing & Byberry Creeks	Friends of Poquessing Watershed	4/17	19.0	15.5	7	7.5	<.2	<4.4								
5a PA	Poquessing Creek	Frankford Avenue	Friends of Poquessing Watershed	4/17	19.0	15.5	7	7.5	<.2	>4.4								
5a PA	Poquessing Creek	Junction of Poquessing/Byberry Creeks	Friends of Poquessing Watershed	4/17	19.0	15.5	7	7.5	<.2	>4.4								
5a PA	Poquessing Creek	Frankford Ave.	Friends of Poquessing Watershed	4/17	19.0	15.5	7	7.5	<.2	>4.4								
5a PA	Tacony Creek	Tabor Road	Friends of Tacony Creek	4/23	12.0	11.8	6.8			6.0	P	P	P	G	G	G	M	M/P
5b PA	Chester Creek	Creek Rd. & Sweetwater Rd.	Crum Ridley Chester Monitor. Prog.	4/25	15.0	15	7.5	9.6	<.2	<.88								
5b PA	Crum Creek	Grubbs Mill Road	Philadelphia Suburban Water Co.	4/21	7.0	10.1	8.4	10.9	2.05	7.0								
5b PA	Crum Creek	SEPTA Railroad Trestle	Swarthmore Rutledge School 1st Grade	4/24	19.5	14.5	7.2	6.2		2.2								
5b PA	Crum Creek	100 meters above Yale Avenue Dam	Crum Ridley Chester Monitor. Prog.	4/25	17.5	16.2	7.2	8.2		2.2	M	P	M	G	M	G	M	M
5b PA	Crum Creek	Whiskey Run Pond	Crum/Ridley/Chester Volunteer Monitoring Prog.	4/18	14.0	13	5.8	9.6										
5b PA	Darby Creek	Rolling Green Park	Cardinal O'Hara High School	4/29		14	7	11.0			G	G	G	G	G	P	G	
5b PA	Darby Creek	Southeast of Paper Mill Road	Radnor Middle School	4/21	18.8	11.4	8	11.0	<.1	<.5	G	G	G	M	G	E	G	G

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
5b PA	Darby Creek Headwaters	Off Sugartown Rd. near Newtown Rd. in Berwyn	Alam	4/25	20.0	14.4	6.25											
5b PA	Delaware River	RM84 Eddystone	DNREC	4/21	13.0	14	7.5	8.7	0.043	4.7								
5b PA	Delaware River	RM86 Essington, PA behind the Lagoon Motel	Franciscans International	5/7	29.0	20	7.2	11.0										
5b PA	Delaware River	RM81 South Side of Commodore Barry Bridge	Bernadine Center	5/15	26.0	17	7.4	6.2										
5b PA	Little Darby Creek	South of Maplewood Ave. North of Brooke Rd.	Wayne Elementary School	4/14	23.0	15	8	10.0	1	5.0	E	E	E	G	E	E	G	E
5b PA	Ridley Creek	Below PSW Plant	Philadelphia Suburban Water Co.	4/21	15.0	11.5	8	11.3	1.33	7.0								
5b PA	Ridley Creek	Rosetree Road	Philadelphia Suburban Water Co.	4/21	13.0	11.2	7.8	11.9	1.48	7.0								
5b PA	Ridley Creek	Chapel Hill Road	Philadelphia Suburban Water Co.	4/21	11.0	10.8	7.9	11.2	1.61	7.5								
5b PA	Ridley Creek	Media Station Road SW of Media	Philadelphia Suburban Water Co.	4/21	15.0	12.5	7.4	11.1	3.41	27.3								
5b PA	Ridley Creek	Glen Providence Park	Media Providence Friends School	4/22	21.0	25	7.5	19.0			G	E	E	M	M	M	E	G/P
5b PA	Ridley Creek Trib.	Monument Road	Philadelphia Suburban Water Co.	4/21	9.0	11.1	7.5	10.4	1.15	20.7								
5b PA	Westtown Lake	Between Westtown Rd. & Walnut Hill	Westtown School	4/21	17.0	11.5	7											
6 PA	Allegheny Creek	Allegheny Aqueduct	Schuylkill River Greenway Association	4/17	17.0	16	7	9.7	0	53.0	E	E	E	G	G	M	G	G
6 PA	Angelica Creek	10 m. South St. Bernardine St.	Schuylkill River Greenway Association	4/17	17.0	16	7.4	9.3	0	3.5	E	E	G	E	G	G	G	G
6 PA	Antietam Creek	Exeter Twp. Park	Schuylkill River Greenway Association	4/25	19.0	15	7.5	11.2	0.2	5.3	M	P	M	M	M	P	G	M
6 PA	Baederwood Creek	At Riffle below 8' Stone Dam - North Side	Earthright, V.M.H.A., K.A.R.E.	4/18	20.0	10	7.5	12.0		15.0	G	G	G	M	M	M	G	G
6 PA	Cacoosing Creek	Junction of Tulpehocken Creek	Schuylkill River Greenway Association	4/25	18.0	14.5	8	12.0	0.2	11.0	G	G	M	P	P	P	E	M
6 PA	Deep Creek	Mouth	Philadelphia Suburban Water Co.	4/21	14.0	11	7.5		2.36	0.9								

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
6 PA	Deep Creek Lake	Bridge Location #8	Montgomery Co. Health Dept.	4/21		10.6		8.0										
6 PA	Deep Creek Lake	Near Picnic Area Location #7	Montgomery Co. Health Dept.	4/21		14.1		6.8										
6 PA	Deep Creek Lake	Near Cluster of Trees Location #6	Montgomery Co. Health Dept.	4/21		12.6		6.7										
6 PA	Deep Creek Lake	Near Tennis Courts Location #5	Montgomery Co. Health Dept.	4/21		13.1		7.0										
6 PA	Deep Creek Lake	Beach Area Location #4	Montgomery Co. Health Dept.	4/21		14.3		7.0										
6 PA	Deep Creek Lake	Beach Area Location #3	Montgomery Co. Health Dept.	4/21		14.1		6.6										
6 PA	Deep Creek Lake	Next to Boats Location #2	Montgomery Co. Health Dept.	4/21		13.9		6.6										
6 PA	Deep Creek Lake	Beach Area at Flagpole Location #1	Montgomery Co. Health Dept.	4/21		14.2		6.8										
6 PA	French Creek	Bridge on Cooks Glenn Road 3 mi. from Rt. 100 & Pughtown Rd.	Owen J. Roberts Middle School	4/21	20.0	10	7	10.5		0.0	E	G	E	E	G	G	M	E
6 PA	French Creek	St. Peters Village	Diane C. Coltrain	4/24	18.0	15	7	9.8	<.2	0.9	E	G	M	E	G	M	M	G
6 PA	Hay Creek	Deadend Rt. 82	Schuylkill River Greenway Association	4/25	11.0	11	7	11.2	0	2.6	E	E	E	G	G	G	G	G
6 PA	Hillcrest Pond	Near intersection of Bethlehem Pk. & Montgomery Ave.	EPA/Springfield Twp. Middle School	4/21	12.0	14	6.5	7.0										
6 PA	Ironstone Creek	RR Trestle @ Ironstone Park	Schuylkill River Greenway Association	4/25	15.5	13.5	7.5	13.7	0	4.4	E	E	G	G	P	P	G	G
6 PA	Little Schuylkill River	South Tamaqua along Rt. 309	Schuylkill River Greenway Association	4/18	11.0	9.5	7	11.0	0	0.9	G	M	P	P	M	P	P	P
6 PA	Maiden Creek	Lake Ontelaunee Spillway	Schuylkill River Greenway Association	4/21	16.0	13.5	7	10.0	0	6.6	M	M	P	M	P	P	G	M
6 PA	Manatawny Creek	W. Pottsgrove Twp. Park	Schuylkill River Greenway Association	4/25	15.5	13	8	13.9	0	5.3	M	G	M	P	M	P	M	M
6 PA	Manatawny River	Ironstone Park	Pottstown Middle School	4/24	22.0	19	5.5	13.0			G	G	E	M	M	M	G	G
6 PA	Manatawny River	W. Pottsgrove Park	Pottstown Middle School	4/17	20.0	16	6.5	13.0			E	G	G	M	M	M	M	G
6 PA	Mill Creek	St. Clair - Pt. Carbon	Schuylkill River Greenway Association	4/18	14.0	10	5.5	10.4	0	0.4	G	G	M	G	M	M	M	M
6 PA	Mill Creek	Harriton House, Harriton Road	Bala Cynwyd Middle School	4/23	14.4	11.1	7.5	7.0	0	1.5	G	G	E	M	P	P	M	M
6 PA	Mill Creek	Off Cheese Lane Berne, PA	Schuylkill River Greenway Association	4/21	17.5	16	6.8	10.8	0	8.8	E	G	G	G	G	E	E	G
6 PA	Mill Creek	Lower Merion	Lower Merion Conservancy	4/19	11.0	13	7.51	10.0										

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
6 PA	Mill Creek	Lower Merion	Lower Merion Conservance	4/19	11.0	13	7.5	10.0			E	E	M	E	E	G	G	G
6 PA	Mill Creek	Near intersection of Black Rock & Dove Lake	R. H. Koch	4/21	26.1	14	7.4	14.0										
6 PA	Mill Creek	Near intersection Black Rock & Dove Lake Roads	R. H. Koch	4/21	26.1	14	7.4	14.0			G	G	M	G	G	G	G	G
6 PA	Mill Creek	Below abandoned railroad bridge North side of St. Clair	Eastern PA Coalition for Abandoned Mine Reclamation	4/26	13.3	11.1	5	10.0			E	G	E	E	G	P	M	G
6 PA	Monocacy Creek	Bridge Monocacy Hill Road	Schuylkill River Greenway Association	4/25	12.0	14	7.5	11.7	0.1	11.0	M	M	M	G	G	M	E	M
6 PA	Ontelaunee (Maiden) Creek	South of Mosserville	Schuylkill River Greenway Association	4/24	15.0	15	7	10.0	0	1.8	E	E	E	G	G	M	G	G
6 PA	Paper Mill Run	Near pumphouse	Schuylkill Riverkeeper/Morris Arboretum	4/26	11.0	13	7.7	9.5	<0.2	4.4	P	M	M	M	M	P	G	P
6 PA	Perkiomen Creek	Level Road, Arcola	Philadelphia Suburban Water Co.	4/21	13.0	12	7.6		1.86	5.7								
6 PA	Perkiomen Creek	Arcola Road Bridge - Up/Low Providence	Pennsylvania DEP	4/22		16	8.89	13.2		0.9								
6 PA	Perkiomen Creek	Near Old Mill - Clemmens Mill Road	Montgomery Co. Health Dept.	4/20		12.1	6	9.4			E	G	G	G	G	M	G	G
6 PA	Perkiomen Creek	Behind Mill House	Montgomery Co. Health Dept.	4/20		11.9	5	9.4			G	G	G	G	G	G	G	G
6 PA	Perkiomen Creek	Collegeville Boro Park	Montgomery Co. Health Dept.	4/20		11.8	6	9.3			M	G	G	G	G	G	M	G
6 PA	Perkiomen Creek	Old Mill Site - Crest of Dam	Delaware Riverkeeper Network	4/25	23.0	12.5	8	9.0	<0.2	>4.4	G	G	M	E	E	M	G	G
6 PA	Perkiomen Creek	Downstream from Daisy Duke's	Montgomery Co. Health Dept.	4/20		11	6	9.6			G	G	G	G	G	G	M	G
6 PA	Perkiomen Creek, E.Br.	Bridge - Haldeman Road	Montgomery Co. Health Dept.	4/20		12	6	9.5			G	G	G	G	G	G	G	G
6 PA	Pickering Creek	Phoenixville YMCA	Philadelphia Suburban Water Co.	4/21	15.0	11	7.5	11.0	1.89	6.2								
6 PA	Pine Creek	Deer Lake below junct. Rt. 61 & 895	Schuylkill River Greenway Association	4/18	20.0	15.5	6.8	10.0	0	2.2	E	G	E	E	E	E	E	E
6 PA	Plum Creek	Reber's Bridge Park	Schuylkill River Greenway Association	4/25	19.0	13.5	7	11.3	0.01	0.4	E	G	G	E	G	E	E	E
6 PA	Sacony Creek	Bridge @ Normal Avenue	Schuylkill River Greenway Association	4/24	17.0	14	7.2	9.4	0.1	6.6	M	G	P	P	P	P	M	M

