ACKNOWLEDGMENTS

This 2002 305(b) report is the result of the combined efforts and cooperation of various members Department of Environmental Quality (DEQ) staff and other state agencies, as well as input and assistance from various public and private organizations. The primary information for nonpoint source assessment was collected and analyzed by the Department of Conservation and Recreation (DCR). Other, health related, water quality information was provided by the Virginia Department of Health (VDH).

The overall water quality assessments for the individual waterbody basins were conducted by the water quality planning staff in each of the DEQ regional offices. The regional ambient monitoring program staff collected the primary, quality assured data used by the regional planning coordinators in their overall evaluation of water quality within each river basin located within the regional boundary. The Virginia Division of Consolidated Laboratory Services (VDCLS) analyzed the ambient station samples and provided the results to DEQ's centralized Comprehensive Environmental database System (CEDS). Additionally, the regional biologists sampled and analyzed macroinvertebrate (benthic) data collected at sites within their regional boundaries. The DEQ Fish Tissue program collected fish tissue and sediment samples at selected sites across the state. Analysis of the fish samples are provided by the College of William and Mary/Virginia Institute of Marine Sciences and the results were incorporated into the overall river basin assessments. The DEQ Chesapeake Bay Program (CBP) provided data which was incorporated into the overall coastal and estuary assessment. The DEQ Wetland and Ground Water programs provided valuable insight into the influence each of these resources has on water quality, while the DEQ Construction Assistance program provided cost/benefit analysis information. The DEQ Water Quality Assessment staff at the central office assisted with much of the final preparation and review of the contents of this report as well as production of the report cover.

Many other contributors provided information used in the overall assessment of water quality in Virginia. These contributors include local governments, regional agencies and various citizen groups interested in water quality issues. Information, provided by the DEQ Pollution Prevention program, has assisted numerous public, private and industrial organizations with pollution prevention techniques and incentives for pollution reduction, ultimately resulting in improved water quality.

Additionally, monitoring data, reporting guidance and other water quality information have been provided by several federal programs. These include the U.S. Geological Survey, the U.S Forest Service, the National Park Service, the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service and several sections within the Environmental Protection Agency.

We sincerely appreciate the contributions and assistance of all of those individuals and groups that have assisted in preparation of this report. Without their assistance, this 305(b) water quality assessment report could not have been completed.

My thanks to all contributors,

Harry H. Augustine, III
Virginia 305(b) Coordinator

INTRODUCTION

The 2002 Virginia Water Quality Assessment Report is a summary of the water quality conditions in Virginia during the past five years (January 1, 1996 – December 31, 2000). This report, compiled by the Department of Environmental Quality (DEQ) with the assistance of the Department of Conservation and Recreation (DCR), is submitted to the Environmental Protection Agency and Congress to satisfy the federal reporting requirements under Section 305(b) of the Clean Water Act.

Summary information on water quality and the various programs developed by the DCR, DEQ and other federal, state and local agencies to assess and protect water quality and human health have been incorporated in this report. Also included in this report is assessment data provided by quality assured citizen volunteers. Detailed sampling information for the nine river basins found in Virginia is incorporated into Appendix B of this report. This information includes the river basin sampled, the monitoring station identification, the parameter(s) sampled, assessment methodology used and associated comments. Any additional information concerning specific stations or the data presented in this report can be retrieved upon request by contacting the DEQ's central or local regional offices.

Many aspects of this assessment process are the same as previous assessments but several changes or enhancements have been implemented for this reporting period which are different from previous assessments. First and foremost, the overall assessment of water quality, once again, incorporates a five-year period. Earlier assessments had been based on a two-year period which made it very difficult to accurately predict water quality because the number of sampling data points available were limited. By going to a five-year assessment period, more data points are available and a better analysis of the data can be performed. Secondly, the use of the Afully supporting but threatened@ category is used again in several different ways. This category includes DEQ designated Anutrient enriched waters@ (9VAC 25-260-350). These waters are considered threatened due to administrative and/or evaluated reasons and are specific to aquatic life use (ALUS). Shellfish waters with temporary harvesting restrictions are considered threatened for shellfish consumption and exceedences of sediment and nutrient SV's are considered threatened for ALUS. Citizen monitoring data, which indicate exceedences of Water Quality Standards, are considered threatened for the designated use associated with the exceedences. **Although the fully supporting but threatened category has been used in the 2002 assessment, DEQ is <u>not</u> predicting that these waters will ultimately become impaired. This identification will help target those waters needing additional monitoring. DEQ considers threatened waters as "waters of concern".**

An important modification to this assessment is the inclusion of an estuarine benthic and toxic review of water quality. Previously, this type of estuarine water quality information was scarce and not very reliable. The Chesapeake Bay Program (CBP) has been very active in sampling and analyzing estuarine waters and has provided DEQ with reliable data for assessment review. Assessment of the random benthic index of biological indicators (B-IBI) collected by the CBP, where severely degraded conditions have been detected, will be assessed as fully supporting but threatened. DEQ has made the decision that a random, single sample is not enough data to cause the water to be listed as impaired. Fixed station B-IBI severely degraded data will be used to identify that water as impaired. For estuarine toxics evaluation, a "weight of evidence" approach, which was developed by the Chesapeake Bay Alliance, has been used.

Another major change is the assessment of fish tissue as it relates to fish consumption use. Previously, exceedences of the fish tissue screening values have been assessed as fully supporting but threatened. For the 2002 assessment, 2 or more exceedences of the same toxic screening value at a site will result in impairment. Since the screening values are directly calculated from the "human health" Water Quality Criteria for Surface Waters (9 VAC 25-260-140), it has been determined that these exceedences will result in impairment.

Equally important to the 2002 assessment is the inclusion of certain U.S. Forest Service (USFS) and "quality assured" citizen monitoring data. DEQ has been active with several citizen monitoring groups enhancing the quality of the monitoring data provided by these various groups. Additionally, USFS has shared a substantial amount of water quality data associated with the George Washington and Jefferson National Forests. These additions, along with the benthic data provided by CBP, has increased the spatial coverage of water quality assessment throughout the state and is an important step in reaching a comprehensive assessment of all waters within the state.

In addition to the previously described enhancements to the 2002 water quality assessment process, the 305(b)/303(d) guidance manual has been revised and updated in an attempt to enhance assessment quality and consistency among the regional offices. The revised manual has been reviewed by an academic advisory committee (AAC) made up of academic advisors from several state universities who are familiar with water quality issues. The purpose of this committee is to review the procedures associated with water quality assessment and to provide insight concerning specific technical issues DEQ and the committee feels may need additional revision or clarification. Additionally, DEQ has also made this guidance document available to the public for comment and revisions from this review process have been incorporated. The 2002 Assessment Guidance Manual can be found on the DEQ website at: **http://www.deq.state.va.us/water/reports/html**

In July 1997 the Department established the Water Quality Monitoring Task Force. The purpose of the Task Force was to update the water quality monitoring program to conform with the monitoring requirements of the Water Quality Monitoring, Information, and Restoration Act of 1997. The Task Force analyzed the current operational plans of the various monitoring programs within the Department and has begun implementation of the new monitoring strategy. The expected outcome of this strategy will be consistent station siting, greater stream mile coverage, and expanded pollutant analyses so overall water quality can be determined within specific and easily identifiable, geographically defined water segments.

To assist in the goal of increasing the number of stream miles monitored, the Department=s volunteer monitoring program has greatly increased the role of coordinating the monitoring activities of participating volunteer groups. Consistent quality control practices and quality assurance procedures within the volunteer monitoring programs help ensure the creditability and precision of the volunteer data for use in the Amonitored data@ assessment process.

Alternative station siting selection criteria are also being explored as a basis for expanding river miles monitored. Historical monitoring station selection is being used to determine any need for additional monitoring in those waters known to have water quality problems. Additionally, special studies, associated with the Total Maximum Daily Load (TMDL) program, are being used to “focus” monitoring in specific waters that have been identified as impaired for one or more designated uses.

Expanded pollutant analysis is currently being conducted using new techniques developed by the Department. These include clean metals monitoring, additional pathogenic bacteria monitoring, trace organic compound(s) analysis in whole water column and new chlorophyl a filter sampling analysis.

Finally, DEQ and DCR, with inputs from other federal, state, local and citizen stakeholders, have begun a cooperative effort to schedule and develop Total Maximum Daily Loads (TMDLs) for waters not meeting Water Quality Standards, as identified in the 1998 303(d) impaired waters list. These efforts will result in the development of pollutant “load allocations” which upon implementation, will ultimately allow these waters to return to fully supporting all designated uses.

For more information relating to water quality programs and initiatives visit the DEQ website at WWW.DEQ.STATE.VA.US/WATER.

PART I

Chapter 1.1 EXECUTIVE SUMMARY

The 2002 305(b) Water Quality Assessment Report describes the water quality conditions in the Commonwealth of Virginia during the time period beginning January 1, 1996 through December 31, 2000. The primary purpose of this report is to satisfy the water quality reporting requirements of the Commonwealth of Virginia under Sections 305(b), 106, 314 and 319 of the Federal Clean Water Act and the Virginia Water Quality Monitoring, Information and Restoration Act.

Virginia has nine major river basins with an estimated 50,329 miles of perennial rivers and streams and approximately 2,500 square miles of estuaries. These figures were calculated utilizing the Environmental Protection Agency (EPA) National Hydrography Database (NHD). This new hydrography database has provided additional geographical refinement of rivers and streams in Virginia over the previous River Reach File (RF3) hydrography database used in previous reports. This is the reason that the overall stream mileage in the state has slightly increased from previous reported stream mileage.

The overall water quality for Virginia is assessed based on whether or not the condition of the waterbody of concern permits citizens to safely enjoy the designated uses of the waters as described in the Virginia Water Quality Standards. Table 1.1-1 briefly describes the designated uses and the baseline criteria used in this assessment to demonstrate support of the designated uses.

Table 1.1-1 DESIGNATED USE MATRIX

NO.	DESIGNATED USE	SUPPORT OF USE DEMONSTRATED BY
1	Aquatic Life Use	Conventional Pollutants (Dissolved Oxygen, pH, Temp.); Toxic contaminants in water column; Toxic contaminants found in sediments exceeding NOAA's Effects Range -Median Value; Biological evaluation.
2	Fish Consumption Use	Advisories, limiting consumption, or restrictions issued by Virginia Department of Health (VDH); Comparison of fish tissue data to state screening values for toxic pollutants found in Tables 6(a) and 6(b) of the Water Quality Assessment Guidance Manual
3	Shellfish Consumption Use	Restrictive actions for harvesting and marketing of shellfish resources made by Div. of Shellfish Sanitation of VDH.
4	Swimming Use	Conventional Pollutant (Fecal Coliform Bacteria) and/or beach closures issued by VDH
5	Public Water Supply Use	Closures or advisories by VDH; comparison of data to applicable public water supply standards

Types of Data Used in Assessment

The assessment of surface waters and their ability to support the designated use(s) are based on two different categories of water quality information: **monitored data** and **evaluated data**.

Monitored data follows an EPA accepted and/or DEQ approved sampling and analysis protocol and comes primarily from monitoring station samples DEQ has collected, analyzed and stored in either the Environmental Protection Agency's STORET database or DEQ's CEDS database. This data includes the analysis of conventional water column samples, sediment samples, fish tissue samples and biological assays.

DEQ sampled 1,680 ambient monitoring stations over the five-year period. Approximately 2,700 additional stations, from other federal, state and/or citizen monitoring programs, were assessed during this

reporting period. In previous years, sampling in Virginia targeted point source discharges. The result of this station siting method was to focus the assessment on known or highly suspected water quality problem areas. DEQ has become increasingly aware of potential nonpoint source water quality contamination and has substantially reduced the number of point source targeted stations in favor of a hydrology-based watershed monitoring network, that provides a more geographically comprehensive and less biased assessment of the state's surface waters. Also, DEQ has increased the use of other "quality assured" data provided by several, federal, state and local organizations.

The intent of this change in monitoring strategy is to increase spatial coverage and to produce a more accurate and balanced portrayal of the state's overall water quality conditions. This approach also allows for a better understanding of the impacts associated with various point and nonpoint sources of pollution.

Where monitoring data are not available, **evaluated data** is used when there is not an accepted protocol to assess the attainment of the individual uses described in the water quality standards. These evaluations can be based on data associated with land use, point source discharges, nonpoint source pollution potential, fishery information, professional judgement, and/or any other relevant water quality information.

In addition to increasing the spatial coverage of the monitoring station network, the agency is also conducting a much more detailed accounting of actual monitored miles associated with each station. For the 2002 assessment DEQ used EPA's Assessment Database (ADB) which provides for a more accurate accounting between monitored miles versus evaluated miles. In past 305(b) reports (pre-2000), the database that was used forced an entire waterbody to be considered monitored if any monitoring occurred within the waterbody. In many cases, only a small fraction of the waterbody was actually monitored, whereas other parts of the waterbody may have only been assessed using evaluated data. This approach inflated the reporting of monitored mileage in past reports. The EPA database allows each segment within a waterbody to be individually listed as evaluated or monitored. Therefore, if a small segment within the waterbody was actually monitored, it can be designated as such and the remainder of the waterbody would be reported as a distinct segment and listed as evaluated or not assessed.

Assessment Method Used In This Report

The overall goal of the assessment program is to properly identify problem waters and then to design and implement a water quality management plan to return these waters to their designated uses.

The assessment approach used in this report begins by comparing monitoring data against the regulatory standard for each parameter. Based upon that comparison, the water segment is placed in one of four assessment categories based upon the degree of support of the designated uses for that water:

- Fully Supporting
- Fully Supporting but Threatened
- Partially Supporting
- Not Supporting

In order to properly assess water quality data several factors need to be considered.

1. Because environmental conditions vary, it is possible that monitoring data may violate a water quality standard without signaling a significant environmental problem causing the loss of designated uses. Consequently, while some measurements might violate water quality standards, a low violation rate is an insufficient reason to classify a stream as failing its designated use. The assessment challenge is to interpret the limited amount of sample data available to determine whether an observed violation of standards warrants classifying a segment as not fully supporting its designated uses. The water quality samples taken can be affected by both human activity and/or natural/background conditions.

2. There are certain acceptable tolerances for violations. For example, an occasional violation of the dissolved oxygen standard, even if caused by human activity may not be critical to the aquatic environment.

3. Measurement errors in the analysis of the samples collected could be yet another reason why the numeric standard might appear to be violated in a sample.

In performing the assessment summarized in this report DEQ used the EPA Percent Method with a slight modification for small datasets.

The EPA Percent Method

National guidance issued by EPA recommends that states use an assessment method for the 305(b) report based on assumptions about the kind and frequency of data needed to support such an assessment. The object is to indicate whether waters are fully, partially, or non-supporting for the designated uses. For this purpose, EPA has proposed two violation thresholds for conventional pollutants: a violation rate greater than 10% and less than 25% places the waters into the partially supporting category and a 25% or greater violation rate places the waters into the not supporting category. These percentages are fixed.

For the 303(d) list of Impaired Waters, the guidelines require a waterbody segment to be listed as impaired if more than 10% of the samples violate the standard (i.e. if it is classified as either partially supporting or not supporting). In effect, the EPA assessment guidelines imply that the violation of a numeric criterion is acceptable in 10% of the samples taken. DEQ has used the EPA percent method but has slightly modified the threshold for listing a water as impaired for small datasets to require at least two violations before a water can be considered impaired.

Results – Rivers and Streams

This report presents the results of the assessment of monitored water quality in approximately 9,723 (19.4%) of the total 50,329 miles of the state's free-flowing streams and rivers. The remaining stream miles were only evaluated.

The following table presents the results of the 2002 assessment for the river miles assessed using monitored data.

ASSESSMENT RESULTS FOR RIVERS AND STREAMS		
Degree of Use Support	**EPA Percent Method**	
	(miles)	(%)
Fully Support All Assessed Uses	4,486	46.1
Fully Support All Assessed Uses but Threatened for at Least One Use	956	9.8
Do not Fully Support One or More Uses	4,282	44.0

As in previous reports, the "fully supporting but threatened" category has been used. This category is used to describe a waterbody for which a particular use is currently supported, but may not be supported in the future. These assessments are based on evaluated or other related data, especially those associated with nonpoint source impacts. As part of the ongoing assessment process, continued monitoring of these threatened waters should provide better, more conclusive data for future assessments.

The leading cause of nonsupport or partial support of designated uses in Virginia's rivers and streams is violation of the fecal coliform bacteria standards. Agricultural practices appear to be one of the primary sources contributing to the bacteria standards violations. However, urban runoff, leaking sanitary sewers, failing septic tanks, domestic animals and even wildlife can be significant contributing sources.

Results – Lakes and Reservoirs

Virginia has 104 significant (public water supply and/or > 100 acres), publicly owned lakes and reservoirs with an estimated 148,317total acres. Of these, 125,918 (84.9%) acres were monitored and assessed during the reporting period.

The following table presents the results from the 2002 assessment of lakes using monitored data.

ASSESSMENT RESULTS FOR LAKES AND RESERVOIRS		
Degree of Use Support	EPA Percent Method	
	(acres)	(%)
Fully Support All Assessed Uses	9,335	7.4
Fully Support All Assessed Uses but Threatened for at Least One Use	51,876	41.2
Do not Fully Support One or More Uses	64,708	51.4

Many of these waters were not fully supporting for aquatic life use, primarily due to stratification in the lakes causing dissolved oxygen depletion. Also, exceedence of the fish tissue standard for PCB was a major cause of fish consumption use impairment in reservoirs.

Results – Tidal Estuaries

This report presents the results of the assessment of monitored water quality in approximately 2,174 (87%) of the total 2,500 square miles of Virginia's tidal estuaries. The remaining estuarine areas were only evaluated.

The following table presents the results from the 2002 assessment of tidal estuaries using monitored data.

ASSESSMENT RESULTS FOR TIDAL ESTUARIES		
Degree of Use Support	EPA Percent Method	
	(sq. miles)	(%)
Fully Support All Assessed Uses	23	1.1
Fully Support All Assessed Uses but Threatened for at Least One Use	494	22.7
Do not Fully Support One or More Uses	1657	76.2

The leading cause of impairment in Virginia's estuarine waters is violations of the Dissolved Oxygen Standard associated with aquatic life use. Another leading cause of impairment is violations of the fecal coliform bacteria standard associated with shellfish consumption advisories.

Based on limited available information, all of Virginia's 120 miles of the Atlantic Ocean Coastal Waters were evaluated as fully supporting Virginia's designated uses.

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Water Quality Assessment and Impaired Waters Reports

Virginia Department of Environmental Quality

July 2002

Background

- Clean Water Act and the Virginia Water Quality Monitoring, Information and Restoration Act require state to assess and report on the quality of state waters.

- 2000 - most recent 305(b) Water Quality Assessment
- 1998 - most recent 303(d) Report on Impaired Waters

Public Comment

- Public comment period July 15 - August 16, 2002
- Download 305(b) and 303(d) reports via DEQ website
  - http://www.deq.state.va.us/water/305b.html
- 3 public meetings around Virginia
- Comment by first class mail to:
  - Darryl M. Glover, DEQ Water Quality Monitoring and Assessment Manager, P.O. Box 10009, Richmond, Virginia 23240-0009
- or via e-mail to dmglover@deq.state.va.us.

2002 Assessment Approach
Type of Data Used

- Monitored Data:
  - collected during the 1996 - 2000 period
  - from 1680 of DEQ's monitoring stations and
  - approximately 2,700 additional federal, state, and/or citizen monitoring stations
  - includes the analysis of conventional and toxic water column samples, sediment samples, fish tissue samples and biological assays.
- Evaluated Data:
  - based on data associated with land use, point source discharges, nonpoint source pollution potential, fishery information, staff knowledge, and/or any other relevant water quality information.

2002 Assessment Approach

- Used Quality Assurance/Quality Control procedures for "other" data generators as a way to help bolster monitoring throughout the state
- Used EPA National Hydrography Database (NHD) for stream segment delineation - resulted in slight adjustment to total state stream miles
- Significant changes to Assessment Guidance, included:
  - Waters considered impaired if fish tissue screening levels exceeded, not just waters with fish advisories. This is more protective of the public.
  - Estuarine benthic index of biological indicators (B-IBI)
  - Weight of evidence approach for estuarine toxics assessment

2002 305(b) Report
Assessed Miles

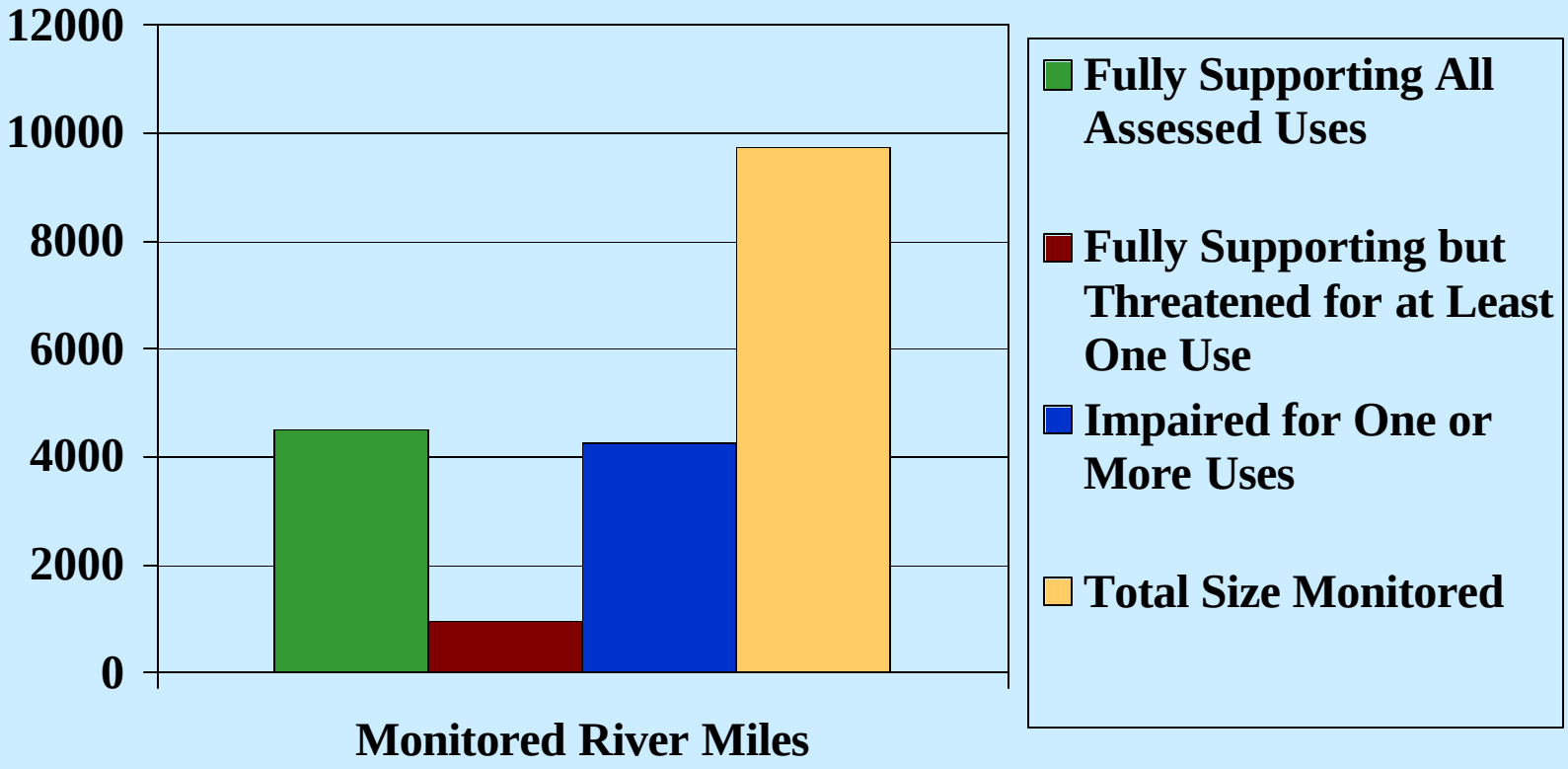
- Total River Miles - 50,329
  - Monitored - 9,723
  - Evaluated - 40,606
- Total Lakes in Acres - 148,317
  - Monitored 125,918
  - Evaluated 22,399
- Total Estuary in Square Miles - 2500
  - Monitored - 2,174
  - Evaluated - 326

2002 SUMMARY of ASSESSED WATERS

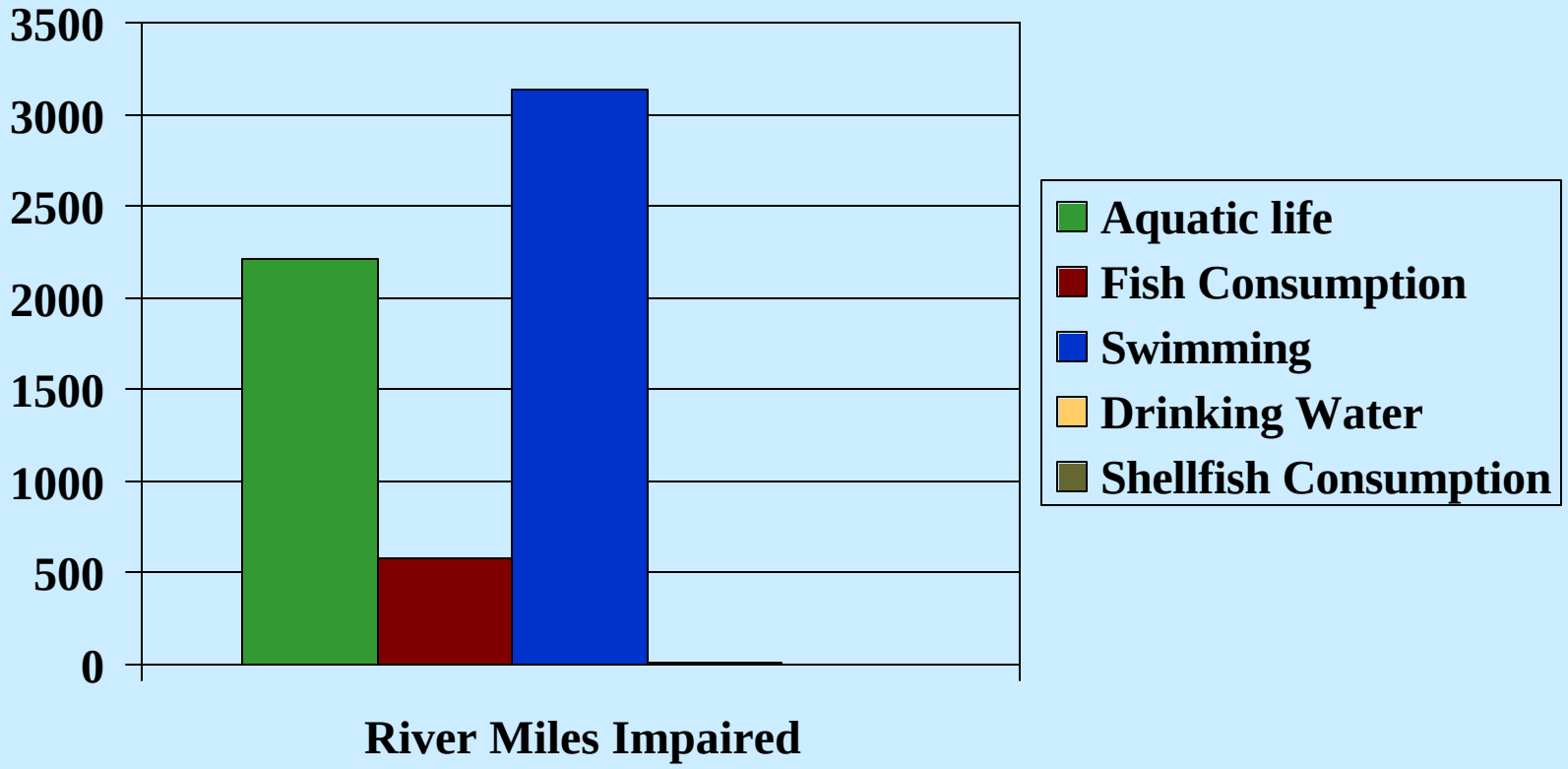
Degree of Use Support	Type	Assessment Category		Total Assessed Size
		Evaluated	Monitored	
Size Fully Supporting All Assessed Uses	R	36,118.93	4,485.98	40,604.91
	L	13,071.63	9,334.84	22,406.47
	E	126.65	23.25	149.90
Size Fully Supporting All Assessed Uses but Threatened for at Least One Use	R	3,975.12	955.57	4,930.69
	L	9,144.77	51,875.83	61,020.60
	E	165.32	493.84	659.16
Size Impaired for One or More Uses	R	511.86	**4,281.64**	4,793.50
	L	182.00	**64,707.71**	64,889.71
	E	34.17	**1,656.55**	1,690.72
Total Assessed for One or More Uses	R	40,605.91	**9,723.19**	50,329.19
	L	22,398.40	**125,918.40**	148,316.80
	E	326.14	**2,173.64**	2,499.78

R = River - miles
L = Lake - acres
E = Estuary - square miles

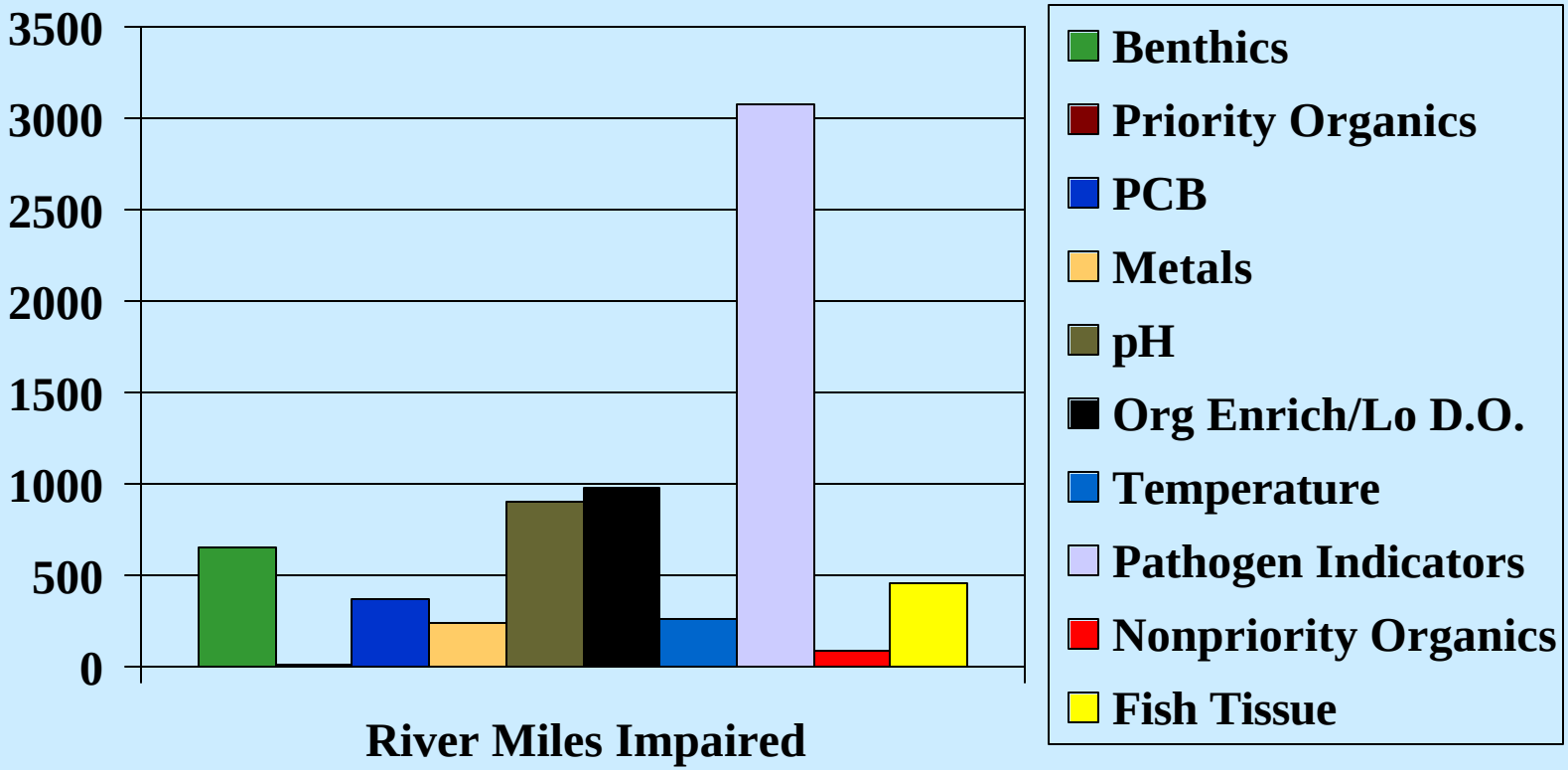
Summary of Monitored Waters for 2002 (**Rivers**)



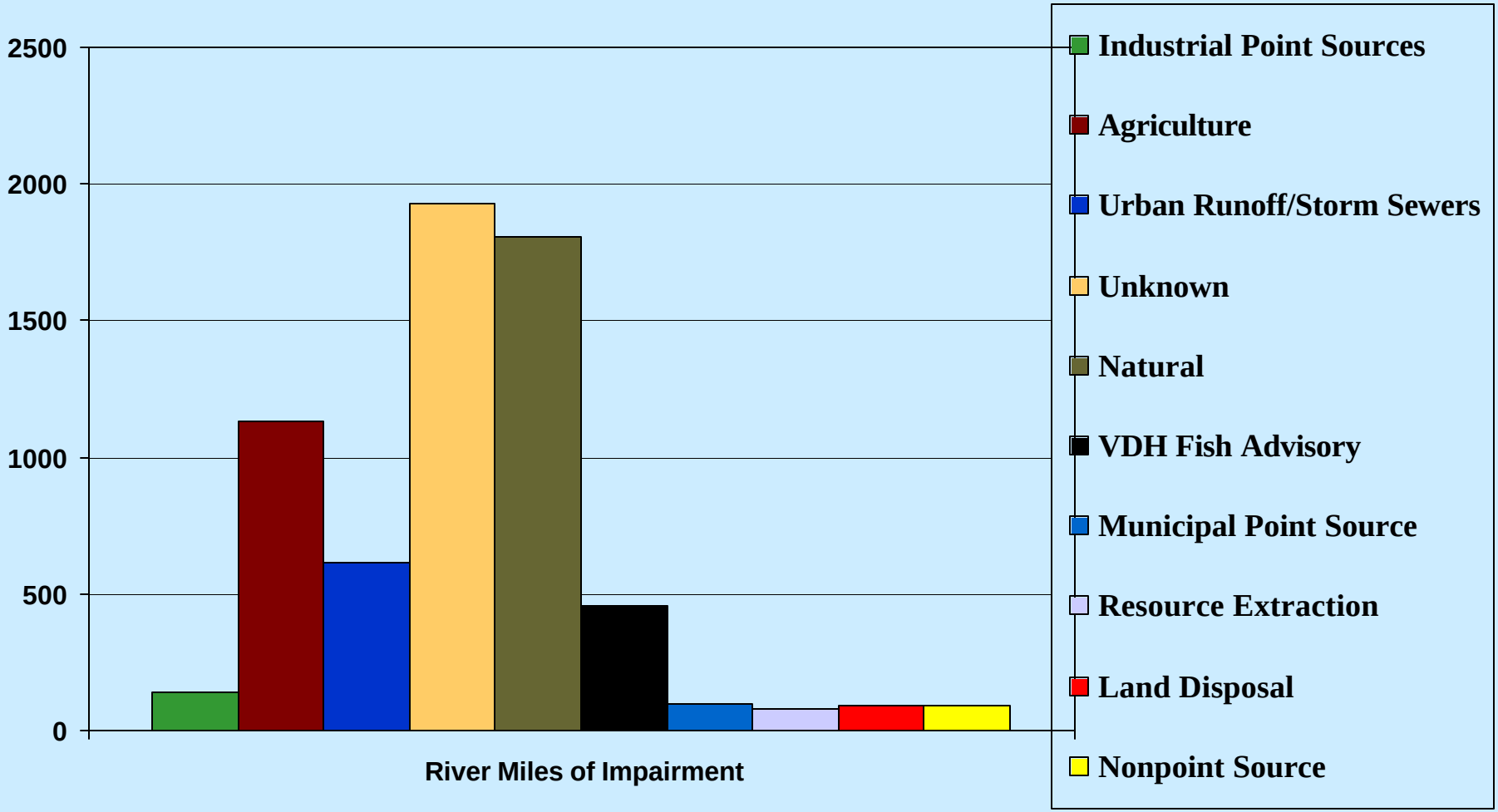
Designated Use Impairment Summary for 2002 (**Rivers**)



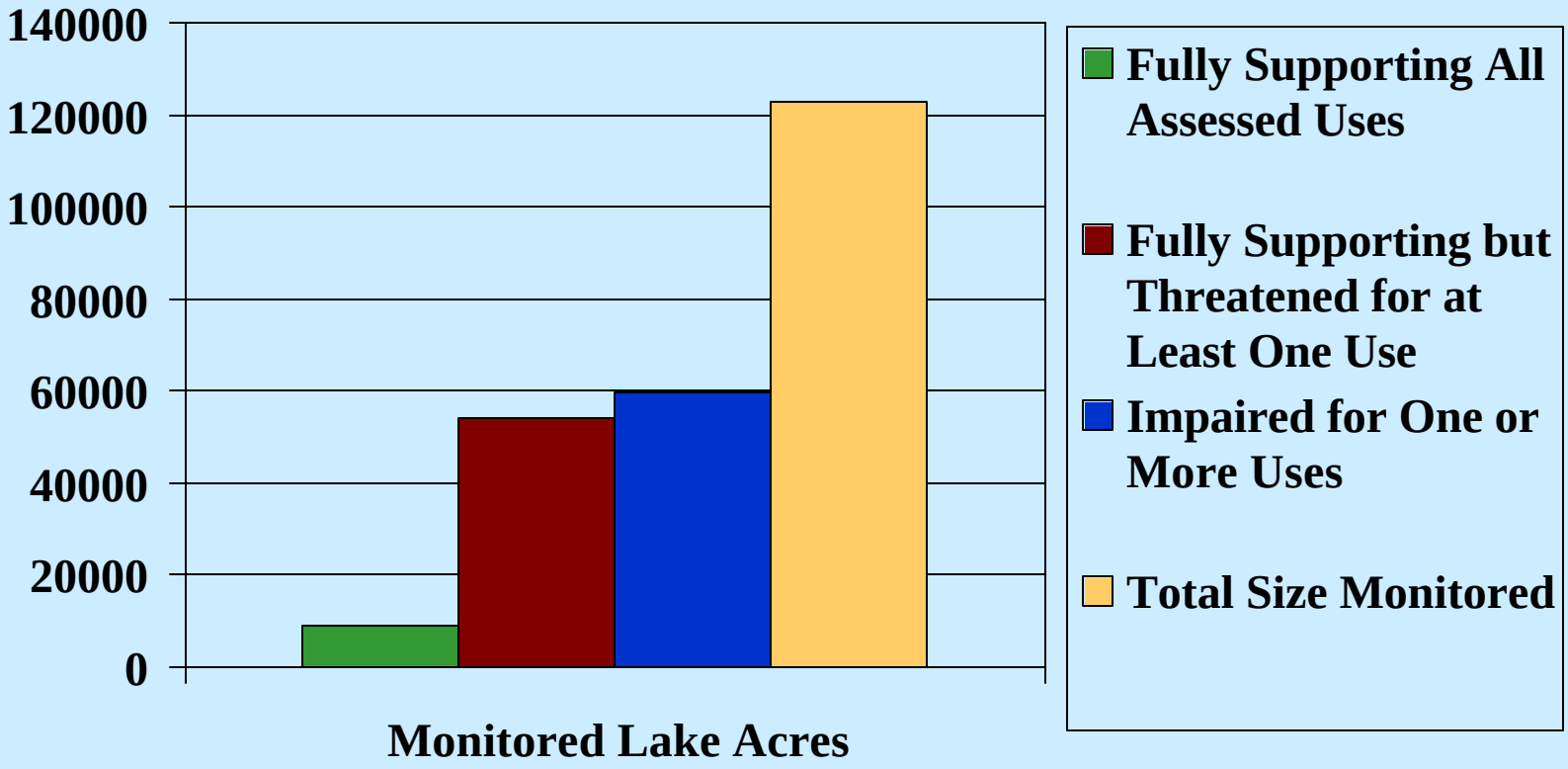
Top 10 Causes of Impairment for 2002 (**Rivers**)



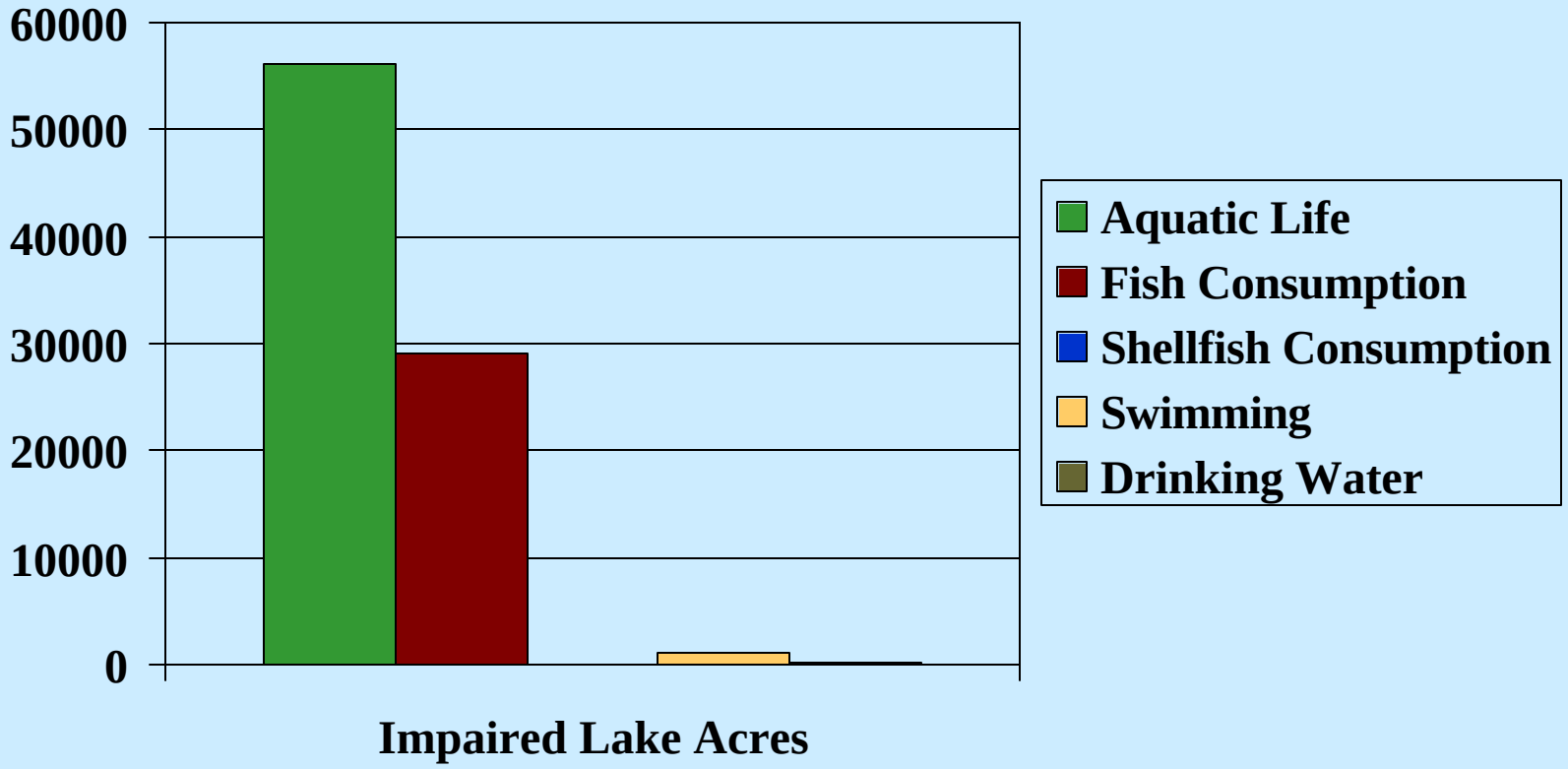
Top 10 Sources of Impairment for 2002 (Rivers)



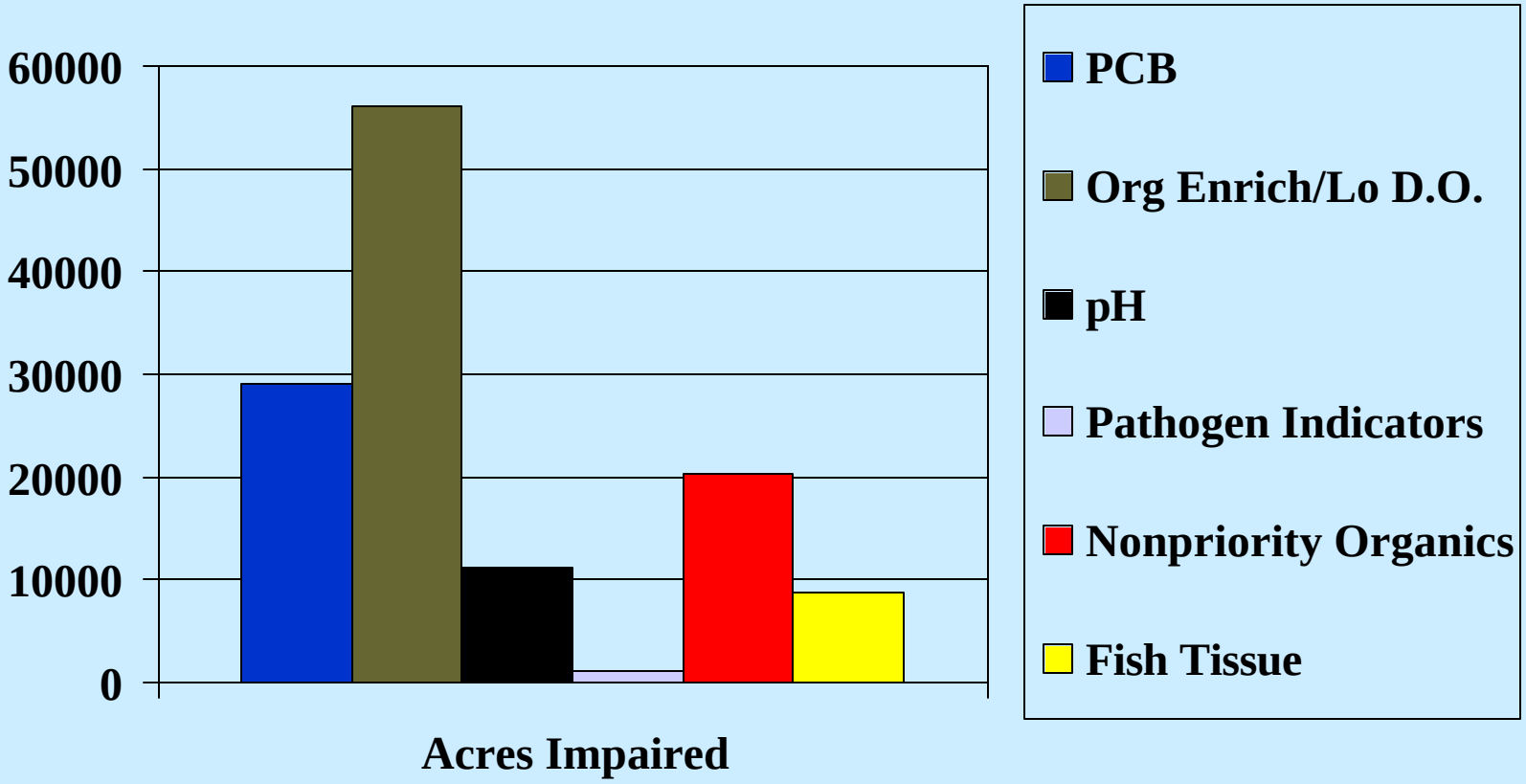
Summary of Monitored Waters for 2002 (Lakes)