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APPENDIX A WATER SNAPSHOT '98 DATA

Sub-basin	Stream/lake	Location	Organization or Individual	Date	Air Temp (°C)	H2O Temp (°C)	pH (units)	Dissolved Oxygen (mg/l)	Phosphate (mg/l)	Nitrate (mg/l)	VISUAL ASSESSMENT (E=Excellent, G=Good, M=Marginal, P=Poor)							
											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
6 PA	Sandy Run	Paved Access Ramp off Roslyn Park Parking Lot	Earthright, V.M.H.A., K.A.R.E.	4/18	20.0	15	9.5	15.0		10.0	P	M	P	P	M	M	M	P
6 PA	Sandy Run	Upper Dublin Township Park	Glenside Weldon Environmental Science Club	4/25	13.5	15	7.4	7.0		39.6								
6 PA	Sandy Run	Upper Dublin Twp. Park	Glenside Weldon Elementary School	4/25	13.5	15	7.4	7.0		39.6	M	P	M	G	G	E	P	M
6 PA	Schuylkill River	Port Carbon at abandoned mine Rt. 209	Schuylkill River Greenway Association	4/18	16.0	10	6.2	10.5	0	0.4	G	M	M	M	P	P	P	M
6 PA	Schuylkill River	30th Street Station Under Walnut Street Bridge	Philadelphia Youth Build Charter School	4/23	17.0	14	7.5	6.0	0	1.0	M	M	P	G	M	M	M	M
6 PA	Schuylkill River	North of Walnut St. Bridge - East Bank	Schuylkill Riverkeeper	4/26	14.0	15	7.5	9.6	0.1	4.4								
6 PA	Schuylkill River	Boatrap, Poplar Neck Park	Schuylkill River Greenway Association	4/17	18.0	15	7.2	10.4	0.1	8.8	E	M	M	G	G	M	M	M
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/26			7.26		0.105	2.5								
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/25			7.11		0.115	2.4								
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/24			6.97		0.137	3.3								
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/16					0.147									
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/19					0.147									
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/21			7.06		0.163	2.0								
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/22			7.16		0.169	0.9								
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/20			6.95		0.174	2.1								
6 PA	Schuylkill River	Philadelphia	Friends E.Park/Strawberry Mansion H.S.	4/23			6.94		0.174	3.0								
6 PA	Schuylkill River	Tuscarora along Rt. 209	Schuylkill River Greenway Association	4/18	15.0	10	5.7	8.7	0.2	0.9	M	M	M	P	P	P	P	P
6 PA	Schuylkill River	Hanover Street Bridge - Pottstown, PA	Pennsylvania DEP	4/22		13.8	7.93	9.9		2.6								

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter
6 PA	Schuylkill River	At "Angel" sculptures (.5 mi No. of Art Museum)	EPA/New Harvest Christian Academy	4/22	70.0	16	7	9.9		3.5							
6 PA	Schuylkill River	Kelley Drive & School House Lane	Philadelphia Water Dept.	4/23	12.7		7.9										
6 PA	Schuylkill River	West River Drive & Montgomery Drive	Philadelphia Water Dept.	4/23	12.7		7.7										
6 PA	Skippack Creek	Cedars Lane near Bridge	Montgomery Co. Health Dept.	4/20		11.3	6	9.0			G	G	M	G	G	G	G
6 PA	Skippack Creek	Arcola Road Bridge	Schuylkill Riverkeeper	4/22	18.3						G	G	M	G	G	G	G
6 PA	Stoney Creek	Fields with light woods near the stream	Norristown Area High School	4/15	20.0	12	7	15.0		0.0	G	G	M	G	E	P	G
6 PA	Stony Creek	500 ft. below Sterigere Street Bridge	Roosevelt Alternative School	4/24	15.0	12	7.8	11.5			E	G	M	G	G	G	G
6 PA	Swamp Creek	Route 29	Philadelphia Suburban Water Co.	4/21	13.0	12	7.7		1.89	5.3							
6 PA	Swamp Creek	Sunrise Mill	Montgomery Co. Health Dept.	4/20		12	6	9.4			G	G	G	G	G	G	E
6 PA	Swamp Creek	120 yds. Above Gravel Pike Bridge	Schuylkill Riverkeeper	4/22	20.0						E	G	E	E	G	G	E
6 PA	Tookany Creek	Jenkintown Train Station	Glenside Weldon Environmental Science Club	4/25	19.0	16	7.1	12.5			G	G	G	G	G	M	M
6 PA	Tookany Creek	Jenkintown Train Station	Glenside Weldon Elementary School	4/25	19.0	16	7.1	12.5			G	G	G	G	G	M	M
6 PA	Tulpehocken Creek	Junction of Cacoosing Creek	Schuylkill River Greenway Association	4/25	18.0	15	8	12.4	0	8.8	E	E	G	G	G	M	E
6 PA	Tulpehocken Creek	3/4 mile downstream of Blue March Dam	Western Berks Water Authority	4/20	9.4	12	8.01	11.6	0.46	3.2	G	G/P	P	G	G	G	G/M
6 PA	Unami Creek	Rte. 63, Summeytown	Philadelphia Suburban Water Co.	4/21	14.0	13	7.6		1.83	2.2							
6 PA	Unami Creek	Bridge - Swamp Creek Road	Montgomery Co. Health Dept.	4/20		11.3	6	9.5			E	G	G	G	G	M	G
6 PA	Unknown Stream feeding into Wissahickon Creek	1/4 mile above Valley Green in Fairmount Park	Philadelphia Youth Build Charter School	4/23	14.0	10	7.5	2.0	1	0.0	E	G	E	P	M	M	M
6 PA	Valley Creek	Wilson Road Bridge	Pennsylvania DEP	4/20		11.8	8.42	11.8		1.7							
6 PA	Valley Stream	Merion Botanical Park	Lower Merion Conservancy	4/19	11.1	12.8	6.5	9.0			M	M	M	G	G	P	M

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											Cover	Sediment	Patterns	Condition	Pressuras	Width	Litter	Overall Assessment
6 PA	West Branch Schuylkill	Across from Trail Garden Center	Schuylkill River Greenway Association	4/18	17.0	12	6.5	10.3	0	0.4	M	G	M	G	G	P	G	M
6 PA	Wissahickon Creek	Bells Mills Road	Philadelphia Water Dept.	4/23	12.7		7.9	11.2	0.54	4.53								
6 PA	Wyomissing Creek	Tennis Courts in Wyomissing Park	Schuylkill River Greenway Association	4/22	20.5	14.5	8	11.0	0	4.4	G	E	M	G	G	P	G	G
6 PA	Wyomissing Creek	South of Wixons Bakery	LaSalle Academy	4/24	18.8	13.3	8.5	16.0	0.2	0.0	G	G	G	G	E	M	E	G
6 PA	Wyomissing Creek	South of Wixons Bakery off Wyomissing Avenue	LaSalle Academy	4/24	19.4	14.4	9.5	12.0	0.5	4.0	G	G	E	G	E	E	M	G
6 PA	Wyomissing Creek	Near Dixon's Bakery off Wyomissing Ave.	LaSalle Academy	4/24	21.0	15.5	10.8	13.0	2.5	22.0	E	G	G	E	G	E	M	G
6 PA	Wyomissing Creek	South of Dixon's Bakery	LaSalle Academy	4/24	25.0	15.5	8.5	15.0	3	0.0	G	G	M	G	G	M	M	G
7a NJ	Assunpink Creek	West Windsor	Pond Road Middle School	4/21		16	4	10.0	0		E	E	G	G	E	E	E	E
7a NJ	Assunpink Creek	Old Trenton Road	Pond Road Middle School	4/21		28.0	4.5	8.0	0		E	E	E	G	G	E	G	E/G
7a NJ	Assunpink Creek		Pond Road Middle School	4/21		16	5	10.0	0.1		M	E	G	G	M	E	G	G
7a NJ	Assunpink Creek	Mercer NJ	Pond Road Middle School	4/21		22.0	4	10.0	0.1		G	E	G	G	G	G	G	G
7a NJ	Assunpink Creek		Pond Road Middle School	4/21		18		8.0	0.1									
7a NJ	Assunpink Creek	Foot Bridge in Mercer City Park near Edinburg Road entrance	Washington Crossing Audubon Society	4/22	21.0	17	6		<0.2	3.5	G	M	M	G	G	G	G	G
7a NJ	Audubon Lake	Haverford & Kings Hwy. Haddon Heights	New Jersey Water Watch	4/1	24.5	17.5	6.5	7.9	0.2	>4.4	G	P	P	E	E	E	M	E
7a NJ	Audubon Lake	Valley Road ML. Ephraim	New Jersey Water Watch	4/1	24.5	21	8.5	10.2	0.2	>4.4	G	P	P	E	E		P	G
7a NJ	Audubon Lake	Valley Road ML. Ephraim	Salem County Watershed Task Force	4/1	24.5	21	8.5	10.2	0.2	>4.4								
7a NJ	Audubon Lake	Haverford & Kings Hwy	Salem County Watershed Task Force	4/1	24.5	17.5	6.5	7.9	0.2	>4.4								
7a NJ	Beaver Brook	Black Horse Pike Bridge	Camden Co. Dept. of Health	4/23	13.0	13	6.9		0.855		P	P	P	G	M	P	M	P
7a NJ	Blacks Creek	Bridge on Burlington St.	Bordentown Regional High School	4/21	2.0	1	7.5	2.0	1	9.7	M	M	M		G	G	M	M
7a NJ	Blackwood Lake	Dam at Church St.	Camden Co. Dept. of Health	4/23	13.0	14	7.2		0.548	4.4								
7a NJ	Blue Lake	Intersection of Hopewell RD, Tomlinson Mill Rd & Taunton Blvd.	Blue Lake Association	4/19		14												