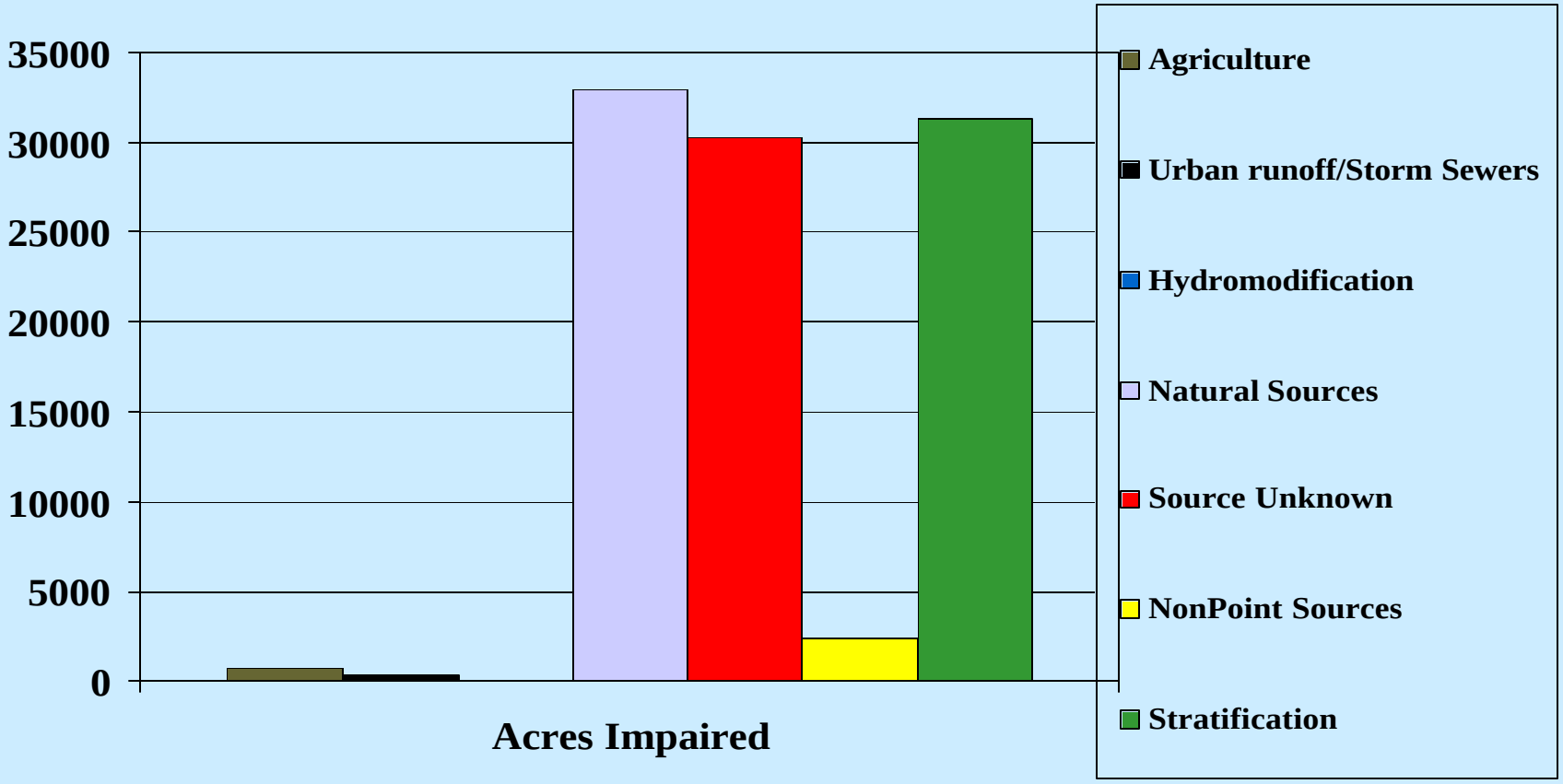
Designated Use Impairment Summary for 2002 (**Lakes**)



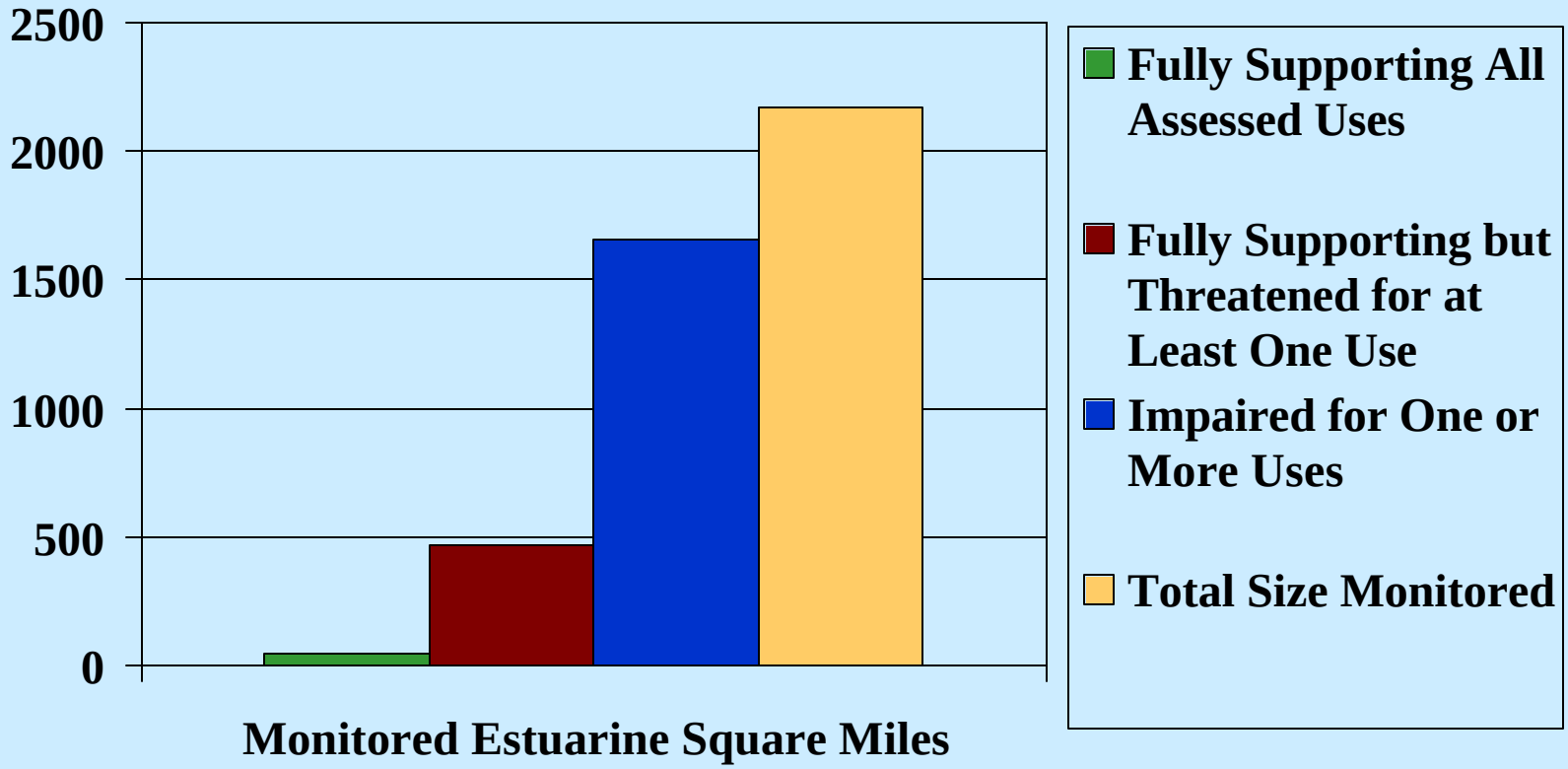
Top Causes of Impairment for 2002 (**Lakes**)



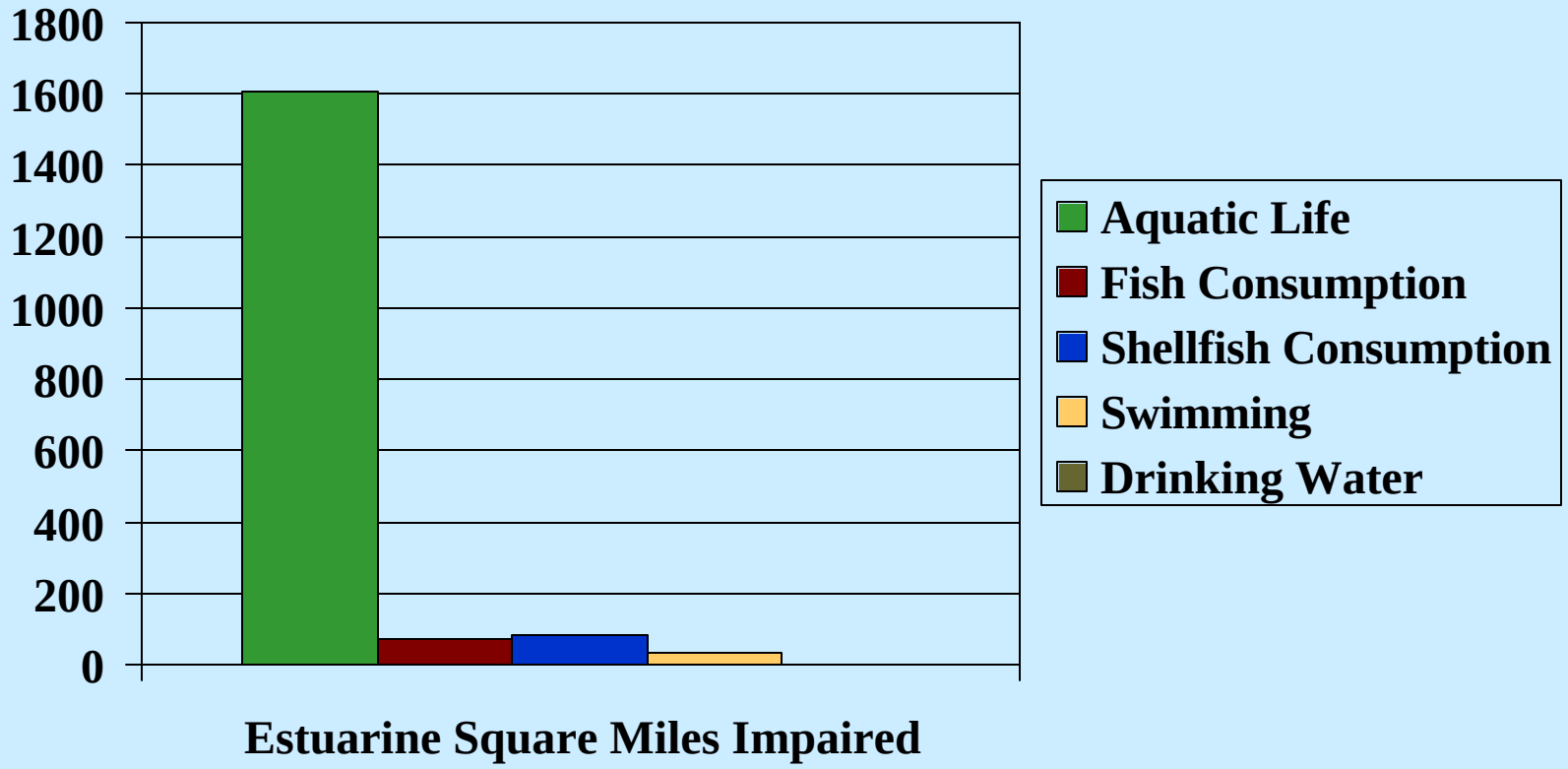
Top Sources of Impairment for 2002 (Lakes)



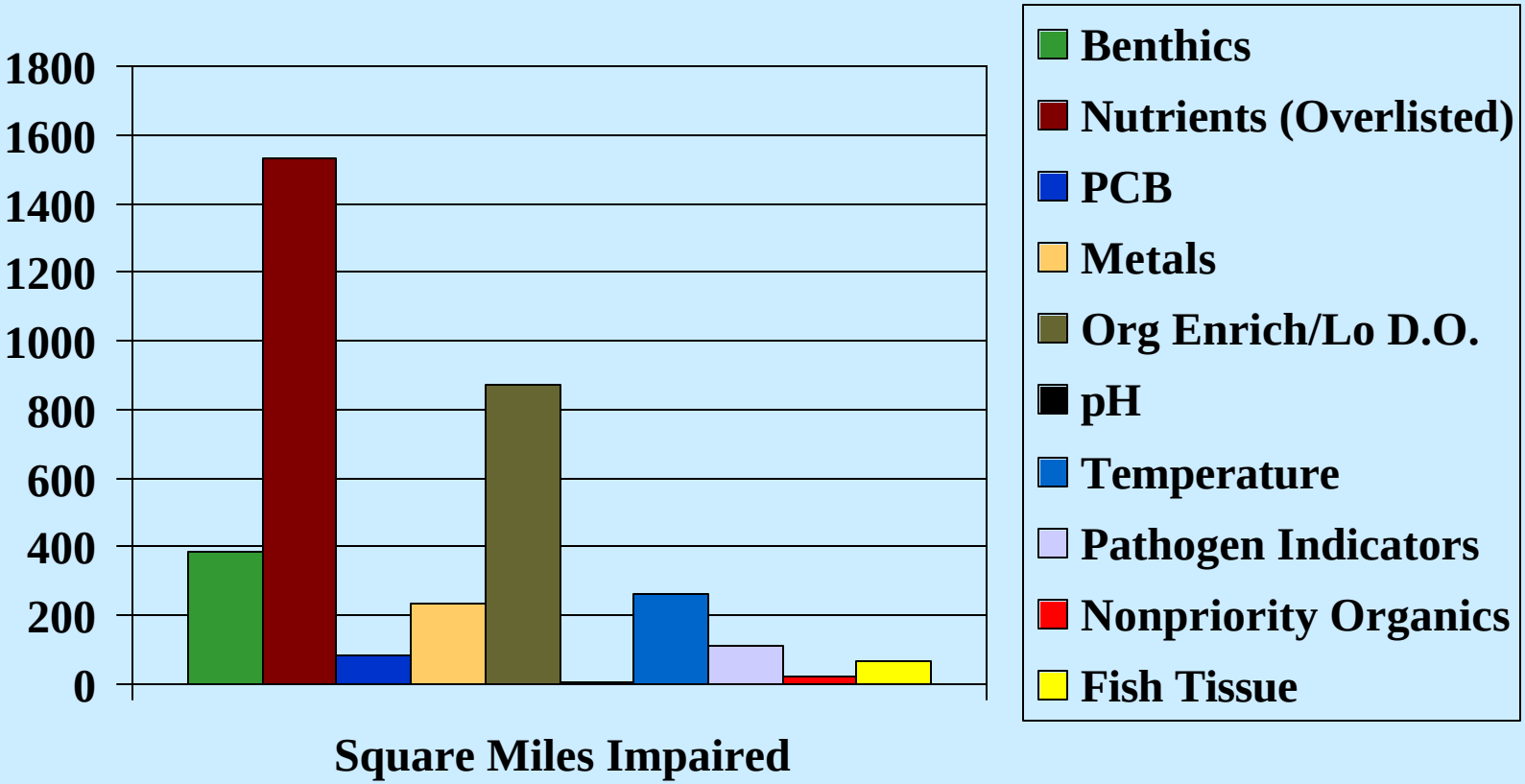
Summary of Monitored Waters for 2002 (Estuarine)



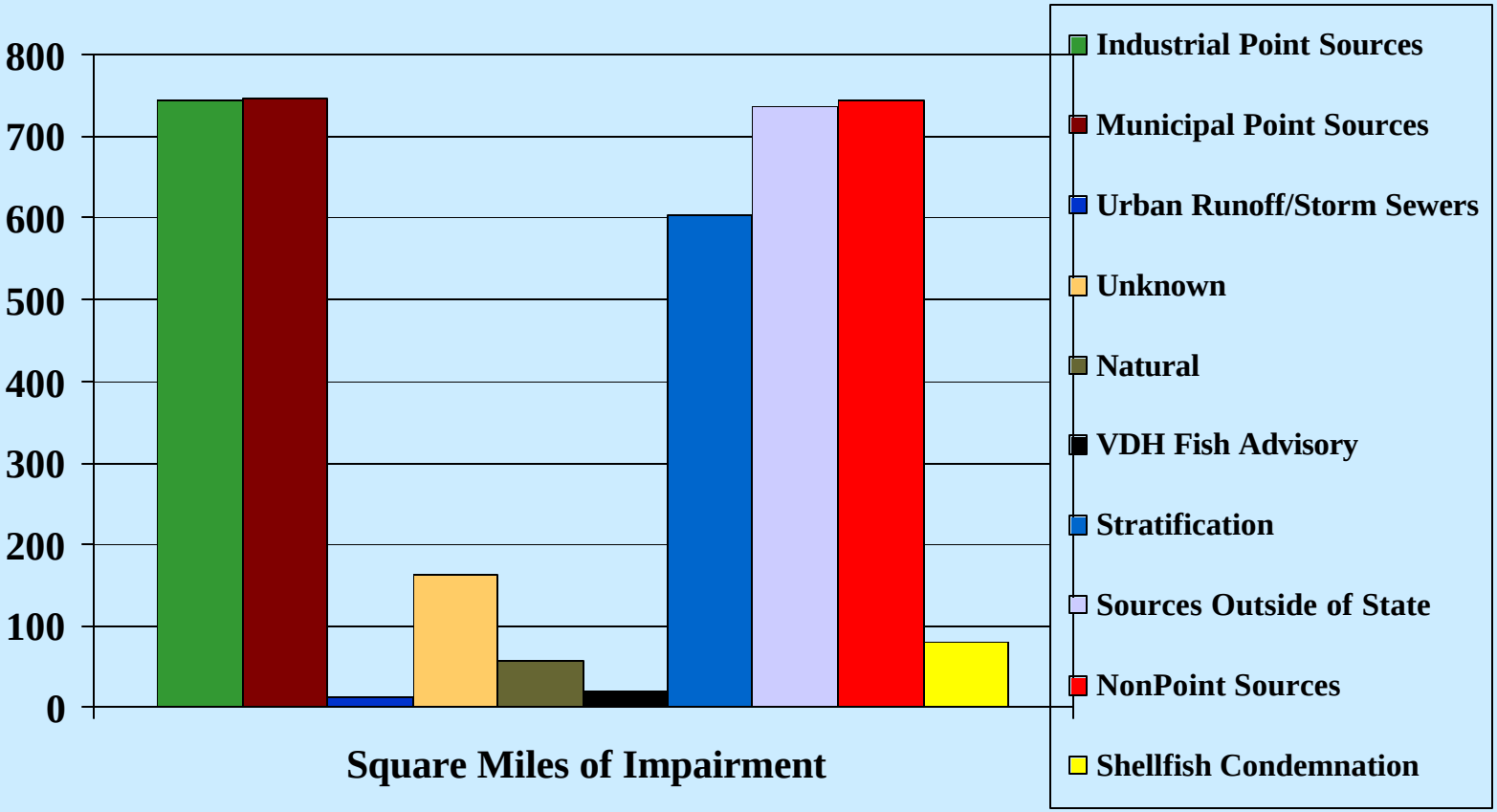
Designated Use Impairment Summary for 2002 (**Estuarine**)



Top 10 Causes of Impairment for 2002 (**Estuarine**)



Top 10 Sources of Impairment for 2002 (Estuarine)



2002 Impaired Waters List

- Part I, Divided Into Three Sections
  - Part 1A segments impaired for uses other than shellfish consumption and require development of a TMDL
  - Part 1B impaired for shellfish and require a TMDL
  - Part 1C impaired partially or wholly due to natural causes, further study needed to determine if a TMDL is applicable
- Part II
  - Considered impaired until discharge permits meet water quality standards
  - All Part II segments will be in compliance by 2007

History of Impaired Segments

Does not include Part 1B, Part 1C, or Part II Segments

Impaired Segments Reported in Part 1A, Initial Year Listed, 1994 - 2002

Year and Number of Impaired Segments	1994	1996	1998	2002	TOTALS
Estuaries	7	15	35	41	98
Rivers & Streams	45	103	160	235	543
Lakes	0	1	5	16	22
Totals	52	119	200	292	**663**

Principal Factors Affecting 2002 List of Impaired Waters

- 292 Additions to 2002 Impaired Waters List mainly due to:
  - 1999 Consent Decree added 95 segments to list
  - Exceedence of Fish Tissue screening values added 26 segments to list
  - Fecal coliform bacteria violations account for most of remainder, along with D.O. and pH
- 2002 Assessment results more similar to 2000 Assessment than to the 1998 Impaired Waters List
- Use of EPA 10% method with two or more exceedences

Other Impaired Waters

- Part 1B 264 shellfish impairments
- Part 1C 100 natural impairments
- Part II 335 discharge permit related listings
- Delistings 298 total which include:
  - 94 (from Part 1A) 1999 Consent Decree
  - 11 others from Part 1A
  - 52 from Part 1B
  - 141 from 1998 Part II

Steps in TMDL Process

- **Place Impaired Waters on 303(d) List due to Water Quality Standards violations**
- **Develop TMDL - Total Maximum Daily Load - for Impaired Waters**
- **Develop TMDL Implementation Plan**
- **Implement TMDL Plan**
- **Remove Waters from 303(d) List when Water Quality Standards Achieved**

Consent Decree TMDL Development Schedule

DEQ TMDL Submittal Dates	Consent Decree Schedule (See Note)	Credit Limit for Waters Removed From List
5/1/99	1	0
5/1/00	12	2
5/1/02	30	6
5/1/04	81	11
5/1/06	220	13
5/1/08	95	14
5/1/10	226	14
TOAL	665	60

Note: table includes estimates for shellfish impairments and plaintiff's waters.

Public Comment

- Public comment period July 15 - August 16, 2002
- Download 305(b) and 303(d) reports via DEQ website
  - http://www.deq.state.va.us/water/305b.html
- 3 public meetings around Virginia
- Comment by first class mail to:
  - Darryl M. Glover, DEQ Water Quality Monitoring and Assessment Manager, P.O. Box 10009, Richmond, Virginia 23240-0009
- or via e-mail to dmglover@deq.state.va.us.

Chapter 2.1 STATE BACKGROUND INFORMATION

Population

The Commonwealth of Virginia covers 40,741 square miles, ranking 36th among the states in size. This area is divided into seven Department of Environmental Quality (DEQ) regional offices and two satellite offices (Figure 2.1-1). According to the most recent census (2000), the population of the Commonwealth was estimated to be 7,078,515; 2.5% of the total United States population. It has grown 14.4% between 1990 and 2000, ranking 12th nationally, and continues to grow. About 72% of all Virginians live in eight metropolitan areas; Northern Virginia, Norfolk-Virginia Beach-Newport News, Richmond-Petersburg, Roanoke, Lynchburg, Charlottesville, Danville, Johnson City-Kingsport-Bristol. Nine percent of the population lives in seven smaller urban areas and 19% live in rural areas.

Geography

Virginia is over 400 miles wide along its southern boundary, reaching from the Atlantic Ocean in the east, crossing the eastern continental divide into the Mississippi Basin to the west. Along the way, Virginia crosses five physiographic provinces (Figure 2.1 -2). The southwestern edge of the state touches upon the margin of the Cumberland Plateau, rugged terrain with formations of sandstone and shale. Virginia's coal mining industry is concentrated in this area. The Valley and Ridge province encompasses the long, parallel ridges of the Appalachian Mountain chain in western Virginia. Erosion resistant quartzites and sandstones form the ridgetops, while streams have carved valleys into the softer limestones and shales. The narrow Blue Ridge Mountain province is made up of hard greenstone, quartzites, and granites, igneous and metamorphic rocks that originated as ancient lava flows. These mountains are among the oldest on earth. East of the Blue Ridge Mountains lies the rolling Piedmont of central Virginia. This area is underlain by a complex layer of igneous and metamorphic rocks. The Triassic Basins, ancient down-faulted basins filled with sedimentary rocks and igneous intrusions are major sub-units of this province. A distinctive fall line, marked by waterfalls and rapids across the major rivers, divides the Piedmont from the Coastal Plain. Virginia's flat Tidewater area consists of deep, unconsolidated deposits of sand, gravel, fossil shells, and clay. The basement formation of granite, exposed at the fall line, is buried under 2,900 feet of sediment at the Atlantic Coast.

Water Resources

A summary of Virginia's water resources is provided in Table 2.1-1. Virginia has an estimated 50,329 miles of streams and rivers divided into nine major basins (Figure 2.1 - 3). This estimate represents mileage determined by EPA's National Hydrography Dataset (NHD), the Digital Line Graph database as well as estimates from Virginia's Stream Gazetteer. Annual rainfall averages almost 43 inches. Total combined flow of all freshwater streams in the state is estimated at about 25 billion gallons per day. The 248 publicly owned lakes in the Commonwealth have a combined area of 162,230 acres. Three large impoundments (Lakes Gaston, Kerr, and Smith Mountain) account for two-thirds of this total. Many thousands of other smaller, privately held lakes and ponds, some of significant size, dot the landscape.

Other significant water features of Virginia include approximately 236,900 acres of tidal and coastal wetlands, 808,000 acres of freshwater wetlands, 120 miles of Atlantic Ocean coastline, and over 2,500 square miles of estuaries. Virginia's highly indented shoreline, including the Chesapeake Bay and its sub-estuaries, is conservatively estimated to be 3,315 miles long.

Table 2.1 - 1 Virginia Water Resources Atlas

State Population (2000 census) – 7,078,515

State Surface Area - 40,741 square miles

Major River Basins

Potomac/Shenandoah	Tennessee/Big Sandy
James	Chesapeake Bay/Small Coastal
York	Rappahannock
Roanoke	New
Chowan/Dismal Swamp	

Perennial River Miles 50,329

Total Non-Tidal Stream Miles 50,329

Miles of Border River (Potomac) – 180

Publicly-Owned Lakes and Reservoirs	Number	Acres
Greater than 5,000 acres	5	109,838
Less than 5,000 acres	243	52,392
Total	248	162,230

Acres of Freshwater Wetlands - 808,000

Acres of Tidal and Coastal Wetlands - 236,900

Estuary Square Miles - 2,500

Atlantic Ocean Coastal Miles – 120

Total Coastal Shoreline Miles,
Including Chesapeake Bay and Tidal
Tributaries to a Width of 110 Feet - 3,315

Statewide Average Annual Rainfall - 42.8 inches

Average Freshwater
Discharge of All Rivers - Approximately 25 billion gallons per day

Land Use

Virginia's landscape is dominated by forests, covering approximately 55.6% of its total area (Table 2.1-2). However, according to the Virginia Department of Forestry, a loss of commercial forest and cropland has contributed to an increase in urban land from 10.4% to 14.8% from 1991 to 1995.

The second most prevalent land use in Virginia is agriculture, covering 25.9 percent of the State's total land area. Cropland accounts for 2,903 square miles, about 7.1 percent of the State's total area; pasture and hay production accounts for 6,845.3 square miles, or about 16.8 percent of the State's land. The remaining 6,029 square miles of land area, about 14.8 percent of the State, includes urban areas.

Inland waters account for the remaining 3.7%.

Table 2.1-2 Virginia Statewide Land Use Summary

Commercial Forest	20,058.6 mi^2	49.2%
National Forests	2,550.0 mi^2	6.4%
Total Forested Land	**22,608.6 mi^2**	**55.6%**
Cropland	2,903.4 mi^2	7.1%
Pasture/Hay	6,845.3 mi^2	16.8%
Other	828.1 mi^2	2.0%
Total Agricultural Land	**10,576.8 mi^2**	**25.9%**
Other (Including Urban)	**6,029.1 mi^2**	**14.8%**
Total Land Area	39,214.5 mi^2	96.3%
Inland Waters	1,526.4 mi^2	3.7%
Total Area	**40,740.9 mi^2**	**100.0%**

Overall Water Quality Trends

The following information are the quoted conclusions about long-term water quality trends in Virginia, based on the 1998 Special Report produced by the Water Resources Research Center and Virginia Polytechnic Institute and State University better known as Virginia Tech. **A copy of the full report can be requested at HTTP://WWW.VWRRC.VT.EDU/PUBLICATIONS/sr11-98.pdf.**

On a statewide basis, significant and apparent trends indicating water quality improvement outnumbered trends indicating water quality deterioration for biological organic demand (BOD), total phosphorus (TP), fecal coliform (FC), non filterable residue (NFR=suspended solids) and dissolved oxygen (DO). For BOD, NFR and TP, trends representing water quality improvement outnumbered trends representing water quality deterioration by ratios exceeding 3:1. For BOD, declining trends representing water quality improvement were predominant statewide.

For both nitrate-nitrite nitrogen (NN) and Total Kjeldahl Nitrogen (TKN), increasing trends outnumbered declining trends; increasing levels of nitrogen are generally interpreted to indicate deteriorating water quality. On a statewide basis, there is a tendency for increasing NN trends to occur at stations with relatively high medians.

Declining pH trends outnumbered increasing pH trends by a slight margin. Excluding coalfield stations (where acid mine-drainage treatment may be responsible for the predominance of increasing pH trends), declining pH trends outnumbered increasing trends by a margin of nearly 2 to 1. Increasing total residue (TR) trends and decreasing TR trends occurred in approximately equal numbers.

A number of regional patterns were observed, including the following:

- Relatively high DO and pH medians tend to occur in western Virginia, and relatively low DO and pH medians tend to occur in eastern Virginia. Relatively high TR and NFR medians tend to occur in eastern areas.

- Declining pH trends were prevalent in the *Holston* basin and in eastern Virginia close to the Chesapeake Bay

- Increasing pH and TR trends were prevalent in coalfield areas (the *Big Sandy* basin and the Upper

Powell); coalfield areas also exhibited relatively high pH and TR medians.

- Declining NFR trends were prevalent in western Virginia's *Big Sandy*, *Clinch-Powell*, and *Holston* basins, as well as the upper *Potomac* and *Shenandoah* basins, and throughout the *James* basin.

- Increasing NN trends are prevalent in northwestern Virginia, including the *Shenandoah*, upper *Potomac*, and upper *Rappahannock* basins, while increasing TKN trends are prevalent in eastern Virginia. Both increasing NN and TKN trends are prevalent in the *Holston* and upper *Rappahannock* basins.

- Relatively high NN medians tend to occur in western Virginia, while relatively low NN medians tend to occur in the eastern part of the state. This pattern is reversed for TKN medians.

- Throughout the state, there is a tendency for increasing NN trends to occur at stations with relatively high medians. In other words, the analysis revealed a tendency for NN concentrations to increase at locations where median NN levels are relatively high.

- Declining TP trends were prevalent in the southwestern Virginia's *Big Sandy* and *Clinch-Powe*ll basins, and along the South Fork of the Shenandoah in the *Shenandoah* basin. Eight of the state's 13 significantly increasing TP trends were located in eastern Virginia.

- Declining FC trends were prevalent in the southwestern Virginia's *Big Sandy*, *Clinch-Powell*, and *Holston* basins, and in the upper *New* River basin. Most of the southwestern Virginia stations exhibiting significant or apparent declining FC trends were also characterized by relatively high FC medians.

Several methodological issues are also present. The best estimate of slope was found to be zero for numerous variables and stations exhibiting significant or apparent BOD, NFR, TKN, TP, and FC trends, indicating that a key factor in trend detection was a changing incidence of relatively high values for these variables. Flow data and information on the precision of analytical measurements were unavailable; therefore, these factors were not considered in conducting seasonal Kendall analysis. The seasonal Kendall's technique is capable of detecting only for monotonic trends; therefore any non-monotonic patterns of water quality change that may have been present – for example, if two segments of a data set were to exhibit differing patterns of change – would not have been detected by these analysis.

Because of uncertainties regarding the ability of the monitoring stations chosen to adequately represent statewide water quality, variations in periods of data coverage, and decreasing trends cannot be interpreted as a direct representation of general statewide change in water quality. However, study results do provide evidence of potential long-term water quality improvement with respect to DO, BOD, NFR, TP, and FC, while results for both nitrogen variables (NN and TKN) provide evidence for potential water quality deterioration with respect to N.

Chapter 2.2 WATER POLLUTION CONTROL PROGRAMS

Virginia Pollutant Discharge Elimination System (VPDES)

The Commonwealth of Virginia has operated a successful state discharge permit program since 1946. The Federal Water Pollution Act was passed requiring a uniform permit program nationwide, allowing all states to uniformly control industrial and municipal wastewater discharges. Some states elected to have the federal government manage their permit program. Virginia requested delegation of authority from EPA to administer its own permit program in conformance with VPDES (formally NPDES) regulations. In April 1975, Virginia was delegated the authority to administer the VPDES permit program. The VPDES Permit Regulation, 9 VAC 25-31-10 et seq, establishes the procedures and requirements for this Program.

VPDES permits establish limits on the quantity and/or concentration of pollutants allowed in the discharge. The VPDES permits implement the applicable requirements of federal effluent guidelines, as well as the Virginia Water Quality Standards. Effluent limits are written to assure the most appropriate of these regulations is applied to the discharge. The permittee must monitor the quality of the effluent and report the results to DEQ. The permit also requires the facility to be properly operated and maintained.

Permits may also contain additional requirements detailed as “Special Conditions” in the permit. Examples of these special conditions are:

1. Pretreatment programs for publicly owned treatment works (POTW’s) – Requirements for the POTW to have the ability to control the discharges from contributing industries.

2. Storm water pollution prevention

3. Toxics Management Program – this program requires the permittee to perform aquatic toxicity testing on the discharged effluent to determine reasonable potential for toxicity.

4. Land Application of Sewage Sludge

DEQ is utilizing the concept of general permits to streamline the permitting process and conserve resources of both the permittee and DEQ.

Municipal Facilities

There are approximately 636 “minor” municipal dischargers ranging in size from > 1,000 gallons per day and < 1 million gallons per day. Approximately 1,299 discharges are covered under the general permit for sewage discharges less than or equal to 1,000 gallons per day. These permit holders are required to monitor their discharge and report the results to DEQ. There are 98 “major” municipal discharges, discharging at least one million gallons per day (mgd). Major facilities range in size from one to 70 mgd and treat about 90 percent of all the sewage in Virginia.

Industrial Facilities

There are 496 Industrial dischargers currently permitted in the state. Of these, 47 are major facilities. Facilities are assigned major and minor status through an agreement between EPA and the DEQ.

General Permits

General permits are written for a general class of dischargers that have similar effluent characteristics. Virginia was granted general permit authority from EPA in May 1991. General permits have streamlined the VPDES permit process, and reduced the paperwork, time and expense of obtaining a permit. They have also allowed staff resources to be concentrated on individual permits, which have the greatest potential for impacting water quality. The processing of general permits requires the submittal of a Registration Statement. Upon staff review and acceptance of the Registration Statement, a General

Permit is sent to the owner. Currently eleven types of general permits are available in Virginia; Petroleum Contaminated Discharges, Confined Animal Feeding Operations, Storm Water, Nonmetallic, Mineral, Mining, Domestic Sewage Discharges less than or equal to 1,000 gallons per day, Non-Contact Cooling Water, Seafood Operations, Car Wash discharges, Fish Farms & Hatcheries, and Ready Mix Concrete Operations.

There are 4,397 discharges covered by the general permits in force in Virginia. Of these permits, 3,000 have received coverage under one of the two Storm Water General Permits. Storm Water General Permits are available for all "industrial activities" requiring permits under the November 1990 Federal Storm Water Regulations.

Fees For Permits And Certificates

The DEQ has adopted Regulation 9VAC 25-20-10 et seq. which establishes fee schedules for Permits. The establishment of a fee assessment and collection system is a requirement of Section 62.1-44.15:6 of Article 2.1 of the State Water Control Law enacted by the 1992 General Assembly. The assessment of fees allows DGIF, DCR, and DEQ to recover a portion of the cost of processing applications for permits or Certificates, which DEQ has the authority to issue. In its 2002 session, the General Assembly of Virginia amended and enacted revisions to Section 62.1-44.15:6 of the Code of Virginia increasing the maximum amounts for processing each type of permit/certificate category. Pursuant to the legislative amendment, 9 VAC 25-20-10 et seq. was modified to raise the allowable fees for permits and certificates effective July 1, 2002.

Fees have been established for VPDES, Virginia Pollution Abatement (VPA), Virginia Water Protection (VWP), Corrective Action Plan (CAP), Surface and Ground Water Withdrawals, and General Permits. Agricultural operations are exempt from payment of permit application fees. As amended July 1, 2002, fees may range from $600 for a general permit to $24,000 for a VPDES "Industrial Major" permit. There are also fees for modifications and waivers.

Toxics Management Program

Requirements for toxics monitoring are written into VPDES permits as special conditions. These monitoring requirements are developed by the DEQ Toxics Management Program (TMP), which originated in the early 1980's. The aim of the program is to involve all industrial and municipal VPDES permit holders that potentially discharge toxic pollutants into a systematic program of biological testing. This testing is designed to identify wastewater discharges that are toxic to aquatic life.

The need for a TMP is determined at the time of permit issuance, reissuance, or modification, using information provided by the permittee as part of the VPDES permit application, as well as additional data generated by the DEQ or other sources. Generally TMP special conditions include quarterly chronic and/or acute toxicity testing for a period of one-year using vertebrate and invertebrate species. Once the TMP data have been generated for a particular outfall, they are evaluated for reasonable potential. If the data do not show reasonable potential for toxicity, the permittee may continue biological testing at a much reduced frequency. However, if the data show reasonable potential, a WET (Whole Effluent Toxicity) limit is developed and put into the permit with a compliance schedule.

Pretreatment Program

The Pretreatment Program controls industrial discharges to POTW's. These municipal sewage treatment plants are usually not designed to treat toxic industrial wastes. Such wastes may interfere with the plant's biological treatment processes, pass through untreated into receiving waters, or contaminate POTW sludge to the extent that lawful disposal is precluded. The control authorities for the POTW's are charged with the responsibility of controlling their industrial users. EPA delegated oversight and regulation of the POTW pretreatment programs to the DEQ on April 14, 1989.

There are 36 POTW authorities in Virginia with approved pretreatment programs. These authorities control 67 separate permitted treatment facilities. Pretreatment programs for several other authorities have been submitted for review or are under development. Requirements for sewer use

ordinances, surveys of industrial users, or implementation of approved pretreatment programs are currently being incorporated into municipal VPDES permits.

Standards imposed on industrial users include general standards, prohibitive discharge standards, categorical standards, and local limits developed by POTWs. General standards are narrative prohibitions against pass-through and interference, applicable to all industrial users. Prohibitive discharge standards are also applicable to all industrial users and include limitations on parameters such as pH and temperature, measured in industrial discharges. Categorical standards are federal technology-based standards developed for certain categories of industries discharging to POTWs. In addition, POTWs are required to develop local limits for substances that have the potential to cause interference with treatment or pass through in toxic amounts to receiving waters.

A total of approximately 140 industries subject to federal categorical pretreatment standards are known to discharge to the POTW authorities noted above. In addition, there are approximately 200 other industries, which are considered significant dischargers to these POTWs. These industries are classified as such by having process wastewater flows of at least 25,000 gallons per day.

The DEQ regional office personnel conduct audits of POTW pretreatment programs and inspections of their significant industrial users. These users are controlled through municipal ordinances, and are required to self-monitor and report biennially to the municipality, which then reports to DEQ. Staff also inspect 10 additional categorical industrial users for small municipalities which may be developing a pretreatment program, or are not required to have a pretreatment program. The regional office staff also review various pretreatment-related submittals from the POTWs.

Personnel at the DEQ central office write regulations, issue guidance, and provide technical support for the state Pretreatment Program. They serve as a secondary level of review for all major pretreatment program submissions, and provide guidance, technical assistance, and training to the regional pretreatment and enforcement personnel. A “Pretreatment Procedures Technical Manual” has been developed, and is updated as part of this effort, in order to provide a central source of guidance to the regional offices and pretreatment POTWs. The central office section also updates required data elements for EPA’s Permit Compliance System from information gleaned from POTW audits and annual reports.

The Virginia Compliance Auditing System

The DEQ monitors the performance of municipal and industrial dischargers through a computerized compliance auditing system, which was instituted in September 1987. Under the VPDES permit program, major facilities are required to submit monthly plant performance reports based upon self-monitoring of the parameters listed in the discharge permit. Minor facilities report on an individually assigned frequency. These discharge-monitoring reports (DMRs) indicate the quality of plant effluent and whether any bypasses have occurred. Data from DMRs are entered into the DEQ's Comprehensive Environmental Database (CEDS) in the regional offices, which compares all parameters to permit limits or other enforcement actions to detect any violations.

When a permit or other enforcement action violation is observed through the CEDS, the system assesses weighting points according to the severity and frequency of the violation. In addition to the automatic detection of effluent violations through CEDS, compliance schedules, both in permits and enforcement actions as well as other required due dates, are tracked through CEDS. Weighting points are also assigned for single event violations reported to the DEQ by permittees, the public or other sources. All weighting point values are assessed and tallied for the previous six reporting periods. When accumulated values exceed specified limits, enforcement action may be initiated any time a violation is observed which is determined to cause environmental harm. Additional enforcement activity may result from problems discovered during on-site inspections.

The accumulated records of weighting point values are used by both Regional Office and Central Office staff as a tool to aid objective focus when determining appropriate enforcement activity with facilities in habitual permit noncompliance and on those facilities with the greatest potential for environmental harm. The program also ensures that permittees are fully aware of problems as they develop and have an opportunity to improve treatment in order to maintain compliance.

Virginia Pollution Abatement Permits

A Virginia Pollution Abatement (VPA) Permit may be issued by the SWCB whenever an owner handles wastes or wastewaters in a manner that does not involve discharging to a sewage treatment facility or to state waters pursuant to a valid VPDES permit. The Virginia Pollution Abatement Permit Regulation (9Vac 25-32-10 ex seq.) was adopted in 1996. Pollution abatement facilities approved through the VPA permit program may include pits, ponds, and lagoons for waste storage, treatment, or recycling. Permits are also required for on-site facilities, such as land treatment systems. The basis for approval for such systems includes assurance that waste or wastewater will not discharge directly into state surface waters under prescribed rainfall conditions, and for protection of ground water quality. Other industrial operations for which VPA permits are issued include timber products, textile, meat packing and rending, food processing, chemical products, metal plating, petroleum products distribution, car washes, laundromats, mining, animal waste and others.

An owner who applies for a VPA permit is also required to provide conceptual plans for the pollution abatement facility. The application and plans are then reviewed and a site inspection is made. Whenever pits, ponds, or lagoons, and/or land treatment is proposed as part of the pollution abatement facility, it is determined if a potential threat to ground water quality exists. If so, the owner must supply site evaluation data and, possibly, a ground water monitoring program prior to receiving approval for a VPA permit.

Land application is a major no-discharge alternative to a conventional discharging systems. In addition to eliminating a direct discharge of pollutants to state waters, an added benefit is derived from the fact that, for waste generators, land treatment is frequently a cost-effective alternative. Landowners receive the benefits of economic incentives in the form of fertilizer savings and soil conditioner value. The increasing use of land treatment by industry and municipalities is an encouraging trend. It reflects a growing acceptance on the part of waste generators and regulators alike that it is not only a cost-effective alternative, but also is a technically sound means of waste or wastewater utilization. As commercial fertilizer costs continue to increase and wastewater treatment requirements become more stringent, land application looks to be a favorable alternative for waste management for both the waste generator and landowner.

Water Quality Planning

DEQ uses Water Quality Management Plans (WQMPs), required by section 303(e) of the Clean Water Act, as the link between the water quality assessment required for this report and water quality based controls. These plans recommend control measures for the water quality problems identified and characterized in the 305(b) report. Control measures recommended in the plans are implemented through the VPDES permit system for point sources and through the application of Best Management Practices (BMPs) for nonpoint sources. WQMPs establish the strategy for returning impaired waters to meet water quality standards and for preventing the degradation of high quality waters.

Waterbodies are classified as effluent limited (E.L.) where water is known to meet state water quality standards after the application of technology-based effluent limits or other required controls. Waterbodies not meeting existing water quality standards after the application of technology-based effluent limits or controls are classified as water quality limited (W.Q.L.).

The DEQ uses the WQMPs to implement the total maximum daily load (TMDL) process required by Section 303(d) of the Clean Water Act. TMDLs are the allowable loadings or loading strategies for waterbodies classified as water quality limited. The TMDL process is a mechanism for integrating the point and nonpoint source loads contributing to the impairment of the waterbody. Only by controlling both sources of pollutants, can water quality be restored to the affected waterbodies.

TMDL Program

Section §303(d) of the 1972 Clean Water Act (CWA) requires the states to develop **T**otal **M**aximum **D**aily **L**oads (**TMDLs**) for waters on the 303(d) list that are not in compliance with water quality standards. In July1992, EPA promulgated regulations, 40 CFR §130.7, for implementing TMDLs as required by §303(d) of the 1972 CWA. The CWA and the enabling TMDL regulation did not contain

additional implementation measures. TMDL implementation is through the existing pollution reduction regulations and voluntary strategies.

In 1997, the Virginia General Assembly enacted the Water Quality Monitoring, Information, and Restoration Act (WQMIRA), §62.1-44.19:4 through 19:8 of the Code of Virginia. This statute directs DEQ to develop TMDLs for the waters on Virginia's 303(d) list. All TMDLs must be approved by EPA and adopted by the State Water Control Board as regulations. The state statute also directs DEQ to develop implementation plans for the approved TMDLs.

The State Water Control Law, Chapter 3.1, Article 1 of the Code of Virginia, authorizes the State Water Control Board to control and plan for the reduction of pollutants impacting the chemical and biological quality of the state's waters resulting in the degradation of the swimming, fishing, shell fishing, aquatic life, and drinking water uses.

The TMDL process contains three steps. The first step is to develop the TMDL. These are special restoration studies containing the following information:

- Quantification of the amount of a pollutant that the impaired water can assimilate and still meet water quality standards,
- Identification of all sources of pollution contributing to the violation of water quality standards. For bacteria TMDLs, examples of sources are run-off from pastures, failing septic tanks, leaking sewer lines, and wildlife.
- Quantification of the pollutant amount entering the stream from each source.
- Quantification of the reductions in pollutant loads needed for attainment of Water Quality Standards.

The second step in the TMDL process is developing an *"implementation plan"* for each TMDL. This plan must identify specific pollution control measures that must be undertaken to restore water quality, cost of the control measure, and the expected date for the attainment of water quality goals.

The third step of the TMDL process is the implementation of the TMDL through the existing pollution reduction regulations and other voluntary strategies.

For many years DEQ's main focus of pollution reduction efforts was the treated effluent discharged into Virginia's waters via the VPDES permit process. The TMDL process has expanded DEQ's focus of pollution reduction efforts from the effluent of wastewater treatment plants to include the other pollutant sources causing and/or contributing to the impairment(s) of the streams, lakes, and estuaries. Additionally, pollutant reduction tools are being expanded from the permit process to include a variety of voluntary strategies and Best Management Practices (BMPs).