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
7a NJ	Cooper River	At State St. Bridge	Camden Co. Dept. of Health	4/24	20.0	14	7.4		0	3.4								
7a NJ	Cooper River	So. of Cuthbert Ave. Bridge - West Shore	Delaware Riverkeeper Network	4/24	16.0	15		6.8	0.4	1.8								
7a NJ	Cooper River	South of Cuthbert Ave. Bridge on the Western shore	Delaware Riverkeeper Network	4/24	16.0	15		6.8	0.4	1.8	M	P	M	M	M	P	M	M
7a NJ	Cooper River/Kirkwood Lake	Dam at outlet near Whitehorse Road	Camden Co. Dept. of Health	4/24	22.0	16	7.4		1.98									
7a NJ	Crosswick Creek	Stanton Avenue W.	Bordentown Regional High School	4/24	15.0	16	6.69	0.6	0.5	0.1	G	P		E	E	G	G	G
7a NJ	Crosswicks Creek	Mercer Co. Bridge #6702	D&R Greenway/Hamilton Twp.	4/22	16.9	15.2	6.8	5.2	0	0.0	G	M	M	G	G	M	M	M
7a NJ	Delaware Estuary	RM127 Fieldsboro	USEPA, Region III	4/22	21.0	11.96	7.45	9.8										
7a NJ	Delaware Estuary	RM128 Below Crosswick	USEPA, Region III	4/22	21.0	12.28	7.45	9.8										
7a NJ	Delaware Estuary	RM130 Below Power Plant	USEPA, Region III	4/22	21.0	11.84	7.24	10.0										
7a NJ	Delaware Estuary	RM131 At Mercer Boat Ramp	USEPA, Region III	4/22	20.5	11.7	7.47	10.2										
7a NJ	Delaware River	RM127 Fieldsboro	DNREC	4/21	14.0	13	7.6	9.2	0.036	4.0								
7a NJ	Delaware River	RM131 Trenton Marina	Delaware River Basin Commission	4/21	21.0	12	7.5	10.8	0.08	2.2								
7a NJ	Delaware River	RM118 Burlington-Bristol Bridge	Delaware Bay Schooner Project	4/21	20.0	15	7	12.0		0.0								
7a NJ	Delaware River	RM118 Burlington, NJ	Delaware Bay Schooner Project	4/21	14.0	10	7	<9		0.0								
7a NJ	Delaware River	RM118 Buoy #45	Delaware Bay Schooner Project	4/22	21.1	15	7	8.0		0.0								
7a NJ	Delaware River	RM118 Burlington-Bristol Bridge	Delaware Bay Schooner Project	4/21	21.0	14	7	9.5		0.0								
7a NJ	Delaware River	RM118 Burlington-Bristol Bridge	Delaware Bay Schooner Project	4/21	20.0	15	7	9.0		0.1								
7a NJ	Delaware River	RM118 Burlington-Bristol Bridge	Delaware Bay Schooner Project, A.J. Meerwald	4/21	15.0	13		9.5		8.0								
7a NJ	Delaware River	RM100 Camden	Mafco Worldwide Corporation	4/17	20.0		6.6											
7a NJ	Delaware River	RM118 Burlington City	Delaware Bay Schooner Project	4/21			7											

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Sub-basin	Stream/lake	Location	Organization or Individual	Date	Air Temp (°C)	H2O Temp (°C)	pH (units)	Dissolved Oxygen (mg/l)	Phosphate (mg/l)	Nitrate (mg/l)	VISUAL ASSESSMENT							
											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
7a NJ	Delaware River	RM118 Burlington-Bristol Bridge	Delaware Bay Schooner Project	4/21	18.0	13	7	9.0										
7a NJ	Delaware River	RM118 Burlington-Bristol Bridge	Delaware Bay Schooner Project	4/21				9.0										
7a NJ	Delaware River	RM118 Buoy #45	Delaware Bay Schooner Project	4/21	21.0	13	7	10.0										
7a NJ	Delaware River	RM118 Burlington-Bristol Bridge	Delaware Bay Schooner Project	4/21	17.0	13		9.0										
7a NJ	Delaware River	RM107 American Water Co. raw water intakes & reservoir	American Water Co.	4/20	20.0	33.7	7.35	9.1		3.0								
7a NJ	Farm runoff	Mercer NJ	Pond Road Middle School	4/21		14		8.0	0.1		M	G	G	G	M	G	G	G
7a NJ	Little Timber Creek	AI Broadway Bridge	Camden Co. Dept. of Health	4/23	13.0	14	7.4		0.644	3.3								
7a NJ	Mercer Lake	Mercer Park	Pond Road Middle School	4/21		22	4	8.0	0									
7a NJ	Mercer Lake	Mercer Park	Pond Road Middle School	4/21		22	5	8.0	0.1									
7a NJ	Mercer Lake	Mercer County Park - Old Trenton Road	Pond Road Middle School	4/21	30.0	22	6	4.5	0.1									
7a NJ	Mercer Lake	Mercer Park Marina	Pond Road Middle School	4/21	16.0	12	4	8.0	0.1									
7a NJ	Mercer Lake	Mercer Park	Pond Road Middle School	4/21	22.0	18			2									
7a NJ	Miry Run	Bridge at 526	Pond Road Middle School	4/21				4.5	0		M	E	P	E	M	P	E	G
7a NJ	Miry Run	Hutchinson Road	Pond Road Middle School	4/21		14	4.5		0		P	E	M	G	G	P	M	M
7a NJ	Miry Run	Saran Woods Bridge	Pond Road Middle School	4/21		12	4	8.0	0		E	G	E	E	E	G	G	E/G
7a NJ	Miry Run	Pond Road Bridge	Pond Road Middle School	4/21		12	4	8.0	0		E	G	E	E	E	G	G	E/G
7a NJ	Miry Run	Bridge on Hutchinson Road	Pond Road Middle School	4/21	25.0	12	4.5	12.0	0		G	G	G	G	G	M	G	G
7a NJ	Miry Run	Saran Woods	Pond Road Middle School	4/21		11	5	12.0	0.1		M	P	P	G	M	E	E	M
7a NJ	Miry Run	Pond Road Bridge	Pond Road Middle School	4/21	22.0	11	4	5.0	0.1		E	G	G	G	G	G	G	G
7a NJ	Miry Run	Outside Outside Saran Woods	Pond Road Middle School	4/21	29.0	12	5.5	8.0	0.1		G	G	M	G	G	M	G	G
7a NJ	Miry Run	Saran Woods Bridge	Pond Road Middle School	4/21	25.0	12	4	8.0	0.1									
7a NJ	Miry Run	Hutchison Road	Pond Road Middle School	4/21	22.0	14	4.5	12.0	0.1		G	G	E	G	G	G	G	G
7a NJ	Miry Run	Miry R. Bridge	Pond Road Middle School	4/21	24.0	16	5	5.0	0.1		G	E	G	G	M	M	G	G
7a NJ	Miry Run	Pond Road Bridge	Pond Road Middle School	4/21	20.0	12	5	9.0	0.1		G	G	G	G	E	E	G	G

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										VISUAL ASSESSMENT								
										(E=Excellent, G=Good, M=Marginal, P=Poor)								
Sub-basin	Stream/lake	Location	Organization or Individual	Date	Air Temp (°C)	H2O Temp (°C)	pH (units)	Dissolved Oxygen (mg/l)	Phosphate (mg/l)	Nitrate (mg/l)	Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
7a NJ	Miry Run	Part 2	Pond Road Middle School	4/21		18		8.0	0.1		M	M	G	M	G	G	M	G/M
7a NJ	Miry Run	Part 1	Pond Road Middle School	4/21		11		10.0	0.2		G	M	M	G	G	G	G	G
7a NJ	Miry Run	Hutchinson Road Bridge	Pond Road Middle School	4/21		12	4	6.0	1		G	G	G	G	G	G	G	G
7a NJ	Miry Run	Bridge at Route 526	Pond Road Middle School	4/21	27.0	14	5	5.0	5		G	G	M	G	G	M	G	G
7a NJ	Miry Run Stream	Pond Road Bridge	Pond Road Middle School	4/21		18	5	12.0	0		G	E	G	M	E	G	E	G
7a NJ	Miry Run Stream	Pond Road Bridge	Pond Road Middle School	4/21	20.0	12	5	8.0	0.1		G	E	E	G	E	E	E	E
7a NJ	N.Br. Big Timber Ck	At Somerdale Rd. Bridge	Camden Co. Dept. of Health	4/23	12.0	14	7.2		0.596	0.6								
7a NJ	N.Br.Cooper River	Park Blvd. Bridge	Camden Co. Dept. of Health	4/24	21.0	13	7.2		3.412	2.1	P	P	P	G	G	G	E	G
7a NJ	N.Br.Newton Creek	At Morgan Blvd. Bridge	Camden Co. Dept. of Health	4/23	13.0	14	7.3		0.307	3.2								
7a NJ	Newton Creek	At Cuthbert Rd. Bridge	Camden Co. Dept. of Health	4/24	14.0	13	7.3		0	5.3	M	P	P	G	M	G	G	M
7a NJ	Newton Creek	At Conrail Bridge - end of Manor Ave.	Camden Co. Dept. of Health	4/24	14.0	14	7.4		0.702									
7a NJ	Otter Branch	20 yds. upstream from junction w/No.Branch Big Timber Creek	Camden Co. Dept. of Health	4/23	13.0	14	7.2		0.548	2.6								
7a NJ	Pennsauken Creek	State Hwy #73 Bridge	Camden Co. Dept. of Health	4/24	21.0	14	7.3		1.413	4.2								
7a NJ	Pennsauken Creek	South Branch	Pennsauken Ck. Watershed /Maple Shade Sch.	4/25		14	6.8											
7a NJ	Peters Creek	30 yds upstream juncture w/Newton Creek	Camden Co. Dept. of Health	4/23	13.0	15	7.6		0									
7a NJ	Rancocas Creek (Site AN176R)	NJ Turnpike Bridge	Bureau of Freshwater & Biological Monitoring	4/21		14.9	6.6	7.6										
7a NJ	Runnemede Lake	Outlet at Singley Ave.	Camden Co. Dept. of Health	4/23	13.0	16			0.49									
7a NJ	South Branch Cooper River	Ellis St. Bridge	Camden Co. Dept. of Health	4/24	22.0	11	7		1.518									
7a NJ	South Branch Pennsauken Creek	Old Kings Hwy. Bridge	Camden Co. Dept. of Health	4/24	22.0	14	7.3		2.595	9.7	M	P	P	M	M	P	E	M
7a NJ	Spring Lake	Bottom of entrance hill	Delaware & Raritan Greenway	4/18	14.0	16	6.5	6.5	<0.88	<0.2								
7b NJ	Big Timber Creek	Rte. 130 Bridge	Camden Co. Dept. of Health	4/23	13.0	14	7.4		7.496	0.8								
7b NJ	Delaware River	RM88 Paulsboro	DNREC	4/21	13.0	14	7.6	8.5	0.043	4.8								
7b NJ	Mantua Creek	Bridge @ Barnsboro/Blackwood & Rt. 551	Mantua Creek Watershed Association	4/26	8.9	6	7	9.4	0.2	0.9	M	P	M	G	G	M	G	G/M

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APPENDIX A WATER SNAPSHOT '98 DATA

Sub-basin	Stream/lake	Location	Organization or Individual	Date	Air Temp (°C)	H2O Temp (°C)	pH (units)	Dissolved Oxygen (mg/l)	Phosphate (mg/l)	Nitrate (mg/l)	VISUAL ASSESSMENT (E=Excellent, G=Good, M=Marginal, P=Poor)								
											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment	
7b NJ	Monongahela Run	Bridge @ Rt. 551	Mantua Creek Watershed Association	4/26	8.9	8	4.5	10.2	0.2	1.3	M	P	M	E	E	E	M	G	
7b NJ	Wadsworth Lake (Cressie)	Mid-Lake Boat Dock	Mantua Creek Watershed Association	4/26	8.9	6	7	11.0	0.2	1.3									
8 DE	Beaver Run	50 yds. downstream of Creek Road	Del. Stream Watch/Del.Nature Soc.	5/2	17.5	14.4	7.5	10.4		1.0	M	M	G	G	M	G	M	M	
8 DE	Belltown Run	Rt.40 aboe Becks Pond on Belltown Rd.	Delaware Nature Society	4/24	16.0	14.4	7	11.5		2.0	M	G	P	E	G	M	G	M	
8 DE	Burrows Run	Bridge on Old Kennett Pike near Ashland-Clinton Road	Delaware Nature Society	4/18	17.3	12.4	7.5	11.1		2.0	G	G		E	G	G	M	G	
8 DE	Canby Park Stream	Canby Park Stream	Mrs. Carlin's Class, Room 213, Bayard School	4/22	18.3	7.2	7.2				M	G	P	G	G	M	M	E/M	
8 DE	Christina River	Mainstem Site #4 at Walther Road	Delaware Nature Society Technical Monitoring	4/24	16.5	13.1	7.46	11.0	0.03	0.2	G	E	E	E	E	G	M	G	
8 DE	Christina River	Upstream of bridge on Barksdale Road	Sheila Lynch	4/25	18.0	16	7.5	10.0			G	G	M	M	M	M	G	G	
8 DE	Christina River	Mainstem Site #3 at Smalley's Dam Rd.	Delaware Nature Society Technical Monitoring	4/24	25.0	18	7	8.2		0.5	E	G	G	E	E	G	M	G	
8 DE	Coffee Run	Between Canterbury Hills & Winterbury	Ralph & Peggy Ann Delaplaine	4/25	16.0	13	7.5	2.2			E	E	E	E	E	G	G	G	
8 DE	Middle Run	New Castle County	Fantastics 4H Club	4/26	15.6	11.1	7	10.0			E	G	G	G	E	E	G	E	
8 DE	Middle Run	New Castle County	Fantastics 4-H Club	4/26	15.6	11.1	7	10.0			E	G	G	E	E	E	G	E	
8 DE	Middle Run	Upstream from Papermill Rd. Bridge	Delaware Nature Society	4/18	15.5	15	7.5	8.9		0.5									
8 DE	Red Clay Creek	Bridge on Rt. 72/Paper Mill Road	The Independence School	4/22	25.0	12	7.2	40.0		2.0	G	G	G	G	E	G	G	G	
8 DE	Red Clay Creek	Above and below dam	DNS Volunteer	4/23	22.2	15	8	11.5			E	M	G	G	G	M	G	G	
8 DE	Rocky Run	At Creek Rd. bridge	Del.Stream Watch/Del.Nature Soc.	5/2	18.0	14.8	7.5	10.5		0.4	G	G	E	E	G	E	G	G	
8 DE	South Naman's Creek	Foulk Rd bridge 50 yds North of Naaman's Rd.	Del.Stream Watch/Del.Nature Soc.	5/3	21.0	15	7.5	12.5		2.0	E	G	E	G	E	G	M	G	
8 DE	South Naman's Creek	50 yds South of Naaman's Rd.	Del.Stream Watch/Del.Nature Soc.	5/3	21.0	16.7	8.5	14.7		3.0	P	M	P	P	P	P	M	P	
8 DE	Tributary of Red Clay Creek	Barley Mill Rd. in Spring Valley	DNS Volunteer	4/23	22.2	16	7.2	10.0			M	M	G	M	M	P	E	M	

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
8 DE	White Clay Creek	Upstream from Papermill Rd	Delaware Nature Society	4/18	15.5	14.5	7.5	9.7		3.0								
8 PA	Beaver Creek	Behind Beaver Creek Elementary School	Brandywine Valley Association	4/17	17.0	13	7.5	10.0	<.01	2.2	G	E	E	M	G	M	G	G
8 PA	Beaver Creek	Bondsville & Osborne Road Intersection	Brandywine Valley Association	4/17	17.0	13	7	12.0	<.01	3.4	E	G	G	E	P	P	G	G
8 PA	Brandywine Creek - East Branch	Struble Trail	Brandywine Valley Association	4/17	19.0	12	7.5	11.0	<.01	1.3	G	G	M	G	E	E	G	E
8 PA	Brandywine Creek - East Branch	Kerr Park - Pennsylvania Ave. - Downingtown	Brandywine Valley Association	4/17	20.0	13	7.5	10.0	<.01	1.7	G	M	P	P	P	P	G	M
8 PA	Broad Run	Near Intersection Shadyside & Broad Run Road	Brandywine Valley Association	4/17	12.0	11	7	11.0	<.01	1.5	G	R	M	M	G	G	E	G
8 PA	Flint Woods	South of Twaddle Mill Road	Delaware Nature Society	4/18	18.5	12	7	10.2		1.0	E	E		G	E	E	E	E
8 PA	Indian Run	Off Rt. 202	Brandywine Valley Association	4/17	20.0	14	7.5	12.0	<.01	1.2	E	G	G	G	E	M	E	E
9 NJ	Alloway Creek	Route 49 Bridge	Salem County Watershed Task Force	4/19	10.0	16	7	7.6	<.2	4.4	G	P	E	G	M	M	M	M
9 NJ	Alloway Creek	County Bridge #1097	New Jersey Water Watch	4/20	14.0	14.5	6.5	7.4	<.2	4.4								
9 NJ	Alloway Creek	County Bridge #1097	Salem County Watershed Task Force	4/20	14.0	14.5	6.5	7.4	<.2	4.4	E	P	G	E	E	E	G	E
9 NJ	Deep Run	Cobbs Mill Rd.	Salem County Watershed Task Force	4/6	14.0	13	5.5	7.0	0.2	<0.88	G	P	P	E	E	P	E	E
9 NJ	Delaware River	RM71 Cherry Island	DNREC	4/21	13.0	14	7.6	8.3	0.032	5.4								
9 NJ	Delaware River	RM75 Oldman's Point	DNREC	4/21	13.0	14	7.6	8.4	0.034	5.3								
9 NJ	Delaware River	RM79 Marcus Hook	DNREC	4/21	13.0	14	7.4	8.8	0.044	5.4								
9 NJ	Oldman Creek	County Bridge #483 - Lincoln Rd. - Pilesgrove	Salem County Watershed Task Force	4/6	14.5	12	7	5.3	>0.2	4.4	G	P	P	G	E	E	E	E
9 NJ	Salem River	138 Warner Road	Salem County Watershed Task Force	4/22	15.5	17.5	6.5	7.3	0.2	1.8								
10a DE	Delaware River	RM66	DNREC	4/21	13.0	14	7.6	7.8	0.035	6.1								
10a DE	Delaware River	RM61 Pea Patch Island	DNREC	4/21	13.0	14	7.7	7.9	0.037	6.8								
10b DE	Delaware River	RM55 Reedy Island	DNREC	4/21	13.0	14	7.6	8.2	0.046	5.8								
11a NJ	Cohensley River Headwaters	Beal Road	Salem County Watershed Task Force	4/6	15.0	13	6.5	9.3	0.3	4.4	G	P	M	E	E	E	E	E

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											Cover	Sediment	Patterns	Condition	Pressures	Width	Litter	Overall Assessment
11a NJ	Manantico Creek	Rt. 47 & Manantico Bridge	Delaware Riverkeeper Network	4/19	9.0	15		7.9	4.84	1.0								
11a NJ	Maurice River	Upstream of Mauricetown Bridge	Delaware Riverkeeper	4/26	17.0	16					P	P	P	E	E	G	G	G
11a NJ	Maurice River	Landis Ave Pittsgrove	Salem County Watershed Task Force	4/20	18.0	14	6	7.0	<.2	4.4	E	P	G	E	E	E	P	G
11a NJ	Stow Creek/Canton Drain	Main St. Rte. 623	Salem County Watershed Task Force	4/20	18.0	15.5	6	6.7	<.2	<.88	E	P	M	E	E	E	G	E
12a DE	Barkers Landing	So. of Dover AFB	Del. Natural Resources and Env. Prot. (DNREC)	4/26		16.4	7.1	7.5			P	P	E	M	G	M	G	G
12a DE	Delaware River	RM37 Ship John Light	DNREC	4/21	12.0	14	7.9	9.1	0.031	4.6								
12a DE	Delaware River	RM44 Smyrna River Mouth	DNREC	4/21	12.0	14	7.8	8.7	0.047	5.4								
12a DE	Delaware River	RM48 Liston Point	DNREC	4/21	12.0	14	7.6	8.4	0.048	6.2								
12a DE	Haven Lake Feeder Stream	Intersection Meadowbrook & Bowman's Branch	DNREC	4/26	17.5	16.1	7	9.1			P	P	M	G	G	M	E	M
12a DE	Isaacs Branch	Bridge behind W B Simpson School	Connie Belisle	4/19	14.0	16.5	6.9	9.0		8.8	G						G	
12a DE	Killen's Pond	East of Killen Pont St. Park	DNREC	4/26		15.3	6.8	9.1			G	P	M	G	G	G	G	G
12a DE	Muddy Run	Rt. 896 above Sunset Lake	Delaware Nature Society	4/24	20.0	15.2	7	10.0		2.0	G	G	M	G	G	M	M	G
12a DE	Silver Lake	Park area before spillway - Dover, DE	DNREC	4/26		17.3	7.1	9.9			P	P	M	G	M	P	G	M
12a DE	St. Jones Reserve	Bridge 1/2 mi. extended off boardwalk	Milford Middle School	4/22	14.0	17.5	7.5	9.0			G	M	M	G	G	E	E	G
12a DE	Trap Pond		DNREC	4/26		19.4	6.8	9.4										
12b DE	Delaware River	RM31 Mahon River Mouth	DNREC	4/21	12.0	14	8.1	6.9	0.02	0.5								
12b DE	Lewes/Rehoboth Canal	Pilottown Park	Del. Inland Bays Citizens Monitor.Grp.	4/20	14.0	14.5	7.1	6.8										

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APPENDIX A--Additional Tests