In 1998, the American Canoe Association and the American Littoral Society filed a complaint against EPA for failure to comply with the provisions of §303(d) of the CWA in Virginia. In 1999, EPA signed a Consent Decree with the plaintiffs. The Consent Decree contained a TMDL development schedule through year 2010. This schedule requires TMDLs to be developed on the 377 impaired waters and the 260 condemned or restricted shellfish waters identified in Virginia's 1998 303(d) list. Since many of these impaired waters are impaired by more than one pollutant, the actual number of TMDLs to be developed by 2010 is 665. The following is a schedule for TMDL development in order to meet the 2010 deadline identified in the Consent Decree.

	TMDLs	**Shellfish TMDLs**
1999	1	
2000	12	
2002	30	
2004	81	
2006	90	130
2008	56	39
2010	135	91
Total	**405**	**260**

Currently, 41 TMDLs have been developed and approved by EPA and implementation plans for these TMDLs are in various stages of development.

Public participation is a very important part of the TMDL process. A series of public meetings are held for each TMDL. The focus of the first meeting is informing the public about the impairment, the TMDL process, and obtaining any public input for the TMDL development. The second meeting covers the identification of the pollutant sources and the relative amount of pollutant from each source. Additional smaller meetings may be held with “stakeholders” to ensure the pollutant information used in the study is accurate. The draft TMDL and allocations (pollutant reductions) is presented at the final meeting. All public meetings are advertised in local newspapers, through direct mailings, and in the Virginia Register.

Pollution Response Program

Pollution Response Program (PreP) was established to provide state response to pollution incidents, which affect waters of the Commonwealth.

Regional offices maintain 24 hour PreP phone service to receive citizen pollution reports. After hours, weekends, and on holidays, these calls are received by the Emergency Operations Center (VAEOC) operated by the Department of Emergency Services. VAEOC forwards the information via electronic mail to the regional office PreP Coordinators and to the VDH. Regional investigators are prepared to investigate events that have the potential to cause adverse environmental effects on a 24-hour basis. Trained personnel are on call to investigate and assist when needed with coordinating remediation activities associated with oil pollution incidents, fish kills, underground storage tank (UST) incidents and a variety of other reported incidents.

Chapter 2.3 COST/BENEFIT ANALYSIS

Construction Grants

The Federal construction grants program was initiated in 1958 to provide financial assistance to municipalities for the planning, design, and construction of publicly owned treatment works (POTW's). Since then, the program has been an essential element in pollution control efforts, without which many localities would have been unable to provide wastewater treatment systems.

Through 1988, Virginia received approximately $1.2 billion in federal appropriations for construction grants. These federal funds financed up to 75% of the total eligible cost of approximately 183 projects. The state contributed another $52.3 million toward project costs, with the remainder coming from local sources. Total local investment in these projects is estimated at $500 million.

Virginia Revolving Loan Fund

In 1988, the conversion from a grant program to a low-interest loan program to provide financial assistance for the planning, design and construction of POTW's began. The 1986 General Assembly created the Virginia Water Facilities Loan Fund, through which loans are made to local governments at or below current market interest rates for wastewater treatment improvements. Principal and interest repaid into the fund could then be re-loaned again for additional projects. The Federal Water Quality Act of 1987 established a State Revolving Loan Fund Capitalization Grant Program that provided an avenue for states to convert federal grant monies into a State Revolving Loan Fund.

On June 10, 1988, Virginia became the first state in EPA Region III and the fifth state in the nation to receive authorization to administer a State Revolving Loan Program. Since then, Virginia has received federal capitalization grants in each fiscal year (FY's 88 through 01) totaling $471,264,370. In addition, Virginia has provided $94,252,875 to the program.

As of June 30, 2001, money in the Fund had accrued interest earnings increasing cumulative fund availability by $40,578,310. In addition, principal and interest payments from loan recipients totaling $241,488,096 were returned and made available for additional loans. Also, a leveraging program was implemented in FY 1999 and FY 2000, when demand exceeded available resources, making $109,788,820 and $104,716,890, respectively, available to the program in those years.

Ag-BMP Loan Program

The 1999 General Assembly amended Chapter 22 of the Code of Virginia expanding the activities of Virginia's Water Facilities (Wastewater) Revolving Fund to allow low interest loan financing of specific Agricultural Best Management Practices (Ag-BMP). This legislation was to encourage the Commonwealth's farm communities to implement best management practices that reduce or eliminate agricultural non-point source pollution of Virginia's waters. This funding initiative went into effect July 1, 1999. The SWCB was assigned the authority to develop guidelines for the administration of such loans and determine the terms and conditions of any loan from the fund.

Following consultation, review and input from its many stakeholders, the guidelines were developed and the funding initiative was approved by the SWCB at its meeting on December 7, 1999. At that time the Board set aside $5 million from its Wastewater Revolving Loan Fund revenue to implement the program. Agreements were reached with VRA and the State's three Farm Credit Associations to allow them to perform necessary loan underwriting and execute and disburse loan proceeds to the recipient.

DEQ received its first request for low-interest loan assistance from its AgBMP program on January 14, 2000. As of November 15, 2001, DEQ had authorized $5,848,274 in low-interest loan assistance to 97 Virginia farmers for eligible BMP projects that would improve water quality in the Commonwealth. To date, DEQ has executed loan agreements that total $4,868,534 with 83 of those farmers and disbursed $3,995,612 to them for expenses incurred during implementation of the water quality related BMPs.

Loans approved during the first calendar year of program operation provide and allow for environmentally responsible storage and handling of approximately 47.7 million gallons of slurry (liquid) manure and 10,464 tons of dry manure based on the farms' projected operation, each year through the design life of the facilities installed.

In June of 2001, the Board took action to increase funding availability for this program and set aside another $5 million from available FY 2002 resources. The program continues to operate on a monthly cycle and is adding 5 to 6 farm operations to its funding list each month. As of this writing, 57 farm loan projects have been completed and have entered the repayment stage. To date, there have been no defaults and all farmers remain current with their loan repayments.

Table 2.3 - 1 summarizes Revolving Loan Fund status as of June 30, 2001.

Table 2.3 - 1 - Summary of Revolving Loan Fund

	Number	Amount
Section 212 Loans Closed	**178**	**$839,037,675.67**
AgBMP Loans Closed	**60**	**$ 3,538,889.00**
Section 212 Loans Approved	**19**	**$ 40,454,438.00**
AgBMP Loans Authorized	**16**	**$ 1,117,750.00**
Section 212 Loans Targeted for FY 2002	**19**	**$ 87,782,572.00**
Additional Section 319 Loans Targeted for FY 2002	**1**	**$ 2,981,842.00**
TOTAL	**293**	**$974,785,766.67**

The impact of Virginia's loan program on water quality and public health can be summarized as follows:

- Eliminated Virginia's 12 remaining municipal "primary discharge" treatment plants
- Upgraded or replaced 31 inadequate municipal wastewater treatment lagoon systems
- Upgraded, expanded or replaced 106 outdated public wastewater treatment facilities
- Eliminated 121 major points of raw sewage overflows
- Improved water quality and reduced operating expenses at 62 projects by significantly reducing infiltration/inflow loading to the plant and the receiving stream
- Addressed 33 potential public health hazard situations by eliminating failing septic systems, pit privies and straight-line discharges through the construction of public sewer systems
- Installed nutrient removal technology at 6 municipal treatment facilities discharging to the Chesapeake Bay
- The State's AgBMP Program has authorized, as of July 10, 2001, loans to provide and allow for environmentally responsible storage and handling of approximately 47.7 million gallons of slurry (liquid) manure and 10,464 tons of dry manure based on the farms' projected operation, each year through the design life of the facilities installed

604(b), 104(b)(3), and Clean Lakes Grant Programs

These Federal funds have historically been used for Water Quality Management Planning and Implementation projects. The financial resources have been split between the Planning District

Commissions for watershed planning and educational activities and internal Special Projects for equipment acquisitions to facilitate water quality monitoring and assessment activities) and for special studies.

During this assessment cycle, under direction from EPA, emphasis has been placed on projects that lead to, or support, TMDL development. Approximately $2,000,000 was committed to the TMDL program efforts through utilization of these Federal Grant Funds. Note that Clean Lakes funding ceased during 1996. The following projects have been funded during this assessment cycle supporting TMDL activities:

- Minimum Instream Flow Project, Phase V: Shenandoah River
- Hardware and software acquisition for TMDL activities
- Muddy Creek Nitrate TMDL, Rockingham County
- Non-Point Pollution Study, DEQ West Central Regional Office
- Pamunkey River Model
- Winterpock Creek & Upham Creek-data collection
- Trout Farm Solids Reduction Study
- Supplemental Stream Gauging and gauging equipment
- State of the Rivers Report: FORVA
- Four Mile Run Source Identification Project
- Moore's Creek Source Identification Project
- Hopewell Estuary Monitoring and Assessment
- Long Term Trend Analysis software development
- Source Identification for: Accotink Creek, Blacks Run, and Christians Creek
- Muddy Creek Fecal Coliform TMDL revision
- Phases II & III: Validation of Citizen Benthic Monitoring Methods

Table 2.3 - 2 are summaries of 604(b), 104(b)(3), and Clean Lakes grant expenditures for the period January 1, 1996 through December 31, 2000.

Table 2.3 - 2 Summary of Water Quality Management Grants

Year	**604(b)**	**104(b)(3)**	**Clean Lakes**	**Yr. Total**
1995-1996	$254,620	$182,160	$28,000	$464,780
1996-1997	$417,075	$161,807	-0-	$578,882
1997-1998	$221,655	$189,760	-0-	$411,415
1998-1999	$220,000	$100,000	-0-	$320,000
1999-2000	$220,000	$88,800	-0-	$308,800
TOTALS	**$1,333,350**	**$722,527**	**$28,000**	**$2,083,877**

Chapter 2.4 POLLUTION PREVENTION (P2)

Pollution prevention (or P2) is recognized as the most cost-effective form of environmental protection, because it is an environmental management strategy that emphasizes the elimination or reduction of wastes **at the source of generation**. Whereas traditional waste management techniques such as treatment and disposal concentrate on managing wastes, P2 focuses on the question, **"Why are the wastes produced in the first place?"**

Treatment, handling, and disposal of wastes can result in significant financial and labor costs, and involve regulatory and compliance issues. P2 techniques can offer companies the opportunity to reduce or eliminate these costs, while lessening their regulatory burden and decreasing environmental impacts.

Many major industries with environmental staffs are aware of and have implemented pollution prevention techniques. In fact, industry has really been the driving force in promoting pollution prevention concept. These companies are realizing the benefits of P2 techniques and are using P2 to help their "bottom lines" and to gain a competitive advantage over other companies in their market. Other facilities, however, especially small- to medium-sized companies and public sector facilities, do not have trained environmental staff persons who have the time to investigate P2 opportunities.

Going Beyond Compliance. Environmental regulations are legally-enforceable standards and rules which place limits on environmental impacts from business and other activities. However, they are based on a system of "permitted thresholds", which allow a certain degree of impact. Pollution prevention, although not legally required, provides the opportunity for businesses and others to move voluntarily beyond mere compliance; to continually strive to do better, year after year; and move well below the enforceable thresholds of regulations. Reductions through P2 are driven by cost savings, not regulatory enforcement.

Environmental Management Systems. Many forward-thinking companies that understand the value of P2 have realized that environmental aspects are a significant factor that affects the very success or failure of their organization. These facilities have developed "environmental management systems" (EMS), which ensure that environmental factors are communicated within the overall management of the company. In addition, a good EMS set goals for "continuous improvements" that help the facility move beyond compliance towards a conceptual goal of "zero discharge" or "no net impact" on the environment.

Cost Savings & Environmental Benefits? Through P2 techniques, facilities can eliminate or significantly decrease the quantity and/or toxicity of their generated wastes. Facilities can avoid the direct costs and long-term liabilities associated with producing and managing those wastes. Source reduction techniques often result in increased **production efficiencies** which can actually decrease raw material purchasing needs. Also, P2 techniques emphasize a multi-media approach that avoids transferring contamination from one media to another.

Wastes are essentially wasted raw materials, and P2 efforts strive to conserve the use of raw materials by using them as efficiently as possible. In addition, P2 stresses the reduction of toxicity, and prevention of spills and raw material/product losses. P2 or source reduction is distinguished from recycling and reuse efforts, because these management techniques involve waste handling, collection, and reprocessing into a new raw material or useable product. True source reduction eliminates the need and the costs associated with handling wastes.

Where Does P2 Focus? P2 techniques are proactive approaches and solutions to waste management issues and problems. Categories include process efficiency improvements, materials substitution, inventory control, preventive maintenance, energy and water conservation, in-process recycling, and office waste reduction. These techniques may involve complex capital upgrades for new equipment and computerized automation of monitoring equipment. However, many P2 techniques are as simple as using less-toxic raw materials or changing certain facility procedures.

What Does P2 Mean for Water Quality? P2's multi-media approach ensures that air and waste problems are not "solved" by putting them into water. P2 clearly demonstrates that "dilution is NOT the solution". P2 focuses on water conservation and use reduction.

Compliance with environmental regulations and permit requirements may help to sustain water quality where it is; however, it will not result in long-term improvements and it will not allow for long-term economic growth at the same time. Pollution prevention techniques, however, will allow these improvements to take place simultaneously. In fact, voluntary P2 is viewed by grass-roots efforts, such as the Chesapeake Bay Program, as the key to long-term improvements to water quality.

DEQ's Office of Pollution Prevention

Because of its importance, EPA provides funding for P2 efforts in almost every state. The Virginia DEQ's Office of Pollution Prevention (OPP) is the state's central point for pollution prevention techniques and is available to assist facilities throughout the state. OPP staff provides technical consultation and on-site assistance to business, industry, and government entities. In addition, OPP staff provides outreach services such as training, informational services (www.deq.state.va.us/p2), public recognition, voluntary programs, and sector-based initiatives. Assistance through OPP is completely non-regulatory, confidential, and provided at no charge.

Technical Assistance. OPP technical staff is located throughout the state at various DEQ regional offices to provide 1-on-1 assistance to business, industry, government, and citizens. Upon request, OPP staff will research waste issues and/or problems and provide requestors with the information they need in a timely fashion. OPP staff is also trained in performing on-site P2 opportunity assessments. These site visits are non-regulatory and confidential and can help facilities identify potential solutions to their waste management problems. During site visits, OPP staff will tour the facility asking questions about production, the flow of raw materials, and other waste management issues in order to identify potential P2 opportunities. After an assessment, OPP staff researches issues further and provides suggestions for reducing wastes. Facilities are under no requirements to implement OPP suggestions, and some suggestions may require additional consideration and research by the company. Because the visits are strictly voluntary, the majority of OPP's suggestions are intended to save the company money while protecting the environment.

Outreach. DEQ's OPP conducts outreach activities to promote the use of P2 as the preferred solution to waste management problems. Outreach consists of training and presentations, publications and the P2 webpage, public recognition, conferences and workshops, and the coordination of voluntary, sector-based programs. Outreach staff works with companies and technical staff to document "P2 successes" so that these successes might help and encourage others to pursue similar projects.

Virginia Innovations in Pollution Prevention (VIP2)

The "Virginia Innovations in Pollution Prevention" or "VIP2" initiative is based on the premise that the target for the next century must be to go "beyond compliance" with environmental regulation and move toward a sustainable economy of cleaner, more efficient technologies and operations. VIP2 was implemented in 1999 as the organizational structure for the state's activities to promote Pollution Prevention and Environmental Management Systems. VIP2 consists of seven components that have each been implemented by DEQ in past 3 years (www.deq.state.va.us/p2/vip2.html). They include the following:

- **Environmental Excellence through EMS <u>and Pollution Prevention</u>**. DEQ has developed a program to recognize environmental leadership in the development of environmental management systems (EMS). The Virginia Environmental Excellence Program currently has over 80 participants, 10 of which have fully-implemented EMSs and have achieved the level of "Exemplary Environmental Enterprise".
- **Mentoring**. DEQ developed a business-to-business mentoring network for pollution prevention, environmental management systems, and compliance. DEQ developed the Virginia Mentoring Network (VMN), a web-based tool that provides access to over 90 mentors, who have volunteered to provide business-to-business and business-to-government assistance.
- **Environmental technology.** DEQ has an Environmental Technology program that facilitates the transfer and implementation of new environmental technologies.
- **Financial incentives.** DEQ has developed a 1-stop resource entitled "Financial Incentives for

Environmental Project", and provides low interest loans for P2 projects through the "Virginia Small Business Compliance Assistance Loan Fund".

- **Integration of Pollution Prevention within DEQ Regulatory Programs.** DEQ has integrated pollution prevention into all of its operational functions through a series of pilot projects so that regulatory staff will be aware of and help identify P2 opportunities. In addition, DEQ has developed its own EMS and included P2 and EMS goals in job descriptions and yearly work plans.
- **Expanded Technical Assistance.** The technical staff was expanded to provide assistance at the regional level.
- **Environmental Education.** DEQ's environmental education program was expanded and strives to integrate pollution prevention concepts in the statewide environmental education curricula.

Other Initiatives

In addition to VIP2, OPP has striven to support P2 and EMS activities through a wide variety of voluntary, sector-based programs and initiatives.

- Department of Defense Agreement. DEQ is working with 22 Virginia Department of Defense facilities to develop partnership for achieving voluntary P2, EMS, and mentoring projects.
- Businesses for the Bay. DEQ coordinates Virginia functions of this voluntary P2 initiative to restore the Chesapeake Bay. There are more than 235 Virginia participants.
- Strategic Goals for Metalfinishing. DEQ is coordinating a program that provides incentives to metal finishers and POTWs to go beyond regulatory compliance.
- Virginia Clean Marinas Program. DEQ is working with the Virginia Institute of Marine Sciences & the Department of Conservation & Recreation to support marina certification program and to integrate it with the Virginia Environmental Excellence Program.
- DEQ Environmental Management System. DEQ has developed an environmental management system for management of the DEQ central, regional, and satellite facilities.
- EnvironmentaLodging. DEQ is working to promote P2 in the hospitality industry. Approximately 50 Virginia facilities are participating in the program.
- Mercury Reduction Program. DEQ is working with Virginia Dental Association, American Healthcare Association, healthcare providers, pharmacies, local governments, and mentors to collect and recycle elemental mercury and promote substitution of non-mercury containing thermometers and other instrumentation.
- Virginia Healthcare Challenge. DEQ is challenging Virginia hospitals to reach goals of MOU between EPA and the American Healthcare Association.
- Green Electronics. DEQ is encouraging consumers to purchase and suppliers to design environmentally-preferable electronic components. DEQ is also participating in EPA Region III's initiative to facilitate the recycling of electronic components. A series of pilot collections are planned for 2002.
- WasteWise. DEQ is a member of EPA's solid waste reduction program, and promotes WasteWise to other businesses and government agencies.
- Local Government EMS. DEQ is assisting the in the development of Environmental Management Systems for Virginia localities.
- Energy Efficiency. DEQ is working with the State Energy Plan to develop a systematic approach for increasing the energy efficiency of state facilities and to reduce energy consumption.
- P2 Newsletter. DEQ produces a quarterly newsletter, *Pollution Prevention Virginia* to promote P2 activities statewide.

Chapter 2.5 PUBLIC HEALTH/AQUATIC LIFE CONCERNS

Increasingly, the DEQ is addressing the role toxicants play in reducing water quality in state waters and supports programs to monitor, evaluate, and reduce toxicity to aquatic life and human health. Many of the programs in place at DEQ that address toxicity in state waters are described and discussed throughout this report.

The toxic pollutants that were monitored during the reporting period include toxic organics, metals and pesticides. Information on the state's monitoring programs and the results of this monitoring for toxics in water column, fish tissue, and sediment is provided in Chapters 3.1 and 3.3 of this report. A discussion of the methodology used to determine elevated levels of toxicants is provided in Chapter 3.2.

Fishing Advisories and Restrictions

The VDH Division of Health Hazard Controls has ten health advisories, limiting fish consumption, and one restriction, prohibiting consumption, currently in effect. A fishing restriction allows sport fishing within the affected area, but the taking of fish for human consumption is prohibited. A health advisory warns of potentially dangerous levels of contamination found in fish tissues in an affected area and in most cases, limits consumption but does not prohibit it. Under health advisories, the population at risk and a safe maximum consumption rate may be specified. These areas are described below.

Kepone in the Lower James River

From 1966 through 1975 Allied Chemical Company and its subsidiary Life Science Products, Inc. produced a persistent chlorinated hydrocarbon insecticide called Kepone. During production, an estimated 90,720 kg of Kepone was released to the environment through atmospheric emissions, wastewater discharges, and bulk-disposal of off-specification batches. The James River and its tributaries from Richmond to Newport News were contaminated with Kepone. In 1975, the entire James River from the fall line at Richmond to the Hampton Roads/Norfolk Bridge Tunnel, including all tributaries, was closed to the taking of any shellfish and/or finfish because of Kepone. From 1975 through 1988 various Kepone bans were in place. In 1988, all James River fishing restrictions due to Kepone were allowed to expire as Kepone levels in fish remained below the U.S. Food and Drug Administration (FDA) action level of 0.30 ppm. This area is currently under a contaminant advisory, covering the mainstem James River and all tributaries from the fall line at Richmond to the Hampton Roads-Norfolk Bridge Tunnel. This advisory does not limit or restrict the consumption of fish from this part of the river.

DEQ has continually monitored Kepone levels in the James River since its identification in 1975. The major areas of concern were Kepone levels in the water column, finfish, and sediment of the James River and its tributaries, and in the ground water in Hopewell. After continuous non-detectable results, water column monitoring was discontinued in 1981. Kepone levels in finfish, ground water, and sediment have decreased since the onset of the problem. Continued sediment sampling will provide the state with an up-to-date portrayal of Kepone levels throughout the contaminated reach of the river. The waterbodies affected by this health advisory are: VAT-G11, VAT-G10, VAP-G08, VAP-G07, VAP-G04, VAP-G03, VAP-G02, VAP-G01, and VAP-J15.

Mercury in the North Fork Holston River

Eighty miles of the North Fork Holston River in southwestern Virginia were contaminated with mercury by releases from the Olin manufacturing operation in Saltville. Although the chemical plant closed in 1972, mercury levels in fish remain above FDA action levels, and the consumption of fish from this area is prohibited. Catch-and-release fishing is allowed. This health restriction includes waterbodies VAS-013, VAS-O12, VAS-O11, and VAS-010.

Mercury in the South River and the South Fork Shenandoah River

Mercury was released by E. I. DuPont de Nemours and Company, a synthetic fibers plant in

Waynesboro, into the South River and South Fork Shenandoah River from 1929 to 1950. The contamination was discovered in 1977 and was found to have contaminated 103 river miles, from the plant to the Page/Warren county line. These areas remain under a health advisory for fish consumption due to mercury contamination. The VDH recommends that no more than one meal (**2** pound) per week of fish from these waters be consumed. Small children and pregnant women are advised not to consume any fish containing mercury. This health advisory is located in all or a portion of waterbodies, VAV-B40, VAV-B38, VAV-B37, VAV-B35, VAV-B33, and VAV-B32.

PCBs in the South Fork Shenandoah River, North Fork Shenandoah River and Shenandoah River

The VDH has issued a public health advisory warning against the consumption of fish taken from the South Fork Shenandoah River from the State Route 619 bridge downstream to the Shenandoah River headwaters; from the North Fork Shenandoah River at its confluence with Passage Creek downstream to the Shenandoah River; and from the Shenandoah River from the confluence of the North and South Fork Shenandoah Rivers to the Virginia/West Virginia state border. This covers approximately 45 stream miles. This advisory was issued after DEQ monitoring revealed PCB levels in fish tissue samples above the 2.0 ppm FDA action level. The advisory states that Afish caught in these waters should not be consumed. The source of this contamination has been identified as Avtex Fibers Front Royal Inc. This plant closed in 1989 following revocation of their VPDES permit. This health advisory is located in waterbodies VAV-B58, VAV-B57, VAV-B55, VAV-B51, VAV-B41.

PCB in the Roanoke River

In July 1998 a health advisory for fish consumption has been issued for a 50 mile stretch of the Roanoke River running through Cambell, Charlotte, Halifax and Pittsylvania counties. Polychlorinated biphenyls, commonly known as PCBs, have been detected in fish tissues of striped bass, white bass and carp. The advisory area begins at Seneca Creek at Route 704 near Long Island and continues downstream to the point where a pipeline intersects Route 803 and where Route 633 in Charlotte county crosses the Roanoke River (approximately 5.4 river miles below the route 360 bridge). People should eat no more than two eight-ounce meals a month of these fish species. These meal estimates are based on the possibility that eating PCB-contaminated fish may increase the risk of cancer in humans. A source of the contamination has been identified but other sources are suspected. In December 1999, the VDH expanded this fish advisory to include 29 additional miles upstream including Altavista to the Leesville Dam. Affected waterbodies are VAW L-19, VAW-L30, VAW-L31, VAP-L36, VAP-L38, VAP-L40, VAP-L75 and VAP-L80.

PCB in the Dan River

A health advisory for fish consumption has recently been issued for a 42 mile stretch of the Dan River from Kerr Reservoir at Staunton River State Park to southwestern Halifax County where the river crosses into North Carolina, north of Virginia Route 62. Polychlorinated biphenyls (PCBs) have been detected in seven fish species collected in the South Boston, Virginia area. Flathead and channel catfish were the only species determined to have levels of PCBs in the tissue above 600 ppm, the VDH level of concern. The advisory cautions people to eat no more than two eight-ounce meals a month of flathead and channel catfish taken from the advisory area. Pregnant women and children are advised not to eat any of these fish. Affected waterbodies are VAW-L60,VAP-L62,VAP-L64 and VAP-L73.

PCB in the Potomac River

A health advisory for fish consumption has been issued for a 33 mile stretch of the Potomac River from the Woodrow Wilson Bridge to Bent Point at the mouth of Aquia Creek. The advisory states Achannel catfish larger than 18 inches caught in the tidal areas in several tributaries flowing into the Potomac river near Quantico, Va may pose a potential public health risk@. Since most of this area is in Maryland, the VDH has not posted any warning signs.

PCB in the Levisa River

A health advisory for fish consumption has been issued for a 12 mile section of the Levisa River from Grundy, VA to the Kentucky state line. The advisory recommends that people eat no more than one eight-ounce meal per month of any fish taken from that section of the Levisa River.@ The waterbody affected is VAS-Q08.

PCB in Bluestone River

In August 2001, the VDH issued a health advisory for fish consumption for a section of the Bluestone River from the Route 460-bridge crossing south of Bluefield downstream to the Virginia/West Virginia state line near the town of Yards in Tazewell County. The advisory applies only to carp due to elevated levels of PCBs detected in samples collected in 2000 by DEQ. The advisory states that "carp caught in these waters should not be consumed".

PCB in New River

In August 2001, the VDH issued a health advisory for fish consumption for a section of the New River from the Route 114-bridge crossing north of Radford field downstream to the Virginia/West Virginia state line near the town of Glen Lyn. The advisory applies only to carp due to elevated levels of PCBs detected in samples collected in 2000 by DEQ. The advisory states that "carp caught in these waters should not be consumed".

Shellfish Condemnations

The Virginia Department of Health has prohibited and/or condemned harvest of approximately 148 square miles of productive shellfish areas in the waters of Virginia. Another 3 square miles square miles have been seasonally condemned, which restricts direct harvesting from 1 April to 31 October of each year. These areas are all located in the Chesapeake Bay and Tidewater areas of the state, and include waters surrounding certain point source discharges, as well as areas with elevated fecal coliform bacteria concentrations or other problems. Shellfish may be harvested from most restricted areas; however, they must first be relayed to approved waters for depuration for 15 days before marketing. Relaying is only allowed when the water temperature is above 50°F. The taking of shellfish is prohibited in three bodies of water: the Elizabeth and Lafayette Rivers, both within the lower James River subbasins; and Little Creek in the Small Coastal and Chesapeake Bay Basin.

Fish Tissue Contamination

Overview

Routine and Special Study Fish Tissue Data. This section summarizes the fish tissue contaminant data collected, analyzed and/or evaluated during the period covered in this report. The data were collected via DEQ's routine five-year rotational monitoring of fish and sediment samples for contaminant analysis in the state river basins (see Section 3.1-3 for details about this program), as well as from follow-up and special monitoring studies conducted once the routine program identified potential problem areas. The data reviewed for this report covers data collected from 1993 through 2000. Fish-tissue concentration data for routine monitoring conducted in the years 1997-1998 and 2000 are posted on the DEQ web site at www.deq.state.va.us/rivers/homepage.html. Fish concentration data for special studies conducted in 1999 can be found at the following DEQ web sites. Data for the Roanoke (Staunton) River can be found at www.deq.state.va.us/staunton/homepage.html, data for the Dan River can be found at www.deq.state.va.us/rivers/dan.html, and for Mountain Run at www.deq.state.va.us/rivers/mtnrun.html. All of these data have been reviewed by the VDH.

Screening Value Exceedences. Appendix B includes the approximately 270 stations that DEQ sampled in its routine rotational river basin monitoring program (including follow-up monitoring) between 1995 and 2000 and tabulates the number of exceedences of human health screening values for those routine monitoring stations where there were exceedences for one or more contaminants in edible fish fillets or shellfish. Contaminant screening values are computed using EPA risk assessment techniques for non-carcinogen and carcinogen effects and are based on the same fish tissue concentrations that are the basis for the numerical water quality criteria that are designed to prevent fish contamination. These stations were not randomly selected. Instead, many of the stations were targeted for sampling because of potential or known water pollution problems identified via a search of historical data and reports.

Selection Basis for Stations Discussed. This report summary highlights those stations from Appendix B where current contaminant levels alone - or in combination with other data and studies - were:

1. at a Virginia Department of Health ("VDH") level of concern for human health requiring a fish consumption advisory or advisory extension (see page 2.5-2), or

2. at a VDH or DEQ level of concern requiring special follow-up studies (most are listed at http://www.deq.state.state.va.us/water/reports.html, or

3. below levels of concern where VDH determined that an existing fish consumption advisory could be lifted due to a decline in levels of contamination. A complete list of fish advisories in Virginia can be found at **http://www.vdh.state.va.us/HHControl/fishing_advisories.htm**

During this period DEQ and the VDH were also able to complete risk evaluations at several sites reported for ongoing or future evaluation in previous editions of this report. These decisions are included in this report in order to finalize the information on previously reported potential human health concerns. This report does not highlight station exceedences where VDH determined at the time of data review that no further action was needed unless these stations were monitored as a follow-up to a VDH request for additional sampling.

Lead

No Current EPA Screening Value for Lead in fish tissue. The specific toxicological information needed to calculate a screening value is not available for lead at this time and EPA does not have a screening value for lead in fish tissue. Therefore, DEQ cannot use a screening value to assess the data for lead found in fish tissue. To address this issue, DEQ reports any concentration of lead detected by our contract analytical lab to the VDH for its review and recommendations. To address this unusual situation in this report, all instances of lead detected at any concentration in fish tissue are noted in Appendix B.

1993 - 1994 Lead Data Suspect Due to Lab Problems. Previous 305(b) reports noted that lead had been detected in at least some of the fish samples at each station sampled in 1994 as well as in 1993, and that follow-up work was planned. Upon further investigation, DEQ identified detection limit problems at the contract laboratory. This made all of the lead concentrations for the 1993 - 1994 fish tissue samples suspect. Therefore, these lead concentrations were not used in the assessment of the 1993-1994 data and are not included in Appendix B of this report as an exceedence. Furthermore, VDH did not consider the concentrations for the suspect lead data to be at levels of concern. In 1995 DEQ switched to another contract lab capable of detecting metals and organics at lower detection limits. Lead was detected in less than 4 percent of fish analyzed between 1995 and 1998. When DEQ resampled one of the 1994 stations with suspect lead levels (Mattaponi River) in 1996, lead was reported below detection limits (<0.1 ppm).

VDH Requests for Follow-up Sampling. In subsequent monitoring years (1995 – 1998) covered by this report, lead was detected at 15 river basin stations. Of these 15 stations, VDH asked DEQ to follow-up with additional sampling at two sites sampled in 1997 (Kiptopeke State Park and Bagwell Creek). These two stations were resampled in 2000 and lead was not detected in any fish samples from Bagwell Creek. Lead was detected at the detection level of 0.1 ppm in only one of six fish samples (gray trout) at Kiptopeke State Park.

These data were reported to the VDH and they did not recommend any further action.

Polychlorinated Biphenyls (PCBs)

Shenandoah River and South and North Forks of the Shenandoah River Fish Consumption Advisory. VDH reviewed the fish-PCB data collected in 1996 and 1999 from stations on the Shenandoah River and South and North Forks of the Shenandoah River that contained PCBs above the VDH level of concern. Because these fish were from areas currently subject to a fishing advisory established in 1989, VDH determined that no further action was needed.

Roanoke (Staunton) River Fish Consumption Advisory. Data collected by DEQ in 1993 during a special Roanoke (Staunton) River basin study led VDH to issue a fish consumption advisory in 1998. The area covered by the advisory was expanded in 1999 in response to additional DEQ sampling data indicating levels above the VDH level of concern of 600 parts per billion. (See page 2.5-3 of this report and the DEQ web site for additional information). DEQ is now focusing on identification of potential point sources for the contamination.

Dan River Fish Consumption Advisory. Data collected by DEQ in 1999 from the Dan River showed elevated levels of PCBs in some species of fish from some areas of the river. On December 27, 1999 the VDH issued a fish consumption advisory for the Dan River from the Virginia /North Carolina border (north of the VA Route 62) downstream to the Kerr Reservoir at the Staunton River State Park. The fish consumption advisory applies to flathead catfish and channel catfish and recommends that pregnant women and children do not eat these species and that others limit their consumption to two eight-ounce meals a month.

Levisa Fork Fish Consumption Advisory. In 1997 DEQ included a station on the Levisa Fork at the state line in its routine river basin rotational sampling because PCBs had previously been detected in fish at this location. Three out of four of the fish species samples collected at Levisa Fork in 1997 exceeded the 600 parts per billion level of concern for PCBs established by VDH for issuing fish consumption advisories. The VDH issued a fish-eating advisory for a 12-mile stretch of Levisa Fork in 1999 (See page 2.5-3). In response to a request from VDH, DEQ conducted a special fish and sediment study in Levisa Fork in 2000 in an attempt to bracket the extent of fish contamination. The VDH reviewed these new data and determined that the only fish that exceeded their level of concern were from areas currently subject to a fishing advisory, therefore VDH determined that no further action was needed at that time.

Deep Creek Follow-up Sampling. VDH asked DEQ to resample Deep Creek (Southern Branch of the Elizabeth River) in 2000 because a gizzard shad sample collected at that station in 1998 exceeded the screening value for PCBs. DEQ had also conducted a special study in the Elizabeth River in 1993; these stations are listed in Appendix B. PCB levels in all species collected at the Deep Creek station in 2000 except gizzard shad were below the VDH 600 ppb level of concern. VDH has reviewed the recent monitoring data and determined, since gizzard shad is not the type of fish that people commonly eat, that no further action is warranted at this time. Additional DEQ sampling in the Elizabeth River system was conducted in 2001. Analytical data from these 2001 fish samples were received by DEQ from the lab in the summer of 2002. These 2001 fish-contaminant data were being reviewed by DEQ and the VDH to determine the need for appropriate follow-up action at the time this 305(b) report was being sent out for public comment. Because these data are for 2001 and are outside the assessment period of this 305(b) report (1995-2000), these data are not part of this 305(b) report and assessment and are not included in Appendix B. The mention of these data is included in this text for information only. The assessment of these 2001 data will be included in the next 305(b) report. These new data will be placed on the DEQ web site at http://www.deq.state.va.us/rivers/fishsed.html during the summer of 2002.

Four Mile Run Special Study. Samples were collected by DEQ during October 1997 in Four Mile Run in response to concerns about run-off problems from the nearby Potomac Yard in Northern Virginia. The local Health department made the request for the special study via the DEQ Northern Regional Office in response to citizen concerns. VDH reviewed the data results and determined that the level of contaminants (PCB, total chlordane and total PAH) posed no significant risks to human health.

James River 1997 Fish Study of PCB Levels. The US Fish and Wildlife Service had expressed concern due to the presence of PCBs in fish tissue from the James River (River Miles 76.0 -69.0) and the DEQ's "low" priority designation during its review of DEQ's final 303(d) TMDL (Total Maximum Daily Load) Priority List for 1996. The Service also expressed concern that the area was a roosting habitat for the bald eagle and limited fish tissue data were available for the river segment. In addition, high concentrations of polychlorinated terphenyls (PCTs) in sediment in Bailey Creek were identified by DEQ-Piedmont Regional Office ("PRO") staff. So in 1997, 45 fish tissue samples were collected from seven stations in the James River and its tributaries in the vicinity of Hopewell. The study was a joint effort between DEQ-PRO and Central Office Staff, and involved tissue and sediment collections. These samples were analyzed for PCBs, PCTs, and chlorinated pesticides. Thirty-five of the 45 fish tissue samples had PCB levels in excess of the DEQ screening value; however, only one sample had a PCB concentration above the VDH advisory level. Fish tissue data were transmitted to PRO staff during November 1998. During early December 1998 PRO staff made a data report presentation to other DEQ staff and VDH personnel. An old landfill in Hopewell was identified as the source of PCB and PCT to the James River system. At PRO's request, USEPA Superfund monitoring staff sampled the landfill area and creek running through it in January 1999 and determined that the site contamination was not sufficient to warrant Superfund cleanup. EPA found PCTs upstream of the landfill and suggested that old industrial sources might be contributing to the contamination. At the request of the industry PRO sampled stormwater outfalls at the headwaters of the creek for PCTs and PCBs in May 1999; PRO found PCTs in the 1 to 5 ppm range and PCBs in the 0.2 to 1.6 ppm range in sediments. These results were below the clean-up requirements of EPA Superfund, and the case was considered resolved pending further information. VDH has asked DEQ to resample Bailey Bay in 2001 or 2002. DEQ resampled Bailey Bay in 2001. Analytical data from these 2001 fish samples were received by DEQ from the lab in the summer of 2002. These 2001 fish-contaminant data were being reviewed by DEQ and the VDH to determine the need for appropriate follow-up action at the time this 305(b) report was being sent out for public comment. Because these data are for 2001 and are outside the assessment period of this 305(b) report (1995-2000), these data are not part of this 305(b) report and assessment and are not included in Appendix B. The mention of these data is included in this text for information only. The assessment of these 2001 data will be included in the next 305(b) report. These new data will be placed on the DEQ web site at http://www.deq.state.va.us/rivers/fishsed.html during the summer of 2002.

Revisit Potomac River Fish Consumption Advisory Area. The fish consumption advisory for the Potomac River is described on page 2.5-3. At the request of VDH, DEQ resampled the Potomac River and Virginia tributaries in 2000. Some carp and channel catfish samples from the Potomac embayment stations had PCBs higher than the VDH 600 ppb level of concern for PCBs. However, all these stations are within sections of the river where a fish consumption advisory is already in effect. Therefore, based on the year 2000 monitoring data, the VDH has determined that no further action is warranted at this time.

Mountain Run and Bull Run. During this period the DEQ completed follow-up monitoring of fish and sediment from Mountain Run and Bull Run. Latest sampling results in 1999 found PCBs and PAHs in the fish but not at the VDH levels of concern.

New River Fish Consumption Advisory Area. Based on data from fish collected by DEQ in 2000, on August 6, 2001 VDH issued a fish advisory for the New River from the Rt. 114 bridge north of Radford to the Virginia-West Virginia State line. This new fishing advisory applies only to carp and recommends that no carp be consumed from the affected portion of the river. Based on DEQ data collected in 2000 and discussions with VDH, DEQ collected additional samples from the New River in October 2001 at the following locations; downstream of Claytor Lake dam, downstream of Radford, near Whitethorne, near Pembroke and at Glen Lyn. These recent samples had not been analyzed at the time this report was prepared. Additional sampling to gain additional data in this section of the New River is scheduled for 2002.

Bluestone River Fish Consumption Advisory Area. Based on data from fish collected by DEQ in 2000, on August 6, 2001 VDH issued a fish advisory for the Bluestone River from the Rt. 460-bridge crossing south of Bluefield to the West Virginia State line. This new fishing advisory applies only to carp and

recommends that no carp be consumed from the affected portion of the river. Based on our data collected in 2000 and discussions with VDH, DEQ plans to resample this area on the Bluestone River in 2002 at the following sites; near the sewer plant road, near Rt. 17, and near the town of Yards.

Mercury

North Fork Holston. A station on the North Fork of the Holston River exceeded the screening value for mercury in 1997, but this area was already under a long-term fish consumption advisory prohibiting the taking of fish from these waters for human consumption due to historical mercury contamination from a Superfund site, described on page 2.5-2.

Shenandoah River Mercury Monitoring. DEQ's Valley Regional Office has an ongoing monitoring program for mercury in fish tissue, water and sediment in the South River and South Fork Shenandoah River. There have been restrictions or health advisories on consumption of fish from portions of the South and South Fork Shenandoah Rivers since the 1970s (see page 2.5-2). A fishing advisory in some form has been in place for some portions of this river system since the 1980s. The mercury contamination originated from historic practices at the E.I. DuPont Plant in Waynesboro. In a settlement between DuPont and the Commonwealth in the early 1980s, a trust fund was established to support monitoring in the river for a projected 100-year period. Fish were most recently sampled in 1996, 1999 and 2001. The results are available on the DEQ web site at http://www.deq.state.va.us/rivers/mercury.html. The VDH has evaluated all these data as well as recent recommendations from the National Academy of Sciences regarding mercury toxicity and assumptions of fish consumption rates. Based on their review, the VDH has changed their guidelines for issuing fishing advisories for mercury and has lowered their level of concern from 1.0 ppm to 0.50 ppm mercury. This is based on a new assumption of two 8-ounce meals a month, while the old screening value was based on approximately one meal per month. Based on the new, lower level of concern for mercury the VDH determined that the existing fish consumption advisory should remain in effect and be expanded into some additional portions of the river system. The revised advisory also contains updated recommendations on the amounts of fish that can safely consumed in different sections of the rivers. The VDH stated that this action was not due to changes in mercury levels in the fish but was due to the VDH "lowering the amount of mercury recommended for fish consumption to provide more protection to the public". More information can be found at www.vdh.state.va.us/news/fish3.htm. DEQ continues to monitor mercury contamination in this river system through regular meetings with stakeholders, review of literature, and communications with other experts in the field. Additional fish tissue monitoring for mercury contamination in this river system is planned for 2002

Dragon Swamp. Based on mercury levels detected in fish collected during the routine rotational river basin sampling in 1998, VDH requested that DEQ resample the site in 2000. One of seven species tested at this site in 2000 exceeded the VDH screening value of 0.50 ppm. This 2000 datum was for a largemouth bass at 0.59 ppm; in 1998 the largemouth bass sample was analyzed at 1.9 ppm. DEQ plans to sample the site again in 2002.

Tennessee Big Sandy River Basin. VDH had concerns about mercury concentrations in whole fish from two stations (Cranes Nest River and J. W. Flannigan Reservoir) sampled during the DEQ 1991 coal fields study. However, VDH could not draw any significant conclusions on associated health risks from the whole fish data. DEQ resampled these two stations in 1997 for mercury analysis of edible fillets. VDH has reviewed the data from 1997 and determined that the reported levels were not at a level of concern and that no additional sampling from these sites was necessary.

DDT/DDE

Two Lakes at Tidewater Community College. The DEQ Waste Division requested VDH review of DDT/DDE concentrations in whole fish collected from two Tidewater Community College lakes at a Superfund site. The VDH preferred edible fillets but found that even the concentrations in the whole fish were below levels of concern. At the request of citizens, DEQ collected fish from the two lakes for analysis of edible fish fillets

in 2000 and the VDH has reviewed these data and determined that the low concentrations in the fish present no health risks.

Dioxin

Blackwater and Nottoway Rivers. Due to dioxin contamination by the Union Camp Company in Franklin, Virginia, a fish-eating advisory was issued by the VDH in 1990 for portions of the Blackwater and Nottoway Rivers. Union Camp subsequently changed its process operations. At the request of the VDH, DEQ sampled one station each in the Blackwater and Nottoway Rivers in late 1997 for dioxin levels in fish. The results verified similar findings by Union Camp Company that the dioxin levels in the fish were below the VDH level of concern, and the advisory was lifted by VDH on March 26, 1998.

Kepone

James and Chickahominy Rivers. Every two years, DEQ, in consultation with the VDH, collects fish for kepone analysis from the James River downstream of Hopewell and the in the vicinity of the mouth of the Chickahominy River and in the Hampton Roads area. Nine of the 253 fish samples collected and analyzed in 1994 exceeded the FDA action level of 0.3 ppm. In 1995 one sample out of 260 exceeded the 0.3 ppm action level. Since 1995, none of the edible fillet samples from the annual collections has exceeded the FDA action level.

Tributyltin

Surface water samples were collected and analyzed by the Applied Marine Research Laboratory at Old Dominion University for the determination of the concentration of tributyltin (TBT) at one station in the Hampton Roads Harbor area and eleven stations in the Elizabeth River area of the lower James River. The samples were collected during six monitoring events over the period of June 1993 to March 1995. In-stream concentrations were compared to the Virginia Water Quality Standard for TBT in saltwater surface waters (VR680-21-01.13) which are not at any time to exceed 0.001 parts per billion (ug/l) TBT. The station in the Hampton Roads Harbor area did not exceed the standard. Six of the eleven stations in the Elizabeth River area exceeded the standard for TBT. The distribution of stations exceeding the TBT standard are as follows: three stations in the Elizabeth River main stem, one station in the Eastern Branch Elizabeth River, and two stations in the Southern Branch Elizabeth River. The exceedances occurred in segments which support considerable commercial vessel traffic with TBT hull coatings.

Relationship between *Pfiesteria* and water quality

The 2000 water quality assessment included the sampling and analysis for a microorganism ***Pfiesteria piscicida.*** This microorganism has been linked to extensive fish kills in North Carolina estuaries. Leading experts from North Carolina State University and the Florida Department of Environmental Protection as well as other scientists have not identified the toxic microbe in samples from Virginia. However, *Pfiesteria piscicida* was found in several Maryland rivers with fish kills during the summer of 1997. No confirmed cases were found in the waters of Virginia during the 1999 summer season and at this time, DEQ has reserved judgement on water quality issues associated with *Pfiesteria*.

Reporting fish kills or fishes with lesions

DEQ has responsibility for investigating fish kills and reports of fish with lesions in Virginia waters. Call 1 (800) 592-54VA to be directed to the appropriate regional office. Once reported, DEQ will collect water samples for oxygen and other chemical parameters along with actual fish samples. Water samples are sent to Old Dominion University (ODU) for analysis and fish samples are sent to Virginia Institute of Marine Science (VIMS). For any health related concerns, call the VDH hotline at 1 (888) 238-6154.

Chapter 2.6 VIRGINIA COASTAL PROGRAM

Virginia's coastal zone encompasses all of Virginia's Atlantic coast watershed as well as parts of the Chesapeake Bay and Albemarle/Pamlico Estuary watersheds. This coastal zone area, also known as Tidewater Virginia, includes 29 counties, 15 cities, 42 towns, as well as all waters therein and out to the three-mile Territorial Sea boundary.