Stream	Organization	Additional Tests Performed
Allegheny Creek	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 32 ppm, CO2 2 ppm
Angelica Creek	Schuylkill River Greenway Association	Turbidity 10 JTU, Alkalinity 64 ppm, CO2 4 ppm
Antietam Creek	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 90 ppm, CO2 0 ppm
Beaver Creek	National Park Service	Turbidity: 10NTU
Beaver Run	Delaware Stream Watch - Delaware Nature Society	Alkalinity 60 ppm, Flow 7.64 ft/s
Beaver Run	RSVP of Lehigh, Northampton and Carbon Counties	Alkalinity 10 mg/l, Sulfate <50 mg/l
Black Creek	Wildlands Conservancy/Parkland High School	Alkalinity 2.20 mg/l, Hardness 32.0 mg/l, Sulfate 18 mg/l, Manganese 254 mg/l, Aluminum 1000 mg/l, Iron 160 mg/l, Ferrous 80 mg/l, Turbidity 8.8 NTU, Acidity 3.6 mg/l, Total residual non-filterable 52.0 mg/l
Bulger's Creek	BWA	Turbidity <1.0
Burk Mountain Creek	Wildlands Conservancy/Parkland High School	Alkalinity 2.0 mg/l, Hardness 43.0 mg/l, Sulfate 35 mg/l, Manganese 517 mg/l, Aluminum 1990 mg/l, Iron 160 mg/l, Ferrous 90 mg/l, Turbidity 32.7 NTU, Acidity 11.4 mg/l, Total residual non-filterable 2.0 mg/l
Bushkill Stream	Jacobsburg Environmental Education Center	Turbidity - Clear
Cacosing Creek	Schuylkill River Greenway Association	Turbidity 0 JTU, Alkalinity 182 ppm, CO2 0 ppm
Christina River	Sheila Lynch	Macro-invertebrate study
Christina River Mainstem Site #3	Delaware Nature Society	Alkalinity (-51 ppm), 38.7 cu ft/sec total flow)
Christina River Mainstem Site #4	Delaware Nature Society	Alkalinity (-51 ppm), 28.5 cu ft/sec total flow)
Cobbs Creek SW	Philadelphia Youth Build Charter School	Carbon Dioxide 2 ppm, Soil Temp 3C
Crosswicks Creek	Bordentown Regional High School	Ammonia Nitrogen Test
Crum Creek	Crum/Ridley/Chester Volunteer Monitoring Program	Turbidity 50 ml, Alkalinity 80 ppm
Crum Creek	Swarthmore Rutledge School	Turbidity 10 ml, Alkalinity 56
Darby Creek	Kay Lansing	Chloride 70 ppm: Hardness 130 ppm
Darby Creek	Radnor Middle School	Total Dissolved solids .13 g/l
Darby Creek Headwaters	Alarm	Alkalinity 60 ppm
Delaware River	National Park Service	Turbidity: 10NTU
Delaware River	National Park Service	Turbidity: 8NTU
Delaware River	National Park Service	Turbidity: 8NTU
Delaware River - Morrisville	PA DEP	Total Phosphate 0.03
Delaware River at Linden Ave.	Philadelphia Water Dept.	Alkalinity - 34 mg/l as CaCO3: Conductance - 173 um/cm2: Turbidity - 5.5 NTU: Sulfate - 18 mg/l: Chloride - 17 mg/l
Dry Sawmill Run	BWA	Turbidity <1.0
French Creek	Owen J. Roberts Middle School	Biotic Index 1.32
Germantown Creek	Jim Thorpe Area High School	Hardness 2 grains/gal, Alkalinity 4 grains/gal
Hakihokaki	Holland Twp. School	Ca 56ppm; Cl less than 1ppm
Hay Creek	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 33 ppm, CO2 3.5 ppm
Hillcrest Pond	EPA/Springfield Twp. Middle School	Ammonia Nitrogen - 1ppm, Turbidity 10JT4
Hummeler Run	Tobyhanna Army Dept	Nitrogen Ammonia 0.19 mg/l
Hummeler Run/Tobyhanna Creek	Tobyhanna Army Dept	Nitrogen Ammonia 0.09 mg/l
Ironstone Creek	Schuylkill River Greenway Association	Turbidity 0 JTU, Alkalinity 84 ppm, CO2 0 ppm
Jordan Creek	Allentown Central Catholic	Suspended Solids: 8.5 - Turbidity: 1- Alkalinity: 0 - Total hardness: 172 mg/l - Ca: 176 mg/l
Lackawanna River	National Park Service	Turbidity: 8NTU
Lausanne Tunnel	Wildlands Conservancy/Parkland High School	Alkalinity 78 mg/l, Hardness 363 mg/l, Sulfate 292 mg/l, Manganese 2090 mg/l, Aluminum 1350 mg/l, Iron 3500 mg/l, Ferrous 2200 mg/l, Turbidity 9.4, Total Acidity 0, Total Residual Non-filterable <2 mg/l

APPENDIX A--Additional Tests

Stream	Organization	Additional Tests Performed
Lehigh River	Wildlands Conservancy/Parkland High School	Alkalinity 5.2 mg/l, Hardness 14.0 mg/l, Sulfate 10.0 mg/l, Manganese 98 mg/l, Aluminum 309 mg/l, Iron 150 mg/l, Ferrous 100 mg/l, Turbidity 189 NTU, Acidity 0, Total residual non-filterable <2.0 mg/l
Lehigh River	Wildlands Conservancy/Parkland High School	Alkalinity 3.6 mg/l, Hardness 41.0 mg/l, Sulfate 10 mg/l, Manganese 67 mg/l, Aluminum 335 mg/l, Iron 135 mg/l, Ferrous 110 mg/l, Turbidity 0.1 NTU, Acidity 0, Total residual non-filterables 12 mg/l
Lehigh River	Wildlands Conservancy/Parkland High School	Alkalinity 3.8 mg/l, Hardness 22 mg/l, Sulfate 10 mg/l, Iron 178 mg/l, Ferrous 130 mg/l, Manganese 72 mg/l, Aluminum 137 mg/l, Turbidity 7 NTU, Acidity 1.2 mg/l, Total residual non-filterable 2 mg/l
Lehigh River	Wildlands Conservancy/Parkland High School	Alkalinity 3.8 mg/l, Hardness 19 mg/l, Sulfate 10 mg/l, Manganese 101 mg/l, Aluminum 385 mg/l, Iron 258 mg/l, Ferrous 130 mg/l, Turbidity 0.39 NTU, Acidity 8.2 mg/l, Total residual non-filterable 2 mg/l
Lewes/Rehoboth Canal	Delaware Inland Bays Citizens Monitoring Program	Chla 15.8 ug/l, TSS 16.4 mg/l
Little Bushkill Creek	Pen Argyl High School	Hardness - 180 ppm; Phosphate - 0; Nitrate >.1 ppm; Coliform - 1000/100ml; Alkalinity - 40 ppm
Little Darby Creek	Wayne Elementary School	Carbon Dioxide 10 mg/l
Little Lehigh Creek	Wildlands Conservancy/Parkland High School	Alkalinity 227 mg/l, Hardness 180 mg/l
Little Pocono Creek	Brodhead Watershed Association	Turbidity <1
Little Schuylkill River	Schuylkill River Greenway Association	Turbidity 15 JTU @25ml, Alkalinity 35 ppm, CO2 3ppm, Iron 0.5 ppm
Lizard Creek	RSVP of Lehigh, Northampton and Carbon Counties	Alkalinity 20 mg/l, Sulfate <50 mg/l
Mahoning Creek	RSVP of Lehigh, Northampton and Carbon Counties	Alkalinity 15 mg/l, Sulfate <50 mg/l
Maiden Creek	Schuylkill River Greenway Association	Turbidity 20 JTU, Alkalinity 70 ppm, CO2 5.5 ppm
Manatawny Creek	Schuylkill River Greenway Association	Turbidity 0 JTU, Alkalinity 94 ppm, CO2 0 ppm
McMichael Creek - Site 1	Pohoqualine Fish Association	Alkalinity 5mg/l
McMichael Creek - Site 11	Pohoqualine Fish Association	Alkalinity 7 mg/l
McMichael Creek - Site 12	Pohoqualine Fish Association	Alkalinity 8 mg/l
McMichael Creek - Site 4	Pohoqualine Fish Association	Alkalinity 5mg/l
McMichael Creek - Site 7	Pohoqualine Fish Association	Alkalinity 7mg/l
Mill Creek	Bala Cynwyd Middle School	Chloride 100 ppm
Mill Creek	Eastern Pennsylvania Coalition for Abandoned Mine Reclamation	Fe=2 mg/l, Acidity 0, Alkalinity 6.8 mg/l
Mill Creek	Koch, R. H.	Chloride 48 mg/l
Mill Creek	Schuylkill River Greenway Association	Turbidity 10 JTU, Alkalinity 8 ppm, CO2 16.5 ppm, Iron 3.5 ppm
Mill Creek	Schuylkill River Greenway Association	Turbidity 0 JTU, Alkalinity 38 ppm, CO2 4 ppm
Monocacy Creek	Schuylkill River Greenway Association	Turbidity 10 JTU, Alkalinity 180 ppm, CO2 8 ppm
Monoshone Creek	Philadelphia Youth Build Charter School	Carbon Dioxide 8 ppm
Neshaminy Creek	Neshaminy High School - Environmental Science Class	Avg. Velocity 0.980m/s, Oxygen Saturation 76.0%, Carbon Dioxide 8.0 mg/l Total Alkalinity 84.0 mg/l, Total Dissolved Solids 150 mg/l, Total Hardness 136 8 mg/l
Neshaminy Creek	North Penn Water Authority	Total Solids 192 mg/l, Turbidity 6.5 NTU, Ammonia .078 mg/l, Fecal Coliform 1040
Neshaminy Creek	North Penn Water Authority	Total Solids 200 mg/l, Turbidity 3.5 NTU, Ammonia .064 mg/l, Fecal Coliform 120/100ml
Neshaminy Creek	North Penn Water Authority	Total Solids 124 mg/l, Turbidity 10.8 NTU, Ammonia .198 mg/l, Fecal Coliform 1300/100ml
Nesquehoning Creek	RSVP of Lehigh, Northampton and Carbon Counties	Alkalinity 10 mg/l, Sulfate <50 mg/l
Nesquehoning Creek	Wildlands Conservancy/Parkland High School	Alkalinity 24 mg/l, Hardness 97 mg/l, Sulfate 93 mg/l, Manganese 721 mg/l, Aluminum 728 mg/l, Iron 1340 mg/l, Ferrous 620 mg/l, Turbidity 5.4 NTU, Acidity 0 mg/l, Total residual non-filterable <2 mg/l
Old Mill McMichaels	Jackie Roth	Turbidity <1

APPENDIX A--Additional Tests

Stream	Organization	Additional Tests Performed
Ontelaunee (Maiden) Creek	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 42 ppm, CO2 4.5 ppm
Pannypack Creek	Little Flower High School	Hardness 7 grain/gal
Ponnypack Creek	Philadelphia Water Dept.	Alkalinity - 54 mg/l as CaCO3; Conductance - 277 uS/cm2; Turbidity - 9.5 NTU; Sulfate - 37 mg/l; Chloride - 18 mg/l
Perkiomen Creek	PA DEP	Total Phosphate 0.04
Pine Creek	Schuylkill River Greenway Association	Turbidity 30 JTU, Alkalinity 28 ppm, CO2 3.5 ppm
Pleasant Mount Fish Culture Station	Pennsylvania Fish and Boat Commission	NH3-N 0.03 mg/l, CBOD5 1.4 mg/l, TSS 2 mg/l
Plum Creek	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 92 ppm, CO2 5 ppm
Pocono Creek	Brodhead Watershed Association	Turbidity <1
Pocono Creek	BWA	Turbidity <1.0
Pocono Creek	BWA	Turbidity <1.0
Pocono Creek	BWA	Turbidity <1.0
Poquessing Creek	Friends of Poquessing Watershed	CO2 - 6ppm
Poquessing Creek	Friends of Poquessing Watershed	CO2 6 ppm
Rocky Run	Delaware Stream Watch - Delaware Nature Society	Alkalinity 45 ppm, Flow 2.63 ft/s
Sacony Creek	Schuylkill River Greenway Association	Turbidity 0 JTU, Alkalinity 157 ppm, CO2 13 ppm
Sandy Run	Glenside Walden Environmental Science Club	Hardness 232 mg/l
Sandy Run	Wildlands Conservancy/Parkland High School	Alkalinity 2.6 mg/l, Hardness 45 mg/l, Sulfate 41 mg/l, Manganese 553 mg/l, Aluminum 2200 mg/l, Iron 184 mg/l, Ferrous 90, Turbidity 3.1 NTU, Acidity 15.2 mg/l, Total residual non-filterable 10 mg/l
Saucon	RSVP of Lehigh, Northampton and Carbon Counties	Velocity .176 meters/second
Schuylkill River	EPA/New Harvest Christian Academy	Turbidity 100 JTU, Total Alkalinity 90ppm
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 172 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 170 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 172 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 162 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 156 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 168 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 186 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 200 mg/l
Schuylkill River	Friends East Park/Strawberry Mansion High School	Total Dissolved solids 204 mg/l
Schuylkill River	PA DEP	Total Phosphate 0.05
Schuylkill River	Philadelphia Youth Build Charter School	Carbon Dioxide 8 ppm
Schuylkill River	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 24 ppm, CO2 10 ppm, Iron 0.5 ppm

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Stream	Organization	Additional Tests Performed
Schuylkill River	Schuylkill River Greenway Association	Turbidity 10 JTU, Alkalinity 22 ppm, CO2 10 ppm, Iron 1.5 ppm
Schuylkill River	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 68 ppm, CO2 4 ppm
South Naaman's Creek	Delaware Stream Watch - Delaware Nature Society	Alkalinity 65 ppm, Flow 1.077 ft/s
South Naaman's Creek	Delaware Stream Watch - Delaware Nature Society	Alkalinity 41 ppm, Flow 1.893 ft/s
Spruce Cabin Runcheck	Brodhead Watershed Association	Turbidity <1
St. Jones Reserve	Milford Middle School	Salinity 1ppt
Stoney Mud Run Creek	Brodhead Watershed Association	Turbidity <1
Swamp Creek	Tinicum Conservancy	Velocity (1.4 feet/second)
Tacony Creek	Friends of Tacony Creek	Hardness 7 grain/gal, Iron 16 ppm, Chlorine 0.1 ppm
Ten Mile Creek	National Park Service	Turbidity: 10NTU
The Lake in Franklin Roosevelt Park	Philadelphia Youth Build Charter School	Carbon Dioxide 0
Tinicum Creek	Tinicum Conservancy	Velocity (2 feet/second)
Tinicum Creek	Tinicum Conservancy	Velocity (11 meters/second)
Tulpehocken Creek	Schuylkill River Greenway Association	Turbidity 5 JTU, Alkalinity 116 ppm, CO2 0 ppm
Tulpehocken Creek	Western Berks Water Authority	Aluminum: 0.0 mg/l; Iron: 0.03 mg/l; Manganese: 0.0 mg/l; Turbidity: 4.3 NTU
Unknown Stream	Philadelphia Youth Build Charter School	Carbon Dioxide >19 ppm
Valley Creek	PA DEP	Total Phosphate 0.02
Valley Stream	Lower Merion Conservancy	Chloride 20 mg/l
Vandermark Creek	Delaware Valley High School	Salinity 0.0
West Branch Delaware River	South Kortright Central School	Speed - 61 m/sec
West Branch Schuylkill River	Schuylkill River Greenway Association	Turbidity 10 JTU, Alkalinity 40 ppm, CO2 8.5 ppm, Iron 2.0 ppm
White Clay Creek, Middle Run	Delaware Nature Society	Alkalinity (ppm) 84 @ WT 14.5 c; 54 @ WT 15.0 c.
Wyomissing Creek	LaSalle Academy	Chloride .5, Alkalinity 35, Ammonia Nitrogen 0.3
Wyomissing Creek	LaSalle Academy	Alkalinity 35 mg/l, Chloride 0 mg/l
Wyomissing Creek	Schuylkill River Greenway Association	Turbidity 0 JTU, Alkalinity 126 ppm, CO2 4.5 ppm



Appendix B

APPENDIX B -- Participants

<u>Organization</u>	<u>Name</u>	<u>Address</u>	<u>City</u>	<u>State</u>	<u>Zip</u>	<u>Phone</u>
Alarm	Harold J. Nugent	455 Chandlee Drive	Berwyn	PA	19312	610-647-0939
Allentown Central Catholic High School	Thomas A. Shive	301 N. 4th Street	Allentown	PA	18102	610-437-4601
Bala Cynwyd Middle School	Ancient Worlds & Waterways Team	510 Bryn Mawr Avenue	Bala Cynwyd	PA	19004	
Bayard School	Mrs. Carlin's Class, Room 213	200 S. DuPont St.	Wilmington	DE	19805	302-429-4118
Belisle, Connie	Connie Belisle	110 Broad Street	Wyoming	DE	19934	302-697-9024
Bernardine Center	Jim Walker, Sr. Rose MacDermott	2627 W. 9th Street	Chester	PA	19013	610-497-3641
Blue Lake Association	Robert A. Hofstrom	35 Pocomantas Tr.	Medford	NJ	08055	609-810-0347
Bordentown Regional High School	Arcola Goodson/Karen Harrison	50 Dunns Mill Road	Bordentown	NJ	08505	609-298-0025
Bordentown Regional High School	Mr. Sulish Biology Class	50 Dunns Mill Road	Bordentown	NJ	08505	609-298-0025
Brandywine Valley Association	BVA Streamwatch	Unionville-Wawaset Road	West Chester	PA	19380	610-793-1090
Brodhead Watershed Assoc.	Amy Albert	P.O.Box 339	Henryville	PA	18332	
Brodhead Watershed Association	James & Judy Cherepka	7 Sylvan Lane	E. Stroudsburg	PA	18301	
Brodhead Watershed Association	Kate Korb	HCR 1 - Box 271	Saylorsburg	PA	18353	717-992-6947
Brodhead Watershed Association	Pat Bixler	P.O.Box 339	Henryville	PA	18332	
Brodhead Watershed Association	R. W. Stevens/J. Sadowski	7 Sylvan Lane	E. Stroudsburg	PA	18301	
Brodhead Watershed Association	Ralph & Irene Martino	7 Sylvan Lane	E. Stroudsburg	PA	18301	
Brodhead Watershed Association	Susan and Louis Heczeg	68 Wildflower Circle	Stroudsburg	PA	18360	717-476-5252
Bureau of Freshwater & Biological Monitoring	NJDEP	P.O.Box 427	Trenton	NJ	08625	609-292-0427
Byram Intermediate School Environment Club	Edith Hall/Barbara Utz	12 Mansfield Drive	Stanhope	NJ	07874	973-347-6663
Camden Co. Dept. of Health & Human Services	Karl Walko/Steve Bayruns	P.O.Box 9 - Lakeland Rd.	Blackwood	NJ	08012	609-374-6063
Cardinal O'Hara High School	Kay Lansing	1701 S. Sproul Rd.	Springfield	PA	19069	610-544-3800
Charles Boehm Middle School	LeeOra Haring and 7B Team	866 Big Oak Road	Yardley	PA	19067	215-420-4220

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Organization	Name	Address	City	State	Zip	Phone
College Settlement of Philadelphia	J.H. Brown Elementary 5th Grade Students	600 Witmer Road	Horsham	PA	19044	215-542-7974
Coltrain, Diane C.	Diane C. Coltrain	2000 Turnberry Circle	Glenmore	PA	19343	610-942-1976
Cooks Creek Watershed Association	Anke M. Ellis	1966 Pleasant View Rd.	Coopersburg	PA	18036	610-346-7263
Cook's Creek Watershed Association	Lois Oleksa	902 Durham Road	Durham	PA	18039	610-346-8436
Crum/Ridley/Chester Monitoring Prog.	Bob Bruce/Cal Alston	68 S. Britton Road	Springfield	PA	19064	
Crum/Ridley/Chester Monitoring Prog.	Lawrence Barrett	47 Skyline Drive	Glen Mills	PA	19342	610-459-3231
Crum/Ridley/Chester Monitoring Prog.	Mr. Peter Weber	613 Academy Rd.	Swarthmore	PA	19081	610-543-1531
D&R Greenway/Hamilton Twp. Water Pollution	Thomas Shelley	300 Hobson Ave.	Hamilton	NJ	08610	609-581-4140
Delaplanc, Ralph & Peggy Ann	Ralph & Peggy Ann Delaplanc	113 Sheffield Drive	Hockessin	DE	19707	302-994-1222
Delaware & Raritan Greenway	John W. Kashner	712 Adeline St.	Trenton	NJ	08611	609-392-8358
Delaware Bay Schooner Project	Gov. Whitman, Girl Scouts, Delran Middle School	2800 High Street	Port Norris	NJ	08349	609-785-2060
Delaware Inland Bays Monitoring Program	June Conner/Ed Whereat	U. of DE 700 Pilottown Rd	Lewes	DE	19958	302-645-4252
Delaware Nature Society	Ellen Cooper/Kathy Helfreth		Hockessin	DE	19704	302-831-2882
Delaware Nature Society	Jim Wetzcl/Josh Kasper	2520 Teal Road	Wilmington	DE	19805	302-998-9229
Delaware Nature Society	Karen McLachlan/Marty Currie	516 Nina Lane	Bear	DE	19701	302-836-0711
Delaware Nature Society	Walt Partenheimer	16 Clermont Road	Wilmington	DE	19803	302-762-7244
Delaware River Basin Commission	R. Albert	25 State Police Dr.	W. Trenton	NJ	08628	609-883-9500
Delaware River Basin Commission	R. Limbeck	25 State Police Dr.	W. Trenton	NJ	08628	609-883-9500
Delaware River Basin Commission	T. Kratzer	25 State Police Dr.	W. Trenton	NJ	08628	609-883-9500
Delaware Riverkeeper	Laura S. Johnson	1468 East Buckshutem Rd	Millville	NJ	08332	609-825-6776
Delaware Riverkeeper Network	Anna Kettell	161 Erie Ave.	Souderton	PA	18964	215-725-2870
Delaware Riverkeeper Network	Frank Murphine, Jr.					609-854-5108

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Organization	Name	Address	City	State	Zip	Phone
Delaware Riverkeeper Network	Fred Gusz	1217 Pine Grove Road	Morrisville	PA	19067	215-295-5903
Delaware Riverkeeper Network	Herbert A. Volker	1023 Weikel Road	Lansdale	PA	19046	215-855-5084
Delaware Riverkeeper Network	Kelli Scarlett	1377 Creek Rd. #8	Furlong	PA	18925	215-598-0946
Delaware Riverkeeper Network	Roxane, Robert and Max Shinn	10 White Oak Ct.	Cherry Hill	NJ	08034	609-858-4396
Delaware Riverkeeper Network	Roxane, Robert, & Max Shinn	10 White Oak Court	Cherry Hill	NJ	08034	609-858-4396
Delaware Riverkeeper Network	Timshel E. Purdum	1 Wapalanne Rd.	Branchville	NJ	07826	973-948-2374
Delaware Valley HS Environmental Club	Sheila Hodge	HC77 - Box 379C	Milford	PA	18337	717-296-3655 (7112)
Department of Environmental Protection	Eric Garner	4530 Bath Pike	Bethlehem	PA	18017	610-861-2070
Department of Environmental Protection	Eric Garner	4530 Bath Pike	Bethlehem	PA	18017	
Department of Environmental Protection	John Aiello	2 Public Square	Wilkes-Barre	PA	18711	717-826-2553
Department of Environmental Protection	Leonard Nawrocki	2 Public Square	Wilkes-Barre	PA	18711	717-826-2553
Department of Environmental Protection	Mark Miller	4530 Bath Pike	Bethlehem	PA	18017	610-861-2070
DNREC	DRBC	89 Kings Highway	Dover	DE	19901	302-739-4771
DNREC	Pearl W. Burbage	29 S. State St.	Dover	DE	19901	302-739-4590
DNS Volunteer	Peg Plank	101 Tumblerock Rd.	Wilmington	DE	19807	302-994-5611
Eagle Institute - Mackenzie Elementary School	Lori McKean	P. O. Box 182	Barryville	NY	12719	914-557-8025
Earthright, V.M.H.A., K.A.R.E.	G. Prokopiak/M. Wintz	11015 Terwood Road	Huntingdon Valley	PA	19006	215-659-7164
Easton High School - S.A.V.E.	R. Brior/R. Reese	2601 Wm. Penn Hwy	Easton	PA	18045	610-250-2481
DEPA/New Harvest Christian Academy	Kisha Young/Charles McPhedran	841 Chestnut Bldg.	Philadelphia	PA		215-566-2672
DEPA/Springfield Twp. Middle School	Janet Viniski	841 Chestnut Bldg.	Philadelphia	PA	19118	215-566-2999
Del. Hoppeck Middle School	Jayne McKenna's 7th Grade Science Classes	265 Asbury West Portal R	Asbury	NJ	08802	908-479-6336
Delastastics 4H Club	Edward J. O'Donnell	103 St. Regis Drive	Newark	DE	19711	302-737-9091