The Virginia Coastal Resources Management Program, commonly known as the *Virginia Coastal Program*, was established in 1986 to protect and enhance these coastal resources. The program is a network of state agencies and Tidewater local governments that implement laws and policies to carry out this responsibility as authorized under the federal Coastal Zone Management Act of 1972, as amended. Through this network, the Program manages sand dunes, wetlands, underwater lands, fisheries, point and nonpoint source air and water pollution, shoreline sanitation and a variety of other areas of particular concern such as coastal wildlife habitats and public access, waterfront redevelopment and underwater historic sites. Executive Order Number Twenty-Three (98) signed by Governor James Gilmore in June 1998, continuing the Virginia Coastal Program, directs all state agencies to carry out their legally established duties consistent with the Coastal Program in a manner that promotes coordination among agencies in achieving the Program's goals and objectives:

- Prevention of environmental pollution and protection of public health.
- Prevention of damage to the natural resource base.
- Protection of public and private investment.
- Promotion of resources development.
- Promotion of public recreation opportunities.
- Promotion of efficient government.
- Provision of technical assistance.

Core regulatory agencies in the Virginia Coastal Program network include the Marine Resources Commission (VMRC), the Department of Environmental Quality (DEQ), the Department of Game and Inland Fisheries (DGIF), the Department of Conservation and Recreation (DCR), the Virginia Department of Health (VDH), and the Chesapeake Bay Local Assistance Department (CBLAD). Other agencies participating in the Program include the Department of Historic Resources (DHR), Department of Forestry (DOF), Department of Agriculture and Consumer Services, the Virginia Institute of Marine Science (VIMS), the Virginia Economic Development Partnership (EDP) and the Virginia Department of Transportation (VDOT). DEQ serves as the lead agency for Virginia's networked Coastal Program, and helps agencies and localities to develop and implement coordinated coastal policies.

By virtue of having a federally approved Coastal Program, Virginia also has the authority to require that federal actions within the coastal zone be consistent with Virginia's Coastal Program. Environmental impact review staff at DEQ review federal actions in the coastal zone for consistency with Virginia's Coastal Program laws and policies. Together, Virginia's localities, state agencies and NOAA form an effective intergovernmental partnership.

In addition to providing a forum for development and coordination of cross-cutting coastal issues, the Virginia Coastal Program provides grant assistance to state agencies and local governments. Having a federally approved coastal zone management program qualifies Virginia to receive about $3 million per year in federal funds under a formula allocation based on miles of shoreline and coastal zone population. The Office of Ocean and Coastal Resource Management at the National Oceanic and Atmospheric Administration (NOAA) allocates these funds under the Coastal Zone Management Act (CZMA). These grant funds are equally matched by Virginia's state agencies and local governments.

Since 1986, the Commonwealth has received over *$35* million in federal funds, matched by over *$32* million in state and local matching funds to implement its coastal program, and carry out a broad scope of state and local projects. These projects include the following areas (water quality specific project areas are in bold):

- ***coastal technical assistance*****,** e.g. local environmental planning by regional planning district commissions and CBLAD, tributary strategy development on state and local level;

- ***enforcement,*** wetlands and dunes permit compliance and inspection by VMRC and local governments;
- e***nvironmental management***, e.g. support for the business and industry guide to environmental regulations, natural resource mapping by DCR and DGIF and the Elizabeth River Project Watershed Action Plan;
- ***habitat and monitoring,*** e.g. annual support of the Chesapeake Bay Submerged Aquatic Vegetation Survey by VIMS, oyster reef restoration, and shorebird habitat protection;
- *land acquisition,* e.g. New Point Comfort in Mathews County, acreage in the North Landing Natural Area Preserve in Virginia Beach, the Northwest River Natural Area Preserve in the City of Chesapeake, expansion of the Kiptopeke State Park , and habitat preservation areas on Virginia's Eastern Shore;
- ***local government planning and comprehensive plans***, e.g. the Gloucester County Creative Rural Development Program, Appomattox River Corridor Study, and Northern Neck Land Use Tracking and Mapping System;
- *public access planning and construction,* e.g. Kiptopeke State Park Boardwalk and Hawk Observatory, dune crossovers in the Town of Cape Charles, harbor improvements in the Town of Wachapreague, nature and canoe trails on the Elizabeth River and West Neck Creek, Alton's Creek Boardwalk on the North Landing River, and access planning, such as public access plans for the Dragon Run , Potomac River, and Mayo Island;
- ***public education***, e.g. A Guide to the Bay Act, the Virginia Erosion and Sediment Control Field Manual, Bayscapes, and wetlands training and education;
- ***shoreline management***, e.g. shoreline management BMP's by VMRC, and sediment suspension studies by VIMS;
- ***special area management planning*** in Northampton County and for Virginia's Southern and Dragon Run Watershed Areas;
- ***wetlands***, e.g., support for the Virginia Wetlands Management Handbook [VIMS] and the Wetlands Guidelines [VMRC], tidal and nontidal wetlands surveys and mapping, and wetlands planning and policy); and,
- ***water quality***, e.g. the Virginia Nonpoint Source Pollution Control Program [DCR], water quality modeling by VIMS, support for the Virginia Citizen Water-Quality Monitoring Program, fecal coliform studies by VA Tech, Chesapeake Bay Preservation Area Program implementation and mapping by Virginia's Bay localities, stormwater and groundwater studies, and support of the Polecat Creek Watershed Project at CBLAD.

Tributary Strategies

Funding from the Virginia Coastal Program was key to the development of nutrient reduction strategies in Virginia's Chesapeake Bay tributaries. The 1987 Chesapeake Bay Agreement included a goal of reducing the flow of nutrients into the bay by 40 percent (of 1985 levels) by the year 2000 to improve water quality and protect living resources. More than 20 Coastal Program grants to state and local agencies, totaling over $1.2 million, helped Virginia educate and involve local governments and the public in decision-making and development of strategies to reduce nutrients to Virginia's coastal waters. The effect of this cooperative strategy effort was passage of the Virginia Water Quality Improvement Act of 1997, resulting in a total of $92.31 million in funding and accrued interest (FY 97 – FY 2001) towards reduction of nonpoint source pollution.

In addition to support for Virginia's Tributary Strategies, several new and ongoing efforts exemplify the Virginia Coastal Program's unique opportunity to fund and support projects that protect the Commonwealth's coastal resources, while encouraging intergovernmental coordination and partnerships with a broad constituency. They include the Virginia Coastal Nonpoint Pollution Program, Virginia Clean Marina Program, Southern Watershed Special Area Management Plan, and the Virginia Oyster Heritage Program. Each of these projects address water quality issues as well as some focus on monitoring and restoration of living resources to improve water quality in Virginia's coastal waters.

Virginia Coastal Nonpoint Source Pollution Program

On May 15, 2001, Virginia became the sixth state to receive full approval of its *Coastal Nonpoint Pollution Control Program* from NOAA and EPA. Development of the program was initiated in the fall of

1992 in response to Section 6217 of the Coastal Zone Management Act Reauthorization Amendments of 1990. Section 6217 of the Act requires that state's with an approved coastal zone management program, develop a Coastal Nonpoint Source Pollution Control Program. The statute is meant to restore and protect coastal water quality through the application of economically achievable "best management practices" implemented through enforceable state policies and mechanisms. The federal government defines state enforceable policies and mechanisms as state and local regulatory controls and/or non-regulatory incentive programs combined with state enforcement authority.

There are 56 management measures contained in the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, a comprehensive technical document issued by EPA on methods to abate and control nonpoint pollution in coastal areas. The chapters include management measures in the following areas: agriculture, forestry, urban areas, marinas and recreational boating, and hydromodification (channelization and channel modification, dams, and streambank and shoreline erosion). This document is available on EPA's Web site at http://www.epa.gov/owow/nps/MMGI/

In order to gain approval of its Coastal Nonpoint Pollution Control Program, Virginia was required to show that:

1) state programs include appropriate management measures (defined in the above guidance) to control NPS pollution;

2) the state has a means of implementing the management measures, and;

3) the state has sufficient statutory authority and enforcement capabilities to ensure implementation of management measures to reduce NPS pollution impacts on coastal resources.

With approval of its Coastal Nonpoint Pollution Control Program, Virginia remains eligible for full funding under the Coastal Zone Management Act and Section 319 of the Clean Water Act.

Following are some of the projects that contributed to the approval of Virginia's Program:

- A series of workshops on the proper use of irrigation systems and development of informational material on irrigation best management practices;
- Development of a web-enabled database for use by local government to track erosion & sediment control activities; development of a model local stormwater ordinance; and an economic evaluation of incorporating BMPs into site design;
- Development of shorelands planning protocol for use by local governments to enhance planning capabilities for areas adjacent to shorelands;
- A statistical analysis of the impact of channelization activities and dams in Tidewater Virginia on instream & riparian habitat;
- A plasticulture guidebook for local government and farmers recommending practices to protect water quality for operations using plastic mulch;
- Development of the Virginia Clean Marina Program to provide technical assistance to marinas and recreational boaters.

Virginia Clean Marina Program

There are approximately 1000 marinas and 250,000 boaters sharing the natural and economic benefits of Virginia's waterways. With each new boater and marina operator the potential impact to our waterways from nonpoint source pollution increases. Studies have shown, however, that an increasing number of recreational boaters support efforts to prevent and reduce pollutants from entering Virginia's waterways, and that higher occupancy rates exist at marina's where BMPs have been put into place.

On January 12, 2001, marina operators, marine industry representatives and state officials launched the Virginia Clean Marina Program at the Virginia Boat Show. The Program, funded by the Virginia Coastal Program with CZMA grants from NOAA, is a voluntary initiative. This initiative is designed to educate and give technical support and special recognition to marinas that implement Best Management Practices (BMP's) that go above and beyond regulatory requirements, minimizing potentially negative impacts on water quality and coastal resources. The program is a joint agency initiative between the Department of Environmental Quality, Department of Conservation and Recreation and Virginia Sea Grant at the Virginia Institute of Marine Science.

A Marina Technical and Environmental Advisory Committee (MTEAC), made up of representatives from Virginia's coastal network of state agencies, the marine trade industry, and the recreational boating and environmental communities, was established in 2000 to direct development of the Virginia Clean Marina Program. This committee spent several months refining a Virginia Clean Marina Guidebook for use by marina operators and recreational boaters. The Guidebook provides information on implementing best management practices (BMPs) at marinas. It also provides summaries of the pertinent state and federal laws affecting marinas, as well as agency contacts for more information. Fact sheets provided in the guidebook can be copied and distributed to boaters. The guidebook is available on-line at http://www.vims.edu/adv/vamarina/. A Marina Technical Advisory Program was established at the Virginia Institute of Marine Science Sea Grant Office in 1999. A Marina Technical Advisory Specialist is currently focusing on developing technical information on environmental and economic issues, and working with marinas who have pledged to achieve voluntary designation as a Virginia Clean Marina.

In November 2001, five marinas were awarded Virginia Clean Marina Designation. Fourteen marinas have pledged to participate in the program and are working toward designation. The goal is to have at least fifty full-service Virginia Clean Marinas by September 2003. Workshops were conducted in March and April of 2001 to introduce the program and present information on a series of topics, including stormwater management, pollution prevention and derelict vessels. Additional workshops are being planned.

For further information about Virginia's Coastal Nonpoint Pollution Control Program, and the Virginia Clean Marina Program and other coastal nonpoint program initiatives, please contact Mark Slauter, (804) 692-0839 or e-mail: mslauter@dcr.state.va.us. Also visit the Virginia Clean Marina Web site at http://www./deq.state.va.us/vacleanmarina/.

Virginia Oyster Heritage Program

The oyster is a keystone species in Virginia's coastal waters. Not only do oyster reefs provide habitat for many species of finfish and shellfish; they are natural water purifiers. They filter algae and sediments from our coastal waters, which increases water clarity and improves light penetration. A single adult oyster can filter up to 60 gallons of water a day. Seagrass beds, which require light, benefit from the oyster's filtering efforts and in turn provide habitat and feeding grounds for many other important species of fish and birds. The presence of seagrass is a key indicator of good water quality. The oyster resources of the Chesapeake Bay have been in a state of continuing decline for at least the past century. Before their decline, the Bay's oysters could filter an amount of water equal to the volume of the entire Bay in three to six days. Today, it takes a year or more for our remaining oysters to do the same job. There is no doubt that oysters and oyster reefs provide us with very direct economic and environmental benefits.

In March 1999, the Virginia Department of Environmental Quality, through the Virginia Coastal Program, and the Virginia Marine Resources Commission, launched a bold initiative to capitalize on recent advances to restore oyster reefs. The Coastal Program and VMRC established a partnership of Virginia state agencies, federal agencies, nonprofit organizations and business groups to form the Virginia Oyster Heritage Program. This Program has marshaled the collective resources of its partners toward a large-scale oyster restoration effort and has served as a catalyst for a Baywide commitment for a 10-fold increase in oyster populations over the next 10 years, and helped galvanize a Baywide strategy to meet this commitment. There was a significant new commitment of federal, State, and private funds for the Virginia Oyster Heritage Program and for Baywide oyster restoration efforts using a similar model.

The goals of the Virginia Oyster Heritage Program are to: construct 3-dimensional (608 feet tall) oyster broodstock sanctuary reefs; create harvest enhancement areas by spreading a 10 inch deep layer of shell around the broodstock sanctuary reefs, providing a sustainable fishery for Virginia watermen; monitor reefs to determine their success in increasing oysters, water clarity and biodiveristy; and provide educational materials on the oyster restoration effort and train and use volunteer for reef restocking efforts, and to encourage backyard oyster gardening" to augment restoration efforts.

Phase One of the Virginia Oyster Heritage Program resulted in the construction of nine reefs in the Rappahannock River in 2000 and 2001. Over three hundred of enhanced harvest area were also cleaned and improved by the addition of live oysters and cultch. All nine sanctuary reefs in the lower Rappahannock River have received excellent spatsets in 2001, and have significant populations of oysters. All of the enhanced harvest areas also received a very good spatset in 2001.

The new sanctuary reefs were built using more than one million bushels of cultch, a combination of dredged fossil shells, shucked oyster shells, and surf clam shells. Within three of these new reefs, tests are being conducted to evaluate both ground, recycled concrete, and recycled local shells as reef construction materials. Shell availability for future oyster restoration efforts will be one of the greatest challenges in the near future, and the partnership base of he Oyster Heritage Program has facilitated progress in addressing this issue. Initial results have shown that both the ground concrete and recycled shell have performed similarly to fresh shells. Virginia received a permit to mine fossil shells in the James River in 2001, and this activity provided most of the shells for the harvest areas.

Approximately 5 acres of reef were added to tidal seaside reefs on the Eastern Shore in the summer of 2000 in South Bay, the Wachapreague area and near Metompkin and Cedar Islands, with an additional ten acres restored in 2001 (mostly South Bay and Wachapreague). Recorded spatset on the tidal seaside reefs was extremely high in 2000.

Reef construction on the Eastern Shore is done in tandem with sea grass restoration. In 2001, more than 4 million eelgrass seeds were planted on more than 25 acres in South and Cobb Bays. Now completing their fourth year of study, the Virginia Marine Resources Commission and the Virginia Institute of Marine Science on the Eastern Shore are focusing on the interdependent relationship between oysters and sea grass. This study, as well as others in the Chesapeake Bay, suggests that the ecological value of oyster reefs extends to the survival and abundance of sea grass, an important water quality indicator.

In total, Phase I of the Oyster Heritage Program has resulted in more than $3 million for oyster restoration funding for the lower Rappahannock during the 2 years of the project, including $1,500,000 in Coastal Program funding and funds from the Virginia Marine Resources Commission and the Army Corps of Engineers. Funds from the Saltwater Recreational Fishing License Fund and the Chesapeake Bay Restoration Tax Check-off were also allocated to the Program. This has facilitated the largest, targeted restoration effort that has ever been undertaken in the Chesapeake Bay.

A non-profit foundation was established in 2000 to carry the private fundraising aspects of the Virginia Oyster Heritage Program. The Virginia Oyster Reef Heritage Foundation seeks and accepts funds on behalf of the Program in order to achieve the Program's goals. The Foundation has raised over $250,000, including monies from a Virginia Environmental Endowment challenge grant. A steering committee comprised of representatives of key partners in the Program provides direction in the allocation of these funds. The Foundation serves as a repository of private funds needed to match challenge grants and public agency grants.

Finally, local government and citizen support for the Virginia Oyster Heritage Program has grown since the dedication of the program in March 1999. For example, in March of 2001, the City of Virginia Beach passed an ordinance entitled "My Two Cents for the Oyster Program". This program pledged 2 cents per resident towards restoration of reefs in the Lynnhaven and Elizabeth Rivers, and donated $8,505 to the VOHP for reef restoration while challenging the other 15 Hampton Roads localities to do the same. Support such as this will continue to be necessary as reef restoration expands in the Rappahannock, on the Eastern Shore and in other areas around Virginia's coastal zone.

The Virginia Seaside Heritage Program (VSHP), a new partnership modeled after the Virginia Oyster Heritage Program, continues restoration of our aquatic resources. Oyster reef and seagrass restoration on Virginia's Eastern Shore are also an element of this new project, slated to begin in the Fall of 2002 with final funding approval from the National Oceanic and Atmospheric Administration (NOAA). Initiated by the Virginia Coastal Program, the VSHP will not only focus on actual restoration of aquatic resources, but also development of a comprehensive seaside inventory and management tools that would form the basis for long term restoration and management strategies. The VSHP will develop a use

conflict model, improved enforcement capabilities, public education materials, and ecotourism enhancements.

For more information about the Virginia Oyster Heritage Program, please call Laura McKay, Coastal Program Manager at (804) 698-4323, or Jim Wesson, Virginia Marine Resources Commission, at (757) 247-2121. For more information about the new Virginia Seaside Heritage Program, please contact Laura McKay at the number above.

Virginia Southern Watershed Special Area Management Plan

Since 1992, the Coastal Program has been working in partnership with the cities of Chesapeake and Virginia Beach, and the Hampton Roads Planning District Commission (HRPDC) to develop a Special Area Management Plan (SAMP) for the Southern Watershed Area.

The Southern Watershed Area Management Program (SWAMP) focuses on the development of new and enhanced enforceable policies that protect significant wetland habitat and water quality. The SWAMP seeks to minimize the adverse impact of continued urbanization on the natural resources of the Southern Watershed Area (SWA) by improving the range of tools available to Virginia Beach and Chesapeake to control new development.

The SWA, located in Southeastern Virginia, covers approximately 325 square miles and makes up the southern portions of the cities of Chesapeake and Virginia. The SWA is bordered by the Atlantic Ocean on the east, the Great Dismal Swamp on the west and the North Carolina border on the south, and contains three sub-watersheds: the Back Bay, North Landing River and the Northwest River. The northern area of the two cities is dominated by a pattern of urban development, as are the two adjacent cities of Norfolk and Portsmouth. Industrial development associated with the port facilities and military uses, such as Camp Pendleton and Oceana Naval Station in Virginia Beach, are predominant upon the landscape. The southern portion of these two cities is rural in character, and the land uses are primarily agricultural, silvicultural, and residential.

The Southern Watershed contains extensive wetlands, including a variety of rare swamp, pocosin and marsh communities that drain into the Albemarle-Pamlico Sound. The Northwest River is the primary source of drinking water for the City of Chesapeake. The area is one of the most biologically diverse regions of the state, supporting more than 40 rare species and 10 terrestrial, estuarine and palustrine wetland communities.

The primary coastal management problem facing the Southern Watershed is the need to preserve its significant natural resources in the face of increasing population and development pressure. As these pressures increase a coordinated effort to minimize the adverse impact of continued urbanization on the natural resources of the Southern Watershed is essential.

The five objectives of the SWAMP are consistent with the Comprehensive Plans of Chesapeake and Virginia Beach and meet the Special Area Management Objectives under the Coastal Zone Management Act:

- To protect and enhance water supplies and natural resources conservation.
- To preserve open lands to help protect and enhance water quality.
- Ensure compatibility of recreational activities and commerce with natural resource protection.
- To maintain the rural character of the Southern Watershed, while providing for rural residential development.
- To sustain agricultural and forestal activities in the Southern Watershed.

To achieve the SWAMP objectives as contained in a Memorandum of Agreement between the two cities, the following enforceable policies, which are based upon, and incorporate, locally defined needs and opportunities, are being pursued:

A. Refine development controls to protect water quality and preserve critical habitat.
Tasks: 1) Establishment of a Rural Area Preservation Program in the City of Chesapeake and, 2) Establishment of a mitigation strategy.

B. Improve the effectiveness of preservation districts.
Tasks: 1) Modify the definition and delineation of P-1 preservation district in the Virginia Beach Zoning Ordinance and, 2) Modify the definition and delineation of C-1 conservation District in the Chesapeake Zoning Ordinance.

C. Protect habitat through easements and information exchanges.
Tasks: 1) Development of Conservation Easement Memorandum of Agreement and, 2) Development of an Information Exchange Memorandum of Agreement.

D. Improve urban and agricultural BMPs.
Tasks: Development of a Memorandum of Agreement on Urban and Agricultural Stormwater Best Management Practices.

E. Manage competing waterway uses.
Task: Development of a Waterway Use Conflict Management Memorandum of Agreement. (Signed MOA described below.)

In addition, the SWAMP will highlight the economic value of the natural resources through the exploration of sustainable economic development initiatives, including environmentally compatible industries such as nature tourism and sustainable agriculture. The SWAMP also emphasizes research, e.g. water quality data analysis, to support the policy changes, and provisions for stakeholder involvement.

Development of the SWAMP brings a broad cross-section of stakeholders into a cooperative planning process. One example of this cooperative approach is the Water Quality Task Force, which was established to analyze existing water quality data, evaluate the current methods and procedures used to monitor water quality, and make recommendations for future actions. This Task Force includes representatives from the DEQ, U.S. Fish and Wildlife Service, U.S. Geological Survey, DGIF, DCR Division of Natural Heritage, Back Bay Restoration Foundation, DCR Division of Soil and Water Conservation, Hampton Roads Sanitation District and the cities of Chesapeake and Virginia Beach.

Water Use Conflict Educational MOA Signed for the North Landing River

Representatives from a broad range of local, state and federal agencies gathered on April 30, 2001 at Munden Point Park in Virginia Beach to sign a Memorandum of Agreement (MOA) to improve water use conflict education for the North Landing River. The MOA outlines recommended water use areas to minimize conflict between the diverse set of recreational and commercial users of the River. In addition, the use areas are intended to aid in protection of the valuable wetland ecosystem that surrounds the river by minimizing damage by watercraft.

The MOA includes a Water Use Plan Map for the North Landing River that depicts the areas of the River that are best suited for Low Impact Recreation, General Recreation and Special Use/High Speed Recreation. Low Impact Recreational activities such as canoeing and kayaking are recommended in the smaller tributaries and the narrow northern portion of the River. General Recreational activities, which include most motor boat usage, are recommended in the wider southern section of the River. Finally, high-speed recreational activities such as water skiing and jet skiing are recommended in the broadest and deepest section of the River.

The Cities of Chesapeake and Virginia Beach, Hampton Roads Planning District Commission, Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation,

Virginia Department of Game and Inland Fisheries, United States Army Corps of Engineers, United States Coast Guard and the United States Fish and Wildlife Service all participated in the development of the MOA and signed the finished document.

Implementation of the MOA will include development of educational materials for inclusion in boater safety programs and installation of signs with the Water Use Plan Map at launch areas. In addition, a survey of boaters on the North Landing River will be performed both before and after implementation of the educational program to determine its effectiveness.

For more information on the SWAMP, please contact Eric Walberg, HRPDC, at (757) 420-8300 or ewalberg@hrpdc.seva.net, or Laura McKay, Coastal Program Manager, at (804) 698-4323 or lbmckay@deq.state.va.us.

Chapter 2.7 WETLANDS PROGRAM INITIATIVES

Virginia's Wetlands

Wetlands are lands transitioning between terrestrial and deep-water habitats where the water table is usually at or near the land surface or where the land is covered by shallow water (Cowardin and others, 1979). Virginia has many different types of wetlands. Salt marshes include the extensive estuarine wetlands along the Chesapeake Bay that are characterized by vegetation tolerant of brackish to salty water. Other tidal marshes include estuarine wetlands located along freshwater parts of tidal rivers. Interdunal swales are topographic depressions among sand dunes on the Atlantic coast that contain palustrine emergent or scrub-shrub wetlands. Virginia's Atlantic white cedar swamps, red maple swamps, and cypress-tupelo swamps and its nontidal flood-plain forests are palustrine forested wetlands that have seasonally occurring standing water and flood-tolerant trees. Pocosins are palustrine scrub-shrub wetlands that are slightly elevated above the surrounding landscape and have flat topography and poor natural drainage. Virginia's bogs, fens, and wet meadows are palustrine emergent wetlands that are often underlain by organic soils.

Wetlands occupy approximately 4 percent of Virginia's landmass (Dahl, 1990). Based on the United States Fish and Wildlife Service National Wetlands Inventory mapping completed to date, vegetated palustrine wetlands cover approximately 1,075,443 acres of Virginia, and are by far the most abundant type of wetland in Virginia; estuarine wetlands cover 190,996 acres; lacustrine wetlands 193 acres; and riverine wetlands 380 acres (Hershner et al., 2000). In addition, isolated wetlands, i.e. those wetlands occurring in depressions or fed by groundwater, with no surface water connection to other state waters, account for anywhere from 179,849 to 411, 246 acres, depending on the method used to estimate these areas (Hershner et al., 2000).

Virginia includes five physiographic provinces: the Coastal Plain, Piedmont, Blue Ridge, Valley and Ridge, and Appalachian Plateaus. Each province is characterized by geologic features, landforms, and soils that directly affects the hydrology of wetlands. About 72 percent of the wetland area in Virginia, including all the estuarine wetlands and most of the large nontidal wetlands, are in the Coastal Plain (Tiner and Finn, 1986). Extensive estuarine wetlands have developed in low-lying areas along the shores of the Chesapeake Bay and its tributaries and behind the barrier beaches of the Atlantic coast. Palustrine wetlands are distributed throughout the State and are located primarily in bottom lands and in flood plains along stream channels, especially in headwater areas. About 22 percent of the wetlands in Virginia are in the Piedmont, and most of the remaining wetland area is in the Appalachian Plateaus (Tiner and Finn, 1986; Harlow and LeCain, 1991).

Virginia has experienced great losses of wetlands during its development. In the 1780's, wetlands covered about 1,849,000 acres (more than 7 percent) of Virginia (Dahl, 1990). By the mid-1980's, when permits began to be required for most impacts to wetlands, about 1,075,000 wetland acres remained in Virginia -- a loss of about 42 percent in 200 years (Dahl, 1990). Agriculture, industrial and urban development, and recreation have led to the draining, dredging and ditching, filling, diking, and damming of wetlands in Virginia. According to a Chesapeake Bay Foundation fact sheet (2001), Virginia lost more than 770,000 acres of wetlands, for an annual loss of 3,870 acres, during the 200-year period from the 1780s to the 1980s. From 1982 to 1989, Virginia lost more than 17,800 acres of its Chesapeake Bay watershed wetlands at an annual loss of 2,500 acres. While the most recent data have not been finalized, most experts agree that significant annual wetland losses continued during the 1990s. Further, during 1998 and 1999, more than 2,500 additional acres of non-tidal wetlands in Virginia were ditched for development, nearly 6,700 acres are planned to be ditched, and additional acres of isolated wetlands were destroyed. Eighty percent of estimated losses of freshwater vegetated wetlands (mostly palustrine, forested systems) occurred in the Coastal Plain. Wetland trends for the Norfolk/Hampton region of Virginia indicate a loss of about 4,800 acres of vegetated wetlands between 1982 and 1989/90 (Tiner and Foulis, 1994). This loss of wetland areas has been recognized as being potentially detrimental to Virginia's environment and new ways of mitigating these losses are now being considered and enacted.

Development activities in wetlands in Virginia are regulated by the Corps of Engineers through Section 404 of the Clean Water Act; the Department of Environmental Quality, through the Virginia Water Protection Permit and Section 401 of the Clean Water Act; the Virginia Marine Resources Commission and local Wetland Boards, through the Virginia Tidal Wetlands Act of 1972.

Wetlands Definitions

Wetlands are defined in different ways depending on the regulatory or policy usage, but all wetlands have in common a seasonal pattern of hydrology or continuous inundation, characteristic hydric soils, and vegetation adapted to growing under saturated condition. The Wetlands Act of 1972 (Title 62.1 of the Code of Virginia) defines tidal wetlands for the purposes of protecting the resource and regulating development. Under this definition, wetlands are found in the 29 counties and 17 cities that comprise Tidewater, Virginia. Specifically, vegetated wetlands are defined as "all land lying between and contiguous to mean low water and an elevation above mean low water equal to the factor 1.5 times the mean tide range at the site of the proposed project in the county, city or town in question," and on which are growing one or more of 37 specified species of wetlands vegetation. Non-vegetated wetlands are defined as all other lands between mean low water and mean high water. The Act does not include a definition for non-tidal wetlands. Further, it does not include all lands which are considered to be wetlands under the federal definition, seasonally tidal areas included. Although the Wetlands Act was initially limited to vegetated tidal wetlands, subsequent amendments included two discrete areas subject to wind tides along the North Landing River and Back Bay in southeastern Virginia.

The definition of wetlands contained in the DEQ's Wetlands Policy is as follows: "The wetlands of the Commonwealth, including marshes, swamps, bogs and other low-lying areas, which during some period of the year will be covered in part by natural non-flood waters, are unique, valuable and an irreplaceable natural resource." This definition was modified and included in the Virginia Water Protection Permit (VWPP) regulation (9 VAC 25-210-10) as follows, and parallels the federal definition of wetlands: "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and, under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

Wetlands Legislation

Tidal Wetlands Act

The Virginia Tidal Wetlands Act of 1972 is codified in Title 28.2, Chapter 13, Code of Virginia, and is administered by the Virginia Marine Resources Commission (VMRC). The Act authorizes local governments to establish local wetlands boards which exercise jurisdiction and issue permits for wetlands development, subject to adoption of a model wetlands zoning ordinance. While most Tidewater localities have wetlands boards, in those areas without boards, permits for wetlands development must be obtained from VMRC. The Commission reviews all decisions made by the local boards and has the authority to modify, remand, or reverse those decisions. The Act also requires the Virginia Institute of Marine Science (VIMS) to maintain an inventory of vegetated wetlands and provide advice and assistance to the VMRC on projects and on the development of wetland guidelines. The guidelines describe the values of each wetland community type and provide ranking according to the values.

Chesapeake Bay Preservation Act

The Chesapeake Bay Preservation Act created the Chesapeake Bay Local Assistance Department, whose function is to protect water quality and the integrity of the Chesapeake Bay through the creation of Chesapeake Bay Preservation Areas (CBPA) via local government ordinances. These preservation areas serve to restrict development in wetlands associated with free flowing permanent streams and their associated wetland areas, and establish buffer zones around these areas with certain development restrictions.. Each local government within the coastal and piedmont areas of Virginia draining to the Bay have developed regulations and ordinances regarding development within CBPAs. The implementation of the regulations of this Act relies on local governments.

History of the Virginia Water Protection Permit (9 VAC 25-210)

The Virginia Water Protection Permit (VWPP) constitutes the state Water Quality Certification required under section 401 of the Clean Water Act. Activities for which a water quality certificate, and therefore a VWP permit, are required may include impacts to wetlands under Sections 402 and 404 of the Clean Water Act,

Section 10 of the Rivers and Harbors Act of 1899, Federal Energy Regulatory Commission licensing, and other appropriate federal permits or licenses. The State Water Control Board may issue blanket Section 401 Certifications for classes of Corps of Engineers Nationwide and Regional Permits that have minimal environmental impact and meet the requirements of state law.

Regulations for the VWPP were first promulgated on May 20, 1992. These regulations replaced the existing 401 regulatory procedures contained in the State Water Control Board's Procedural Rule No. 3. The VWPP Regulations (9 VAC 25-210) define "surface waters", which are part of the definition of state waters, to include wetlands. This definition has closely followed the federal definition of "waters of the U.S.".

In 1996 and again in 1999, the Virginia General Assembly enacted legislation to encourage the use of Wetland Mitigation Banks. These “banks” were to be developed in accordance with federal guidance for the creation of wetland mitigation banks. Furthermore, the Virginia General Assembly enacted service area requirements for these banks that required any impacts compensated for through purchase of credits from the bank to be in the same or adjacent hydrologic unit within the same river watershed as the bank. The legislation also provided special provisions for linear transportation projects and projects for localities whose jurisdiction crosses multiple river watersheds.

The Great Dismal Swamp Wetland Mitigation Bank was the first bank in Virginia to be created subsequent to the issuance of the new Federal Guidance, and actually drains to Albemarle Sound in North Carolina. Since then, banks have been established in the following watersheds; Middle James River, Lower James River, Chickahominy River, Potomac River, the Dismal Swamp drainage, the Mattaponi River, and the Rappahannock River.

In 2000, the General Assembly amended Section 62.1-44 of the Code of Virginia, relating to non-tidal wetlands, to establish and implement policies and programs to achieve no net loss of existing wetland acreage and functions, as well as to develop voluntary and incentive-based programs that achieve a net resource gain in acreage and functions of wetlands. Although DEQ still acts as the state level Section 401 certification body, the General Assembly actions removed the dependence of the VWPP program on the issuance of a Corps permit. This enables DEQ to regulate activities such as excavation in wetlands and fill in isolated wetlands, which are not currently under federal jurisdiction pending the outcome of a series of court cases. The VWPP regulation (9 VAC 25-210-10) was significantly revised to reflect these statutory changes, some of which became effective on July 2000, with complete implementation on October 1, 2001.

In addition, the 2000 General Assembly directed DEQ to develop General Permits for classes of activities such as linear transportation projects, utility projects and development projects, to expedite the permitting process in Virginia while maintaining the same high level of environmental protection. The development of these General Permits took place with extensive input from the public through the establishment of a 30-person Technical Advisory Committee, and were implemented in October 1, 2001. Each General Permit has specific thresholds for use (1 acre for utility projects and 2 acres for transportation and development projects, plus a non activity specific permit for impacts less than 1/2 acre) and compensatory mitigation requirements, with a 45 day review and issuance time frame upon receipt of a complete registration statement.

Since first becoming a signatory state to the Chesapeake Bay Wetlands Policy in 1989, the Commonwealth of Virginia has remained committed to attaining a net gain in wetlands acreage and functions within the Chesapeake Bay drainage. The General Assembly’s actions in 2000 further confirm the Commonwealth’s commitment to these goals, through establishing a statutory commitment to a net resource gain of non-tidal wetlands through voluntary programs.

Coordination of Activities

In addition to the regulatory agencies, several state resource agencies are involved in reviewing activities for which VWP permits are required. . Among these agencies are the Department of Game and Inland Fisheries and the Department of Conservation and Recreation’s Division of Natural Heritage. These two agencies have an interest in aquatic or wetland-dependent species and their habitat. Also consulted is the Department of Health. Input is sought from these agencies through the permit application clearinghouse administered by the VMRC.

Permitting activities are also coordinated with these agencies during cooperative site visits and periodic Joint Permit Application meetings sponsored by the Corps of Engineers.

The actions taken in 2000 by the Virginia General Assembly included changes within DEQ that served to streamline the permitting process through more predictable review of permit applications within specified time frames, and the ability to modify permits for minor changes without resubmitting an application. Additionally, the General Assembly requested that DEQ seek a State Programmatic General Permit (SPGP) from the Corps of Engineers by July 2002, which will lead to a tiered system for the review and issuance of permits for wetland impacts in the Commonwealth, allowing the best use of resources between the Corps and DEQ. A draft SPGP was issued by the Corps on October 31, 2001 for public comment, with an uncertain implementation date.

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Chapter 2.8 REGIONAL WATER QUALITY INITIATIVES

NORTHERN VIRGINIA REGIONAL OFFICE (NVRO)

- **Probabilistic Biomonitoring and Chemical Monitoring Program in Virginia Non-Tidal Streams**

The Northern Virginia Regional Office (NVRO) sampled six (6) randomly selected probabilistic non-tidal stream stations in the Piedmont and Coastal Plain ecoregions. The Regional Biologist gathered representative samples of benthic macroinvertebrates, performed comprehensive habitat assessments, and obtained DO, temperature, pH, and conductivity data at the six stations located in the Northern Virginia Region. Each biological station was sampled twice, once in the spring and again in the fall. Fall sampling included water quality samples for nutrients, solids, chlorophyll a and fecal coliform bacteria. All sampling was conducted in accordance with agency standard operating procedures for ensuring the quality of the data. New, probabilistic stations will be selected each year.

- **Total Maximum Daily Load (TMDL) Activities**

Highlights of the NVRO efforts to improve water quality in those streams segments that do not currently support designated beneficial uses have been grouped into three categories and are presented below.

Monitoring in Support of TMDL Development
The NVRO established 23 special study water quality monitoring stations on selected streams identified in the *1998 303(d) Total Maximum Daily Load Priority List and Report*. The special studies were designed to provide monitoring data to help better define the impaired stream segments, and to support TMDL development. Stations were sampled monthly between July 1999 and August 2000. Each sampling event included water quality samples for nutrients, solids and fecal coliform bacteria.

Completed and Planned TMDLs
Fecal coliform bacteria TMDLs have been developed and submitted to the U.S. Environmental Protection Agency (EPA) for seven impaired stream segments in Northern Virginia Region. A fecal coliform bacteria TMDL for Mountain Run (near Culpeper, Virginia) was approved by EPA on April 27, 2001. Fecal coliform bacteria for Accotink Creek (Fairfax County), Four Mile Run, Arlington and Fairfax Counties and the Cities of Alexandria and Falls Church), North Fork, South Fork and mainstem Catoctin Creek (Loudoun County), and Thumb Run (Fauquier County) were submitted to EPA and were all approved on May 31, 2002. Fecal coliform bacteria TMDLs are currently being developed for six impaired segments in the Goose Creek watershed (Fauquier and Loudoun Counties) and will be submitted to EPA in December 2002. In addition, Fecal Coliform TMDLs for eight other impaired waterbodies are being recommended for de-listing based on improvements in water quality.

Public Participation in TMDL Development
NVRO has made every attempt to go above and beyond the required elements of public participation in TMDL development. Technical Advisory Committees (TACs) consisting of local government representatives and stakeholders have been established in most watersheds to provide a forum for review and approval of technical information used and assumptions made in developing the TMDL. TAC meetings have been held in addition to the public meetings required under state regulations. In several cases, a third and sometimes fourth public meeting have been held in addition to the two required meetings to help keep the public informed of and encourage public participation in the TMDL development process. Extensive mailing lists have been developed, in some cases numbering in the hundreds of names, and used to help notify watershed stakeholders of upcoming meetings. Finally, comment periods have been extended whenever practicable to provide as much time as possible for the submittal of public comments. In the densely populated Northern Virginia area, DEQ feels that it is especially important to insure public involvement in the TMDL process.

- **Lake Anna Monitoring**

The DEQ Citizen Monitoring Coordinator and the NVRO have met with representatives of the Lake Anna Civic Association (LACA) to develop a coordinated water quality monitoring plan for Lake Anna. The LACA organized a Water Quality Program in July 2000, which began monitoring 13 sites on the lake beginning in February 2001. This LACA monitoring program has since expanded to 20 sites. DEQ has

conducted its own water quality monitoring on the lake. These two monitoring programs have historically been conducted without coordination. In the Winter/Spring of 2002, DEQ and the LACA worked to develop a monitoring plan for the lake that will be implemented using the combined resources of the NVRO and the citizen volunteers. This combined monitoring effort began in April 2002, with the first "coordinated" lake-sampling event taking place. The monitoring plan will incorporate a three-year sampling rotation where DEQ will monitor approximately one-third of the sites on the main lake each year. The LACA volunteers will monitor those lake stations that DEQ does not sample. The collaborative monitoring effort will allow more extensive lake water quality monitoring than could be achieved individually by either the DEQ or the LACA. DEQ monitoring is conducted in accordance with the DEQ lake-monitoring guidance, and the LACA citizen monitoring is conducted in accordance with a DEQ-approved quality assurance plan.

WEST CENTRAL REGIONAL OFFICE (WCRO)

- **First Annual Virginia Tech Farm and Family Showcase (2001)**

The First Annual Virginia Tech Farm and Family Showcase was held September 5th and 6th 2001 at Virginia Tech's Kentland Farm. The portion of the Farm & Family Showcase in which DEQ participated focused on water quality issues associated with agriculture. Specifically, the riparian zone along Toms Creek flowing through the VT farm has been incorporated into the *Tom's Creek Streamside Conservation Project,* which showcases 'cost share' best management practices available to area farmers and landowners as both pollution prevention (P2) opportunities and Total Maximum Daily Load (TMDL) solutions. The *Tom's Creek Streamside Conservation Project* is permanent to allow for educational exposure opportunities (4-H, school field trips, etc.). Permanent signage for this area, including a 4x8 redwood sign, identifies all agencies involved and a brief description of the riparian area BMPs. The DEQ provided $1294.00 to assist in this project. Over 12,500 people visited the Showcase in its inaugural year.

- **PCB Source in Altavista, Va.**

In July of 1998, the Virginia Department of Health issued a fish eating advisory for certain types of fish in the Roanoke (Staunton) River. Since then the advisory was extended and now includes a portion of the Dan River main stem. In the fall of 1999 a search for PCB sources in the Roanoke River watershed by DEQ-WCRO uncovered a significant PCB source in Altavista, Va. Sample levels ranged from 5 – 3,000 ppm with the highest concentrations in a storm water ravine that leads off the property and enters the Roanoke R. On December 2, 1999, the DEQ Director ordered the facility to cease discharging PCBs to the river. Detention structures were immediately installed to effect this, and strong precautions taken to protect the health of workers at the site. Since that time, the facility has been intensively sampled to characterize PCB contamination and to prepare for remediation. EPA, DEQ-WCRO, and a local Citizen Committee continue to work with the facility and contractor to make progress towards cleaning up the site.

- **PCB Source Investigations in Altavista and Hurt, Va.**

During 1998 – 2000, an intense search for PCB sources was conducted in the Roanoke River watershed from Leesville Dam to the head of Kerr Reservoir. This involved extensive interviews of local officials, citizens, and industry representatives and employees, and information provided by the Staunton R. Citizen Committee. Based on these interviews, in June of 2000, DEQ teams sampled soil and stream sediment from multiple areas in the Town of Altavista and the Town of Hurt, VA. The collections helped narrow the search for PCB sources. It also identified both areas of concern and areas that have acceptable levels PCBs. While most sampled areas did not exceed Toxic Substances Control Act (TSCA) regulatory thresholds, the Town of Altavista STP was found to have a 10 acre wastewater lagoon with sediments above acceptable limits. The Town has hired a consultant to characterize PCB concentrations in the lagoon and its environmental and human risk. EPA and DEQ-WCRO are currently working with the consultant and Town on the project.

- **PCB Source Investigations in the Roanoke River Advisory Area**

During 2001, DEQ-WCRO and DEQ-Central Office planned for and conducted an intensive sampling of discharges in the PCB fish eating advisory area on the Roanoke R. Out of a potential list of 52 dischargers in WCRO, 20 or so were sampled. All discharges monitored had PCB concentrations below levels of concern.

- **Mill Creek TMDL Study 1999**

Mill Creek is a tributary of the Little River (New R. drainage) in Montgomery County, and is 303(d) listed for fecal coliform bacteria contamination. A study was initiated to characterize the problem and identify sources of bacteria in the watershed. Data have been collected and are being used in the TMDL plan. The bacteria are primarily coming from non-point source agriculture sites in the drainage.

- **Dodd Creek TMDL Study 1999**

Dodd Creek is a tributary of the Little River (New R. drainage) in Floyd County, and is 303(d) listed for fecal coliform bacteria contamination. A study was initiated to characterize the contamination problem and identify sources of bacteria in the watershed. Data have been collected and are being used in the TMDL plan. Sources include several leaking domestic septic systems and agricultural problems.

- **Blackwater River TMDL Study 1999**

Blackwater River is a tributary of the Roanoke River and is a major arm of Smith Mountain Lake. The drainage makes up several 303(d) listed segments and was extensively studied in 1991-95. Two monitoring runs were made through the watershed to provide current data on the status of fecal contamination. The data were summarized for TMDL modeling. In addition, a series of monthly stations in the watershed are being sampled as a part of the Central Office's bacterial indicator study. In addition to the fecal samples we are also measuring flows and nutrients to support TMDL modeling. The Monitoring staff will summarize these data.

- **Staunton River Low Flow Study 1999**

Because of the 1999 drought the dams on Smith Mountain Lake and Leesville Lake discharged less water to maintain pool levels in the reservoirs. The lower flows in the Roanoke River downstream of Leesville Reservoir were a concern. WCRO conducted a study of the low flow conditions. Monthly benthic samples were collected at several sites along the river. Also, five temperature loggers were installed along the stream. The Benthic samples are being processed and the temperature data is being summarized.

- **Piedmont Control Station Survey 1999**

DEQ and EPA are developing a new biomonitoring database. Early in the development stage we identified the need for more Piedmont control sites of all size streams. WCRO performed a search for new Piedmont controls though none of the sites appear adequate. A summary of the data was sent to the EPA database contractors.

- **Ongoing Jackson River Dissolved Oxygen Studies**

The Jackson River is one of the primary streams which helps form the James River. It is an exceptional state resource upstream of the City of Covington, VA, but is severely impaired at and below the Rt. 60 Bridge in Covington. For several years we have been monitoring dissolved oxygen levels in the stream and finding dissolved oxygen criteria violations. These data are regularly summarized and reported.

- **Forest Service Biomonitoring Data Review and Documentation 1999**

In 1999, the U.S. Forest Service submitted a large amount of data to DEQ for inclusion in the 305(b) report. Examination of the data indicated several of the streams assessed by the forest Service as impaired were listed because of lack of flow. WCRO initiated a study of several of these 'impaired' sites to determine if they were perennial streams. All of the streams visited were intermittent streams. WCRO

wrote an opinion paper suggesting these data not be used for the 305(b) because it is not the purpose of the 305(b) to list streams because of naturally low flows.

- **Ongoing Lakes Monitoring**

WCRO has five large lakes, which are primary recreational waters. We have been sampling these high value water several times a year to track water quality. In recent years these data have proven to be very valuable because of the high citizen concern over water quality in these lakes. In 1999, we began sampling these lakes six months each year. These data are to be used in future 305(b) reports.

- **Smith River Biomonitoring Studies 1997-1998**

The Smith River has been an area of special interest for several years due to impaired benthic communities and reports of illegal discharges and accidental spills. In 1997 WCRO initiated several studies of the biological community in the vicinity of several discharges in the Martinsville area. These data were used in regular biomonitoring reports and special reports.

- **Smith River Bioaccumulation and Sediment Study 1997-1998**

In 1997, WCRO initiated a study to determine if benthic impairments in the Smith River were due to a bioaccumulative toxic substance. Corbicula were placed in enclosures in the stream below several of the major dischargers to the river. While no bioaccumulative metal or organics were found in the stream, there was significantly higher mortality among Corbicula below the Martinsville and Lower Smith STPs. This can be interpreted to mean there is a toxic problem in the stream but the toxic compound is not bioaccumulative. This would be consistent with an effect caused by Chlorides, which were known to be discharged in high concentrations from both plants. The effect is probably related to the regulated flow from Philpott Reservoir, which discharges extremely soft water. At high flows the STP discharges are diluted with soft water while at low flow the stream is heavily influenced by the discharges.

- **Smith River Fish Shocking 1998-1999**

The Smith River has been biologically impaired for several years. In 1998 we coordinated with the DGIF to conduct a fish community assessment. Due to sampling equipment problems in the stream the findings were not conclusive, however the community appeared to be less diverse below the Martinsville and Lower Smith STPs. In 1999 we returned with different equipment and found the fish communities below these same plants to be much better than originally believed. Whether the fish community improved between years or the difference was due to better sampling equipment is not known. In 1999 improvements were also seen in benthic invertebrates which were not affected by sampling gear. This report is being prepared by the DGIF.