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Organization	Name	Address	City	State	Zip	Phone
Franciscans International	Srs. Nancy News, Pat Gregory, Rose MacDermott	2627 W. 9th St.	Chester	PA	19013	610-497-3641
Friends East Park/Strawberry Mansion H.S.	Marlene Brubaker and Tonetta Graham & Students	1515 East Beverly Road	Philadelphia	PA	19138	215-224-3932
Friends of Poquessing Watershed	Donna Remick/Al Decker	3041 Century La.	Bensalem	PA	19020	
Friends of Tacony Creek Park	Fred Maurer	5165 'D' Street	Philadelphia	PA	19120	215-324-8942
Glenside Weldon Elementary School	Mary M. Ryan	423 Easton Road	Glenside	PA	19030	215-884-8001
Hemlock Farm Lake Watch	Susan H. Grimes	2839 Hemlock Farms	Lord Valley	PA	18428	717-775-0474
Holland Township School	Bill Lee	710 Milford-Warren Rd.	Milford	NJ	08848	908-995-2401
J. Bartram High School	Students	67th and Elmwood Ave.	Philadelphia	PA	19142	215-729-5281
Jacobshurg Environmental Education Center	Bill Sweeney	835 Jacobshurg Rd.	Wind Gap	PA	18042	610-746-2808
Jacobshurg State Park	Emil V. House	130 E. High St.	Nazareth	PA	18064	610-759-1562
Jim Thorpe Area High School	LeRoy E. Skinner	1100 Center Street	Jim Thorpe	PA	18229	717-325-3663/4
Koch, R. II.	R. H. Koch	210 Roberts Road	Ardmore	PA	19003	610-649-4305
L.V.Telephone Pioneers	Carroll R. William	1499 White Oak Road	Allentown	PA	18104	610-395-9225
LaSalle Academy	Daniel Hetzel	440 Holland Street	Shillington	PA	19607	610-777-7392
LaSalle Academy	Daniel Kramer	440 Holland Street	Reading	PA	19607	610-777-7392
LaSalle Academy	Kristen Betsy	440 Holland Street	Shillington	PA	19607	610-777-7392
LaSalle Academy	Mrs. Hofuer	440 Holland Street	Reading	PA	19607	610-777-7392
Lenni Lenape Girl Scout Council	Junior Troop 709 - Dottie Brune, Leader	7 Meadowlark Dr.	Glenwood	NJ	07418	
Little Flower High School	Nicole Speese	100 Lycoming St.	Philadelphia	PA	19140	215-455-6900
Lower Merion Conservance	Bill Frezel	9 Bryn Mawr Avenue	Bryn Mawr	PA	19010	215-676-9090
Lower Merion Conservancy	Norah Goldfine		Lower Merion	PA	19066	610-664-7153
Lower Nazareth Elementary School	Mark Atwood, Emma Belcastro, Michael Ambrose	4422 Newburg Road	Nazareth	PA	18064	610-759-7311

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<u>Organization</u>	<u>Name</u>	<u>Address</u>	<u>City</u>	<u>State</u>	<u>Zip</u>	<u>Phone</u>
Lynch, Sheila	Sheila Lynch	953 Alexandria Drive	Newark	DE	19711	302-456-0346
Mafco Worldwide Corporation	John Kropiewnicki	3rd St. & Jefferson Ave.	Camden	NJ	08104	609-964-8840
Mantua Creek Watershed Association	Bill Freund	311 S. Princeton Ave.	Wenonah	NJ	08090	609-464-6865
Margaretville Central School	Jason Scott		Margaretvill	NY	12455	
Margaretville Central School	Laura Scarabino		Margaretvill	NY	12455	
Media Providence Friends School	6th Grade Class	125 West Third Street	Media	PA	19063	610-565-1960
Milford Middle School	J. Nauman	612 Lakeview Ave.	Milford	DE	19963	302-422-1620
Montgomery County Health Department	Jennifer Paul	55 E. Marshall St.	Norristown	PA	19401	610-278-5145
Muhlenberg College	Karen Terry	2400 Chew St.	Allentown	PA	18104	610-740-4032
Musconetcong Watershed Association	Gary Roborely	P. O. Box 87	Washington	NJ	07882	908-638-8079
Musconetcong Watershed Association	Roberta Morganstern	510 River Road	Asbury Village	NJ	08802	908-537-4294
Musconetcong Watershed Association	Roger and Sally Kissling	17 Staats Road	Bloomshury	NJ	08804	908-479-6840
MWA	Jim Kramer	P. O. Box 535	Hampton	NJ	08827	308-537-2118
National Park Service - Upper Delaware	Don Hamilton	RR2 - Box 2428	Beach Lake	PA	18405	717-729-7842
Neshantiny H.S. - Environmental Science Class	Michael S. Bernarsky	2001 Old Lincoln Uighwa	Langhorne	PA	19047	215-752-6491
New Jersey Water Watch	Ralph H. Rickenbach	211 Wilson Avenue	W. Collingwood Hts	NJ	08059	609-742-8187
NJ American Water Co.	Laura Vancho	213 Carriage Lane	Delran	NJ	08075	609-764-4921
Norristown Area High School	Eagles of Nature - Environmental Club	1900 Eagle Drive	Norristown	PA	19403	610-630-5000 X371
North Penn Water Authority	Sean Greene/Bruce Sandstrom	144B Park Ave.	Chalfont	PA	18916	215-822-1759
Owen J. Roberts Middle School	Stream Watch	881 Ridge Road	Pottstown	PA	19465	610-469-0983
PA Coalition for Abandoned Mine Reclamation	Robert E. Hughes	1206 Ag Center Drive	Pottsville	PA	17901	717-622-0709
PA Department of Environmental Protection	Mike Boyer	Lee Park, Suite 6010, 555	Conshohocken	PA	19428	

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Organization	Name	Address	City	State	Zip	Phone
Clarkland U.S./Lehigh River Watch & Conservancy	Bob Miller	3701 Orchid Place	Emmaus	PA	19049	610-965-4397
Pen Argyl High School	Aquatic Biology Class	501 W. Laurel Avenue	Pen Argyl	PA	18072	610-863-1293
Lehigh Valley Watershed/Maple Shade School	Peter Naurath Jr.	351 Elm Avenue	Maple Shade	NJ	08052	609-779-8074
Pennsylvania Fish and Boat Commission	Mike Conner	Box 3	Pleasant Mount	PA	18453	717-448-2101
Pennsylvania Power & Light Co.	James A. Klass	P. O. Box 257	Martins Creek	PA	18063	610-498-6200 (X123)
Petrakovich, Cheryl A.	Cheryl A. Petrakovich	1233 Concord Ave.	Allentown	PA	18103	610-435-9577
Philadelphia Suburban Water Company	Bob Kahley	762 W. Lancaster Ave.	Bryn Mawr	PA	19010	610-525-1400
Philadelphia Suburban Water Company	Craig Marleton	762 W. Lancaster Ave.	Bryn Mawr	PA	19010	610-525-1400
Philadelphia Suburban Water Company	Robert C. Feuer	762 W. Lancaster Ave.	Bryn Mawr	PA	19010	610-525-1400
Philadelphia Water Dept. - Central Laboratories	Greg Hanson	1500 E. Hunting Park Ave	Philadelphia	PA	19124	215-685-1456
Philadelphia Water Dept. - Central Laboratories	Maryjoy Garulacan	1500 E. Hunting Park Ave	Philadelphia	PA	19124	215-685-1456
Philadelphia Water Dept. - Central Laboratories	Patrick C. Frazer	1500 E. Hunting Park Ave	Philadelphia	PA	19124	215-685-1456
Philadelphia Youth Build Charter School	Aiden Downey	619 Catherine Street	Philadelphia	PA	19147	215-424-1055
Pocono Lake Fish Association	Kevin Cary	R.D. 2 - Box 2562	Saylorsburg	PA	18353	717-992-6443
Pond Road Middle School	Alex Jones	150 Pond Road	Robbinsville	NJ	08520	609-371-1140
Pond Road Middle School	Alex Thompson	150 Pond Road	Robbinsville	NJ	08520	609-371-1140
Pond Road Middle School	Becca Sanford, Scot Kyrza, Tiff Friedman, Nichole Keene	150 Pond Road	Robbinsville	NJ	08520	609-371-1140
Pond Road Middle School	Josh K, Andy H, Alex J.	150 Pond Road	Robbinsville	NJ	08520	609-371-1140
Pond Road Middle School	Josh K.	150 Pond Road	Robbinsville	NJ	08520	609-371-1140
Pond Road Middle School	Michael, April, Chris, Rhac	150 Pond Road	Robbinsville	NJ	08520	609-371-1140
Pond Road Middle School	Tiffany Friedman	150 Pond Road	Robbinsville	NJ	08520	609-371-1140
Pond Road Middle School	Tina Winthrop, Jeff Nebres, George Haranis	150 Pond Road	Robbinsville	NJ	08520	609-371-1140

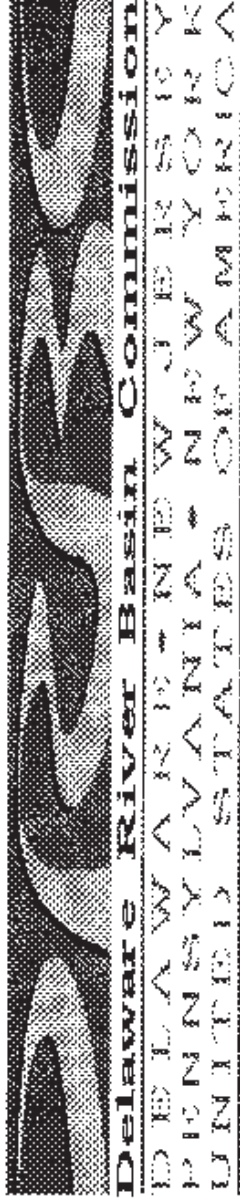
APPENDIX B -- Participants

Organization	Name	Address	City	State	Zip	Phone
Pottstown Middle School	Sue Saponsky	Franklin & East Sts.	Pottstown	PA	19464	610-970-6665
Radnor Middle School	Watershed Program	131 South Wayne Avenue	Wayne	PA	19087	610-688-8100 (x 27)
Roosevelt Alternative School	John Schirk	P.O. Box 124	Spring Mount	PA	19478	610-275-9720
Roth, Jackie	Jackie Roth	P. O. Box 163	Saylorsburg	PA	18354	610-992-5198
RSVP of Lehigh,Northampton&Carbon Counties	Bob Green	800 Housman Road	Allentown	PA	18037	610-391-8211
RSVP of Lehigh,Northampton&Carbon Counties	Stan Paulakoyich	800 Housman Road	Allentown	PA	18037	610-391-8211
RSVP of Lehigh,Northampton&Carbon Counties	Steve Duma/Bill Jevick	800 Housman Road	Allentown	PA	18037	610-391-8211
Salem County Watershed Task Force	Francis Ponti	439 Watsons Mill Road	Elmer	NJ	08318	609-358-3835
Salem County Watershed Task Force	Jerry Waters/Linda McDonough	439 Watsons Mill Road	Elmer	NJ	08318	609-358-3835
Salem County Watershed Task Force	Ralph W. Rickenbach	211 Wilson Ave.	W. Collingswood	NJ	08059	
Saucon Valley High School Ecology Class	Lance Leonhardt	2100 Polk Valley Road	Hellertown	PA	18055	
Schuylkill River Greenway Association	Joseph G. Shidisky	960 Old Mill Road	Wyomissing	PA	19610	610-372-3916
Schuylkill Riverkeeper	John Brunner	P. O. Box 85	Schwenksville	PA	19473	908-638-8079
Schuylkill Riverkeeper	Lisa Armstrong/Carol Bowers	2425 Pine St.	Philadelphia	PA	19103	215-977-8516
Schuylkill Riverkeeper/Morris Arboretum	Carol Cloen/Joy Lawrence	P. O. Box 459	St. Peters	PA	19470	610-469-6005
Shafer School	Barth Doers	49 So. Library St.	Nazareth	PA	18064	610-759-5228
South Kortright Central School	Parker	P. O. Box 113	South Kortright	NY	13842	607-538-9111
Spruce Lake Outdoor School	Douglas Musselman	RR1, Box 605	Conadewsls	PA	01836	717-595-7505
Swarthmore Rutledge School - 1st Grade Class	Mrs. Ann Robinson	College Ave.	Swarthmore	PA	19081	610-544-5700
TC/TC Watershed Association	Mark Sincavage	P.O.Box 796	Pocono Lake	PA	18347	717-643-2001 (VM)
Telephone Pioneers	Arthur Youse	3135 Hilly Road	Bethlehem	PA	18017	610-865-1366
The College Settlement of Philadelphia	J. H. Brown Elementary - 5th Grade Students	680 Witmer Road	Horsham	PA	19044	215-542-7974

APPENDIX B -- Participants

Organization	Name	Address	City	State	Zip	Phone
The Independence School	Earth Science - 6th Grade	1300 Paper Mill Road	Newark	DE	19711	302-239-0330
Tinicum Conservancy	Marion M. Kyde	15 Tankhamen Rd.	Ottsville	PA	18942	610-847-8650
Tobyhanna Army Depot	Tom Wildoner	11 Hap Arnold Blvd.	Tobyhanna	PA	18466	717-895-6498
Tobyhanna Creek Watershed Association	Carol Ellis/Bill Hamilton	P.O. Box 796	Pocono Lake	PA	18347	717-643-2001 (VM)
Tobyhanna Creek Watershed Association	Derek Boehringer	P.O. Box 796	Pocono Lake	PA	18347	717-643-2001 (VM)
Tobyhanna Creek Watershed Association	John, Fran, Amy Whipple	P.O. Box 796	Pocono Lake	PA	18347	717-643-2001 (VM)
Tobyhanna Creek Watershed Association	Paul W. Snyder	P.O. Box 796	Pocono Lake	PA	18347	717-643-2001 (VM)
USEPA, Region III	C. Kanetsky, M. Barath, J. Gouvas	1650 Arch Street	Philadelphia	PA	19103	215-566-2735
Walpack Valley Environmental Education Center	Charles Bickart	P.O. Box 134	Walpack	NJ	07881	973-948-9749
Washington Crossing Audubon Society	Herb Lord	P.O. Box 112	Pennington	NJ	08534	
Washington Crossing Audubon Society	Patricia Sziber	P.O. Box 112	Pennington	NJ	18534	609-737-1189
Wayne Elementary School	Mr. Richter's 4th Grade Class	651 W. Wayne Ave.	Wayne	PA	19087	610-687-8480
Western Berks Water Authority	Gary D. Rhoads	91 Water Road	Reading	PA	19608	610-678-4400
Westtown School	3rd Grade Class	P.O. Box 1799 - Westtown	Westtown	PA	19395	610-399-7962
Wildlands Conservancy/Emmaus High School	Heather Zellers	3701 Orchid Place	Emmaus	PA	18049	610-965-4397
Wildlands Conservancy/Parkland High School	Chris Kocher	3701 Orchid Place	Emmaus	PA	18049	610-965-4397
Wilson Area School District - Honors Biology	Rae Durbin	424 Warrior Lane	Easton	PA	18042	610-258-2732
YMCA Camp Speers - Eljabar	Lisa Cutshaw	RR#1 - Box 89	Dingman's Ferry	PA	18328	717-828-2329

APPENDIX C



Water Snapshot '98 April 17-April 26

A survey of water quality/monitoring throughout the Delaware River Basin

DIRECTIONS-Sample as many locations and provide as much of the requested information as possible; complete one data sheet for each different location. Get landowner permission before entering private property. You are invited to send in copies of photos you take; we may include them in our report. Please include the names of individuals (or the group), the location and the date on the reverse of the photo. Please return completed form by May 30 to: Bob Kausch, Delaware River Basin Commission, Box 7360, West Trenton, N.J. 08628. Questions? Phone (609) 883-9500 x-252; Fax 883-9522; e-mail: bkausch@drbc.state.nj.us (Note: You may copy this form. Blank forms may be obtained from the DRBC web page-- <http://www.state.nj.us/drbc/>).

1.) _____ (COLLECTOR'S NAME) _____ (E-MAIL ADDRESS)

2.) _____ (NAME OF SCHOOL, COMPANY OR ORGANIZATION) _____ 3.) _____ (PHONE NUMBER)

4.) _____ (COMPLETE MAILING ADDRESS: STREET CITY STATE ZIP)

5.) _____ (SITE INFORMATION: NAME OF STREAM, POND, OR LAKE MUNICIPALITY of site COUNTY of site STATE ZIP of site)

6.) Location relative to known/mapped landmark, e.g. road, bridge, building? _____

7.) Approx. width of stream _____ feet; lake acreage _____

8.) Date and hour the data was collected _____

WEATHER CONDITIONS

9.) Was there precipitation within the past 48 hours? YES NO 10.) Present Air Temp? _____ °C

11.) Present weather? SUNNY - PARTLY CLOUDY - OVERCAST - RAIN

WATER QUALITY

12.) _____ 13.) _____ 14.) _____ 15.) _____ 16.) _____ 17.) _____
 (WATER TEMPERATURE) °C (pH) (DISSOLVED OXYGEN) mg/l (CONDUCTIVITY) umhos/cm (WATER DEPTH) meters (SECCHI DEPTH) meters

Circle correct response:

18.) _____ 19.) _____ 20.) a. Less than Normal b. Normal c. Greater than Normal d. Unknown
 (NITRATE [NO3]) mg/l (PHOSPHATE [PO4]) mg/l (FLOW OF STREAM or CAPACITY STATUS OF IMPOUNDMENT)

21.) Other tests: _____
 (Record any other water quality test data that you collected at this site; if needed, attach separate sheet.)

22.) What instruments, meters, equipment, etc. did you utilize?: _____

23.) Is the water cloudy? NO - SOMEWHAT - VERY

24.) Aquatic life observed: ALGAE - ROOTED PLANTS - FISH - AMPHIBIANS - INVERTEBRATES
 (Other, please describe) _____

APPENDIX C VISUAL ASSESSMENT OF SMALL (WADEABLE) STREAMS

Look at the creek and surrounding area for 50 yds. upstream and 50 yds. downstream of your site.

Put an "X" directly over the best response to each assessment factor.

ASSESSMENT FACTOR	RESPONSE			POOR
	EXCELLENT	GOOD	MARGINAL	
1. Instream cover (habitat for fish & aquatic organisms)	The stream contains lots of boulders (over 10"), cobble (2-10"), submerged logs, undercut banks or other stable habitat	There is adequate habitat of both rock & wood for maintenance of diverse populations of fish & bugs	Some rock and wood or other stable habitat but much less than desirable	Not much stable habitat; lack of habitat is obvious
2. Fine particle sediments: (sand, silt, mud)	The rocks in the stream are not surrounded by fine sediments; I see very little sand, silt, or mud on the bottom	Rocks are partly surrounded by fine sediments. I could easily flip over the rocks on the bottom.	Rocks are more than half surrounded by fine sediments; Rocks are firmly stuck into sediments	Rocks are deeply stuck into fine sediments; bottom is mostly sand, silt, or mud
3. "Flow patterns": How many does the stream have....	All 4 of these velocity/depth patterns are present within 50 yards upstream or downstream of this site: slow/deep, slow/shallow, fast/deep, fast/shallow	Only 3 of 4 regimes (flow patterns) are present	Only 2 of the 4 regimes present	Dominated by 1 velocity/depth regime
4. Condition of banks and coverage?-- If the two banks are very different, assess the worse side, if possible	The banks are stable; no evidence of erosion or bank failure; the whole bank is covered with vegetation or rock	Moderately stable; some small areas of erosion mostly healed over; most of the bank is covered by vegetation or rock	I largely unstable; almost half of the bank has areas of erosion or is NOT covered by vegetation or rock	Unstable; eroded areas; "raw" areas occur frequently; less than half of the bank is covered by vegetation or rock
5. Disruptive pressures to the "riparian" (land bordering streambanks) area? (If the two banks are very different, assess the worse side, if possible)	Trees, shrubs, or grasses have not been disturbed through forestry, grazing or mowing; almost all plants are growing naturally. Mature trees, understorey, and vegetation are present	Some disruption but not affecting full plant growth potential to any great extent: Trees, woody plants, and soft green plants are dominant	Disruption is obvious; some patches of bare soil, uninvaded fields or closely cropped vegetation are the norm	There is not much natural vegetation left or it has been removed to 3 inches or less in average stubble height
6. Riparian (land bordering streambanks) vegetative zone width(If the two banks are very different, assess the worse side, if possible)	Riparian zone is more than 35 yards wide; human activities (parking lots, roads, clearcuts, lawns, or crops) have not impacted zone	Riparian zone 12-35 yards wide; human activities have impacted zone only minimally	Width of riparian zone 6-12 yards; human activities impacting zone are continuously evident	Width of riparian zone is less than 6 yards; lots of nearby human activities
7. Litter	There is no litter in the area	There is very little litter in the area; probably some degradable paper accidentally dropped by fishermen or hikers	Litter is fairly common and includes metal or plastic, obviously purposely dropped.	Area is a candidate for a clean-up project. Lots of litter, dumping, tires, or barrels present
8. Overall I Rate the VISUAL ASSESSMENT of this site...	EXCELLENT	GOOD	MARGINAL	POOR

DEFINITIONS:

- Riparian zone** - the land connected with or immediately adjacent to the banks of a stream or other body of water.
- Disruptive pressure** - any activities which interfere with the natural unity of a system. In the case of riparian assessment, this usually refers to land use practices such as mowing, grazing, logging, paving, building construction, heavily worn paths, etc.
- Habitat** - the "places" where a plant or animal normally lives and grows throughout all the phases of its life cycle.
- Stable Habitat** - the condition in which places used for hiding, resting, reproducing, living, and growing are not under going rapid or constant change. In the case of stream assessment this is usually referring to large rocks, logs, and undercut banks which are more or less permanently in place.

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