- **Floyd Temperature Study (1998)**

In 1998, WCRO performed a study of thermal effects of the Floyd STP. No temperature effects were observed in the stream.

- **Fawn Creek TMDL (1998)**

A Total Maximum Daily Load (TMDL) was developed for VPDES Permit VA0063657, Amherst County Service Authority Ivanhoe Forest Sewage Treatment Plant. The facility's permit contains water quality based effluent limits for dissolved oxygen, ammonia and total residual chlorine. The TMDL was developed by DEQ's West Central Regional Office Water Permits group and submitted to the U.S.Environmental Protection Agency (US EPA). Approval was received on June 26, 1998.

- **American Heritage Rivers Initiative (1997-1998**)

In February of 1997 President Clinton announced the American Heritage Rivers Initiative in his State of the Union address. Application guidelines were published in the fall of 1997. A task force of community leaders from the counties of Ashe and Watauga in North Carolina and Grayson County, Virginia, came together to pursue application for the designation of the New River as an American Heritage River.

On July 30, 1998 President Clinton and Vice President Gore traveled to Ashe County to designate the New River an American Heritage River. The New is now one of fourteen designated American Heritage Rivers in the nation. These initial efforts have grown to encompass the entire New River drainage from North Carolina through Virginia to West Virginia. The American Heritage River designation means grass roots organizations and communities in the New River Basin are afforded streamlined access to federal resources to develop and seek funds for projects related to economic revitalization, agriculture, natural resource and water quality protection, historic and cultural preservation and education. Streamlined access is accomplished through communications with and assistance from the New River Community Partners Board and the River Navigator.

The New River Valley Planning District played a major role in coordinating and conducting public meetings in Virginia to bring community and civic leaders, and local and state representatives together to develop a watershed plan. A completed work plan for the entire New River was formally released on July 26, 1999. DEQ staff participated in this community process.

- **Priority NPS Watershed Monitoring for Water Quality (1997)**

A 604(b)-funded special study was conducted in two watersheds located in the Roanoke Valley. Water quality variables were intensively monitored over four months. Watersheds L04R and L05R were both reported as having high potential for urban non-point source (nps) and low potential for agricultural and forestal nps pollution (1996 305(b) Report, VA DEQ). The study found reported potentials were only partially correct. Urban impacts were detected in both watersheds, particularly L05R but unreported agricultural impacts were also detected in L05R. In addition three of the four main creeks sampled exhibited sufficient total fecal coliform bacterial exceedances to be classified as impaired for the primary contact use.

PIEDMONT REGIONAL OFFICE (PRO)

- **Coastal 2000 Initiative - Water Quality, Biomonitoring and Sediment Toxicity of Virginia Estuaries**

PRO and TRO sampled 47 randomly selected probabilistic estuarine stations on the western and eastern Chesapeake Bay shores and the oceanside of the Eastern shore in summer 2001. Sampling crews obtained filtered chlorophyll a and nutrients, particulate nutrients, total suspended solids, benthic infauna, sediment metals, organics, particle size, and toxicity samples, light attenuation data, and depth profiles for DO, temperature, pH, conductivity and salinity. Each station was sampled once. Field duplicate samples were collected at one station per run, to cover 10 percent of samples for each parameter. Hydrolabs were pre- and post-calibrated and maintained according to agency SOPs. The study is proposed to continue for four years, with new stations selected each year. Probabilistic studies answer questions such as “What percentage of Virginia estuaries have low dissolved oxygen?” First year results are pending.

- **James River Combined Sewer Overflow (CSO) Special Study, 1994 through October 2001**

PRO performed a special study to document changes in the fecal coliform bacteria and dissolved oxygen levels above and below CSO outfalls in James River Park and the tidal James River at Richmond, VA from 1994 through 2001. An enlargement of the CSO lines and a south channel diffuser, a major improvement in the CSO system through the Fall line, went online in winter 1998. PRO sampled 14 non-tidal sites through the Fall line, and 16 tidal stations from Richmond downstream to just above the mouth of the Appomattox River, twice per month from May through October each year. A final report is pending.

- **Lead and Other Metals in Sediments of the Tidal Fresh James River near Rocketts Landing / Grantham Property below Richmond, VA**.

PRO waste staff discovered a large battery disposal area beside the James River at Rocketts Landing, lat 37 30 56, long 77 25 01, in early September 2000. An Environmental Site Assessment of the property documented soil lead levels up to 48 percent adjacent to the river. The study sampled lead and other metals in estuarine river sediments from both near-shore and near-channel sites. Ten (10) sediment

samples were obtained by Petit Ponar dredge immediately off the center of the battery site, and at locations at incremental distances upstream and downstream of the site. PRO sampled the stations once during Fall / Winter 2000/2001. Duplicate samples were collected to cover 10 percent of stations.

Results: Lead (Pb) in sediment ranged from 21.9 ppm 80 meters below the Rocketts Landing site up to 502 ppm for the sediment sample 200 meters below the Rocketts Landing battery site, and 302 ppm directly off the battery site. Both of the latter concentrations exceeded the ER-M value for lead of 218 ppm. The ER-M (Effects Range – Medium) is a part of the Effects Range sediment quality guidelines established by the NOAA. The guidelines were developed to identify concentrations of contaminants associated with biological effects in laboratory, field, or modeling studies. The ER-M is the concentration equivalent to the 50th percentile of the compiled study data. Sediment concentrations above the ER-M are frequently associated with adverse effects on animals that live in the sediment. This segment of the James River below Richmond, VA is considered threatened for aquatic life use in the year 2002 assessment cycle based on these sediment lead findings.

Station	Description	Pb, mg/kg (ppm)
2-JMS109.77	James River 0.2 mi below I-95	29
2-JMS109.47	James River DS of City Locks	52.4
2-JMS108.92	James River opposite Richmond STP	86.3
2-JMS108.77	Upstream boundary of battery site	67.8
2-JMS108.76	James R off Rocketts Landing battery site	308 (ER-M viol.)
2-JMS108.74	Downstream boundary of battery site	51.7
2-JMS108.71	James River 80 m below Rocketts Landing	21.3
2-JMS108.63	James River 200 m below Rocketts Landing	502 (ER-M viol.)
2-JMS108.44	James River 515 m below Rocketts Landing	39.5
2-JMS106.35	James River opposite DDS SIMS metal	45.9

- **Five Menhaden Fish Kills in the Mobjack Basin, July - August 2001**

PRO investigated five fish kills in the Mobjack Bay area from July 9 to August 16, 2001. The fish were juvenile menhaden in the 2 to 3 inch size class. The kills occurred in Heywood Creek in the Severn River (1000+ fish) on July 9, Back Creek in the North River (40,000 fish) on July 14, an unnamed tributary of Wilson Creek in the Ware River (50,000 fish) on July 18, Put In Creek in the East River near Mathews (440,000 fish) on July 30 and again in Put In Creek (3000 fish) on August 16.

Each event involved large schools of juvenile menhaden swimming into shallow headwater coves on flood tides in the evening, and remaining through ebb tide during the night, with mortality caused by depleting the dissolved oxygen, until the fish kills were discovered at morning. There were no lesions on the fish. Menhaden are known to be especially prone to low dissolved oxygen kills. PRO sampled for nutrients, chlorophyll a, biochemical oxygen demand, solids, algae ID, and Pfiesteria DNA probes in each event. Pfiesteria DNA probes were negative for Pfiesteria and related dinoflagellate algae in each event

- **Commonwealth of Virginia *Pfiesteria* Response and Monitoring Program**

For the months of May through October during the years 1998 through 2001, DEQ collected water quality and algae samples at up to 20 Cohort stations and 22 water quality stations in support of the Virginia Department of Health Cohort study. This combined medical and environmental study investigated whether a relationship could be found between health characteristics of persons working on Virginia estuaries and estuarine water quality. DEQ collected a full range of water quality analyses - including dissolved, particulate and total phosphorous and nitrogen, urea, chlorophyll a, biochemical oxygen demand, total suspended solids, total organic carbon, and Pfiesteria-Like Organism (PLO) algal cell counts and identification performed by Old Dominion University. In 2000 and 2001 staff also sampled for Pfiesteria and other harmful aglal bloom species by DNA probe identification, with the analysis performed by the Virginia Institute of Marine Science (VIMS). In 2000 and 2001, DNA probes identified Pfiesteria and related algal species in low concentrations in the Pocomoke, Coan, North, and East Rivers; and in Mattox, Indian, Skiffes, Kings, Occahannock, Onancock, and Pungoteague Creeks; and in Hodges Cove. The DNA probe cannot identify whether the species found are in toxic life stages. Agency staff also responded to fish kill events possibly caused by *Pfiesteria*. Most were juvenile menhaden kills attributed

to low dissolved oxygen and stranding overnight at low tide, in most instances no lesions were observed on these fish, PLO counts were low, and DNA probe results were negative. VIMS also concurrently performed fish trawls for the cohort study.

- **Three Dinoflagellate Algae Blooms Followed by Fish and Crab Kills in Potomac Embayments in summer 2000**

PRO investigated three dinoflagellate algae blooms which caused multi-species fish and/or crab kills in Potomac embayments in Westmoreland and Northumberland Counties in summer 2000. The first bloom occurred from late April through mid-May 2000, and was dominated by the dinoflagellate Prorocentrum minimum, a non Pfiesteria-like algae that causes mahogany water color during a bloom. The bloom was found in Monroe Bay, Mattox, Nomini, Lower Machodoc Creeks, Yeocomico and Coan Rivers and smaller tributaries. The bloom was also documented in the Potomac River from below Morgantown Bridge to the mouth. In its early stages, the bloom elevated dissolved oxygen (DO) to 15 mg/l and pH to above 9, and as the bloom died in mid-May, DO dropped to less than 2 mg/l in all the above tributaries resulting in the fish and crab kills.

The second dinoflagellate bloom occurred in Jackson Creek in Westmoreland County and Cod Creek in Northumberland County during the second week of June. The dominant alga was Gyrodinium galatheanum, a Pfiesteria-like organism. Both creeks experienced multi-species fish kills of more than 2000 fish, and had DO levels less than 1 mg/l during the kills. Both of these waterbodies were very shallow which would promote dense algal growth and subsequent complete DO loss when the bloom died.

The third fish kill was reported in Lodge Creek, a tributary of the Yeocomico River, on August 4. Menhaden were swimming erratically and being eaten by birds. Many of the fish had frank lesions. DO was 1 to 2 mg/l deeper in the water column. The water was reddish brown in color, and the dominant dinoflagellate was Gymnodinium sanguineum, a non Pfiesteria-like organism.

- **Probabilistic Biomonitoring and Chemical Monitoring Program in Virginia Non-Tidal Streams**

PRO sampled 15 randomly selected probabilistic non-tidal stream stations in the Piedmont and Coastal Plain ecoregions in the Spring and Fall of 2001. A total of 50 streams ranging in size from first order to sixth order were sampled statewide. The Regional Biologist gathered representative samples of benthic macroinvertebrates, performed comprehensive habitat assessments, and obtained DO, temperature, pH, and conductivity data. Each station was sampled twice, once in the spring and again in the fall. Fall sampling included water quality samples for nutrients, solids, chlorophyll a and fecal coliform bacteria. Hydrolabs were pre- and post-calibrated and maintained according to agency SOPs. The study is proposed to continue for four years, with new stations selected each year. Probabilistic studies answer questions such as “What percentage of Virginia non-tidal streams have impaired benthic communities?” First year results are pending.

- **Tributyltin (TBT), in Sediments of the Tidal Fresh James River below Richmond, VA.**

TBT sediment levels in the tidal fresh James River between Richmond and Hopewell, VA are largely unknown. One sample from near the Richmond City / Chesterfield County line at rivermile 106 in 1998 reached 3.8 ppb. A water sample during dredging near this point in 1999 reached 4 pptr (parts per trillion). One other sediment sample from below Turkey Island Cutoff at rivermile 79.0 in 1999 held 14 ppb TBT. The US Navy derived a TBT sediment screening value of 250 pptr (0.25 ppb) in an analysis of TBT data from San Diego Bay, CA, Norfolk region, VA, Pearl Harbor, HI, Puget Sound, WA, Narragansett Bay, RI and Galveston Bay, TX, based on ecological risk assessment principles.

The study sampled TBT in estuarine river sediments and water from both near-shore and near-channel sites at seventeen (17) locations from rivermile 107 below the mouth of Goode Creek to rivermile 76 off Hopewell, VA, at areas of heavy vessel traffic. Seven (7) water samples were collected at the heaviest areas of ship traffic in this segment. PRO sampled stations once during Summer/Fall 2000. Virginia Institute of Marine Science (VIMS) research staff performed the TBT analysis.

Results: TBT ranged from below the detection limit of 0.5 ppb dry weight in sediment up to 8 ppb for the sediment sample at the Port of Richmond (Deepwater Terminal). No water samples contained detectable TBT. The detection limit in water was 1 ng/l (pptr). VIMS research staff did not consider these levels high for areas that see heavy vessel traffic. However it is not known whether these levels pose a risk to aquatic life.

Station	Description	sed, ppb	water, pptr
2-JMS106.40	Embayment Below Buoy 168 Site 1	0.54	ND
	Duplicate	0.76	ND
2-JMS106.40	Embayment Below Buoy 168 Site 2	0.67	
2-JMS106.40	Embayment Below Buoy 168 Site 3	ND	
2-JMS106.40	Embayment Below Buoy 168 Site 4	0.76	
2-JMS106.40	James R channel edge Below Buoy 168	ND	
2-JMS106.90	0.5 mi US Embayment Below Buoy 168	0.71	
2-JMS105.90	0.5 mi DS Embayment Below Buoy 168	1.72	
2-JMS104.58	Off Deepwater Terminal	8.06	ND
2-JMS105.08	0.5 mi US Deepwater Terminal	ND	
	Duplicate	ND	
2-JMS104.08	0.5 mi DS Deepwater Terminal	3.56	
2-JMS078.99	Off Buoy 126 DS Turkey Is. Cutoff	2.57	ND
2-JMS079.49	0.5 mi US Buoy 126	4.32	
2-JMS078.49	0.5 mi DS Buoy 126	1.66	
2-JMS077.14	Off Hopewell, above Buoy 110	6.13	ND
2-JMS077.64	0.5 mi US Hopewell, VA	0.64	
2-JMS076.64	0.5 MI DS Hopewell, VA	1.07	
2-JMS157.28	James River at Cartersville Rt. 45	ND	ND

- **Water Quality Upstream and Downstream of Permitted and Proposed Livestock Facilities in PRO**

There were 27 permitted VPG and VPA livestock facilities in PRO with greater than 1000 hogs or 200 cattle planned or on-site when this program started in 1997. Water quality data above and below these sites was sparse. Occasional pollution responses and rare coincidental location of Ambient Water Quality monitoring stations nearby provided the only current data near these facilities.

PRO staff obtained surface water grab samples for BOD and TSS, a nutrient scan for nitrogen and phosphorus species, and fecal coliform bacteria during each station visit. Dissolved oxygen, pH, water temperature, and conductivity data were collected by Hydrolab at each station visit. A total of 78 stations have been monitored during the course of the study. Most facilities had one upstream and one downstream station, however some facilities were geographically located so that upstream or downstream stations were not possible. Multiple upstream or downstream stations were selected where appropriate. All stations were monitored every other month, pending staff availability. Monthly monitoring was not logistically feasible due to the large number of stations.

If sample results identified water quality problems or standard violations related to particular facilities, these facility stations were additionally monitored during storm runoff events to document any ammonia, fecal coliform, or dissolved oxygen standard violations off-site, or any other permit violations. Field duplicate samples were collected at one station per run, to cover 10 percent of samples for each parameter. Hydrolabs were pre- and post-calibrated and maintained according to agency SOPs.

This study has identified many impaired stream segments since 1997. However, the impairment often occurred at both the upstream and downstream stations related to a facility. Thus determining causes of impairment were often difficult. The study is scheduled to continue at least through July 1, 2002, and is re-scheduled annually pending staff and resource availability.

- **DEQ Actions Relative to Defense Supply Center (DSCR)**

The Defense Supply Center of Richmond (DSCR), is a large federal material storage and distribution facility that is subject to numerous state and federal environmental laws and regulations. The Virginia

Department of Environmental Quality (DEQ) interacts with this facility on a regular basis to assure that all applicable environmental rules are complied with. In addition, this facility has an active Superfund project to contain and clean up contamination from past operations on the site.

Due to recent newspaper stories about this facility, and the corresponding increase in public concern, the DEQ has taken several steps to address these concerns. In addition, DEQ continues to implement its normal compliance programs, and has taken appropriate actions to address problems when they are found. Following is a summary of recent actions taken by DEQ relative to the DSCR.

Water Quality Monitoring

Upon learning of public concerns about TCE (trichloroethylene) contamination in water leaving the site, DEQ staff collected water samples in cooperation with DSCR in May of this year. Samples were taken from an onsite stormwater pipe, and from the small stream (referred to as No Name Creek) that receives runoff from the DSCR facility. Analysis of the samples indicated low levels of TCE and some other contaminants, however, the concentrations were well below any established human health risk levels. Additional water samples have been taken in the area to verify that contaminant levels are below human health risk levels. **To date, no water sampling data has shown contamination at a level that would represent a threat to public health.**

Biological Stream Evaluation

A good indicator of pollution in a stream is the amount and diversity of aquatic life that exists there. A biological stream assessment was recently conducted in No Name Creek by a DEQ aquatic biologist. His findings indicated that the stream had aquatic organisms that were typical for a small stream in an urban area. There was no indication of unusual biological impacts.

Petroleum Release Investigation

Low levels of petroleum contamination have been found in a storm sewer pipe passing through DSCR and discharging into Kingsland Creek. Recent testing has determined the likely source of contamination to be fuel oil that may have leaked or spilled from an old underground storage tank that was removed in 1991. A plan for cleaning up the contaminated area has been developed and will be implemented soon. In the meantime, oil absorbent pads are being maintained in the storm sewer to minimize the release of contaminated water to the creek. The DEQ will continue to monitor DSCR's efforts to eliminate the source of the contamination and will assure that all appropriate actions are taken as required under the law.

Untreated Groundwater Release Investigation

On July 17, 2001, DSCR reported a release of untreated groundwater from their Superfund treatment system due to a mechanical failure. It is estimated that approximately 95,000 gallons of contaminated groundwater were released to No Name Creek from June 30 – July 6, 2001. The concentration of TCE in the released water was likely between 50 – 500 parts per billion. That would amount to from 0.04 – 0.4 lbs. of TCE. While it is possible that regulatory standards for TCE were exceeded in the stream during the period of the discharge, human health risk is considered low due to the temporary nature of the event. On Wednesday, October 7, 2001, DSCR reported a second release during an attempt to restart the upgraded pumping and treatment system. This time only about 600 gallons were released. The volume and probable concentration of contaminants is not considered a significant risk to human health or the environment. DEQ will continue it's investigation and will take appropriate enforcement action.

Special Stream Study

Because of the concern expressed by local residents, DEQ has planned a special study to determine whether there is unusual contamination in No Name Creek due to stormwater runoff. The study will involve taking water samples from the stream during and immediately following rainfall events, and testing for bacterial contamination, TCE and other contaminants. Special tests will be performed to determine if any bacteria found in the samples comes mostly from animal or human sources. Local residents may be requested to provide access to their septic systems to aid in this part of the study. If contaminant levels in the stream exceed state water quality standards, the stream will be added to the state list of impaired waters and addressed through programs established under the federal Clean Water Act. The lack of significant rainfall has prevented any significant progress in this study this fall.

Hazardous Waste Enforcement Action

DSCR has a permit to store hazardous waste on site. The DEQ regularly inspects for compliance with that permit. During a May 2000 inspection, DEQ staff found several technical permit violations and cited them in a Notice of Violation issued in June 2000. The violations consisted mainly of procedural problems that were quickly corrected. There were no releases of hazardous chemicals to the environment. Recently, DEQ and DSCR completed negotiations for a Consent Order that required DSCR to pay a fine of $16,000. This order has been signed and the penalty has been paid.

Public Health Consultation Request

In response to recent newspaper accounts of citizen health problems and concerns in the vicinity of DSCR, the DEQ has requested the federal Agency for Toxic Substances and Disease Registry (ATSDR) to conduct a current public health consultation. The ATSDR had previously conducted a public health assessment of this area in 1993 as part of the Superfund project evaluation. No substantial correlation between the contaminated site and any public health effects were found at that time. The Chesterfield County Health Department is conducting a separate health study now, and will cooperate with any studies undertaken by ATSDR. The ATSDR must get funding authorization to fully undertake a study. However, they are already gathering data with the assistance of other agencies.

- **Poly-chlorinated Terphenyls and PCBs in Bailey and Cattail Creeks, Hopewell, VA, 1997-99**

The Piedmont Regional Office (PRO) of DEQ performed a special study from October 1997 to September 1999 to identify the source of poly-chlorinated terphenyls (PCTs) and PCBs in Bailey Bay and Creek, Hopewell, VA. DEQ initiated the study after regularly scheduled sediment sampling for organics and metals on March 6, 1997 revealed the presence of PCTs at 26.7 ppm in sediments at the Rt. 10 bridge on tidal Bailey Creek. This compound was previously unknown in PRO.
The study plan was to sample sediments in the James River, Bailey Bay and Creek, and other nearby tributaries, analyze the initial sampling results, and perform follow-up sampling surrounding the areas of highest contamination to “track” the source. PRO initially sampled 27 stations in the James River, Appomattox River, Cabin Creek, Poythress Run, Gravelly Run, Bailey Bay, Bailey Creek, Tar Bay and Cattail Creek in October and November 1997.

Of those stations, tidal Cattail Creek and Bailey Creek below Cattail Creek had the highest PCT levels, and nontidal Bailey Creek contained no detectable PCT. The second tier of samples in April 1998 concentrated on eight stations on Cattail Creek and its tributaries. These sediment samples pointed to an unnamed tributary of Cattail Creek that flowed through an old abandoned landfill, with the highest PCT level at 735 ppm.

At this point DEQ contacted EPA Superfund staff, who indicated interest in sampling the old landfill for PCTs and PCBs. EPA CERCLA Assessment staff sampled sediments and soils at 14 sites in the unnamed tributary to Cattail Creek and in the old landfill in January 1999. Sediment samples pointed to a portion of the unnamed tributary above the old landfill, and also indicated levels of PCT and PCB in the landfill were well below the EPA Superfund level requiring cleanup of 50 ppm.

DEQ performed a third tier of sampling in May 1999 at five stations in the most upstream areas of the unnamed tributary and in Poythress Run in November 1999 to confirm a PCB finding in sediments there in 1997. These PCT results found in the unnamed tributary to Cattail Creek, ranged from 1.4 to 5.2 ppm but did not meet the EPA Superfund requirement for cleanup. The Poythress Run sample also revealed a low level of PCBs below the EPA cleanup level.

VALLEY REGIONAL OFFICE (VRO)

- **South River Science Team**

Since November 2000, the DEQ Valley Regional Office has been participating in a unique partnership with industry, other state agencies, local officials, academia, and citizen groups. This group is referred to as the South River Science Team. The overall goal of this group is to look beyond the routine long-term mercury monitoring conducted in the South River by DEQ. Areas of focus include filling data gaps, reviewing new technologies, addressing outstanding risk-based questions, evaluating the potential for remediation, and ensuring that there is effective communicaiton between stakeholders.

The South River Science Team is a cooperative effort between DuPont; Virginia Departments of Environmental Quality, Health, and Game and Inland Fisheries; Academia; and Citizen Advocates. The concept for the Science Team was initially presented to DEQ in November 2000by DuPont. Early on, it became clear that the interactions of science team members opened a productive dialog between the many stakeholders in the South River Mercury Monitoring Project. In addition to the sharing of knowledge and information on historic work and other studies, the communication between members of the Science Team has led to excellent working relationships between a diverse group of individuals and organizations. It has also led to "thinking outside the box," as knowledge and experiences are shared by team members and guests.

Highlights of the Science Team during 2001 include:

- Ongoing dialog between the diverse stakeholders involved with South River and Shenandoah River mercury monitoring, through meetings or conference calls at least once every two months.
- Compilation of all reports and all data related to mercury in South River and downstream waters, including extensive statistical review and discussions, particularly for fish tissue data.
- Press releases to update the public on fish tissue results, including a public meeting in Harrisonburg in March 2001, with participation by VDH, DEQ, VDGIF, and DuPont.
- Attendance by DEQ and DuPont staff at EPA National Mercury Conference in May 2001.
- A productive meeting between key Science Team members and the primary author of several historic reports on South River mercury.
- Fish tissue trend assessment presentations and discussions, and many recommendations for further work and data gathering.
- Invitation and support from DuPont to several nationally-recognized experts on mercury issues, culminating in an October 2001 meeting between three prominent experts and the full Science Team and a sharing of new ideas and approaches for evaluating mercury in the South River and downstream areas.
- Initiation of further research to help address data gaps and areas not considered in previous studies, including a fish food organism study (contracted by DuPont to Virginia Tech), a "mud mapping" project to identify sediment depositional areas, which may be keys to future mercury cleanup or removal efforts in the South River, and intensive closely-spaced water column sampling to evaluate whether there may yet be ongoing inputs of mercury into the system.
- Collaborative development of monitoring plans for fish, sediment, and water, with an emphasis on source detection, risk analysis, and potential remediation options.

DEQ and the other partners in the Science Team look forward to 2002 and beyond, as the team addresses new concerns, enhances communications, and ensures that the citizens of the Commonwealth remain well informed of the status and risks associated with mercury contamination in the Shenandoah River drainage.

SOUTH CENTRAL REGIONAL OFFICE (SCRO)

The South Central Regional Office (SCRO) was established in Lynchburg in 2001. The regional boundaries for Piedmont and West Central regions were revised to reflect the addition of a new region. The South Central Region serves the counties of Amherst, Appomattox, Buckingham, Campbell, Charlotte, Cumberland, Halifax, Lunenburg, Mecklenburg, Nottoway, Pittsylvania and Prince Edward as well as the cities of Danville and Lynchburg.

SCRO water program staff have begun monitoring, assessment, permitting, inspection, and compliance functions. The following are recent SCRO activities:

- **Probabilistic Biomonitoring and Chemical Monitoring Program in Virginia Non-Tidal Streams**

The South Central Regional Office (SCRO) does not have a dedicated biologist at this time. SCRO staff supported the PRO and WCRO regional biologists in sampling 10 probabilistic non-tidal stream stations in the Southeastern Plain and Central Appalachian Ridges and Valley ecoregions. Staff gathered representative samples of benthic macroinvertebrates, performed comprehensive habitat assessments, and obtained DO, temperature, pH, and conductivity data at 10 stations located in SCRO. Each

biological station was sampled twice, once in the spring and again in the fall. Fall sampling included water quality samples for nutrients, solids, chlorophyll a and fecal coliform bacteria. All sampling was conducted in accordance with agency standard operating procedures for ensuring the quality of the data. Probabilistic stations are preselected for a five year cycle; the current cycle began in 2001.

- **Total Maximum Daily Load (TMDL) Activities**

Highlights of the SCRO efforts to improve water quality in those streams segments that do not currently support designated beneficial uses are presented below.

A fecal coliform bacteria TMDL has been developed for Willis River in Cumberland county. The TMDL has been completed and submitted to the U.S. Environmental Protection Agency (EPA) for review.

Public meetings were held in the Willis River watershed to inform the public and encourage participation in the TMDL development and implementation process. An extensive mailing list was developed and used to help notify watershed stakeholders of upcoming meetings. In addition to elected officials, representatives from citizen monitoring groups, the agriculture community, landowners, and other state agencies were in attendance Local radio stations, newspapers, and the Peter Francisco Soil and Water Conservation District provided publicity notices in an effort to keep stakeholders involved.

Two investigations were related to the Willis TMDL but were not formally incorporated into the TMDL development. One such investigation was conducted on the Willis River and its tributaries following citizen complaints of illegal dumping in the watershed. Dissolved oxygen measurements were taken and water samples were analyzed for fecal coliform.

DEQ has also coordinated with VDACS and USDA on a study of the feral pig population in the Willis River watershed, following citizen complaints of damage caused by the pigs.

Both of these investigations are ongoing. Publicity about the Willis River TMDL may have motivated citizens to contact DEQ with these complaints.

The results of these studies will be utilized in the implementation plan for the Willis River TMDL.

- **Special Study on Ash Camp Creek**

Ash Camp Creek is listed on the 303(d) list for benthic impairment from the Route 654 bridge to the confluence with Roanoke Creek. This has historically been attributed to discharges from the Keysville Sewage Treatment Plant (STP) and the former West Point Pepperell plant (discharge terminated in early 1990's). Stream surveys were performed in the fall of 2001. The collected data will help to ascertain the contributions from point and non-point sources of pollution to the benthic impairment of Ash Camp Creek.

- **Coordination with Citizen Monitoring**

Representatives from SCRO met with representatives of the James River Association, Clean Virginia Waterways and DEQ's Citizen Monitoring Coordinator at Longwood College. The meeting established dialogue between new office staff and citizen monitoring groups. The groups are eager to assist with stream monitoring and are working to extend their monitoring capabilities. Staff input was welcomed for future monitoring sites to be used in future water quality assessments. SCRO anticipates a productive relationship with these and other local citizen monitoring groups.

- **Public Presentations**

During the first year in which the SCRO performed functions related to water quality, SCRO water staff presented a variety of programs to local schools and organizations. A presentation on stream and lake monitoring was given to honors students at Brookside Middle School in Lynchburg. The students had concluded a special unit investigating water quality indicators. After a well-received presentation, the monitoring staff was asked a variety of insightful questions regarding major sources of stream impairment and sound environmental practices.

SCRO water staff were featured as speakers at meetings of the Virginia Water Environment Association, the Association of American University Women, and the YWCA of Central Virginia. The presentations addressed public concerns about water quality issues and TMDLs.

- **Brominated Diphenyl Ether Investigation**

Brominated Diphenyl Ether (BDE) is a persistent bioaccumulative toxic that has recently received national attention. BDEs are used as flame retardants and are present in clothing and upholstery. A special study was conducted by Virginia Institute of Marine Science (VIMS) in fall 2001 to collect data on the levels of BDEs in the Hyco River near the Virginia/North Carolina state line. SCRO staff will support future BDE studies as more information becomes available about BDEs and their effects.

Chapter 3.1 SURFACE WATER MONITORING PROGRAMS

Ambient Water Quality Monitoring (AWQM)

From January 1996 to December 2000 DEQ staff collected samples at approximately 1680 ambient water quality stations for a total of 55,247 independent observations for variety of physical and chemical parameters. The number of independent observations for the more common field measurements were 47,401 for temperature, 41,335 for pH, 47,411 for dissolved oxygen, 41,041 for specific conductivity, and 4,010 for Secchi depth. 30.5% of the stations were sampled 5 times or less. 4.6% of the stations were sampled 6 to 10 times. 9.4% of the stations were sampled 11 to 20 times. 25.6% of the stations were sampled 21 to 30. 14.2% of the stations were sampled 31 to 60 times and 15.7% of the stations were sampled more than 60 times during the five year period.

The monitoring network includes ambient water quality and Chesapeake Bay tributary stations, as well as stations located specifically for special studies. Stations are located to gather information from industrial, urban, rural, and undeveloped areas of the state. These data are gathered near industrial and municipal discharges, nonpoint source areas, public water supplies, unaffected areas, and previously unassessed areas. In this way, stream miles at risk from major pollution sources are well documented, as are those where pollution risk is suspected or unknown. Regional office personnel who are most familiar with local conditions and concerns determine station locations, parameters sampled and frequency.

The number of stations representing a particular type of stream segment, the types of samples collected, the parameters analyzed, and the sampling frequency all vary depending on site conditions and program emphasis. Types of matrices collected include water and sediment. All stations are monitored for conventional parameters, about one-third are monitored for toxics in the sediments, and a smaller number are monitored for toxics in the water column (primarily trace metals). Areas with potentially greater risk are sampled more frequently, with more types of samples being collected. As the risk decreases, the sampling frequency and the number of the types of samples collected decreases. Table 3.1-1 gives an outline of the parameters covered and frequency categories.

Each basin summary, found in Chapter 3.4 this report, lists the ambient water quality monitoring (AWQM) and biological (benthic) monitoring summary data within the basin. In some basins, STORET data produced from USGS monitoring operations are included in order to provide better assessment of water quality. Summaries of the sampling data collected at each station during the reporting period are provided in Appendix B of this report.

Data Management

The data are managed through the Comprehensive Environmental Data System Water Quality Monitoring module (CEDS WQM), an in-house oracle database application. The process begins with the entry of field parameters by field technicians followed by the electronic data transfer of the field data and requested services to the Division of Consolidated Laboratory Services (DCLS). Analyte data are reported back to DEQ from DCLS and screened for QA/QC problems. Restricted DEQ personnel may correct, delete or erase erroneously stored data. Ambient water quality monitoring data are available on the DEQ website at: **http://www.deq.state.va.us:4100/webapp/wqm.homepage**. Data can be provided to persons without such access in hard copy and digital formats by contacting the CEDS WQM coordinator at (804) 698-4449, restewart@deq.state.va.us

Table 3.1-1 Ambient Monitoring Program sample types, analyses conducted, and frequency of analyses

Water	Sediment
Parameters:	
DO	Metals
Temperature	Pesticides
pH	Organics
Bacteria	
Solids	
Nutrients	
Conductivity	
Salinity	
Secchi	
Alkalinity	
Acidity	
Total Solids	
Suspended Solids	
Dissolved Solids	
Silica	
Sulfide	
Color	
Tannin & Lignin	
BOD	
COD	
TOC	
Hardness	
Chloride	
Fluoride	
Metals	
Pesticides	
Organics	
Chlorophyll	
Algae	
Sampling Frequency:	
Annual	Annual
Semiannual	Semiannual
Quarterly	Quarterly
Monthly	

Hydrologic Data Gathering

The Department of Environmental Quality (DEQ) and the U.S. Geological Survey (USGS) are the primary agencies responsible for collecting hydrologic data in Virginia. The two agencies have worked cooperatively since 1925 except for a brief period from 1957 to 1967 when the two agencies dissolved the cooperative effort and operated independently. Virginia is one of four States in the Union with such a cooperative agreement with the USGS. Individually, the agencies carry out their own agendas in the collection of hydrologic data. Together, they provide a comprehensive picture of the state of hydrologic affairs in the Commonwealth.

Hydrologic data collection in Virginia began over a century ago. The oldest active stream gaging station in Virginia is on the James River at Cartersville where hydrologic data was first collected in October 1898. Since then, the number of continuous record hydrologic gaging stations in Virginia has grown reaching a peak in 1981with 211 continuous recording gaging stations in operation. However, by 2000, funding cuts and manpower reductions have reduced the number of active, continuous-record gaging stations in Virginia to 157.

Of Virginia's 157 active gaging stations, DEQ operates 67 and the USGS operates 90. Additionally, DEQ conducts instantaneous stream flow measurements at more than 80 sites while the USGS conducts such measurements at over 100 sites. The DEQ instantaneous measurement sites are typically located upstream of the Virginia Pollutant Discharge Elimination System (VPDES) permit discharges while the continuous record gages are located primarily on larger, free flowing streams. The USGS also operates 9 gages on lakes and reservoirs that provide stage and contents data. Flow data, lake level data and other miscellaneous measurement data are published in Volume 1 of the annual report entitled "Water Resources Data Virginia", cooperatively prepared by the DEQ and the USGS.

The hydrologic data collected by DEQ and the USGS provide an essential component in the assessment of water quality in the State. The impact a point or non-point source pollutant discharge has on water quality in a stream cannot be adequately assessed without reliable stream flow data. If the stream in question does not have a continuous record gage or miscellaneous measurement site on it, the flow may be estimated by other means. However, such estimates are not nearly as accurate as field measurements or continuous gage hydrologic data.

Fish Tissue and Sediment Monitoring Program

DEQ monitors concentrations of chemical contaminants, including heavy metals and organic pollutants, in fish and shellfish tissue in order to assess the human health risks for individuals who may consume fish from state waters. Additionally, sediment samples are also collected at each sample station and are analyzed for the same pollutants. The sediment data are used to help locate a source of pollution where the fish tissue data indicate a concern. The sediment data are also used to identify potentially impaired aquatic ecosystems.

In the fish tissue-monitoring program, a two tiered sample strategy is followed which is consistent with federal guidance for fish tissue contamination monitoring programs.

Tier I is a screening study of a relatively large number of sample stations to identify sites where concentrations of contaminants in the edible portions of fish indicate potential health risks to human consumers. Sediment samples are also collected to assess whether stream sediments are contaminated to a degree that poses a potential for aquatic ecosystem impairment. Tier I stations are selected using a rotational river basin approach of all the river basins in Virginia. Until 1996, approximately 25-30 stations were selected among two river basins each year as the routine monitoring. The Code of Virginia § 62.1-44.19.5 requires maintenance of the 1996 level of tissue and sediment sampling which equates to a minimum of 24 fish sample stations per year. Since 1996 the following number of stations have been sampled for fish and sediment; 1997, 43 stations, 1998, 54 stations, 1999, 58 stations, 2000, 72 stations, with a variable number of some additional stations sampled for sediment each year.

Several criteria are used to select the sample stations and include correspondence with the DEQ-Waste Division to identify contaminated waste sites that may impact tissue and sediments in aquatic

environments. These are regional office recommendations, extensive literature searches, important recreational and/or commercial fisheries (Department of Game and Inland Fisheries, 1996), close proximity to point source discharges, and coverage of the entire watershed, i.e. headwater as well as higher order streams. Routinely, a minimum of three species of fish (top level predator such as a largemouth bass, mid-level predator such as a bluegill, and a bottom feeder such as catfish) are collected at each station. Edible filets from five to ten adult specimens of each species are composited into one sample, resulting in a minimum of three tissue samples per station. Depending on availability of additional funds and variability of species available, four or five species may be sampled at some stations.

Tier I analytical results for fish tissue are expressed in wet-weight and are compared to contaminant screening values that are computed using EPA risk assessment techniques for noncarcinogen and carcinogen effects. The screening values are calculated based on the same toxicity values and assumptions for average fish consumption rate, body weight and an acceptable extra cancer risk of 10^{-5} that were used in calculating the Virginia water quality criteria designed for the protection of human health from consumption of contaminated fish. These screening values represent the fish tissue concentration that the water quality criteria are intended to protect against. Occasionally, additional pollutants are sometimes detected in fish tissue for which Virginia does not have water quality criteria; or the toxicological information on the chemical has been revised and the water quality criterion has not been updated yet. In this case, an updated screening value is calculated and used to assess the data.

Analytical results for contaminants in sediments are expressed in dry-weight and are compared to effects range-median screening values provided by the National Oceanic and Atmospheric Administration to assess the potential effects of sediment contamination to aquatic life.

For additional information and data from previous years of sampling visit the DEQ website at **http://www.deq.state.va.us/rivers/fishsed.html**.

If tier I results indicate problems may exist, then a second more intensive tier II study is initiated to determine the magnitude and geographical extent along with potential source(s) of contamination in the fish and/or sediment.

The program fulfills the Clean Water Act § 106 United States Environmental Protection Agency (EPA) grant requirements for the collection of fish tissue and sediment. Data generated by the program are used by the Virginia Department of Health to determine the need for fish consumption advisories and/or bans. Data are also used by the DEQ and other state and federal agencies to assess the environmental quality of Virginia's waters. The following is a list of those compounds analyzed.

Metals:	**Pesticides:**	
Arsenic	Aldrin	Endosulfan (alpha)
Beryllium	Dieldrin	Endosulfan (beta)
Cadmium	Endrin	Total PCBs
Chromium	DDT	Toxaphene
Copper	DDE	Benzene hexachloride (alpha)
Lead	DDD	Benzene hexachloride (beta)
Mercury	Chlordane	Lindane
Nickel	Heptachlor	Benzene hexachloride (delta)
Selenium	Heptachlor epoxide	Chlorpyrifos-methyl
Silver	Hexachlorobenzene	Mirex
Thallium	Methoxychlor	Oxychlordane
Zinc	Nonachlor	Pentachloroanisole
	Dicofol	Polybrominated diphenyl ethers (BDEs)

Other Organics:

Acenapthane	Diethylphthalate	Total PAHs
Acenaphthylene	Dimethylphthalate	Benzo (e) pyrene

Anthracene
1,2 Benzanthracene
Benzo (a) pyrene
3,4 Benzofluoranthene
Benzo (k) fluoroanthene
1,1,2, Benzoperylene
4-Bromophenyl phenylether
4 Chloro-3-methylphenol
2-Chloronaphthalene
4-Chlorophenolphenylether
Chrysene
Dibenzo (a,h) anthracene
3,3-Dichlorobenzidine
2,4-Dimethylphenol
Fluoranthene
Fluorene
Ideno (1,2,3-cd) pyrene
Naphthalene
4,6-Dinitro-2-methylphenol
N-Nitrososdiphenylamine
N-Nitroso-di-N-propylamine
Phenanthrene
Bis (2-ethyl-hexyl) phthalate
Butylbenzylphthalate
Di-N-butylphthalate
Di-N-octylphthalate
Pyrene
1,2,4-Trichlorobenzene
Benzo (b) fluoranthene
Benzo (a) anthracene
Benzo (g,h,I) perylene
Benzo (I) fluoranthene

Benthic Macroinvertebrate Monitoring Program

The Biological Monitoring Program (BMP) utilizes the study of bottom dwelling macroinvertebrate communities to determine overall water quality. Changes in water quality generally result in changes in the kinds and numbers of these animals that live in streams or other waterbodies.

The majority of the freshwater benthic macroinvertebrates found in Virginia come from four general groups: insects, molluscs, crustaceans, and annelid worms. Beside being the major intermediate constituent of the aquatic food chain, benthic macroinvertebrates are "living recorders" of past and present water quality conditions. This is due to their relative immobility and their variable resistance to the diverse contaminants that can be introduced into streams. No two groups of benthic organisms have the same limiting factor for the various chemical and physical constituents encountered in the aquatic ecosystem. The community structure of these organisms provides the basis for the biological analysis of water quality.

The BMP is composed of 150 to 170 stations that are examined annually during the spring and fall. Qualitative and semiquantitative biological monitoring has been conducted by the agency since the early 1970's. The US EPA Rapid Bioassessment Protocol (RBP) II was employed beginning in the fall of 1990 to utilize standardized and repeatable methodology. The RBP's produce water quality ratings of nonimpaired, slightly impaired, moderately impaired and severely impaired instead of the former ratings of good, fair and poor.

The procedure evaluates the macroinvertebrate community by comparing ambient monitoring “network” stations to “reference” sites. A reference site is one which has been determined to be representative of a natural, unimpaired waterbody. The RBP evaluation also accounts for the natural variation noted in streams in different ecoregions. One additional product of the RBP evaluation is a habitat assessment. This provides information on the comparability of each stream station to the reference site.

The results of data analyses and locations of stations are presented in Appendix B of this report. Like physical and chemical water quality monitoring data, biological monitoring data are used to assess water quality for support of aquatic life designated use and the Clean Water Act “fishable and swimmable” goals.

Citizen Monitoring

Citizen monitoring has been a stewardship activity in Virginia for many years. As the amount of citizen-collected water quality data has increased, so has the interest in using these data for more than background information in Virginia's water quality assessments. In the past, citizen monitoring organizations established citizen monitoring programs with limited support from the Commonwealth. A statewide organization, the Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS), took the lead in establishing relations with the Department of Environmental Quality (DEQ) and the Department of Conservation and Recreation (DCR) to develop a statewide citizen monitoring program. This was done through two separate letters of agreement signed by each agency in 1998 and was furthered by a

three-way agreement signed in 1999. A new letter of agreement was signed in April 2002 to renew the collaborative partnership and a new signatory, the Alliance for the Chesapeake Bay, was added to the partnership. Additional citizen monitoring information can be found on the DEQ website: **http://deq.state.va.us/cmonitor**.

The positions of the Citizen Monitoring Coordinator within DEQ and the Community Watershed Stewardship Manager within DCR were created to provide guidance and technical support to citizen monitoring organizations. The Citizen Monitoring Coordinator is responsible for collecting citizen-generated data and formatting the data for agency use. This role has facilitated the use of citizen-collected data in Virginia's 305(b) Water Quality Assessment Report.

In addition, a budget amendment in the 1999 Virginia General Assembly Session created the Citizen Monitoring Grant Program to fund citizen monitoring activities. This grant program has provided funding to 47 different organizations over the past three years. The financial support from the Commonwealth has greatly enhanced the quality and quantity of citizen-collected data.

Currently, there are approximately 70 organizations throughout the Commonwealth with active citizen water quality monitoring programs. These programs vary in sophistication and in parameters monitored but all citizen-generated data are important in characterizing the state of Virginia's waters. Citizens monitor streams, lakes, and estuaries for a variety of parameters depending upon the goals of their program and the financial resources available. Common ambient measures include any of the following physical and chemical parameters: water temperature, pH, dissolved oxygen, nutrients (various forms of nitrogen and phosphorus), or solids suspended in the water column. Biological parameters measured by citizen monitors often include benthic macroinvertebrates, fecal coliform bacteria, and/or chlorophyll a.

While all citizen-collected water quality data throughout the state are important for this report, data collected under a DEQ-approved Quality Assurance Project Plan (QAPP) are considered more reliable and may be directly used in this report for the water quality assessment. A QAPP outlines the procedures a monitoring project will follow to ensure that the data collected meet project requirements. The DEQ Quality Assurance Officer reviewed QAPPs and supporting documents from citizen monitoring organizations submitting data. Citizen data collected under a DEQ-approved QAPP are used in the designated use attainability analysis and included in Appendix B of this report. Citizen-generated data collected without the benefit of a DEQ-approved QAPP or where the exact sampling location could not be confirmed were not directly used in this report. Data from citizen volunteers assist water quality agencies in prioritizing future monitoring and restoration work. Additional information associated with citizen monitoring assessment issues can be found in the 2002 Water Quality Assessment Guidance Manual found on the DEQ website **http://deq.state.va.us/water/reports.html**.

In order to assist citizen monitoring organizations with developing and revising QAPPs, the Citizen Monitoring Coordinator and the Community Watershed Stewardship Manager are developing guidance materials for QAPP development specific to Virginia and will conduct sessions for citizen monitoring organizations. This additional level of assistance will increase the quality of citizen-collected data and make the task of QAPP development less burdensome for these organizations.

IWLA VA SOS has a benthic macroinvertebrate citizen monitoring protocol that is widely used by many affiliate organizations. In 2000, VA SOS completed a two-year study, funded by DEQ, evaluating this protocol and developing a new protocol to more closely correlate with professional methods developed by EPA and used by DEQ. Since IWLA VA SOS did not begin training its affiliate organizations in the new protocol until 2001, citizen data, using the new protocol, was not collected during the data window for this report.

The IWLA VA SOS protocol is suitable for monitoring higher gradient streams with riffles typical of those found in the western part of Virginia. In response to requests from citizens located in the eastern part of Virginia, IWLA VA SOS has established a committee to develop a protocol for low gradient, freshwater, nontidal streams. This committee is in the process of developing this protocol.

Cooperative partnerships have enhanced relationships between state agencies and citizen

monitoring organizations which has improved the quality and quantity of citizen-collected data for this report. This foundation is expected to continue and be built upon in the future.

DEQ would like to thank all of the organizations listed below for submitting citizen-collected data and supporting documentation for development of this report:

Alliance for the Chesapeake Bay
Audubon Naturalist Society
Clean Virginia Waterways
Culpeper Soil and Water Conservation District
Environmentally Concerned Citizens Organization (ECCO)
Friends of Claytor Lake
Friends of the North Fork of the Shenandoah River
Friends of the Shenandoah River
Hoffler Creek Wildlife Foundation
Izaak Walton League of America Virginia Save Our Streams Program
John Marshall Soil and Water Conservation District
Loudoun Soil and Water Conservation District
Loudoun Wildlife Conservancy
Mattaponi and Pamunkey Rivers Association
Maury River Alliance
North Fork Goose Creek Watershed Committee
Page County Water Quality Advisory Committee
Pedlar River Institute
Piedmont Region TMDL Initiative
Smith Mountain Lake Water Quality Monitoring Program (coordinated by Ferrum College and the Smith Mountain Lake Association)
Staunton-Augusta Chapter of the Izaak Walton League
Tidewater Resource Conservation and Development Council
Upper Levisa River Restoration Project

The IWLA VA SOS Program submitted benthic macroinvertebrate data collected by individuals and the following affiliate organizations:

Bluestone Watershed Committee
Buchanan Citizens Action Group
Buckingham Citizen Action League
Cowpasture River Preservation Association
Elliott Creek Watershed Protection Council
Environmentally Concerned Citizens Organization
Environmental Education Center
Friends of the North Fork of the Shenandoah River
Friends of the North River
Friends of Page Valley
Friends of the Rappahannock
Headwaters Association
J. R. Horsley Soil and Water Conservation District
Middle River Monitors
Northern Virginia Water Quality Monitoring Program (coordinated by the Northern Virginia Soil and Water Conservation District)
Pedlar River Institute
Piedmont Environmental Council
Rivanna Conservation Society
Rivanna River Basin Project
Skyline Chapter of Trout Unlimited
Upper Rappahannock Watershed Stream Monitoring Program
Virginia Museum of Natural History at Virginia Tech

Virginia Tech Student Chapter of the American Water Resources Association
Virginia Tech Wildlife Society
Walker Creek Watershed Group

In the river basin summaries, several terms are used in the citizen monitoring descriptions that are defined as follows:

- Ambient monitoring: Monitoring for physical and chemical water quality parameters
- Benthic macroinvertebrate monitoring: Careful observations of the macroinvertebrate (bottom-dwelling insects and crustaceans) community in a stream that can give an indication of long-term water quality conditions.
- Certified volunteers: IWLA VA SOS program volunteers that have gone through the training and testing process as identified in the IWLA VA SOS QAPP.
- VA SOS stream ratings: Four ratings - excellent, good, fair, and poor

Chapter 3.2 ASSESSMENT METHODOLOGY (305(b)/303(d) ASSESSMENT PROCESS)

Virginia's biennial water quality assessment is conducted by the Department of Environmental Quality (DEQ), with the assistance of the Department of Conservation and Recreation (DCR), to determine the water quality conditions in the Commonwealth. The results of this water quality analysis are reported to the EPA in the 305(b) Water Quality Assessment Report submitted on April 1 of even numbered years. The 305(b) report describes the aggregated water quality conditions of the State. The 303(d) report contains the individual listing of those waters that have been identified as "impaired"(partially supporting or not supporting designated uses). EPA compiles the data from all of the State reports into a national water quality status report that is presented to Congress. All assessment determinations are made according to the 2002 Water Quality Assessment Guidance Manual except on a case by case basis. The manual can be found on the DEQ website: **http://www.deq.state.va.us/water/reports.html**

In 1998, EPA made a number of important changes to the water quality assessment process which continue to remain in effect. With strong support from the States, EPA changed the data analysis period from two to five years. An important benefit of this change is the increase in the data set size from approximately 8 to 20 samples based on quarterly monitoring and from 24 to 60 samples based on monthly monitoring.

The assessment begins by analyzing the data from ambient water quality, biological, sediment and fish tissue monitoring and/or other special studies. The results of these comprehensive data analyses are compared to both numeric and narrative criteria related to the designated uses contained in the Water Quality Standards (WQS). The WQS are provisions of State and/or Federal Law that contain both numeric and narrative criteria for protecting the designated uses of all waters in the Commonwealth.

There are two basic types of water quality data used in the assessment process. The first type of data is **"monitored"** data. This data comes from the collection and analysis of chemical, biological, and/or physical samples taken by DEQ and/or any approved data submitted by the U.S. Geological Survey, TVA, U.S. Forest Service, Chesapeake Bay Program, Quality Assured/Quality Controlled (QA/QC) citizen monitoring programs and/or other special studies. For the 303(d) Impaired Waters list, normally only QA/QC approved "monitored" data are used to classify waters "impaired" due to the assessment confidence associated with the QA/QC monitoring requirements. Monitored data is obtained using EPA accepted and DEQ approved protocols. All non-DEQ monitoring submittals, except USGS chemical data submittals, must provide a sampling protocol and all field data. If data discrepancies or other suspect information is generated, a field verification audit will be conducted by DEQ monitoring staff. Additional information concerning the assessment and use of Citizen Monitoring data can be found in the Assessment Guidance Manual.

The second type of data used in the assessment is called **"evaluated"** data. These physical, chemical and/or biological data are primarily obtained from sources where there is not an EPA accepted and/or DEQ approved sampling and analysis protocol. Evaluated data may also include "land use" analysis, volunteer sampling and monitoring and/or other such information for which the data does not meet the (QA/QC) procedures or requirements. Additionally, waters that were on the 1998 303d list but do not have any additional monitoring data for the 2002 assessment period will be considered evaluated and assessed the same as the previous assessment. Segments, where evaluated data potentially indicate water quality degradation, should be designated fully supporting but threatened for associated individual designated uses. Additional monitoring efforts should be targeted for these waters as resources allow.

The following approval process will be used for non-DEQ "monitored" data protocol and QA/QC procedure review:

All ancillary data that have been received and reviewed by DEQ and found acceptable should be used for 305(b) and 303(d) assessment. The data are from two categories, state/federal agencies (other than DEQ) and the Citizen Monitoring program. The approval process for data from the Citizen Monitoring Program is addressed in Part VI, Section 6.3.1 of the Guidance Manual. The following addresses the approval process for data from state and federal agencies.

All “monitored” chemical and biological data must be supported by EPA accepted monitoring protocols. QA/QC procedures must also be reviewed and approved by DEQ. As assessment staff becomes aware of data sources, those parties generating data for DEQ 305b/303d assessment consideration should be requested by the assessment staff to submit QA/QC plans, standard operating procedures (SOPs), and monitoring procedures to the DEQ 305(b) Coordinator. The 305(b) Coordinator will provide copies of supporting documentation for chemical data to QA/QC review staff in the Water Quality Monitoring and Assessment (WQMA) program and provide copies of all supporting documentation for biological monitoring of freshwater benthic macroinvertebrates to the Water Quality Standards staff.

The DEQ staff does not consider, for use in assessment, any non-agency biological monitoring data other than benthic macroinvertebrate. For 305(b) assessment purposes, DEQ has not reviewed and approved monitoring protocols and QA/QC procedures used by other state and federal agencies and insufficient information are available to allow approval for the verbatim use of these data and/or assessments from these sources in the 305(b) cycle. However, information from these sources may be independently assessed by regional biologists to determine their acceptability for 305(b) assessment purposes on an individual basis. Copies of the supporting documentation for freshwater benthic data will be provided to the regional offices where the surveyed sites are located for review by the regional biologist. The regional biologists are most familiar with the various ecoregions in the state and are knowledgeable with what constitutes appropriate reference sites, conditions or benthic metrics that are acceptable for assessing streams in these ecoregions. Because of their expertise with their ecoregions, regional biologists are the best judges of the acceptability of benthic data produced by “other” data generators. The regional biologists will review the available data and make a determination regarding the acceptability of the data for assessing the benthic community at any particular site. The regional biologists will provide any comments or requests for additional information directly to the data generators and will copy such communications to Water Quality Standards staff. Copies of the review results shall be distributed to the regional staff and 305(b) Coordinator.

If the protocols involve estuarine toxics data and/or biological assessements in tidal environments, supporting documents should be provided to and reviewed by the Chesapeake Bay Program staff.

All comments concerning toxics data, chemical (SOPs) and/or QA/QC plans will be coordinated through the WQMA QA/QC review staff. WQMA QA/QC staff is responsible for providing comments to data generators and 305(b) Coordinator concerning the acceptability of SOPs and QA/QC documentation for chemical data.

If a chemical, biological or tidal waters data package can not be used in the assessment process, the appropriate DEQ staff will provide the data generator an explanation for the data not being useable.

DESIGNATED USES of VIRGINIA’S WATERS

The 305(b) process assesses a total of 5 designated uses based on the applicability of the Water Quality Standards on a particular waterbody. The designated uses are aquatic life use, swimming use, fish consumption use, shellfish consumption use and drinking water use. Swimming use is assessed to represent the primary (swimming) and secondary (boating) water contact recreational use. Drinking water use is based on attainment of public water supply criteria. Following are details relating to the assessment of the five designated uses of Virginia’s waters.

1. Aquatic Life Use:

Aquatic life use includes the propagation, growth, and protection of a balanced indigenous population of aquatic life (including game and marketable fish) which may be expected to inhabit the waters.

Support of aquatic life use can be determined by the assessment of conventional parameters (dissolved oxygen, pH and temperature except in tidal waters); toxic pollutants in the water column, toxic pollutant analysis of sediments, nutrient analysis and/or the biological assessment of benthic communities.

2. Fish Consumption Use:

Fish consumption use includes the propagation, growth and protection of a balanced population of aquatic life including game and marketable fish.

Support of this use is determined using two separate criteria. First, support or lack thereof, is based on human health related advisories and/or restrictions issued by the Virginia Department of Health (VDH). Impairment for fish consumption results when the public is advised by VDH that fish consumption is prohibited for the general population or there is an "advisory" that certain fish species should not be consumed by the general population or sub-populations at greater risk, such as children and/or pregnant women.

Second, the criteria used for fish consumption use is a comparison of fish tissue data to state screening values for toxic pollutants. Any single observation above the screening value results in assessment of the water as fully supporting but threatened. Two or more exceedences of a particular screening value listed in Table 6(a) of the Assessment Guidance Manual results in assessment of the water as partial supporting.

3. Shellfish Consumption Use:

Shellfish consumption use includes the propagation, growth and protection of a balanced population of aquatic life including marketable shellfish.

Support of this use is also determined using two separate criteria. First, the Division of Shellfish Sanitation (DSS) of the VDH bases support or lack thereof on a classification system designed for the harvesting and marketing of shellfish resources in accordance with Food and Drug Administration (FDA) guidelines. Four classifications are used to describe shellfish waters. They are approved, conditionally approved, restricted, and prohibited. ***Approved*** areas are waters from which shellfish may be taken for direct marketing at all times. ***Conditionally approved*** (seasonal condemnation) areas are waters where the quality may be affected by a seasonal population increase or sporadic use of a dock or harbor facility. ***Restricted*** (condemnations) areas are waters where a sanitary survey indicates a limited degree of pollution which makes it unsafe to market shellfish for immediate consumption. Shellfish harvested in these areas must be moved to an approved area for a certain length of time to allow for depuration before marketing. ***Prohibited*** (condemnations) areas are waters where the DSS sanitary survey indicates dangerous numbers of pathogenic microorganisms or other contaminants that impact the area. Shellfish cannot be harvested or relayed for purification in prohibited areas.

Shellfish waters where restrictions or prohibitions are due solely to a discharge outfall but not due to water quality violations will not be listed in the 303d report. In these cases, the designated use has been administratively removed through the issuance of a discharge permit.

4. **Swimming Use**:

Swimming use assessment includes swimming and other primary and secondary water contact recreation uses such as water skiing and pleasure boating.

Support or lack thereof of this use is based on a comparison of fecal coliform bacteria data to the instantaneous fecal coliform standard using the EPA percent assessment method. However, if a special study, designed to collect multiple data points within a 30-day period is conducted, then these results should be compared to the geometric mean criterion. Also, any VDH beach closures should be assessed according to Part V.

5. Public Water Supply Use:

Waters that are used for public drinking water supply are identified in the Water Quality Standards and are protected by additional health related standards that are applicable to these waters. Support or lack thereof of this use is based on Virginia Department of Health (VDH) closures or advisories and/or a comparison of water column data to applicable public water supply criteria.

Table 3.2-1 is a summary of the designated uses and the criteria used to assess the individual uses.

Table 3.2-1 DESIGNATED USE MATRIX

NO.	DESIGNATED USE	SUPPORT OF USE ASSESSMENT CRITERIA
1.	Aquatic Life Use	Conventional Pollutants (Dissolved Oxygen, pH, Temp.); Toxic contaminants in water column; Toxic contaminants found in sediments exceeding NOAA's Effects Range-Medium value; Biological evaluation.
2.	Fish Consumption Use	Advisories, limiting consumption, or restrictions issued by Virgina Department of Health (VDH); Comparison of fish tissue data to state screening values for toxic pollutants found in Tables 6(a) and 6(b) of the Water Quality Assessment Guidance Manual
3.	Shellfish Consumption Use	Restrictive actions for harvesting and marketing of shellfish resources made by Div. Of Shellfish Sanitation of VDH
4.	Swimming Use	Conventional Pollutant (Fecal Coliform Bacteria) and/or VDH beach closures.
5.	Public Water Supply Use	Closures or advisories by VDH; comparison of data to applicable public water supply standards.

CRITERIA TO DETERMINE DEGREE OF USE SUPPORT

Virginia bases its water quality assessment on the ability of the waters to support the five designated uses. Support is based on the waters meeting the criteria for each use based on the numeric and/or narrative Water Quality Standards. The following is a description of the criteria used to determine the quality of the waters relating to each of the designated uses, and thereby the degree of use support that will be presented in the 305b/303d reports.

1. <u>Fully Supporting</u>

The following is a description of the types of data and the acceptable criteria used to assess waters as fully supporting the designated uses.

- *Conventional Parameters*:

Waters fully supporting the designated uses can have up to 10% violations of water quality standards for the conventional parameters fecal coliform bacteria, (swimming use) dissolved oxygen, temperature, and pH (aquatic life use) without negatively affecting the designated uses. This criteria is based on EPA guidance which recommends that the States use a violation rate of these standards in the 0-10% range and designate as fully supporting the aquatic life and swimming designated uses. Any single exceedence in a small dataset (2-9 samples) will be assessed as fully supporting. A single sample will not be assessed.

<u>The Water Quality Standards (9 VAC 25-260-50) criteria for D.O., pH and Temperature do **not** apply below (7Q10)</u>. 7Q10 is the lowest flow averaged (arithmetic mean) over a period of seven consecutive days that can be statistically expected to occur once every 10 climatic years (a climatic year begins April 1 and ends March 31). Data from these parameters that are from flow conditions below 7Q10 should not be used in the assessment.

- *Toxic Pollutants:*

For toxic pollutant assessment in free-flowing streams, waters where there are no exceedences of a Water Quality Standard acute criteria within a 3-year period are considered fully supporting for aquatic life.

For public water supply and other human health related use (i.e. fish consumption), no exceedences of a Water Quality Standard criteria or a fish tissue screening value are considered fully supporting for drinking water and fish consumption uses.

For toxic pollutant assessment in estuarine waters, where there are several types of toxic data available, a weight of evidence approach has been initiated.

- *Fish Tissue/Sediment Contamination*
  No exceedences of a state screening value (fish tissue) or ER-M (sediment) screening value are considered fully supporting.

- *Biological Evaluation*:
  For free-flowing stream biological community assessment, data for the overall assessment period is rated as not impaired where no biological assemblage (e.g. macro invertebrates) has been modified significantly beyond the natural range of reference conditions based on EPA Rapid Bioassessment Protocol (RBP) II methodology.

For estuarine biological community assessment, sampling results are characterized using the biological index of biotic integrity (B-IBI) developed and used by the Chesapeake Bay Program. This approach is based on a comparison of biological sampling data to reference sites that were deemed minimally impacted by low dissolved oxygen events and sediment contaminants. Waters are considered fully supporting aquatic life use if ≤10% of the samples within the segment have a B-IBI score < 2.0

- *Fish Advisories*:
  Waters where the VDH has not issued any fish advisories or prohibitions and no human health standards or no state screening values have been exceeded. Unless otherwise noted, all state waters are considered fully supporting fish consumption use.

- *Shellfish Advisories*:
  Those growing areas where no restriction or prohibition (condemnation) on shellfish harvesting is imposed as indicated by the Department of Shellfish Sanitation (DSS) summary dated January, 2001.

- *Beach Closures:*
  No VDH beach closures during the assessment period.

- *Public Water Supply Source Closures:*
  No VDH public water supply source closures during the assessment period.

2. <u>Fully Supporting but Threatened</u>

The following is a description of the types of data and the acceptable criteria used to assess waters as fully supporting but threatened for the designated uses. <u>It is the intent of the agency to focus additional monitoring resources on the waters that are identified as threatened, based on initial monitoring data analysis.</u>

- *Conventional Parameters*:
  Not Applicable

- *Toxic Pollutants:*
  For toxic pollutant assessment in free-flowing streams, waters where there are no more than one exceedence of a Water Quality Standard acute criteria within a 3-year period are considered fully supporting but threatened for aquatic life

For toxic pollutant assessment in estuarine waters, where there are several types of toxic data available, a weight of evidence approach has been initiated.

- *Fish Tissue/Sediment Contamination:*
  Waters exceeding a single state screening value (SV) found in Tables 6(a) or 6(b) for fish tissue or

Effects Range-Medium (ER-M) value for sediment, are fully supporting but threatened for fish consumption and aquatic life, respectively. If an ER-M value does not exist, then the 99th percentile value is used.

- *Biological Evaluation*:

For free-flowing waters, biological community data for the assessment period with a single rating of moderately impaired using RBP-II methodology should be considered fully supporting but threatened where professional judgement cannot confirm impairment. Additionally, waters should be considered fully supporting but threatened where, through best professional judgement, evaluated biological data reveals potential water quality problems. For waters assessed as fully supporting but threatened for aquatic life use, it is necessary for another biological assessment to be scheduled to make a final aquatic life use determination.

For estuarine biological community assessment, waters are considered threatened for aquatic life use if > 10% of the samples within the segment have a B-IBI score < 3.0.

- *Fish Advisories:*

Virginia Department of Health fish consumption advisories, where a general advisory has been issued but fish consumption is not limited are considered fully supporting but threatened.

- *Shellfish Advisories:*

Those growing areas, as indicated by the DSS summary dated January, 2001, that have been classified as conditionally approved (seasonal condemnations) are considered fully supporting but threatened. Additional information on shellfish assessment and consumption use is contained in Part VI, Section 6.4.3 of the Assessment Guidance Manual.

- *Beach Closure*:

One, short term (less than one week in duration) VDH beach closure within the 5 year assessment cycle with a low probability, based on best professional judgement, that the pollution will reoccur is considered fully supporting but threatened. Best professional judgement decisions could be based on the source of the pollution causing the closure being generally transient and there are no VDH plans to implement pollution reduction measures or controls.

- *Public Water Supply Source Closure:*

One, short term VDH public water supply source closure during the 5 year assessment cycle with a low probability that the pollution will reoccur are considered fully supporting but threatened. The source of the pollution is generally transient and there are no VDH plans to implement pollution reduction measures or controls.

- *Other Criteria for Placing Waters in the Threatened Category*

Waters for which “evaluated” data, trend analysis, or other water quality indicators show an apparent decline in water quality or a potential for water quality problems. Waters can be designated as threatened where there is a possible loss of a designated use documented by ancillary data such as recurrent fish kills or pollution potential documented by non-agency studies or reports. Additionally, waters that have > 10% exceedence rate for nutrients and/or are listed in WQS as “nutrient enriched” are considered fully supporting but threatened for aquatic life use. For monitoring purposes, all threatened waters should be considered for continued monitoring during the next reporting period.

3. <u>Partially Supporting</u>

The following is a description of the types of data and the acceptable criteria used to assess waters as partially supporting the designated uses.

- *Conventional Parameters*:

Waters with long term or chronic problems based on the assessment of monitored data are considered partially supporting. For conventional parameters, at least two violations of water quality standards and exceedences in the 11-25% range are considered a long term or chronic problem and considered partially

supporting. Waters with violations in this range are capable of supporting some of the designated use according to EPA guidance.

- *Toxic Pollutants:*

For toxic pollutant assessment in free-flowing streams, waters where there are 2 exceedences of a Water Quality Standard acute criteria in a 3-year period are considered partially supporting for aquatic life use. For public water supply use, any exceedences of human health criteria are considered partially supporting.

For toxic pollutant assessment in estuarine waters, where there are several types of toxic data available, a weight of evidence approach has been initiated.

- *Fish Tissue Contamination:*

Waters with fish tissue exceeding the same state screening value (SV), listed in Table 6(a), 2 or more times are partially supporting for fish consumption. For example, both of the following situations would qualify as partially supporting under these criteria: two fish samples from different species during one sampling event or two or more samples of the same or different species from different sampling events.

- *Biological Data*:

For free-flowing waters, the biological community survey data are confirmed to be moderately impaired, and are considered partially supporting. Based on professional judgement and/or other supplemental data, a second survey may be required to confirm moderate impairment. In this case, the initial assessment would be considered fully supporting but threatened and follow-up monitoring scheduled.

For estuarine biological community assessment at fixed stations, waters are considered partially supporting for aquatic life use if 11-25% of the samples within the segment have a B-IBI score < 2.0. Random B-IBI stations will not be considered partially supporting due to minimum confidence levels with random data, especially small datasets within large, open water segments. These stations will be considered fully supporting but threatened until DEQ can establish acceptable confidence level criteria.

- *Fish Advisories:*

Virginia Department of Health fish consumption advisories, where fish consumption is limited for “at risk” individuals such as young children or pregnant women, are considered violations of the general Water Quality Standard and therefore considered partially supporting. Waters, where fish consumption is limited and/or restricted but not completely prohibited, are considered partially supporting.

- *Shellfish Advisories*:

Those growing areas, as indicated by the DSS summary dated January, 2001, that have been classified as restricted (condemnations) are considered partially supporting. The loss of shellfish resource in restricted areas is a partial loss of use since the DSS allows harvesting and marketing after relay for cleansing of contamination. Restricted areas that have been administratively condemned due solely to the presence of a VPDES permitted out-fall will not be included in the 303d impaired waters list.

- *Beach Closures:*

One or more VDH beach closures of less than one-week duration within the assessment cycle with a medium probability, based on best professional judgement, the pollution will reoccur. There are VDH plans to implement pollution reduction measures or controls.

- *Public Water Supply Source Closure*:

One or more VDH public water supply source closures within the assessment cycle with a medium probability that the pollution will reoccur. There are plans to implement pollution reduction measures or controls.

4. <u>Not Supporting</u>

The following is a description of the types of data and the acceptable criteria used to assess waters as not supporting designated uses.

- *Conventional Parameters*:

Waters with severe long term or chronic problems based on the assessment of monitored data. For waters with conventional parameters, at least two violations of water quality standards and exceedences of greater than 25% do not support the aquatic life use.

- *Toxic Pollutants:*

For toxic pollutant assessment in free-flowing streams, waters where there are 3 or more exceedences of a Water Quality Standard acute criteria in a 3-year period is considered not supporting for aquatic life use. For public water supply use, 2 or more exceedences of the human health criteria is considered not supporting.

For toxic pollutant assessment in estuarine waters, where there are several types of toxic data available, a weight of evidence approach has been initiated.

- *Biological Data*:

Free-flowing waters are considered not supporting when biological community data for the assessment period is rated as severely impaired using the RBP-II survey.

For estuarine biological community assessment of fixed stations, waters are considered not supporting for aquatic life use if >25% of the samples within the segment have a B-IBI score < 2.0. Random B-IBI stations will not be considered not supporting due to minimum confidence levels with random data, especially small datasets within large, open water segments. These stations will be considered fully supporting but threatened until DEQ can establish acceptable confidence level criteria.

- *Fish Consumption Advisories:*

Virginia Department of Health fish consumption prohibitions are considered violations of the general water quality standard and are not supporting due to the loss of the designated use.

- *Shellfish Advisories:*

Those growing areas, as indicated by the DSS summary dated January, 2001, that have been classified as prohibited (condemnations) are considered not supporting. The loss of shellfish resource in prohibited areas is a complete loss of use due to the presence of excess pathogen indicators or other human health related pollutants. Prohibited areas that have been administratively condemned due solely to the presence of a VPDES permitted out-fall will not be included in the 303d impaired waters list.

- *Beach Closures:*

One or more VDH beach closures, of more than one-week duration during the assessment period, with a high probability, based on best professional judgement, that the pollution will reoccur and additional closures will result. VDH initiates plans to implement pollution reduction measures or controls.

- *Public Water Supply Source Closure:*

One or more VDH public water supply source closures with a high probability that the pollution will reoccur. There are VDH plans to implement pollution reduction measures or controls.

Table 3.2-2 summarizes the designated use assessment criteria.

Table 3.2-2 Designated Use Assessment Criteria

	Fully Supporting	**Fully Supporting but Threatened**	**Partially Supporting**	**Not Supporting**
Conventional Parameters Aquatic Life Use Support (ALUS) and Swimming Use (temperature will not be assessed in tidal waters)	AR ≤10%	Not Applicable Nutrient screening values exceeded > 10% or designated "Nutrient Enriched Waters"	AR > 1 exceedence and 11% = AR ≤ 25%	AR >1 exceedence and > 25%
Toxic Pollutants in Water Column and Sediment Aquatic Life Use Support (ALUS)	No exceedences	No more than 1 exceedence of acute criteria in a 3 year period (water column only) One or more ER-M SV or if no ER-M exists, 99th percentile SV exceed (sediment only)	2 exceedences of acute criteria in a 3-yr period (water column only)	3 or more exceedences of acute criteria in a 3-yr period (water column only)
Toxic Pollutants related to human health (PWS & Fish Consumption)	No exceedences	A single exceedence of any state SV for fish tissue	1 exceedence of human health criteria (PWS) 2 or more exceedences of the same state SV, listed in Table 6(a), for fish tissue	2 or more exceedences of the human health criteria (PWS) NA for fish tissue
Biological Data	Freshwater: Fully Supporting or Slightly Impaired Estuarine: Samples having ≤ 2.0 B-IBI score are AR ≤ 10%	Freshwater: Unconfirmed, Moderately Impaired, Evaluated data show potential WQ problems Estuarine: Samples having ≤ 3.0 B-IBI score are AR > 10%	Freshwater: Confirmed Moderately Impaired **Fixed Station** Estuarine: Samples having ≤ 2.0 B-IBI score are 11% ≤ AR ≤ 25%	Freshwater: Severely Impaired **Fixed Station** Estuarine: Samples having ≤ 2.0 B-IBI score are AR > 25 %
Fish Consumption Advisories or Restrictions	No restrictions or prohibitions	A VDH advisory which does not limit consumption is in effect	A VDH advisory limiting consumption is in effect	A VDH restriction prohibiting consumption is in effect
Shellfish Advisories	No restrictions or prohibitions	Area classified as Conditionally Approved (seasonal condemnations)	Areas classified as Restricted: Excluding VPDES out-falls	Areas classified as Prohibited; Excluding VPDES out-falls
Swimming Use (see Conventional Parameter criteria) And Beach Closures	No exceedences	One short term VDH closure with low probability of recurrence (pollution source transient and no VDH plans to implement any control measures)	One or more VDH closure with medium probability of recurrence (VDH preparing plans to implement controls measures)	One or more VDH closure with high probability of recurrence (VDH implement controls measures)

Public Water Supply (PWS) Source Closures	No closures	One VDH closure with low probability of recurrence (no VDH plan to implement control measures)	One or more VDH closure with medium probability of recurrence (VDH preparing plans to implement controls measures)	One or more VDH closure with high probability of recurrence (VDH must initiates control measures)

AR = arithmetic exceedence rate
SV = screening value
ER-M = effects range – medium value
ALUS = Aquatic Life Use Support
PWS = Public Water Supply

Chapter 3.3 WATER QUALITY ASSESSMENT SUMMARY

Statewide summaries of the river miles, estuarine square miles, and coastal linear miles within and bordering Virginia that fully support, partially support, or do not support the overall designated uses for each waterbody are presented in Tables 3.3-2, 3.3-3, 3.3-4 and 3.3-5. Support of the overall uses for each waterbody was determined by examining the support of the five uses. (i.e., aquatic life, fish consumption, shellfishing, swimming, and drinking water).

As in previous 305(b) reports, conventional pollutant data continued to make up the bulk of water quality assessments. Samples for conventional pollutants were collected at DEQ's ambient monitoring stations, along with "quality assured" monitoring data from other federal, state and citizen monitoring programs, and compared to Virginia's water quality standards. Unlike previous assessments, which used the binomial statistical method for conventional pollutant analysis, DEQ used the slightly modified absolute percentage procedure, as directed by EPA, to determine the degree of use support. The assessment is objective except where professional judgement indicates that natural causes are responsible for the violations (or the data are suspect). Waters not meeting standards due to natural conditions are listed as impaired and will be reviewed to determine if it needs to be included in the TMDL development list. For Dissolved Oxygen (DO), the instantaneous minimum standard was used to assess exceedences. The degree of use support was determined as follows:

- **!** Fully supporting - for any one of the conventional parameters, Virginia Water Quality Standard is exceeded in ≤ 10% of the measurements taken over the reporting period.
- **!** Partially supporting - for any one of these parameters, Virginia Water Quality Standard is exceeded in 11% to 25% of the measurements taken over the reporting period with at least two exceedences.
- **!** Not supporting - for any one of these parameters, Virginia Water Quality Standard is exceeded in >25% of the measurements taken over the reporting period with at least two exceedences.

Table 3.3-1 Virginia Water Quality Standards for Dissolved Oxygen, pH, and Maximum Temperature (9 VAC 25-260-50)

Class of Waters	Description	Dissolved Oxygen (mg/l)		pH(su)	Maximum Temperature (CE)
		Min.	Daily Avg.		
I	Open Ocean	5.0	--	6.0-9.0	--
II	Estuarine Waters	4.0	5.0	6.0-9.0	--
III	Non-Tidal Waters	4.0	5.0	6.0-9.0	32
IV	Mountainous Zone Waters	4.0	5.0	6.0-9.0	31
V	Put & Take Trout Waters	5.0	6.0	6.0-9.0	21
VI	Natural Trout Waters	6.0	7.0	6.0-9.0	20

Table 3.3-2 provides a summary of all waters assessed (monitored and evaluated). Assessment of Virginia's rivers and streams was calculated to be approximately 50,329 miles. For the 2002 assessment, DEQ has used the, much improved, Assessment Database (ADB) that EPA has provided the states. ADB is based on watershed segmentation which allows evaluated miles to be assessed separate from monitored miles. For instance, fish consumption designated use is "evaluated" fully supporting for all waters within the state unless there is a VDH advisory based on fish tissue monitoring and/or an exceedence of a fish tissue screening value, also based on fish tissue monitoring. Prior to the 2000 305b report, the federal database

allowed only one designation of monitored or evaluated for the whole watershed. Therefore, where only part of a watershed was actually monitored, the whole watershed would, by default, be considered monitored due to the fact that evaluated waters could not be segmented from monitored waters. Using the new and improved database, the actual monitored segments are now considered monitored and any other evaluated data within the watershed is considered evaluated, creating a monitored segment(s) as well as an evaluated segment(s) all within the same watershed. Additionally, further geographical re-indexing and use of the National Hydrologic Database (NHD) has slightly increased the actual number of stream miles within the state from previous reports. The stream mile delineation guidance has provided consistent guidelines for associating the mileage assessed relative to a specific sampling station. This is especially important where there are no easily identifiable changes in watershed characteristics. In some cases, the stream miles associated with a sampling station have been conservatively reduced from previous assessment reports. As a result of these refinements and the segmentation of evaluated and monitored waters, the total miles monitored appear to have been reduced from pre 2000 305b reports, while the evaluated miles have greatly increased. The stream mile delineations found in this report are only reflective of the 2002 assessment period but follow closely with the monitoring efforts reported in the 2000 report.

Assessment of one or more designated uses of estuarine waters covered approximately 2,499.78 square miles of tidal estuaries. Coverage of coastal shore miles remained at 120 linear shore miles. An increased effort to assess the 104 most significant public lakes was accomplished. A total of 148,622.50 acres were assessed for one or more uses. Table 3.3-3 summarizes the assessments of Virginia's waters for support of aquatic life, fish consumption, shellfish consumption, swimming and public water supply uses. Table 3.3-4 lists the causes for waters resulting in less than full support of the Clean Water Act goals and state Water Quality Standards. All coastal shore waters were evaluated to be fully supporting the fishable and swimmable goals. Therefore, no causes of less than full support have been identified for these waters.

A “major impact” of causes and sources is defined as that which causes a significant impairment to the waterbody. Normally, a major impact would be from a sole source or a large contributor and would cause the waters to be not supporting. Moderate and minor impacts have a slight to moderate effect on the waters and may be from a single moderate contributor or a combination of several minor contributors and would generally cause the waters to be considered partially supporting.

As previously stated, the causes and sources of use impairment of Virginia's waters, resulting in less than full support of Clean Water Act goals, are summarized in Tables 3.3-4 and 3.3-5. It is apparent, urban runoff and agricultural nonpoint sources are primary contributors of use impairment and major impacts. It is also important to point out that natural sources have a major impact on water quality. Equally apparent, the primary pollutants causing use impairment are low dissolved oxygen from nutrient enrichment, pH problems associated with natural, low-flow, swamp waters and pathogen indicators. It is important to point out that the waters affected by VDH fish consumption advisories for kepone in the lower James River will not be included in the 303(d) impaired waters list for TMDL development. In the case of the kepone advisory, there is no loss of fish consumption designated use. Since fishing and the consumption of those fish caught are not restricted, these waters are considered fully supporting but threatened for the fish consumption use.

TABLE 3.3 - 2 - SUMMARY of ASSESSED WATERS

Degree of Use Support	Type	Assessment Category		Total Assessed Size
		Evaluated	Monitored	
Size Fully Supporting All Assessed Uses	R	36,118.93	4,485.98	40,604.91
	L	13,071.63	9,334.84	22,406.47
	E	126.65	23.25	149.90
Size Fully Supporting All Assessed Uses but Threatened for at Least One Use	R	3,975.12	955.57	4,930.69
	L	9,144.77	51,875.83	61,020.60
	E	65.32	493.84	659.16
Size Impaired for One or More Uses	R	511.86	4,281.64	4,793.50
	L	182.00	64,707.71	64,889.71
	E	34.17	1,656.55	1,690.72
Total Assessed for One or More Uses	R	40,605.91	9,723.19	50,329.10
	L	22,398.40	125,918.40	148,316.80
	E	326.14	2,173.64	2,499.78

R = River – miles
L = Lake - acres
E = Estuary - square miles

TABLE 3.3 - 3 - WATERBODY INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Assessed:
Rivers – 50,329 miles
Lakes – 148,316.80 acres
Estuaries - 2,499.40 mi^2

Waterbody Size
Rivers – 50,329 miles
Lakes - 148,317 acres
Estuaries - 2,500 mi^2

Use	WaterBody Type	Size Fully Supporting	Size Fully Supporting but Threatened	TOTAL SIZE SUPPORTING	Size Partially Supporting	Size Not Supporting	TOTAL SIZE IMPAIRED	Size Assessed (Monitored and Evaluated)
Aquatic Life	River	7,927.08	5,394.79	**13,321.87**	1,176.68	1,041.80	**2,218.48**	15,540.35
	Lake	59,222.97	12,353.48	**71,576.45**	2,169.95	59,208.88	**56,173.88**	132,955.30
	Estuary	141.98	724.51	**865.59**	1,204.66	400.42	**1,605.08**	2,471.57
Fish Consumption	River	48,449.97	1,294.86	**49,744.83**	450.53	133.74	**584.27**	50,532.33
	Lake	62,591.89	56,588.65	**119,180.54**	29,136.24	0.00	**29,136.24**	148,316.80
	Estuary	2,068.64	356.39	**2,425.03**	74.37	0.00	**74.37**	2,499.40
Shellfish Consumption	River	-	-	**-**	-	-	**-**	-
	Lake	-	-	**-**	-	-	**-**	-
	Estuary *	2,086.45	1.04	**2,087.49**	83.50	0.50	**84.00**	2,201.19
Swimming	River	5,809.23	27.91	**5,837.14**	1,922.03	1,222.89	**3,144.92**	8,982.06
	Lake	115,996.80	0.00	**115,996.80**	907.00	154.00	**1,061.00**	117,057.80
	Estuary	802.94	0.21	**803.15**	23.61	12.22	**35.83**	838.98
Public Water Supply	River	6,531.49	28.39	**6,559.88**	6.89	0.00	**6.89**	6,566.77
	Lake	114,047.40	599.00	**114,646.40**	0.00	110.00	**110.10**	114,756.40
	Estuary	8.72	0.01	**8.73**	0.00	0.00	**0.00**	8.73

\- Categories not assessed
***** 29.70 sq mi. not attainable-tidal freshwater

TABLE 3.3 - 4 SIZE OF WATERS IMPAIRED BY VARIOUS CAUSE CATEGORIES IN VIRGINIA

Pollutant	Type	Total Impaired
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (mi^2)	661.39 0 382.50
Unionized Ammonia	River (mi) Lakes (acres) Estuary (mi^2)	1.46 0 1.95
Cause Unknown	River (mi) Lakes (acres) Estuary (mi^2)	1.82 0 0
Priority Organics	River (mi) Lakes (acres) Estuary (mi^2)	10.44 0 0.05
PCB	River (mi) Lakes (acres) Estuary (mi^2)	370.58 29,040.24 82.53
Metals	River (mi) Lakes (acres) Estuary (mi^2)	234.33 0 0
pH	River (mi) Lakes (acres) Estuary (mi^2)	900.62 12,906.38 6.61
EPA Listed/Nutrients	River (mi) Lakes (acres) Estuary (mi^2)	0 1,500.00 1,531.70
Siltation	River (mi) Lakes (acres) Estuary (mi^2)	8.45 0 0
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (mi^2)	980.45 61,340.83 870.70
Temperature	River (mi) Lakes (acres) Estuary (mi^2)	262.38 0 0
Pathogen Indicators	River (mi) Lakes (acres) Estuary (mi^2)	3,085.47 1,061.00 112.17
Non-Priority Organics	River (mi) Lakes (acres) Estuary (mi^2)	90.44 20,300.00 24.77
Fish Tissue	River (mi) Lakes (acres) Estuary (mi^2)	452.74 8,836.24 65.09
Habitat Alterations	River (mi) Lakes (acres) Estuary (mi^2)	16.24 0 0

TABLE 3.3–5 SIZE OF WATERS IMPAIRED BY VARIOUS SOURCE CATEGORIES IN VIRGINIA

Source of Impairment	Type	Total Impaired
Industrial Point Sources	River (mi) Lakes (acres) Estuary (mi^2)	138.78 0 746.00
Municipal Point Sources	River (mi) Lakes (acres) Estuary (mi^2)	95.35 0 747.47
Combined Sewer Overflow	River (mi) Lakes (acres) Estuary (mi^2)	37.55 0 10.84
Collection System Failure & Wastewater Lagoon	River (mi) Lakes (acres) Estuary (mi^2)	23.76 0 0
Agriculture	River (mi) Lakes (acres) Estuary (mi^2)	1,132.95 683.00 0
Silviculture	River (mi) Lakes (acres) Estuary (mi^2)	5.05 0 0
Stratification	River (mi) Lakes (acres) Estuary (mi^2)	0 36,590.83 604.49
Urban Runoff/Storm Sewers	River (mi) Lakes (acres) Estuary (mi^2)	616.13 378.00 13.52
Resource Extraction	River (mi) Lakes (acres) Estuary (mi^2)	81.84 0 0
Land Disposal	River (mi) Lakes (acres) Estuary (mi^2)	92.64 0 0.52
Hydromodification	River (mi) Lakes (acres) Estuary (mi^2)	20.72 29.00 0
Source Unknown	River (mi) Lakes (acres) Estuary (mi^2)	1,930.23 32,005.24 162.69
Habitat Modification	River (mi) Lakes (acres) Estuary (mi^2)	20.66 0 0.75
Natural Sources	River (mi) Lakes (acres) Estuary (mi^2)	1,804.61 34,977.83 58.03
VDH Shellfish Advisory	River (mi) Lakes (acres) Estuary (mi^2)	0 0 79.68
NonPoint Source	River (mi) Lakes (acres) Estuary (mi^2)	91.48 2,435.68 746.00

Source of Impairment	Type	Total Impaired
EPA Over-listing	River (mi) Lakes (acres) Estuary (mi^2)	50.69 1,500.00 1,531.70
Commercial Port Authority	River (mi) Lakes (acres) Estuary (mi^2)	0 0 11.97
Contaminated Sediment & Leaking Tanks	River (mi) Lakes (acres) Estuary (mi^2)	48.70 0 0
Atmospheric Deposition	River (mi) Lakes (acres) Estuary (mi^2)	45.46 0 0
Consent Decree Attachment B	River (mi) Lakes (acres) Estuary (mi^2)	11.43 0 0
Other Point Source/Nonpoint	River (mi) Lakes (acres) Estuary (mi^2)	59.46 0 746.00
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (mi^2)	457.41 0 19.74

Chapter 3.4 INDIVIDUAL RIVER BASIN ASSESSMENT SUMMARY

Potomac and Shenandoah River Basin

The Potomac-Shenandoah River Basin, as its name implies, is made up of the Shenandoah River Subbasin and the Potomac River Subbasin. It occupies the northern portion of Virginia and covers 5,747 square miles or 14 percent of the Commonwealth's total area.

In Virginia, the Potomac-Shenandoah basin is defined by both hydrologic and political boundaries. The basin is bounded by the James River, Rappahannock River, and York River Basins to the west and south. The northern and eastern perimeter of the basin is bounded by the West Virginia and Maryland State lines and the District of Columbia.

The Shenandoah River Subbasin headwaters begin in Augusta County and flow in a northeasterly direction for approximately 100 miles to the West Virginia State line. The basin averages 30 miles in width and covers 2, 926 square miles.

The topography of the Shenandoah River Subbasin is characterized by rolling hills and valleys bordered by the Appalachian Mountains to the west and the Blue Ridge Mountains to the east. The Massanutten Mountain Range divides the Shenandoah River into the North and South Forks. Tributaries of the Shenandoah River exhibit steep profiles as they drain the surrounding mountain ridge. The main stems of the Shenandoah exhibit a moderately sloping profile with occasional riffles and pools. 45 percent of the land is forested due to the large amount of federally owned land and the steep topography. Farmland and pasture account for 39 percent of the land area, while 16 percent is urban.

The Potomac River Subbasin headwaters begin in Highland County. The drainage area is 323 square miles for the headwaters. The river then flows in a northeasterly direction through West Virginia and Maryland before joining the Shenandoah at Harper's Ferry, West Virginia. The Potomac continues as the border between Maryland and Virginia, flowing in a southeasterly direction to the northern locations in Loudoun and Fauquier Counties to less than one mile in Westmoreland County. Approximately 2, 821 of the 14,700 square miles of the Potomac River Subbasin drainage area lie in Virginia. The rest covers four states and the District of Columbia.

The topography of the upper Piedmont region of the Potomac River Subbasin is characterized by gently sloping hills and valleys from Harpers Ferry to about 45 miles down river. In the central Piedmont area, the profile is rather flat until it nears the fall line at Great Falls, where the stream elevation rapidly descends from over 200 feet, to sea level. Tributaries in the central Piedmont exhibit moderate and near constant profiles. Streams in the Coastal Plain area are largely characterized by their flat slope. Approximately 40 percent of the Potomac River Basin is forested, 33 percent is farmland and pasture and an estimated 27 percent is urban.

The 1994 population for the Potomac-Shenandoah River Basin was approximately 1,973, 736. The majority of the population resides in urban Virginia surrounding Washington, D.C. All or part of the following jurisdictions lie within the basin: counties – Arlington, Augusta, Clarke, Fairfax, Fauquier, Frederick, Highland, King George, Loudoun, Northumberland, Page, Prince William, Rockingham, Shenandoah, Stafford, Warren, and Westmoreland; cities – Alexandria, Fairfax, Falls Church, Manassas, Manassas Park, Harrisonburg, Staunton, Waynesboro, and Winchester.

Citizen-Generated Water Quality Monitoring Data in the Potomac-Shenandoah River Basin

The Potomac-Shenandoah River Basin has a number of active citizen monitoring organizations collecting and analyzing both ambient and benthic macroinvertebrate data. The citizen-generated data

described in the following paragraphs are included in Appendix B of this report and the supporting use analysis in this section.

The Alliance for the Chesapeake Bay monitors a conventional suite of ambient parameters including dissolved oxygen, temperature, pH, salinity and water clarity in the Potomac River Subbasin. ACB also monitors selected sites for a suite of parameters (nutrients, water clarity, total suspended solids and chlorophyll *a*) related to submerged aquatic vegetation (SAV). Trained ACB volunteers monitored 13 stations and conducted 1,511 sampling events in the Potomac River Subbasin during the five-year data window for this report. These stations are designated in Appendix B by “ALL” at the end of the station number.

The Audubon Naturalist Society (ANS) monitors benthic macroinvertebrates in the Potomac River Subbasin using the ANS protocol. Trained ANS volunteers monitored 21 stations in the Potomac Subbasin and conducted 134 sampling events for benthic macroinvertebrates during the data window for this report. These stations are designated in Appendix B by “ANS” at the end of the station number.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) coordinates with a number of affiliate organizations in the Potomac-Shenandoah River Basin to monitor benthic macroinvertebrates. Affiliate organizations in this basin include Friends of the North River, Friends of the North Fork of the Shenandoah River, Friends of Page Valley, Middle River Monitors, and the Northern Virginia Water Quality Monitoring Program (coordinated by the Northern Virginia Soil and Water Conservation District). Certified IWLA VA SOS volunteers sampled 109 stations (65 in the Potomac River Subbasin and 44 in the Shenandoah River Subbasin) during 381 sampling events for benthic macroinvertebrates. These stations are designated in Appendix B by “SOS” at the end of the station number.

The Loudoun Wildlife Conservancy (LWC) monitors benthic macroinvertebrates using the Audubon Naturalist Society protocol in Loudoun County located in the Potomac River Subbasin. Trained LWC volunteers monitored 13 stations in the Potomac Subbasin during 107 sampling events for benthic macroinvertebrates. These stations are designated in Appendix B by “LWC” at the end of the station number.

The Potomac-Shenandoah River Basin is divided into eight USGS hydrologic units as follows: HUC 02070001- South Branch Potomac; HUC 02070004-Conococheague-Opequon; HUC 02070005-South Fork Shenandoah; HUC 02070006- North Fork Shenandoah; HUC 02070007- Shenandoah; HUC 02070008 Upper Potomac; HUC 02070010 Middle Potomac; HUC 02070011- Lower Potomac. The eight hydrologic units are further divided into 92 waterbodies or watersheds.

Basin assessment information is included in Tables 3.4-1-1, 3.4-1-2, and 3.4-1-3.

Table 3.4-1-1 POTOMAC-SHENANDOAH RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Monitored:
Rivers - 1,957.00 miles
Lakes - 1,545.00 acres
Estuaries - 46.16 sq.miles

Basin Size:
Rivers - 5,865 miles
Lakes - 4,208 acres
Estuaries - 62 sq.miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	956.63	582.27	343.06	109.59	1,991.55
	Lakes (acres)	221.00	158.00	91.00	1,854.00	2,324.00
	Estuary (sq. mi.)	16.42	22.67	2.35	4.20	45.64
Fish Consumption	River (mi)	5,639.79	43.24	130.63	51.10	5,864.76
	Lakes (acres)	3,968.25	0	0	0	3,968.25
	Estuary (sq. mi.)	42.70	0	21.15	0	63.85
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	26.23	0.28	7.50	0	34.02
Swimming	River (mi)	748.71	2.95	396.11	350.27	1,498.04
	Lakes (acres)	245.00	0	0	0	245.00
	Estuary (sq. mi.)	17.83	0	2.01	0	19.84
Public Water Supply	River (mi)	211.32	28.39	0	0	239.71
	Lakes (acres)	2,175.49	96.00	0	0	2,271.49
	Estuary (sq. mi.)	-	-	-	-	0

- not assessed

TABLE 3.4-1-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN POTOMAC-SHENANDOAH BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	280.17 0 0
PCB	River (mi) Lakes (acres) Estuary (sq. mi.)	61.12 0 20.85
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	143.56 1,700.00 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	93.48 91.00 2.11
Ammonia	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 1.95
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	11.66 1,854.00 2.49
Temperature	River (mi) Lakes (acres) Estuary (sq. mi.)	119.07 0 0
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	746.38 0 8.46
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	181.73 0 21.15
Flow Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Other Inorganics	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Habitat Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-1-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS SOURCE CATEGORIES IN POTOMAC-SHENANDOAH BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	14.33 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	18.42 0 0
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	385.48 0 0
Urban Runoff/Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	95.05 0 0
Natural Sources (Stratification & Wildlife)	River (mi) Lakes (acres) Estuary (sq. mi.)	545.40 1,854.00 2.25
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	467.27 91.00 23.86
Atmospheric Deposition	River (mi) Lakes (acres) Estuary (sq. mi.)	43.41 0 0
Other Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 1,700.00 0
Land Disposal	River (mi) Lakes (acres) Estuary (sq. mi.)	4.80 0 0
Nonpoint Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	9.55 0 0
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (sq. mi.)	171.71 0 19.74
Collection System Failure	River (mi) Lakes (acres) Estuary (sq. mi.)	7.04 0 0
VDH Shellfish Condemnation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 7.50

James River Basin

The James River Basin occupies the central portion of Virginia and covers 10,206 square miles or approximately 25 percent of the Commonwealth's total land area. It is Virginia's largest river basin and is made up of the Upper, Middle, and Lower James River Subbasins; and the Appomattox River Subbasin.

The James River Basin is defined by both hydrologic and political boundaries. The basin is bounded by the Potomac-Shenandoah River Basin, the Rappahannock River Basin and the York River Basins to the north. The southern boundary is made up of the New River Basin, the Roanoke River Basin and the Chowan River Basin. Its headwaters originate along the Virginia/West Virginia state line.

The James River Basin begins in the Alleghany Mountains and flows in a southeasterly direction to Hampton Roads where it enters the Chesapeake Bay. The James is formed by the confluence of the Jackson and Cowpasture Rivers and flows 228 miles to the Fall Line at Richmond and another 111 miles to the Chesapeake Bay.

The topography of the James River Basin varies throughout the four physiographic provinces that it spans. The Valley and Ridge Province extends from the Appalachian Plateau in West Virginia to the Blue Ridge Province. This province is dominated by narrow ridges and valleys running in a northeast/southwest direction, turning into a broad valley with low, rounded hills in the extreme southeast section of the province. The Blue Ridge Province, a remnant of a former highland, differs from the Balley and Ridge Province to the Fall Line. The western section of the Piedmont has scattered hills and small mountains, gradually turning into gently rolling slopes and lower elevation in the eastern Piedmont Province. The Coastal Plain Province is separated from the Piedmont by the Fall Zone. The Fall Zone is a three-mile stretch of river running through Richmond where the river descends 84 feet as it flows from the resistant rocks of the Piedmont to the softer sediments of the Coastal Plain.

Over 65 percent of the James River Basin is forested, with 19 percent in cropland and pasture. Approximately 12 percent is considered urban. The 1994 population for the James River Basin was approximately 1,909,511. This population is concentrated in two metropolitan areas: Tidewater, with over one million people, and the Greater Richmond – Petersburg area with over 750,000. Two smaller population centers are the Lynchburg and Charlottesville areas, each with over 100,000 people. All or portions of the following 39 counties and 14 cities lie within the basin: counties- Alleghany, Amherst, Bath, Nelson, Rockbridge, Augusta, Bedford, Botetourt, Campbell, Craig, Giles, Highland, Montgomery, Roanoke, Amelia, Buckingham, Chesterfield, Cumberland, Fluvanna, Goochland, Henrico, Powhatan, Albemarle, Appomattox, Prince Edward, Dinwiddie, Greene, Hanover, Louisa, Nottoway, Orange, Charles City, Isle of Wight, James City, Nansemond, New Kent, Prince George, Surry, and York; cities- Buena Vista, Clifton Forge, Covington, Lexington, Lynchburg, Charlottesville, Colonial Heights, Petersburg, Richmond, Hopewell, Norfolk, Newport News, Suffolk, and Williamsburg.

Average annual precipitation is 42.5 inches. Average annual snowfall amounts range from over 30 inches in the mountains to less than 10 inches along the coast.

Major tributaries to the James River are Craig Creek, Maury River, Tye River, Rockfish River, Slate River, Rivanna River, Willis Creek, Appomattox River, Chichahominy River, Pagan River, Nansemond River, and the Elizabeth River.

Citizen-Generated Water Quality Monitoring Data in the James River Basin

The James River Basin has a number of active citizen monitoring organizations collecting and analyzing both ambient and benthic macroinvertebrate data. The citizen-generated data described in the following paragraphs are included in Appendix B of this report and the supporting use analysis in this section.

The Alliance for the Chesapeake Bay (ACB) monitors a conventional suite of ambient parameters including dissolved oxygen, temperature, pH, salinity and water clarity in the James River Basin. ACB also monitors selected sites for a suite of parameters (including nutrients, water clarity, total suspended solids and chlorophyll *a*) related to submerged aquatic vegetation (SAV). Trained ACB volunteers conducted 2,078 sampling events at 28 stations in the James River Basin during the 5-year data window for this report. These stations are designated in Appendix B by "ALL" at the end of the station number.

Clean Virginia Waterways (CVW) monitors a conventional suite of ambient parameters including dissolved oxygen, temperature, pH, water clarity, and fecal coliform in the Appomattox River Subbasin of the James River Basin. Trained CVW volunteers monitored 41 stations during 207 sampling events in this basin. These stations are designated in Appendix B by "CVW" at the end of the station number.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) coordinates with a number of affiliate organizations in the James River Basin to monitor benthic macroinvertebrates. Affiliate organizations in this basin include Buckingham Citizen Action League, Cowpasture River Preservation Association, Environmentally Concerned Citizens Organization, Environmental Education Center, Pedlar River Institute, Piedmont Environmental Council, Rivanna Conservation Society, Rivanna River Basin Project, and the Skyline Chapter of Trout Unlimited. Certified IWLA VA SOS volunteers sampled 85 stations in the James River Basin during 282 sampling events for benthic macroinvertebrates. These stations are designated in Appendix B by "SOS" at the end of the station number.

The Piedmont Region TMDL Initiative (a cooperative effort between the Piedmont, Peter Francisco and Monacan Soil and Water Conservation Districts) monitors for dissolved oxygen and fecal coliform in the Appomattox River Subbasin of the James River Basin. Monitors conducted 224 sampling events at 7 stations. These stations are designated in Appendix B by "PIE" at the end of the station number.

The James River Basin is divided into seven USGS hydrologic units as follows: HUC 02080201 – Upper James, HUC 02080202 – the Maury, HUC 02080203 – Upper Middle James, HUC 02080204 – the Rivanna, HUC 02080205 – the Lower middle James, HUC 02080206 – Lower James, and HUC 02080207 – the Appomattox, and HUC 02080208 – the Elizabeth. The nine hydrologic units are further divided into 92 waterbodies or watersheds.

Basin assessment information is presented in Tables 3.4-2-1, 3.4-2-2, and 3.4-2-3.

TABLE 3.4-2-1 JAMES RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Monitored:
Rivers – 2,827.88 miles
Lakes - 6,703.70 acres
Estuaries – 243.89sq.miles

Basin Size:
Rivers - 12,836 miles
Lakes - 20,854 acres
Estuaries - 264 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	2,100.68	1,895.89	165.04	166.66	4,328.27
	Lakes (acres)	383.91	9,537.93	2,004.95	5,850.00	17,776.79
	Estuary (sq. mi.)	5.47	32.53	176.63	51.32	265.95
Fish Consumption	River (mi)	11,819.36	1,010.19	6.54	0	12,836.09
	Lakes (acres)	19,444.19	110.00	0	0	19,554.19
	Estuary (sq. mi.)	5.40	239.28	21.27	0	265.95
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	94.99	0	17.62	0.50	113.11
Swimming	River (mi)	1,604.67	0	509.34	158.99	2,273.00
	Lakes (acres)	8,322.79	0	0	0	8,322.79
	Estuary (sq. mi.)	235.00	0	16.69	11.79	263.48
Public Water Supply	River (mi)	1,466.53	0	6.89	0	1,453.42
	Lakes (acres)	14,688.97	0	0	110	14,796.97
	Estuary (sq. mi.)	8.72	0	0	0	8.72

TABLE 3.4-2-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN JAMES BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	59.58 0 1.00
Unknown Toxicity	River (mi) Lakes (acres) Estuary (sq. mi.)	2.45 0 0
Non-Priority Organics	River (mi) Lakes (acres) Estuary (sq. mi.)	6.54 0 24.77
PCB	River (mi) Lakes (acres) Estuary (sq. mi.)	6.54 0 0
Priority Organics	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	6.89 0 11.97
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	119.14 1,700.00 1.43
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	6.54 0 12.25
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	150.19 7,964.95 1.28
Temperature	River (mi) Lakes (acres) Estuary (sq. mi.)	55.18 0 0
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	668.33 0 43.63
PCB's	River (mi) Lakes (acres) Estuary (sq. mi.)	6.54 0 29.74
EPA Listed Nutrients	River (mi) Lakes (acres) Estuary (sq. mi.)	0 1,500.00 225.48
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-2-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS SOURCE CATEGORIES IN JAMES BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	18.57 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	8.92 0 0
Combined Sewer Overflow	River (mi) Lakes (acres) Estuary (sq. mi.)	37.55 0 10.84
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	134.03 0 0
Stratification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 7,004.95 0
Urban Runoff/Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	101.58 0 12.37
Commercial Point Activity	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 11.97
Habitat Modification (Road Construction)	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0.75
Upstream Impoundment (Hydromodification)	River (mi) Lakes (acres) Estuary (sq. mi.)	5.41 0 0
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	160.93 2,004.95 0
EPA Overlisting	River (mi) Lakes (acres) Estuary (sq. mi.)	0 1,500.00 225.48
Consent Decree-Attachment B	River (mi) Lakes (acres) Estuary (sq. mi.)	6.57 0 0
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	453.70 2,550.00 52.91
Point/Nonpoint Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	43.92 110.00 0
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
VDH Shellfish Condemnation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 17.62

Rappahannock River Basin

The Rappahannock River Basin is located in the northeastern portion of Virginia and covers 2,715 square miles or approximately 6.8 percent of the Commonwealth's total area.

The Rappahannock River Basin is bordered by the Potomac-Shenandoah Basin to the north and the York River Basin and Coastal Basin to the south. The headwaters lie in Fauquier, Madison and Rappahannock Counties and flow in a southeasterly direction to its mouth, where it enters the Chesapeake Bay between Lancaster and Middlesex Counties. The Rappahannock River Basin is 184 miles in length and varies in width from 20 to 50 miles. The Rappahannock River Basin's major tributaries are the Hazel River, Thornton River, Mountain Run, Rapidan River, Robinson River, Cat Point Creek, and the Corotoman River.

The topography of the Rappahannock River Basin changes from steep to flat as it flows from the Blue Ridge Mountains to the Chesapeake Bay. About 51 percent of the basin land is forest, while pasture and cropland make up another 36 percent. Only about 6 percent of the land area is considered urban.

Most of the Rappahannock River Basin lies in the eastern Piedmont and Tidewater areas of the Commonwealth while its headwaters, located on the eastern slopes of the Blue Ridge, are considered to be in the northern and western Piedmont section.

The population of the Rappahannock River Basin was approximately 185,574 in 1994. The basin is mostly rural in character with no large population centers, however, the influence of metropolitan Washington is beginning to be felt in the Fredericksburg and Fauquier areas of the basin. All or portions of the following 18 counties lie within the Basin: Albemarle, Caroline, Culpeper, Essex, Fauquier, Gloucester, Greene, King and Queen, King George, Lancaster, Madison, Middlesex, Orange, Rappahannock, Richmond, Spotsylvania, Stafford, and Westmoreland.

Citizen-Generated Water Quality Monitoring Data in the Rappahannock River Basin

The Rappahannock River Basin has a number of active citizen monitoring organizations collecting and analyzing both ambient and benthic macroinvertebrate data. The citizen-generated data described in the following paragraphs are included in Appendix B of this report and the supporting use analysis in this section.

The Alliance for the Chesapeake Bay (ACB) monitors a conventional suite of ambient parameters including dissolved oxygen, temperature, pH, salinity and water clarity in the Rappahannock River Basin. Trained ACB volunteers conducted 1,906 sampling events at 18 stations in the Rappahannock River Basin during the 5-year data window for this report. These stations are designated in Appendix B by "ALL" at the end of the station number.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) coordinates with several affiliate organizations in the Rappahannock River Basin to monitor benthic macroinvertebrates. Affiliate organizations in this basin include the Friends of the Rappahannock and the Upper Rappahannock Watershed Stream Monitoring Program (a cooperative effort between the Culpeper and John Marshall Soil and Water Conservation Districts). Certified IWLA VA SOS volunteers sampled 54 stations in the Rappahannock River Basin during 94 sampling events for benthic macroinvertebrates. These stations are designated in Appendix B by "SOS" at the end of the station number.

The John Marshall Soil and Water Conservation District monitors a conventional suite of parameters including dissolved oxygen, temperature, pH, fecal coliform, nutrients, and solids in the Rappahannock River basin. Trained District volunteers conducted 39 sampling events at 4 stations

during the data window for this report. These stations are designated in Appendix B by “JMS” at the end of the station number.

The Rappahannock River Basin is divided into two USGS hydrologic units as follows: HUC 02080103 – Rapidan – Upper Rappahannock; and HUC 02080104 – Lower Rappahannock. The two hydrologic units are further divided into 26 waterbodies or watersheds.

Basin assessment information is presented in Tables 3.4-3-1, 3.4-3-2, and 3.4-3-3.

TABLE 3.4-3-1 RAPPAHANNOCK RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Monitored:
Rivers – 353.29
Lakes – 235 acres
Estuaries – 152.14 sq. miles

Basin Size:
Rivers - 2,797 miles
Lakes - 651 acres
Estuaries - 167 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	256.22	1,103.11	12.85	9.68	1,381.86
	Lakes (acres)	0	253.00	0	0	253.00
	Estuary (sq. mi.)	0	47.72	0.71	118.72	167.15
Fish Consumption	River (mi)	2,785.78	10.94	0	0	2,796.72
	Lakes (acres)	488.00	0	0	0	488.00
	Estuary (sq. mi.)	128.70	6.77	31.68	0	167.15
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	126.97	0.34	11.18	0	138.49
Swimming	River (mi)	95.10	3.72	92.96	38.87	230.65
	Lakes (acres)	0	0	0	0	0
	Estuary (sq. mi.)	133.25	0.21	2.73	0	136.19
Public Water Supply	River (mi)	16.26	0	0	0	16.26
	Lakes (acres)	0	253.00	0	0	253.00
	Estuary (sq. mi.)	-	-	-	-	0

TABLE 3.4-3-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN RAPPAHANNOCK BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Unknown Toxicity	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Taste/Odor	River (mi) Lakes (acres) Estuary (sq. mi.)	0 253.00 0
Priority Organics	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	0 253.00 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	17.56 0 0.71
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 31.68
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	6.16 0 77.76
EPA Listed Nutrients	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 72.41
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	131.83 0 11.86
Habitat Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-3-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN RAPPAHANNOCK BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 1.46
Combined Sewer Overflow	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	17.01 0 0
Silviculture	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Other	River (mi) Lakes (acres) Estuary (sq. mi.)	17.01 0 0
EPA Overlisting	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 72.41
Urban Runoff/ Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Land Disposal	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	12.44 0 27.19
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	109.93 0 49.65
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
VDH Shellfish Condemnation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 9.84

Roanoke River Basin

The Roanoke River Basin covers 6,382 square miles or approximately 16 percent of the Commonwealth's total area. In addition to the Roanoke itself, the basin also contains the Ararat River Subbasin.

The Virginia portion of the Roanoke River Basin is defined by both hydrologic and political boundaries. The basin is bounded to the north by the James River Basin, on the east by the Chowan River Basin, and to the west by the New River Basin. The southern boundary of the basin is the Virginia/North Carolina State line.

The topography of the Roanoke River Basin ranges from steep slopes and valleys in the Valley and Ridge Province to gently sloping terrain east of the mountains in the Piedmont Province.

The Roanoke River Basin headwaters begin in the mountainous terrain of eastern Montgomery County and flow in a southeasterly direction to the Virginia/North Carolina state line. The Roanoke Basin passes through three physiographic provinces, the Bally and Ridge Province to the northwest, and the Blue Ridge and Piedmont Provinces to the southeast.

The Roanoke watershed is large enough to accommodate two major reservoirs, Smith Mountain and Leesville Lakes to the north and Kerr Reservoir and Lake Gaston located at the junction of the Roanoke River and the North Carolina state line. These reservoirs range in size from the 49,000 acre Kerr Reservoir to the 3,400 acre Leesville Lake. These impoundments are used for both recreation and hydroelectricity. Major tributaries in the northern section of the basin are the Little Otter and Big Otter Rivers along with the Blackwater and Pigg Rivers. Major tributaries in the southern portion include the Dan River, Smith River, and Banister River. Over 62 percent of the Roanoke River Basin is forested, while nearly 25 percent is in cropland and pasture. Approximately 10 percent is considered urban.

The 1994 population for the Roanoke River Basin was approximately 669,681. All or portions of the following sixteen counties and five cities and one town lie within the basin: counties – Patrick, Henry, Pittsylvania, Halifax, Franklin, Mecklenburg, Roanoke, Bedford, Campbell, Charlotte, Carroll, Brunswick, Montgomery, Botetourt, Floyd, and Appomattox; cities – Roanoke, Salem, Martinsville, Danville, Bedford, and the town of South Boston.

Citizen-Generated Water Quality Monitoring Data in the Roanoke River Basin

The Roanoke River Basin has several active citizen monitoring organizations collecting and analyzing both ambient and benthic macroinvertebrate data. The citizen-generated data described in the following paragraphs are included in Appendix B of this report and the supporting use analysis in this section.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) coordinates with several affiliate organizations in the Roanoke River Basin to monitor benthic macroinvertebrates. Affiliate organizations in this basin include Elliott Creek Watershed Protection Council and the Virginia Museum of Natural History at Virginia Tech. Certified IWLA VA SOS volunteers conducted 68 sampling events for benthic macroinvertebrates at 22 stations in the Roanoke River Basin during the 5-year data window for this report. These stations are designated in Appendix B by "SOS" at the end of the station number.

The Smith Mountain Lake Water Quality Monitoring Program is coordinated by Ferrum College and the Smith Mountain Lake Association. This program monitors (during the summer month only) secchi depth (water clarity) at "basic stations" while total phosphorus, nitrate, chlorophyll *a* and secchi depth data are collected at "advanced stations". Additionally, fecal coliform data is collected at 14 stations. Trained

volunteers in this program have monitored a total of 120 stations during the data window for this report. These stations are designated in Appendix B by “FC” at the end of the station number.

The Roanoke River Basin is divided into six USGS hydrologic units as follows: HUC 03010101 – Upper Roanoke; HUC 03010102 – Middle Roanoke; HUC 03010103 – Upper Dan; HUC 03010104 – Lower Dan; HUC 03010105 – Banister, and HUC 03010106 – Roanoke Rapids, -HUC 03040101 - Ararat.

Basin assessment information is presented in table 3.4-4-1, 3.4-4-2, and 3.4-4-3.

TABLE 3.4-4-1 ROANOKE RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY

Total Size Monitored:
Rivers – 1,468.97 miles
Lakes – 95,134.59 acres
Estuaries – 0 sq. miles

Basin Size:
Rivers - 9,451 miles
Lakes - 97,910 acres
Estuaries - 0 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	1,182.53	722.42	139.02	23.89	2,067.86
	Lakes (acres)	49,552.59	92.00	0	45,520.00	95,164.59
	Estuary (sq. mi.)	-	-	-	-	0
Fish Consumption	River (mi)	9,167.45	108.46	175.52	0	9,451.43
	Lakes (acres)	22,701.00	49,122.00	25,653.00	0	97,476.00
	Estuary (sq. mi.)	-	-	-	-	0
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	-	-	-	-	0
Swimming	River (mi)	412.87	0	384.43	358.20	1,155.50
	Lakes (acres)	93,634.00	0	907.00	154.00	94,695.00
	Estuary (sq. mi.)	-	-	-	-	0
Public Water Supply	River (mi)	3,952.04	0	0	0	3,952.04
	Lakes (acres)	90,869.78	0	0	0	90,869.78
	Estuary (sq. mi.)	-	-	-	-	0

TABLE 3.4-4-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN ROANOKE BASINE

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	75.95 0 0
Unknown Toxicity	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Non-Priority Organics	River (mi) Lakes (acres) Estuary (sq. mi.)	83.90 20,300.00 0
PCB	River (mi) Lakes (acres) Estuary (sq. mi.)	175.52 25,653.00 0
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	0 8,935.00 0
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	135.47 5,353.00 0
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	10.94 45,520.00 0
Temperature	River (mi) Lakes (acres) Estuary (sq. mi.)	76.02 0 0
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	742.63 1,061.00 0
Habitat Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-4-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS SOURCE CATEGORIES IN ROANOKE BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	39.22 0 0
Domestic Wastewater Lagoon	River (mi) Lakes (acres) Estuary (sq. mi.)	13.88 0 0
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	377.83 683.00 0
Stratification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 25,220.00 0
NonPoint Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	38.01 2,325.68 0
Urban Runoff/ Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	277.71 378.00 0
Hydromodification	River (mi) Lakes (acres) Estuary (sq. mi.)	10.94 0 0
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	280.52 25,374.00 0
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	288.33 25,807.00 0
Habitat Modification	River (mi) Lakes (acres) Estuary (sq. mi.)	3.26 0 0
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (sq. mi.)	125.77 0 0
Contaminated Sediments	River (mi) Lakes (acres) Estuary (sq. mi.)	47.09 20,300.00 0

Chowan River-Dismal Swamp Basin

The Chowan River and Dismal Swamp Basin is located in the southeastern portion of Virginia and covers 4,061 square miles or approximately 10 percent of the Commonwealth's total area.

The Basin extends eastward from Charlotte County to the Chesapeake Bay. The Chowan River-Dismal Swamp Basin in Virginia is defined by both hydrologic and political boundaries. The basin is bordered by the James River Basin and the Small Coastal River Basins to the east, the Roanoke River Basin to the west and the Virginia/North Carolina State line to the south. The basin is approximately 145 miles in length and varies from 10 to 50 miles in width. The Chowan River-Dismal Swamp Basin flows through the Piedmont and Coastal Plain Physiological Provinces. The Chowan portion flows 130 miles from west to east, crossing both the Piedmont and Coastal Plain, while the Dismal Swamp lies entirely within the Coastal Plain. The Piedmont portion is characterized by rolling hills, steeper slopes and somewhat more pronounced stream valleys. The Coastal Plain, in contrast, is nearly flat with a descending series of terraces.

The Chowan River-Dismal Swamp Basin is mostly rural with approximately 64 percent of its land covered by forest. Cropland and pasture make up another 28 percent, while only about 6 percent is classified as urban.

The 1994 population for the Chowan River-Dismal Swamp Basin was approximately 586,276. All or portions of the following 14 counties and four cities lie within the basin: Counties – Greensville, Lunenburg, Southampton, Sussex, Brunswick, Charlotte, Dinwiddie, Isle of Wight, Mecklenburg, Nansemond, Nottoway, Prince Edward, and Surry; Cities – Chesapeake, Franklin, Suffolk, and Virginia Beach.

Major tributaries of the Chowan River are the Meherrin, the Nottoway and the Blackwater. The Nottoway and the Blackwater join at the Virginia/North Carolina state line to form the Chowan River. The Dismal Swamp portion is mostly flat with many swamp and marshland areas.

Citizen-Generated Water Quality Monitoring Data in the Chowan River Basin

The Chowan River Basin has one active citizen monitoring organization collecting and analyzing benthic macroinvertebrate data. The citizen-generated data described below are included in Appendix B of this report and the supporting use analysis in this section.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) coordinates with the J.R. Horsley Soil and Water Conservation District to monitor benthic macroinvertebrates in the Chowan River Basin. Certified IWLA VA SOS volunteers conducted 6 sampling events at 5 stations during the 5-year data window for this report. These stations are identified in Appendix B by "SOS" at the end of the station number.

The Chowan River-Dismal Swamp Basin is divided into five USGS hydrologic units as follows: HUC 03010204 – Nottoway; HUC 03010202 – Blackwater; HUC 03010203 – Chowan; HUC 03010204 – Meherrin; and HUC 03010205 – Albemarle Sound. The five hydrologic units are further divided into 44 waterbodies or watersheds.

Basin assessment information is presented in Tables 3.4-5-1, 3.4-5-2, and 3.4-5-3.

TABLE 3.4-5-1 CHOWAN-DISMAL SWAMP BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Monitored:
Rivers - 756.33 miles
Lakes - 29.00 acres
Estuaries – 82.90 sq. miles

Basin Size:
Rivers - 4,994 miles
Lakes - 5,029.3 acres
Estuaries - 83 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	1,155.37	229.94	189.69	560.06	2,135.06
	Lakes (acres)	3,513.00	0	0	29.00	3,542.00
	Estuary (sq. mi.)	0	82.70	0	0.20	82.90
Fish Consumption	River (mi)	4,961.80	26.14	5.72	0	4,993.66
	Lakes (acres)	4,345.00	0	0	0	4,345.00
	Estuary (sq. mi.)	82.90	0	0	0	82.90
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	-	-	-	-	0
Swimming	River (mi)	1,384.20	21.24	261.56	63.21	1,730.21
	Lakes (acres)	3,513.00	0	0	0	3,513.00
	Estuary (sq. mi.)	82.38	0	0.52	0	82.90
Public Water Supply	River (mi)	20.07	0	0	0	203.07
	Lakes (acres)	682.00	0	0	0	682.00
	Estuary (sq. mi.)	-	-	-	-	0

TABLE 3.4-5-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN CHOWAN-DISMAL SWAMP BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	7.66 0 0
Known Toxicity (Ammonia)	River (mi) Lakes (acres) Estuary (sq. mi.)	1.46 0 0
Pesticides	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Priority Organics	River (mi) Lakes (acres) Estuary (sq. mi.)	5.72 0 0
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	576.10 0 0
Siltation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	715.01 29.00 0.20
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	324.77 0 0.52
Fish Ttissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	5.72 0 0
Habitat Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-5-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS SOURCE CATEGORIES IN CHOWAN-DISMAL SWAMP BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	13.37 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	14.68 0 0
Combined Sewer Overflow	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	8.85 0 0
Hydromodification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 29.00 0
Silviculture	River (mi) Lakes (acres) Estuary (sq. mi.)	3.020 0 0
Urban Runoff/ Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	3.17 0 1.30
EPA Overlisting	River (mi) Lakes (acres) Estuary (sq. mi.)	45.87 0 0
Land Disposal (Septic tanks)	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0.52
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	662.59 0 82.18
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	336.08 0 82.38
Other/ Water Quality Standards	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
VDH Shellfish Condemnation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

Tennessee-Big Sandy River Basin

The segment of the Tennessee and Big Sandy River Basin which lies in Virginia is made up of the Holston, Clinch-Powell, and Big Sandy River Subbasins. These subbasins are located in the extreme southwest portion of Virginia and cover 4,140 square miles or approximately 10.5 percent of the Commonwealth's total land area.

The Virginia portion of the Tennessee-Big Sandy River Basin is defined by both hydrologic and political boundaries. The West Virginia State line lies to the northeast, Kentucky to the west, and Tennessee to the south. The New River Basin makes up the eastern boundary.

While the Tennessee and Big Sandy Rivers are fed by numerous southwest Virginia streams, neither river forms within the Commonwealth itself. The Big Sandy subbasin contains the Levisa and Tug Forks which flow northward into Kentucky forming the Big Sandy River. The Tennessee River is formed in Tennessee by the southwestward flowing Holston, Clinch, and Powell tributaries. Both of the major river subbasins eventually empty into the Gulf of Mexico via the Ohio and Mississippi Rivers.

The Tennessee-Big Sandy River Basin spans three physiographic provinces: the Cumberland Plateau, Valley and Ridge, and the Blue Ridge. The Big Sandy portion of the basin lies within the Cumberland Plateau. This province is characterized as rugged, with mountainous terrain and steep valleys. Parallel valleys and ridges running in a northeast to southwest direction characterize the Tennessee portion lying in the Valley and Ridge Province. A small portion, located in the Blue Ridge Province, is more plateau-like, with no single, prominent ridge which characterizes the Ridge and Valley province to the north.

Within Virginia, approximately 48 percent of the Tennessee River Basin is forested, while cropland and pasture make up another 39.7 percent. The Big Sandy portion of the basin is approximately 86 percent forest, with only about 5 percent in cropland and pasture. Urban areas make up only a small percentage of the total land area.

The 1994 population for the Tennessee-Big Sandy River Basin was approximately 310,309 or 5 percent of Virginia's total population. All or part of the following political jurisdictions lie within the basin: Counties – Lee, Scott, Russell, Washington, Smyth, Tazewell, Buchanan, Dickinson, Bland, Wythe, Grayson, and Wise; Cities – Norton and Bristol.

Citizen-Generated Water Quality Monitoring Data in the Tennessee-Big Sandy River Basin

The Tennessee-Big Sandy River Basin has several active citizen monitoring organizations collecting and analyzing both ambient and benthic macroinvertebrate data. The citizen-generated data described in the following paragraphs are included in Appendix B of this report and the supporting use analysis in this section.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) coordinates with several affiliate organizations in the Tennessee-Big Sandy River Basin to monitor benthic macroinvertebrates. Affiliate organizations in this basin include the Buchanan Citizens Action Group and the Headwaters Association. Certified IWLA VA SOS volunteers conducted 22 sampling events at 16 stations in this river basin during the 5-year data window for this report. "SOS" at the end of the station number designates these stations in Appendix B.

The Upper Levisa River Restoration Project monitored fecal coliform in this river basin for a limited time period. Trained volunteers collected 120 samples for fecal coliform analysis at 15 stations in the Tennessee-Big Sandy River Basin. These stations are designated in Appendix B by "LRP" at the end of the station number.

The Tennessee-Big Sandy River Basin is divided into six USGS hydrologic units as follows: HUC 05070201 – Tug Fork; HUC 05070202 – Upper Levisa; HUC 06010101 – North Fork Holston; HUC 06010102 - South and Middle Fork Holston; HUC 06010205 – Upper Clinch; and HUC 01010206 – Powell River. The six hydrologic units are further divided into 48 waterbodies or watersheds.

Basin assessment information is presented in Tables 3.4-6-2, 3.4-6-2, and 3.4-6-3.

TABLE 3.4-6-1 TENNESSEE – BIG SANDY RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY

Total Size Monitored:
Rivers - 1,080.66 miles
Lakes - 3,797.00 acres
Estuaries - 0 sq. miles

Basin Size:
Rivers - 5,919 miles
Lakes - 9,491 acres
Estuaries - 0 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	688.45	225.33	175.13	62.50	1,151.41
	Lakes (acres)	154.00	0	0	3,387.00	3,541.00
	Estuary (sq. mi.)	-	-	-	-	0
Fish Consumption	River (mi)	5,693.87	85.11	57.65	82.64	5,919.27
	Lakes (acres)	637.00	3,207.00	0	0	3,844.00
	Estuary (sq. mi.)	-	-	-	-	0
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	-	-	-	-	0
Swimming	River (mi)	304.87	0	92.29	131.93	529.09
	Lakes (acres)	2,144.00	0	0	0	2,144.00
	Estuary (sq. mi.)	-	-	-	-	0
Public Water Supply	River (mi)	318.26	0	0	0	318.26
	Lakes (acres)	3,243.00	0	0	0	3,243.00
	Estuary (sq. mi.)	-	-	-	-	0

TABLE 3.4-6-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN TENNESSE-BIG SANDY BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	168.07 0 0
Unknown Toxicity	River (mi) Lakes (acres) Estuary (sq. mi.)	1.82 0 0
Pesticides	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
PCB	River (mi) Lakes (acres) Estuary (sq. mi.)	57.65 0 0
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	82.64 0 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	0 314.00 0
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	53.74 0 0
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	0 3,387.00 0
Temperature	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	164.77 0 0
Habitat Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	16.24 0 0
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-6-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VAROUS SOURCE CATEGORIES IN TENNESSE-BIG SANDY BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	82.64 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	10.12 0 0
Hydromodification	River (mi) Lakes (acres) Estuary (sq. mi.)	1.11 0 0
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	121.99 0 0
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 3,387.00 0
Urban Runoff/ Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	82.76 0 0
Resource Extraction	River (mi) Lakes (acres) Estuary (sq. mi.)	67.17 0 0
Land Disposal	River (mi) Lakes (acres) Estuary (sq. mi.)	41.39 0 0
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	97.49 0 0
Habitat Modification	River (mi) Lakes (acres) Estuary (sq. mi.)	17.40 0 0
Point/Source/Nonpoint Source	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (sq. mi.)	94.64 0 0

Chesapeake Bay and Small Coastal Basins

The Chesapeake Bay/Small Coastal Basin is located in the eastern part of Virginia and covers 1,588 square miles or approximately 4 percent of the Commonwealth's total land area. The basin encompasses the small bays, river inlets, islands and shoreline immediately surrounding the Chesapeake Bay and the southern tip of the Delmarva Peninsula. This basin also includes the Chesapeake Bay itself.

The Chesapeake Bay/Coastal Basin is defined by both hydrologic and political boundaries. The basin is bordered by the Potomac River Basin, the Rappahannock River Basin, the York River Basin, the James River Basin and the Chowan River-Dismal Swamp Basin to its west. The Eastern Shore portion is bordered on the east by the Atlantic Ocean, on the north by Maryland, and on the west and south by the Chesapeake Bay.

The topography of the Chesapeake Bay/Coastal Basin varies little. The entire basin lies within the Coastal Plain Physiographic Province where elevations average no more than a few feet above sea level. More significant elevation occurs along the central spine of the Eastern Shore portion, which forms a plateau about 45 feet above sea level. Much of the Chesapeake Bay/Coastal Basin is marshland. About 30 percent of the Chesapeake Bay/Coastal Basin is forested, while nearly 21.6 percent is in cropland and pasture. Approximately 24 percent is considered urban.

The 1994 population for the Chesapeake Bay/Coastal Basin was approximately 385,716. All or portions of the following jurisdictions lie within the basin: counties – Accomack, Northampton, Matthews, Northumberland, Lancaster, Middlesex, Gloucester, York, and Nanesmond; cities – Portsmouth, Norfolk, Chesapeake, Virginia Beach, Hampton, and Newport News.
Tributaries in the Chesapeake Bay/Coastal Basin drain into the Chesapeake Bay or the Atlantic Ocean. Major tributaries flowing into the Chesapeake Bay are the Great Wicomico, Piankatank, Fleets Bay, Mobjack Bay, (East, North, Ware, and Severn Rivers) Poquoson, Back River and Lynnhaven which flow from the mainland. Tributaries in the Eastern Shore portion that drain into the Bay are Pocomoke, Ononcock, Pungateague, Occohannock, and Nassawadox. Machipongo River, Cat Point Creek, Assawoman Creek, Parker Creek, Folly Creek, and Finney Creek drain directly into the Atlantic Ocean.

Citizen-Generated Water Quality Monitoring Data in the Chesapeake Bay and Small Coastal River Basins

The Chesapeake Bay and Small Coastal River Basins has one active citizen monitoring organization whose data were directly used in this report. The citizen-generated data described below are included in Appendix B of this report and the supporting use analysis in this section.

The Alliance for the Chesapeake Bay (ACB) monitors a conventional suite of ambient parameters including dissolved oxygen, temperature, pH, salinity and water clarity in the Chesapeake Bay and Small Coastal River Basins. ACB also monitors selected sites for a suite of parameters (nutrients, water clarity, total suspended solids and chlorophyll *a*) related to submerged aquatic vegetation (SAV). Trained ACB volunteers conducted 3,123 sampling events at 43 stations in this basin during the five-year data window for this report. These stations are designated in Appendix B by "ALL" at the end of the station number.

The Chesapeake Bay/Coastal Basin is divided into seven USGS hydrologic units as follows: HUC 02060009 – Pocomoke River; HUC 02060010 – Chincoteague Bay; HUC 02080101 – Mainstem open bay; HUC 02080102 – Upper Western Shore Tributaries; HUC 02080108 – Lower Western Shore Tributaries; HUC 02080109 – Tributaries on the Eastern Shore which drain to the Chesapeake Bay; and HUC 2080110 – Tributaries on the Eastern Shore which drain to the Atlantic Ocean. The seven hydrologic units are further divided into 31 waterbodies or watersheds.

Basin assessment information is presented in Table 3.4-7-1, 3.4-7-2, and 3.4-7-3.

TABLE 3.4-7-1 CHESAPEAKE BAY-SMALL COASTAL BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Monitored:
Rivers - 103.07 miles
Lakes - 515.00 acres
Estuaries - 1,571.16 sq. miles

Basin Size:
Rivers - 995 miles
Lakes - 3,205 acres
Estuaries - 1,829 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	528.36	0	40.11	24.92	593.39
	Lakes (acres)	1,986.47	394.00	74.00	57.00	2,511.47
	Estuary (sq. mi.)	120.09	527.14	971.99	207.46	1,826.68
Fish Consumption	River (mi)	988.28	7.07	0	0	995.35
	Lakes (acres)	2,501.47	10.00	0	0	2,511.47
	Estuary (sq. mi.)	1,722.6	104.07	0.01	0	1,826.68
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	1,788.02	0.31	35.53	0	1,823.86
Swimming	River (mi)	548.27	0	30.31	3.10	581.68
	Lakes (acres)	2,511.47	0	0	0	2,511.47
	Estuary (sq. mi.)	254.92	0	0.53	0.43	255.88
Public Water Supply	River (mi)	28.00	0	0	0	28.00
	Lakes (acres)	1,568.80	0	0	0	1,568.80
	Estuary (sq. mi.)	0.01	0.01	0	0	0.01

TABLE 3.4-7-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN CHESAPEAKE BAY – SMALL COASTAL BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	16.32 0 380.00
Known Toxicity (Ammonia)	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Pesticides	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Priority Organics	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0.05
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	1.24 0 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	21.61 57.00 0.40
Siltation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	37.14 74.00 761.74
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0.01
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	33.41 0 35.19
EPA Listed Nutrients	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 1,162.20
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-7-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS SOURCE CATEGORIES IN CHESAPEAKE BAY – SMALL COASTAL BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	9.87 0 746.00
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 746.01
Combined Sewer Overflow	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
NonPoint Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 746.00
Sources Outside of State	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 736.00
Urban Runoff/ Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0.88
Leaking Storage Tanks	River (mi) Lakes (acres) Estuary (sq. mi.)	1.61 0 0
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 1.22
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	64.19 74.00 7.44
Habitat Modification (Debris/Bottom Deposits)	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
EPA Overlisting	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 1,162.60
Stratification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 597.88
VDH Shellfish Condemnation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 34.10

York River Basin

The York River Basin lies in the central and eastern section of Virginia and covers 2,662 square miles or 7 percent of the Commonwealth's total area. It is defined by hydrologic boundaries. The basin is bounded by the Rappahannock River Basin to the north and east and the James River Basin to the south and west.

The headwaters of the York River begin in Orange and Louisa counties and flow in a southeasterly direction for approximately 220 miles to its mouth at the Chesapeake Bay. The basin's width varies from five miles at the mouth to 40 miles at its headwaters.

The basin is comprised of the York River and its two major tributaries, the Pamunkey and the Mattaponi. The York River itself is only about 30 miles in length. The Pamunkey River's major tributaries are the North and South Anna Rivers and Little River, while the major Mattaponi tributaries are the Matta, the Po and Ni Rivers.

Lying in the Piedmont and Coastal Plain physiographic provinces, the basin's topography is characterized by slightly rolling hills at the headwaters or extreme western portion, to gently sloping hills and flat farmland near its mouth. Tributaries in the central Piedmont exhibit moderate and near constant profiles. Streams in the Coastal Plain are largely characterized by their flat slope. Approximately 65 percent of the land area is forested. Farmland and pasture accounts for approximately 20 percent of the land area while approximately 10 percent of the river basin land area is urban.

The 1994 population for the York River Basin was approximately 250,332. The majority of the population is rural, evenly distributed throughout the basin. No major cities lie within the basin.
All or portions of the following twelve counties lie within the basin: Caroline, Goochland, Hanover, Louisa, Orange, Spotsylvania, Gloucester, James City, King and Queen, King William, New Kent and York.

Citizen-Generated Water Quality Monitoring Data in the York River Basins

The York River Basin has several active citizen monitoring organizations collecting and analyzing both ambient and benthic macroinvertebrate data. The citizen-generated data described in the following paragraphs are included in Appendix B of this report and the supporting use analysis in this section.

The Alliance for the Chesapeake Bay (ACB) monitors a conventional suite of ambient parameters including dissolved oxygen, temperature, pH, salinity and water clarity in the York River Basin. ACB also monitors selected sites for a suite of parameters (including nutrients, water clarity, total suspended solids and chlorophyll a) related to submerged aquatic vegetation (SAV). Trained ACB volunteers conducted 2,169 sampling events at 28 stations in this basin during the five-year data window for this report. These stations are designated in Appendix B by "ALL" at the end of the station number.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) certified volunteers conducted 4 sampling events for benthic macroinvertebrates at 3 stations in the York River basin during the data window for this report. These stations are designated in Appendix B by "SOS" at the end of the station number.

The Mattaponi and Pamunkey Rivers Association monitored water temperature, pH, total nitrogen, total phosphorus, and total suspended solids throughout the entire York watershed for a two-year study. Trained volunteers conducted 274 sampling events at 33 stations during the study. These stations are designated in Appendix B by "MPRA" at the end of the station number.
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The York River Basin is divided into three USGS hydrologic units as follows: HUC 02080102 – York River Subbasin, HUC 02080105 – Mattaponi River Subbasin; HUC 02080106 and Pamunkey River Subbasin. The three hydrologic units are further divided into 27 waterbodies or watersheds.

Basin assessment information is presented in Table 3.4-8-1, 3.4-8-2, and 3.4-8-3.

TABLE 3.4-8-1 YORK RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Monitored:
Rivers - 488.03 miles
Lakes - 10,000 acres
Estuaries - 77.41 sq. miles

Basin Size:
Rivers - 3,361 miles
Lakes - 14,633 acres
Estuaries - 94 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	286.77	342.96	54.09	64.11	747.93
	Lakes (acres)	3,077.00	1,442.60	0	0	4,519.60
	Estuary (sq. mi.)	0	11.75	52.98	18.52	83.25
Fish Consumption	River (mi)	3,356.02	0	4.72	0	3,360.74
	Lakes (acres)	7,717.60	0	3,160.00	0	10,877.60
	Estuary (sq. mi.)	86.34	6.27	0.26	0	92.87
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	50.24	0.11	11.67	0	91.72
Swimming	River (mi)	358.40	0	100.60	43.57	502.57
	Lakes (acres)	828.60	0	0	0	828.60
	Estuary (sq. mi.)	79.56	0	1.13	0	80.69
Public Water Supply	River (mi)	45.19	0	0	0	45.19
	Lakes (acres)	380.20	250.00	0	0	630.20
	Estuary (sq. mi.)	-	-	-	-	0

TABLE 3.4-8-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN YORK BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 1.50
Priority Organics	River (mi) Lakes (acres) Estuary (sq. mi.)	4.72 0 0
Pesticides	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
PCBs	River (mi) Lakes (acres) Estuary (sq. mi.)	0 3,064.00 0.26
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	72.73 0 1.96
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	4.72 3,160.00 0
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	45.47 0 27.23
Thermal Modification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	144.17 0 12.51
Habitat Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Suspended Solids	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0

TABLE 3.4-8-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS SOURCE CATEGORIES IN YORK BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Combined Sewer Overflow	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Resource Extraction	River (mi) Lakes (acres) Estuary (sq. mi.)	5.49 0 0
Urban Runoff/ Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
EPA Overlisting	River (mi) Lakes (acres) Estuary (sq. mi.)	4.82 0 71.21
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	93.57 0 28.90
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	152.51 3,160.00 28.83
Habitat Modification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
VDH Shellfish Condemnation	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 11.67

New River Basin

The New River Basin is located in southwest Virginia and covers 3,070 square miles or approximately 8 percent of the Commonwealth's total land area. The New River flows from its headwaters in Watauga County, North Carolina in a northeasterly direction to Radford, Virginia, and then in a northwesterly direction to Glen Lyn, where it exits into West Virginia. There it flows to the confluence of the Gauley River forming the Kanawha River, a tributary to the Ohio River.

The New River Basin in Virginia is defined by both hydrologic and political boundaries. It is bordered by the James River Basin and Roanoke River Basin to the east, and the Big Sandy River Basin and Tennessee River Basin to the west. The southern boundary of the Virginia portion is the North Carolina State line and its northwest boundary is the West Virginia State line.

The New River Basin runs 115 miles in length from Blowing Rock, North Carolina to Bluestone Dam near Hinton, West Virginia with a maximum width of 70 miles near Rural Retreat, Virginia. The Virginia portion of the New River Basin is 87 miles in length.

The topography of the New River Basin is generally rugged, with the upper reaches of it tributaries being extremely steep. High mountains, narrow valleys and steep ravines characterize the basin. There are ten tributaries in the Upper New River Basin that have more than 100 square miles of drainage area each and many others with forty or more square miles.

The New River Basin is the least densely populated of the Commonwealth's major river basins. The higher elevations of the basin have steep slopes and are thickly forested, while the mountain bases are mostly used for agriculture. Approximately 59 percent of its land is forested. Cropland and pasture make up another 35 percent, with approximately 3 percent considered urban.

The 1994 population for the New River Basin was approximately 211,673. All or portions of the following 11 counties lie within the basin: Grayson, Carroll, Smyth, Wythe, Pulaski, Floyd, Montgomery, Tazewell, Bland Giles, and Craig and the cities of Galax and Radford.

Citizen-Generated Water Quality Monitoring Data in the New River Basin

The New River Basin has several active citizen monitoring organizations collecting and analyzing both ambient and benthic macroinvertebrate data. The citizen-generated data described in the following paragraphs are included in Appendix B of this report and the supporting use analysis in this section.

The Friends of Claytor Lake conducts a monitoring program in coordination with Ferrum College. This program monitors (during the summer month only) total phosphorus, nitrate, chlorophyll a and secchi depth. Additionally, fecal coliform data is collected at 7 stations. Trained volunteers in this program conducted a total of 708 sampling events at a total of 14 stations during the five-year data window for this report. These stations are designated in Appendix B by "FC" at the end of the station number.

The Izaak Walton League of America Virginia Save Our Streams Program (IWLA VA SOS) coordinates with several affiliate organizations in the New River Basin to monitor benthic macroinvertebrates. Affiliate organizations in this basin include Bluestone Watershed Committee, Virginia Museum of Natural History at Virginia Tech, Virginia Tech Student Chapter of the American Water Resources Association, Virginia Tech Wildlife Society, and Walker Creek Watershed Group. Certified IWLA VA SOS volunteers conducted 107 sampling events for benthic macroinvertebrates at 27 stations in the New River Basin during the data window for this report. "SOS" at the end of the station number designates these stations in Appendix B.

The New River Basin is divided into two USGS hydrologic units as follows: HUC 05050001 – Upper New; and HUC 05050002 – Middle New. The two hydrologic units are further divided into 35 waterbodies or watersheds.

Basin assessment information is presented in Table 3.4-9-1, 3.4-9-2 and 3.4-9-3.

TABLE 3.4-9-1 NEW RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

Total Size Monitored:
Rivers - 716.57 miles
Lakes - 4,875.83 acres
Estuaries – 0 sq. miles

Basin Size:
Rivers - 4,111 miles
Lakes - 5,284.50 acres
Estuaries - 0 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting But Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
Aquatic Life	River (mi)	773.11	292.87	56.65	20.39	1,143.02
	Lakes (acres)	335.00	475.95	0	4,211.88	5,022.83
	Estuary (sq. mi.)	-	-	-	-	0
Fish Consumption	River (mi)	4,037.62	3.71	69.75	0	4,111.08
	Lakes (acres)	789.38	4,139.65	323.24	0	5,252.27
	Estuary (sq. mi.)	-	-	-	-	0
Shellfish Consumption	River (mi)	-	-	-	-	0
	Lakes (acres)	-	-	-	-	0
	Estuary (sq. mi.)	-	-	-	-	0
Swimming	River (mi)	353.18	0	53.39	74.75	481.32
	Lakes (acres)	4,797.89	0	0	0	4,797.89
	Estuary (sq. mi.)	-	-	-	-	0
Public Water Supply	River (mi)	310.82	0	0	0	310.82
	Lakes (acres)	2,141.18	0	0	0	2,141.18
	Estuary (sq. mi.)	-	-	-	-	0

TABLE 3.4-9-2 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS CAUSE CATEGORIES IN NEW BASIN

Cause of Not Meeting designated Use	Type	Total not meeting designated Use
General Standards (Benthics)	River (mi) Lakes (acres) Estuary (sq. mi.)	53.64 0 0
Unknown Toxicity	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Pesticides	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
PCBs	River (mi) Lakes (acres) Estuary (sq. mi.)	69.75 323.24 0
Metals	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
PH	River (mi) Lakes (acres) Estuary (sq. mi.)	0 1,809.38 0
Siltation	River (mi) Lakes (acres) Estuary (sq. mi.)	8.45 0 0
Organic Enrichment/Low D.O.	River (mi) Lakes (acres) Estuary (sq. mi.)	2.84 4,211.88 0
Temperature	River (mi) Lakes (acres) Estuary (sq. mi.)	12.11 0 0
Pathogen Indicators	River (mi) Lakes (acres) Estuary (sq. mi.)	128.14 0 0
Habitat Alterations	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Fish Tissue Exceedence	River (mi) Lakes (acres) Estuary (sq. mi.)	64.82 323.24 0

TABLE 3.4-9-3 SIZE OF WATERS NOT MEETING DESIGNATED USE BY VARIOUS SOURCE CATEGORIES IN NEW BASIN

Source of Not meeting designated use	Type	Total Not meeting designated use
Industrial Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Municipal Point Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	3.99 0 0
Collection System Failure	River (mi) Lakes (acres) Estuary (sq. mi.)	2.84 0 0
Agriculture	River (mi) Lakes (acres) Estuary (sq. mi.)	87.76 0 0
Nonpoint Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
Urban Runoff/ Storm Sewers	River (mi) Lakes (acres) Estuary (sq. mi.)	55.86 0 0
Resource Extraction	River (mi) Lakes (acres) Estuary (sq. mi.)	9.18 0 0
Land Disposal	River (mi) Lakes (acres) Estuary (sq. mi.)	46.45 0 0
Natural Sources	River (mi) Lakes (acres) Estuary (sq. mi.)	47.38 4,211.88 0
Source Unknown	River (mi) Lakes (acres) Estuary (sq. mi.)	16.76 323.24 0
Stratification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 4,211.88 0
Habitat Modification	River (mi) Lakes (acres) Estuary (sq. mi.)	0 0 0
VDH Fish Consumption Advisory	River (mi) Lakes (acres) Estuary (sq. mi.)	65.29 0 0
Collection System Failure	River (mi) Lakes (acres) Estuary (sq. mi.)	2.84 0 0

Chapter 3.5 CHESAPEAKE BAY ASSESSMENT AND PROGRAM INITIATIVES

The Commonwealth of Virginia has 120 miles of Atlantic Ocean coastline and almost 2,500 square miles of estuary. This resource has a prominent place in both Virginia's history and culture. It is valued for its commercial fishing, wildlife, sporting, and recreational opportunities, as well as its commercial values in shipping and industry. In the late 1970's, adverse trends in water quality and living resources were noted and prompted creation of the Federal-Interstate Chesapeake Bay Program (CBP).

Through participation in the CBP and implementation of special state initiatives, Virginia maintains a firm commitment to rehabilitate and wisely manage its estuarine resources. Because nearly all of Virginia's estuarine waters flow into the Chesapeake Bay, the activities of the CBP apply to Virginia's estuaries in general. This chapter provides an overview of the state=s strategies and activities intended to cleanse and preserve the Chesapeake Bay and its tidal tributaries.

Chesapeake Bay Program

In 1983, Virginia, Maryland, Pennsylvania, the District of Columbia, the Environmental Protection Agency, and the Chesapeake Bay Commission formally agreed, by signing a Chesapeake Bay Agreement, to undertake the restoration and protection of the Bay using a cooperative Chesapeake Bay Program approach. This approach established specific mechanisms for its coordination among the Program participants. Recognizing the need for an expanded and refined commitment to the Bay=s restoration, a new Bay Agreement was signed in 1987. The new agreement contained goals and priority commitments in six areas: Living Resources; Water Quality; Population Growth and Development; Public Information, Education, and Participation; Public Access; and Governance.

A key Water Quality goal established by the 1987 Agreement was to reduce, by the year 2000, the annual nutrient load of nitrogen and phosphorus entering the Bay from controllable sources by 40%. The starting point, or "baseline", for this reduction effort was the sum total of 1985 point source loads (discharges from municipal and industrial treatment plants) and non-point source loads (runoff from agricultural, forested and urban areas) in an average rainfall year. Achieving this 40% reduction was expected to improve dissolved oxygen levels and water clarity conditions in the Bay, which in turn would help improve the habitats and health of living resources.

In 1992, the nutrient reduction goal was reevaluated using information from a variety of sources, most notably water quality monitoring and modeling programs. As a result, the Bay Program reaffirmed its commitment to the 40% goal in a set of 1992 Amendments to the Bay Agreement. The Amendments also directed that tributary-specific nutrient reduction strategies be developed to achieve and maintain the goal, as well as to protect and improve aquatic habitats within those rivers.

On June 28, 2000, the Chesapeake Executive Council signed *Chesapeake 2000* – a new and far-reaching agreement that will guide Maryland, Pennsylvania, Virginia, the District of Columbia, the Chesapeake Bay Commission, and the U.S. Environmental Protection Agency (EPA) in their combined efforts to restore and protect the Chesapeake Bay.

Chesapeake 2000 outlines 93 commitments detailing protection and restoration goals critical to the health of the Bay watershed. From pledges to increase riparian forest buffers, preserve additional tracts of land, restore oyster populations and protect wetlands, *Chesapeake 2000* strives toward improving water quality as it is the most critical element in the overall protection and restoration of the Bay and its tributaries. At the same time Bay Program partners were developing the new Bay Agreement, the Chesapeake Bay and many of its tidal tributaries were placed on the “impaired waters” list. This action is normally followed by the development of a “total daily maximum load” (TMDL) through a regulatory process.

Chesapeake 2000 seeks to avoid regulatory approaches by achieving water quality improvements prior to the timeframe when a Baywide TMDL would need to be established. To accomplish this goal, Chesapeake Bay Program partners are developing a new process for setting and achieving nutrients and sediment load reductions necessary to restore Bay water quality. This

process requires Bay Program partners to continue to build on previous nitrogen and phosphorus reduction goals, but instead of measuring improvement against broad percentage reduction goals, they must now establish and meet specific water quality standards. This new process will also incorporate elements traditionally found in the regulatory TMDL process, such as criteria, standards and load allocations, but also would be developed and applied through a cooperative process involving six states, the District of Columbia, local governments and involved citizens. For the first time, Delaware, New York and West Virginia are formally partnering with EPA, the Bay states and the District to improve water quality watershedwide.

In Virginia, the Department of Environmental Quality (DEQ) has primary responsibility for point source discharge issues, bringing together programs in the areas of surface and groundwater protection, waste management, and air pollution control. The Department of Conservation and Recreation (DCR) has the lead for nonpoint source control programs. Other state agencies that provide vital support include: Game and Inland Fisheries, Forestry, Health, Chesapeake Bay Local Assistance, Marine Resources Commission, Agriculture and Consumer Services, along with higher education units Virginia Institute of Marine Science and Old Dominion University.

Virginia's Tributary Strategy Program

Implementing tributary strategies and reducing nutrient and sediment loads to receiving waters are high-priorities for Virginia. Through the tributary strategy program, substantial resources have been dedicated to this effort and significant progress already has been achieved toward the 40% nutrient reduction goal in the Shenandoah and Potomac river basins. Tributary strategies are currently being implemented for Virginia=s Eastern Shore and the James, Rappahannock and York river basins; and similar reductions and water quality benefits are expected in those basins as well.

Tributary strategies are water quality plans that are cooperatively developed with stakeholders in each river basin. Agencies under the Secretary of Natural Resources work closely with local governments, Planning District Commissions, Soil and Water Conservation Districts, sanitation and wastewater authorities, conservation and river-user groups, and others to develop strategies that are practical, equitable, and cost-effective. Reduction goals are established based on the best available scientific information and water quality model results; and management practices are identified which will help achieve those goals. These point source and nonpoint source practices are then eligible for cost-share funding through Virginia=s Water Quality Improvement Fund (WQIF).

Details on the tributary strategy program can be found in the Secretary of Natural Resources report: "2001 Annual Report on Implementation of the Chesapeake Bay Agreement,Status of the Tributary Strategies, and Status of Water Quality for Virginia's Chesapeake Bay and Tributaries". A brief overview is provided in the following sections of this report.

Shenandoah-Potomac Tributary Nutrient Reduction Strategy

In December of 1996, Virginia completed the Shenandoah and Potomac River Basin Tributary Nutrient Reduction Strategy (Strategy). The Strategy was the culmination of three years of cooperative work among several of Virginia=s Natural Resources agencies, local government officials and other interested citizens and stakeholders. The Strategy outlines point and nonpoint source management actions that were needed to achieve the 40% nutrient reduction goal for this river basin by the deadline of December 31, 2000. Implementation rates for these practices have been very high in response to the cost-share program that was established under the Water Quality Improvement Act. As a result, implementation of point source and nonpoint source management practices has taken us a major step closer to meeting the challenging 40% nutrient reduction goal.

Point Source Nutrient Reduction Actions in the Shenandoah/Potomac Basin

Progress continues to be made on point source nutrient reduction projects under the provisions of seventeen signed WQIF grant agreements in the Shenandoah and Potomac River basins. These projects account for approximately $75.54 million in cost-share (50%) for the design and installation of nutrient

reduction systems. To date, over $57 million has been reimbursed to these grantees for work accomplished. Once operational, these systems will remove an estimated 7,407,000 pounds of nitrogen and 241,300 pounds of phosphorus per year.

Nonpoint Source Nutrient Reduction Actions in the Shenandoah/Potomac Basin

Non-point implementation activities identified in the Shenandoah-Potomac tributary strategy were completed in December of 2000. Based on the sign-up through December 2000 for cost-share to install nonpoint source Best Management Practices (BMP's), a 40.9% reduction in annual controllable nitrogen loads and a 40.7% reduction of the controllable phosphorus load were achieved.

The principal nonpoint source components of the strategy included agricultural BMP's and agricultural nutrient management planning. The agricultural BMP's were implimented through Virginia's Cost-Share Program, which is administered locally by Soil and Water Conservation Districts. Nutrient management planning was accomplished through a combined effort of Department of Conservation and Recreation nutrient managent staff, local soil and water conservation district staff and private certified nutrient management planners.

Nutrient and Sediment Reduction Strategies for Virginia=s Lower Chesapeake Bay Tributaries

The reevaluation of the Bay wide nutrient reduction goal, conducted in 1991-92, which lead to the adoption of the 1992 Amendments, yielded an important finding about Virginia's lower Bay tributaries and their impact on the Bay's water quality. It was determined that the nutrient loads from the Potomac River basin and basins to the north have the greatest influence on conditions in the mainstem Bay, whereas the southerly tributaries -- the Rappahannock, York, James and small coastal basins -- contribute little, if any, to the mainstem Bay's water quality problems in terms of excess nutrient impacts.

These southerly Bay tributaries however have water quality problems within them which need to be addressed. Thus the goal setting process, and the final reduction goals for each of the lower tributaries, reflect both the unique water quality and habitat conditions of each tributary, as well as the characteristics of each tributary basin.

Implementation of Virginia=s lower Bay tributary strategies has begun. Point source nutrient reduction projects are proceeding under 8 signed WQIF agreements awarding $23.5 million in cost-share. Once on-line, these systems will remove about 6.29 million pounds of nitrogen and 1,400 pounds of phosphorus annually. It is anticipated that this implementation phase will lead to specific improvements in the water quality problems that have been identified in each tributary.

Mid Atlantic Integrated Assessment (MAIA)

In 1997 and 1998, the U.S. Environmental Protection Agency in partnership with other Federal and state programs conducted research on an integrated monitoring approach for Mid-Atlantic estuaries (http://www.epa.gov/emap/maia/). The geographic area covered included the watersheds of the Delaware Estuary, Chesapeake Bay, Delmarva coastal bays, and Albermarle-Pamlico System. The objectives of this research program were to: (1) characterize the ecological condition of the Mid-Atlantic estuaries using a common set of measurements applied over the entire area, (2) focus research on small estuarine systems to determine better monitoring approaches for these critical systems, and (3) to demonstrate that effective partnerships can be established among Federal and state agencies with estuarine responsibilities in the pursuit of scientific data for resource management purposes. Data from this sampling program were used in this 305b report.

Over 700 sampling sites were visited during the summer of 1997, with the emphasis at the majority of the sites on water and sediment quality. These included sites selected using statistical survey designs (random selection) and fixed station survey designs (targeted selection). Since one of the objectives of the research program was to further investigate small estuarine systems, more emphasis was placed on these systems by spatial intensification of sampling in selected areas. Over 500 sampling sites were selected for

monitoring during the summer of 1998, with fish trawling conducted at over 120 sites. These also include sites selected using statistical survey designs (random selection) and fixed station survey designs (targeted selection).

A unique aspect of this collaborative research program was the sampling for a set of consistent measurements across the Mid-Atlantic estuaries. The list of the parameters collected was developed in conjunction with Federal, state, and county authorities to address critical scientific issues affecting these estuaries. These parameters focus on many aspects of the estuarine biotic community, both plants and animals, as well as provide important information about the exposure to stresses in the estuarine environment. In general, the measurements include data on fish and shellfish, benthic (bottom-dwelling) community structure, water quality, toxic contaminants in bottom sediment, and sediment toxicity.

Toxics, Pollution Prevention, and Businesses for the Bay

The "Toxics 2000 Strategy" of the Chesapeake 2000 Agreement recommits to the 1994 Toxics Strategy goal of a "Chesapeake Bay free of toxics by reducing or eliminating the input of chemical contaminants…." The strategy embraces the concepts of voluntary "pollution prevention", "reduction", and "elimination" as the means to reaching this goal. Furthermore, the strategy relies heavily upon the expected achievements of participants in the voluntary pollution prevention program Businesses for the Bay.

Pollution prevention (or P2) includes a hierarchy of activities and techniques to reduce or eliminate wastes and/or reduce the toxicity of chemicals used at the source of production. P2 was embraced by the Chesapeake Bay's Executive Council because many P2 techniques not only decrease chemical discharges and waste generation, but also result in increased production efficiency and reduced waste disposal costs for businesses. For this reason, business and industry have been the leaders in developing many P2 techniques and are proponents of this voluntary approach to eliminating or reducing the generation of wastes.

Working closely with representatives from business and industry, the EPA's Chesapeake Bay Program and the Pollution Prevention programs of the Bay states helped craft Businesses for the Bay, a voluntary pollution prevention program designed to encourage industry to adopt pollution prevention principles. The Executive Council approved the program in October 1996 and Virginia kicked off its program in January 1997.

Membership in Businesses for the Bay is open to all businesses and other facilities in the Bay watershed, including federal, state, and local government facilities. Each participating facility annually develops its own P2 goals and reports back on its progress of the previous year's efforts. The program also supports a business-to-business mentoring program, and individual "experts" from member facilities have volunteered to provide assistance to others. Members not only benefit from cost savings and increased efficiencies, but also from positive publicity, increased patronage, access to mentoring services, and eligibility for annual awards from the Executive Council.

In 2001, the Executive Council recognized 14 Businesses for the Bay participants for their outstanding achievements; and 7 of them were from Virginia:

- Outstanding Achievement Large Business: Siemens Automotive Corp., Newport News
- Honorable Mention Large Business: Lee's Carpet, Glasgow
- Outstanding Achievement Retail Business: Target Corporation
- Outstanding Achievement Nutrient Reduction: Merck & Company, Inc., Elkton
- Outstanding Achievement Medium Business: Beers/Heyward & Lee Construction Company, Richmond
- Significant Achievement Small Business: Southern States Cooperative, Inc., Chesapeake
- Outstanding Achievement Government Facility: Marine Corps Base Quantico

To date, there are more than 450 participants and 90 mentors in Businesses for the Bay. In 2000, participants reported approximately 23 million pounds of waste reductions, 1.2 billion pounds of recycling,

and nearly $15 million in cost savings due to pollution prevention efforts. Virginia accounts for 230 Businesses for the Bay members and 60 of its mentors. In 2000, Virginia members achieved reductions of 10 million pounds, 114 million pounds of recycled material, 2.1 billion gallons of water use reduction, and more than $2.1 million in cost savings.

As mentioned, the new Toxics 2000 Strategy includes challenging numeric goals for Businesses for the Bay:

- Businesses for the Bay participants will prevent or recycle a total of one billion pounds of hazardous substances between 1999 and 2005.
- By 2005, Businesses for the Bay will have 1,000 participants throughout the watershed; and 50% will be small businesses with fewer than 100 employees.
- By 2005, Businesses for the Bay will have a total of 300 individuals volunteer as mentors to provide P2 assistance; and these mentors will annually conduct 500 interactions with those in need.

The Virginia DEQ's Office of Pollution Prevention actively promotes Businesses for the Bay through a variety of approaches, including newsletter and newspaper features, numerous presentations, directed mailings, and site visits to its member facilities. In support of the efforts of Businesses for the Bay, Virginia has pursued partnerships and reciprocal agreements with other P2 initiatives, such as the Virginia Environmental Excellence Program, the Elizabeth River Project, the Virginia Clean Marinas Program, and the DEQ/Department of Defense P2 Partnership. Virginia DEQ also coordinates Businesses for the Bay mentoring activities through the Virginia Mentoring Network on-line database at www.deq.state.va.us/vmn/vmnindex.htm.

For more information, please access the Businesses for the Bay website at www.chesapeakebay.net/b4bay.htm. You may also contact VA DEQ's Benji Brackman at 804-698-4549 or enbrackman@deq.state.va.us or the Businesses for the Bay Coordinator Marylynn Wilhere at 1-800-YOURBAY or wilhere.marylynn@epa.gov.

Chesapeake Bay Water Quality and Habitat Monitoring Program

Monitoring is vital to understanding environmental problems, developing strategies for managing the Bay's resources, and assessing progress of management practices. The purpose of the Chesapeake Bay Program (CBP) Water Quality and Habitat Monitoring Program is to assess trends in water quality and living resources throughout the Virginia portion of the Bay. The productivity, diversity, and abundance of living resources are the ultimate measures of the Chesapeake Bay's condition. Monitoring these organisms along with standard chemical (e.g. nutrients) and physical indicators of water quality can help determine the conditions that must be established and maintained to ensure the well being of the Bay's resources.

A general description of the monitoring program is:

- Water quality monitoring at 38 stations on the Rappahannock, York and James Rivers;
- Water quality monitoring at 27 stations in the Chesapeake Bay mainstem;
- Water quality monitoring and estimates of nutrient loading at "River input" stations on the James, Appomattox, Mattaponi, Pamunkey, and Rappahannock Rivers;
- Monitoring of phytoplankton and zooplankton communities in the mainstem of the Chesapeake Bay at 7 stations and in the tributaries at 6 stations;
- Monitoring of benthos communities in the Bay and its tributaries at 19 fixed stations and 100 random stations per year.

Chesapeake Bay Environmental Status and Trends Information

This section presents information about key ecological conditions and trends in the tidal portions of the Virginia Chesapeake Bay, and its major tributaries (i.e., Potomac, Rappahannock, James, and York Rivers). The water quality conditions discussed are directly effected by nutrient loading changes and in turn

directly affect living resources of the Bay. These water quality conditions are: nutrient (nitrogen and phosphorus) loads, nutrient concentrations, chlorophyll, water clarity, suspended solids, and dissolved oxygen. Environmental information regarding other important conditions in Chesapeake Bay (e.g., submerged aquatic vegetation, plankton communities, benthos communities, fisheries, toxicants) are not presented here but are available from the Department of Environmental Quality in "Chesapeake Bay and its Tributaries: Results of Monitoring Programs And Status of Resources; 2002 Biennial Report of the Secretary of Natural Resources to The Virginia General Assembly, January 2002".

Table 3.5-1 presents the annual nitrogen and phosphorus loads discharged from point sources within each of Virginia's tributary basins. The table also shows the percent change in loads when compared to the 1985 baseline. Overall, in Virginia's Bay watershed the percent reduction for the annual point source phosphorus load between 1985 and 2000 is 56%, and for nitrogen it is 23%. In comparison to the 1999 loadings, the phosphorus load was slightly higher (182,600 lbs/yr more; only a 3% change), and the nitrogen load was also somewhat higher (288,840 lbs/yr more; just a 1% change). These modest changes are attributable to an increase of about 13.7 million gallons per day of treated discharge from the facilities tracked, as well as the addition of five municipal plants and one industrial discharge to the loading estimate.

Steady progress has been maintained in reducing point source phosphorus loads due to the phosphate detergent ban (1988) and installation of phosphorus control systems at all the major plants discharging to the tidal portions of the Bay tributaries. The nitrogen reduction effort was aided in 2000 with the start-up of biological nutrient removal (BNR) systems at several plants. Using cost-share grants from the Water Quality Improvement Fund (WQIF), the projects that came on-line included the FWSA-Opequon STP, HRRSA-North River STP, and SIL Clean Water MRRS, all in the Potomac basin. Significant additional reductions will occur as the remainder of WQIF projects are completed over this year and into 2002. Future point source reductions in the lower Bay tributaries will result from the addition of nine facilities in the WQIF cost-share program.

Table 3.5 - 1 2000 Virginia Point Source Nutrient Loads, with percent changes from 1985 baseline.

River Basin	Number Of Plants	2000 Phosphorus Load (lbs/yr)	Phosphorus % Change from 1985	2000 Nitrogen Load (lbs/yr)	Nitrogen % Change from 1985
Shen/Potomac	38	521,350	-32%	12,008,360	+11%
Rappahannock	13	53,660	-71%	588,070	+20%
York	8	184,220	-59%	1,220,360	-12%
James	32	1,421,040	-61%	13,614,180	-43%
Coastal	8	143,200	-57%	1,701,260	+31%
Totals	**99**	**2,323,470**	**-56%**	**29,132,230**	**-23%**

Table 3.5-2 presents the total annual phosphorus, nitrogen and sediment load from nonpoint sources in each of Virginia's Bay tributary basins. The table also shows the percent change in loads when compared to the 1985 baseline. The loading estimates are results based on the Year 2000 Progress Run of Phase 4.3 of the Chesapeake Bay Watershed Model. This Progress Run accounts for implementation of all the Best Management Practices (BMPs) that are tracked through the Agricultural BMP Cost-Share Program, known urban stormwater control activities, and estimates of other voluntary, non-cost shared BMPs.

Table 3.5-2 Virginia Nonpoint Source Nutrient Loads – 2000

River Basin	2000 Phosphorus Load (lbs/yr)	Phosphorus % Reduction from 1985	2000 Nitrogen Load (lbs/yr)	Nitrogen % Reduction from 1985	2000 Sediment Load (lbs/yr)	Sediment % Reduction from 1985
Shen/Potomac	1,660,000	10.1%	13,970,000	9.5%	720,000	14.8%
Rappahannock	880,000	18.6%	7,520,000	18.8%	330,000	21.2%
York	660,000	12.5%	6,890,000	12.1%	140,000	12.5%

James	4,500,000	1.1%	22,810,000	2.3%	1,200,000	7.5%
Coastal	200,000	9.7%	2,120,000	2.4%	20,000	0%
Totals	**7,900,000**	**5.8%**	**53,310,000**	**7.2%**	**2,410,000**	**10.5%**

The Chesapeake Bay and its tidal tributaries show many improving environmental trends indicating progress toward restoration to a more balanced and healthy ecosystem as a result of reducing these nutrient loads. However, the Bay system remains degraded and some areas and some indicators show continuing degradation. Findings from the monitoring program are highlighted below and discussed further in the following pages.

- Phosphorus levels in water entering the Bay from the watershed are reflecting both point and nonpoint source nutrient load reductions by showing improving trends in many areas. Within the tidal waters themselves, there are also some improving trends observed and no degrading trends. Unfortunately, several improving trends in the segments of the York and Rappahannock noted in last year's analysis have leveled off such that phosphorus levels are no longer declining in these segments.

- Nitrogen levels are showing very widespread improving trends. Water entering from the watershed has decreasing nitrogen levels in most of the major tributaries. Almost every section of the tidal rivers and the Virginia Chesapeake Bay also show improving conditions.

- Levels of dissolved oxygen are improving in increasingly widespread areas of the tidal rivers. However, conditions for dissolved oxygen still remain only fair in much of the Virginia Chesapeake Bay and a few of the river segments near the Bay. The Corrotoman River is the only area indicating degrading conditions for dissolved oxygen levels.

- Water clarity, a very important environmental parameter, is generally poor and degrading in many areas near and in the Virginia Chesapeake Bay. This is probably related to high and increasing levels of suspended solids. These degrading conditions in the Virginia Chesapeake Bay may be causing degradation of zooplankton populations and are a major impediment to restoration of submerged aquatic vegetation (SAV).

- Chlorophyll levels are moderately high throughout much of the tidal waters. Several new degrading trends are evident in this reporting period and are indicative that nutrient levels, though generally improving, are still detrimentally high.

Phosphorus: Nutrients such as nitrogen and phosphorus influence the growth of phytoplankton in the water column. Elevated concentrations of these nutrients can result in excessive phytoplankton production (i.e., algal growth rate). Decomposition of the excess resulting organic material during the summer can result in low levels of dissolved oxygen in bottom waters. These low oxygen levels (anoxic or hypoxic events) can cause fish kills and drastic declines in benthic communities which are the food base for many fish populations. Anoxic waters also adversely affect fish and crab population levels by limiting the physical area available for these organisms to live in.

Figure 3.5-1 presents the current status and long term trends (1985-2000) in phosphorus concentrations. Areas of the Elizabeth, lower James, and York have the poorest conditions in relation to the rest of the Chesapeake Bay system. Other furthest downriver segments of rivers are fair but the mainstem Virginia Chesapeake Bay and the upper portions of the tidal rivers have relatively good conditions. The Awatershed input@ stations shown in figure 1 provide information about the success of nutrients control efforts in the Bays watershed. Results at these watershed input stations are flow adjusted to remove the effects of riverflow and therefore assess the effect of nutrient management actions such as point source discharge treatment improvements and best management practices to reduce non-point source runoff. The watershed input stations on the largest of VA tributaries (Rappahannock, James) show improving concentration trends (i.e., decreasing concentrations of phosphorus). The James is the only river where actual phosphorus loads (i.e. total pounds of phosphorus entering from the watershed via riverflow) have declined. This is a result of both a declining riverflow volume as well as the declining phosphorus concentration. Riverflow volume has not changed in the other rivers. The improving concentration trends are probably a result of the Phosphate detergent ban as well as best management practices for the control of non-point sediment and nutrient runoff. The watershed input of the Pamunkey indicates a degrading trend; suggesting management efforts to control phosphorus runoff have not been as effective in this basin. The problem is likely a combination of both point and non-point sources because both dissolved orthophosphorus (commonly from point sources) and suspended sediment (commonly from non-point sources) are also degrading at this station.

The terms good, fair, and poor used in conjunction with nitrogen and phosphorus conditions are statistically determined classifications for comparison among areas of similar salinity within the Chesapeake Bay system. Though useful in comparing current conditions among different areas of the Chesapeake Bay system, it must be remembered that these terms (good, fair, poor) are not absolute evaluations but only evaluations relative to other areas of a generally degraded system. Several major scientific studies have shown that the Chesapeake Bay system is currently nutrient enriched and has excessive and detrimental levels of nutrient and sediment pollution. Given this, it is likely that an absolute evaluation in relation to ideal conditions would indicate that most water quality parameters are currently poor throughout the whole Bay system.

The Monitoring Subcommittee of the Federal-Interstate Chesapeake Bay Program continues to develop additional methodologies for water quality status evaluations which in the future will be used in conjunction with, or possibly in replace of, the current methods.

Decreasing phosphorus concentrations in the riverflow entering from the watershed have had widespread positive impacts on phosphorus concentrations in the tidal waters. Trends prior to 1998 indicated concentrations increasing in many areas but analyses in the last several years have found that these degrading trends were reversed and now there are widespread improving conditions for phosphorus. Of concern in this annual report is the fact that previously improving trends in tidal Mattaponi, Pamunkey, and York segments have now leveled off and are no longer present. This is due to increasing trends in dissolved inorganic form of phosphorus throughout these same segments; trends which fortunately are not present in any of the other tributaries. These increasing inorganic phosphorus trends are of concern because they may be the cause of increasing chlorophyll levels found for the first time this year in the Mattaponi, Pamunkey and downstream York segments (see figure 3).

Nitrogen: Figure 3.5-2 presents the status and long term trends (1985-2000) in nitrogen concentrations. As with phosphorus, management actions to reduce nitrogen have been effective as indicated by improving conditions at nearly every watershed input station. The major exception is the Pamunkey, where anthropogenically influenced concentrations of nitrogen are increasing this reporting period for the first time. Also as with phosphorus, the loading of nitrogen has remained unchanged in all rivers except the James, where it has declined. This is a result of both a declining riverflow volume as well as the declining nitrogen concentration. Riverflow volume has not changed in the other rivers. Management actions also have created very widespread improving trends throughout the tidal waters.

Status in the upper Potomac River and parts of the Elizabeth are worse than those found in the major southerly tributaries (Rappahannock, York, and James) or the Virginia Chesapeake Bay. Much of the

Rappahannock, York, and James and Virginia Chesapeake Bay have good status relative to other Bay waters of similar salinity.

Chlorophyll: Chlorophyll *a* is a measure of the level of algal (i.e., phytoplankton) biomass in the water. High chlorophyll *a* or algal levels are an indicator of poor water quality because they can lead to low dissolved oxygen conditions when the planktonic organic material sinks into bottom waters and is decomposed. High algal levels can also be a factor in reduced water clarity and reducing the amount of light that reaches Submerged Aquatic Vegetation (SAV).

Figure 3.5-3 presents the current status and long term trends (1985-2000) in chlorophyll concentrations. Parts of all major tributaries (Potomac, Rappahannock, York, and James) have borderline status in relation to the chlorophyll's contribution to decreased water clarity and its effect on growth of submerged aquatic vegetation. There are widely scattered segments where chlorophyll levels are degrading (i.e. concentrations are increasing) with the only improving trend in the western branch Elizabeth river. The continuing degradation and lack of improving chlorophyll levels despite the many improving nutrient conditions means that nutrient levels are still too high and further reductions will be necessary before chlorophyll levels are improved. Pamunkey, Mattaponi, and York segments have degrading trends for the first time during this annual reporting period. As noted previously, these trends are probably a result of the increasing phosphorus concentrations noted in these same segments.

Dissolved Oxygen: Dissolved oxygen is an important factor affecting the survival, distribution, and productivity of living resources in the aquatic environment. Figure 3.5-4 presents the current status and long term trends (1985-2000) in dissolved oxygen concentrations. Status of each segment is given in relation to dissolved oxygen levels supportive of living resources. About half of the Virginia Chesapeake Bay and smaller portions of the tidal tributaries have only fair status. The lower Potomac, lower Rappahannock, and northernmost Virginia Chesapeake Bay segments are indicated as poor or fair partly because of low dissolved oxygen in the bottom waters of mid-channel trenches. These mid-channel trenches naturally have lower dissolved oxygen levels and the spatial and temporal extent of low levels has been exacerbated by anthropogenic nutrient inputs. It is very encouraging that each of the last several annual reports has found new improving trends. There are now improving conditions in segments of all the major tributaries (Potomac, Rappahannock, James, and Elizabeth). The only degrading trend occurring is in the Corrotoman River.

Figure 3.5-3) Chlorophyll Status and Trends

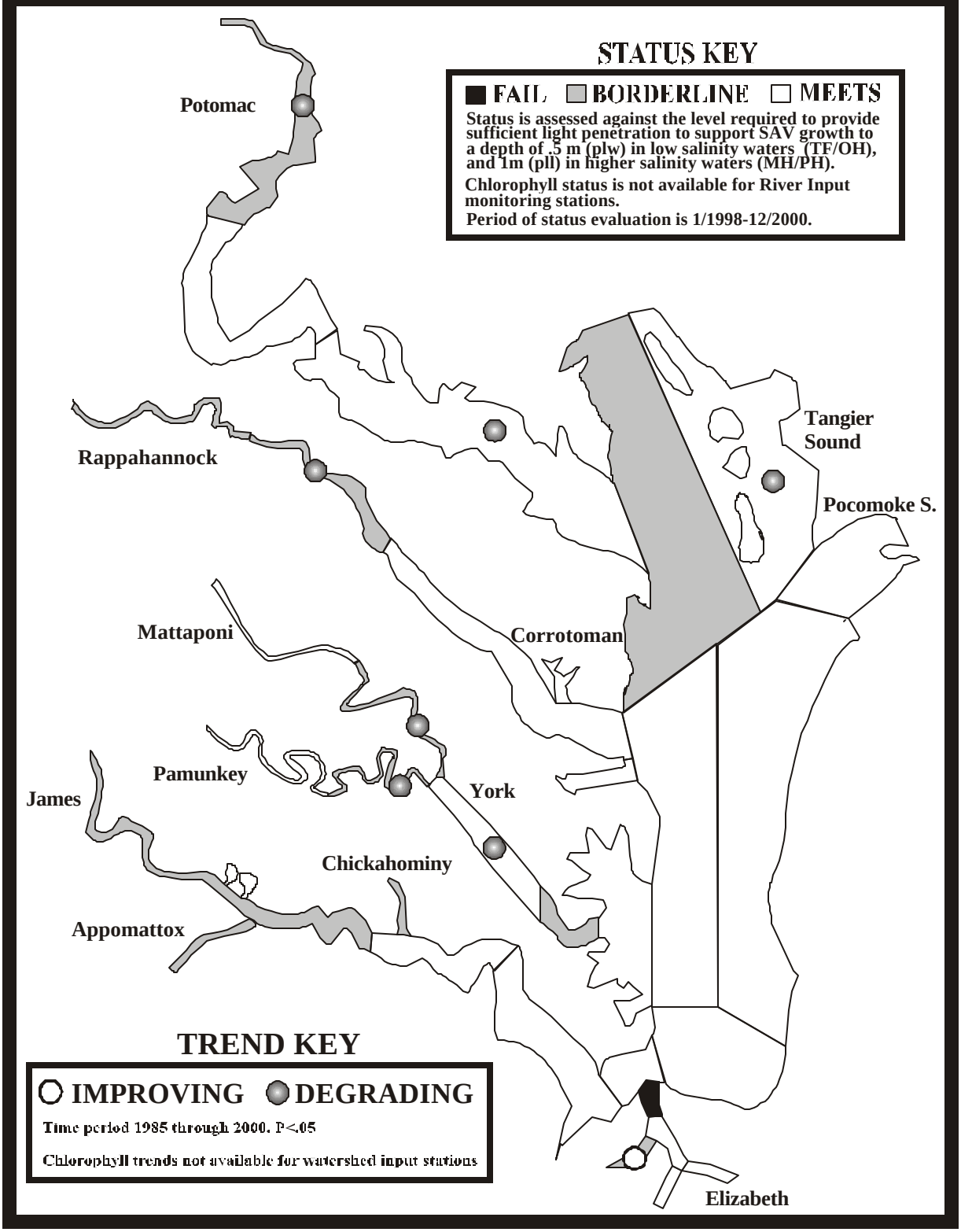
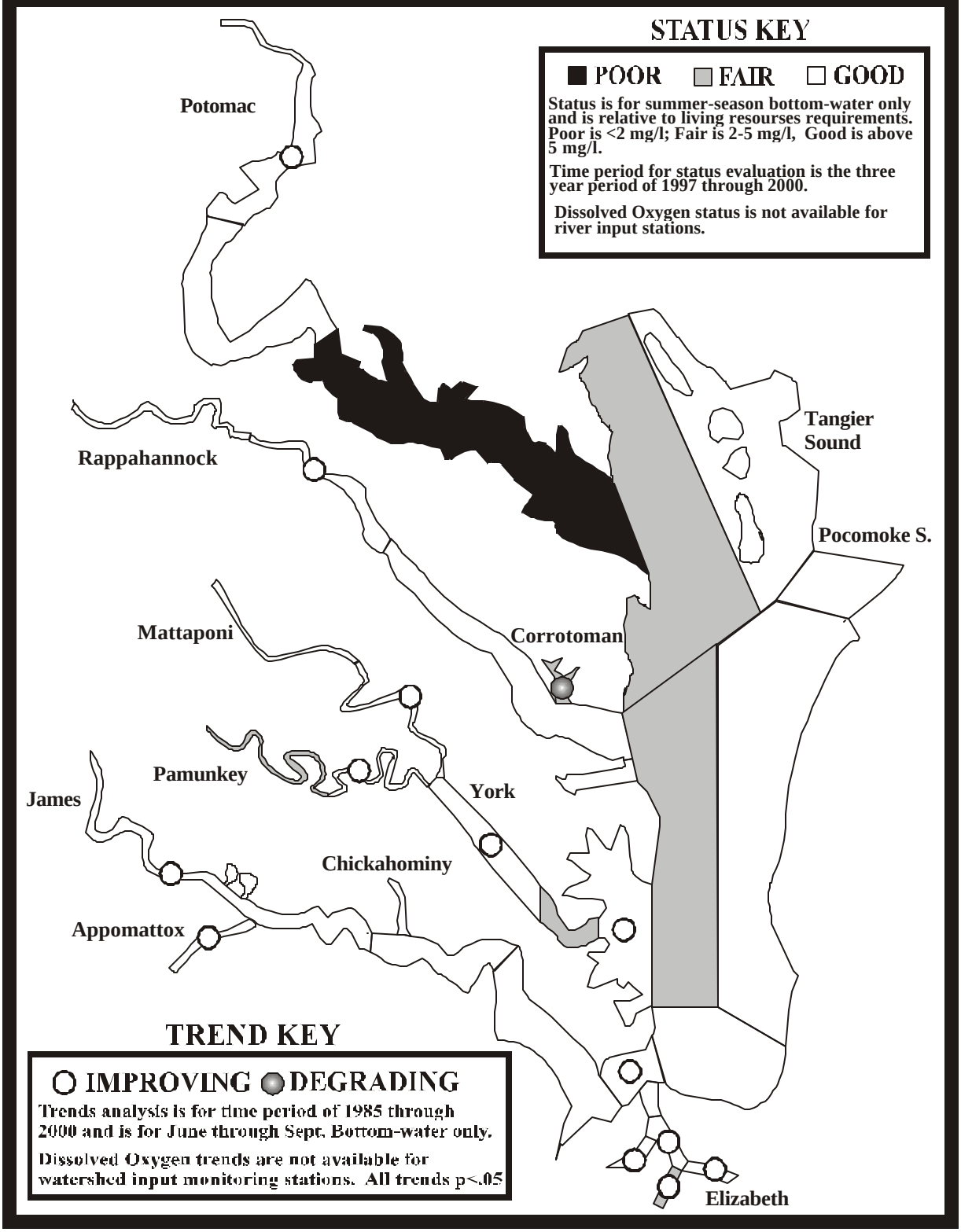


Figure 3.5-4) Dissolved Oxygen Status and Trends



Water Clarity: Water clarity is a measure of the ability of sunlight to penetrate through the water. Poor water clarity is an indication that conditions are inadequate for the growth and maintenance of submerged aquatic vegetation (SAV). Poor water clarity can also affect the health and distributions of fish populations by changing their ability so see prey or avoid predators. The major influences on water clarity are: 1) concentrations of particulate inorganic mineral materials (e.g., sand or clays), 2) concentrations of planktonic algae (i.e., phytoplankton), 3) concentrations of particulate detrital organic material (e.g., very small particles of dead algae or decaying marsh grasses), and 4) dissolved substances which ›color‹ the water (e.g., brown humic acids generated by plant decay). Which of these factors is dominant can vary seasonally and spatially.

Figure 3.5-5 presents the current status and long term trends (1985-2000) in water clarity. Poor water clarity is one of the major environmental indicators of degradation in the Chesapeake Bay system and is a major factor hindering the resurgence of submerged aquatic plant growth because status is only borderline or failing the target in many segments. There are also widespread areas where further degradation of water clarity is occurring, especially in the lower tributaries and Virginia Chesapeake Bay. One of the reasons for these degrading trends is possibly the high level of riverflow in several recent years. Other possible reasons are increased shoreline erosion as a result of waterside development or even some combination of sea level rise and land subsistence.

Suspended Solids: Suspended solids are a measure of the small particulates in the water, a combination of items 1-3 listed in the above discussion of water clarity. Suspended solids directly affect water clarity for submerged aquatic vegetation and are most often the major controlling factor. Elevated suspended solids can also be detrimental to the survival of oysters and other aquatic animals. Oysters can be smothered by deposition of the material and the feeding of filter feeding fish (e.g., menhaden) can be negatively effected. In addition, since suspended solids can contain organic and mineral components containing nitrogen and phosphorus, increases in suspended solids can result in an increase of nutrients.

Figure 3.5-6 presents the current status and long term trends (1985-2000) in suspended solids concentration. Parts of all major tributaries (Potomac, Rappahannock, York, James, and Elizabeth) have segments that fail or are borderline in relation to targets to support growth of submerged aquatic vegetation. The improving trends in flow adjusted concentration at the Watershed input stations of the Potomac and Rappahannock are encouraging signs that management actions to reduce NPS sediment runoff may be having some success. However, there are several degrading trends in the tributaries and some of the Virginia Chesapeake Bay mainstem. As with water clarity, reason for these degrading trends are possibly high levels of riverflow, or tidal shoreline erosion. A previously degrading trend in Tangier sound is no longer present in this reporting period. This is very encouraging because this area has major beds of submerged aquatic vegetation that are very important refuge and habitat for many aquatic animals.

Figure 3.5-5) Water Clarity Status and Trends

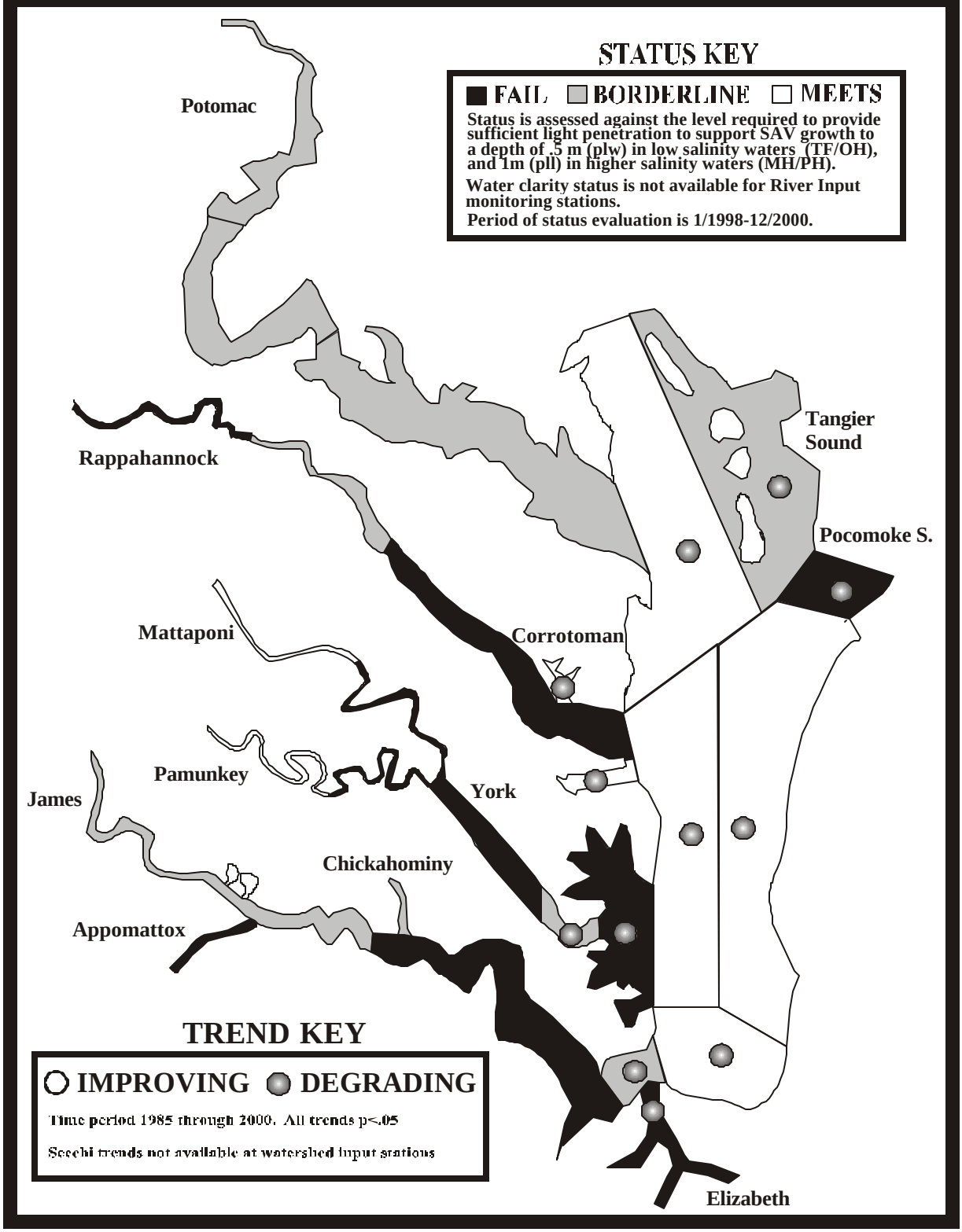
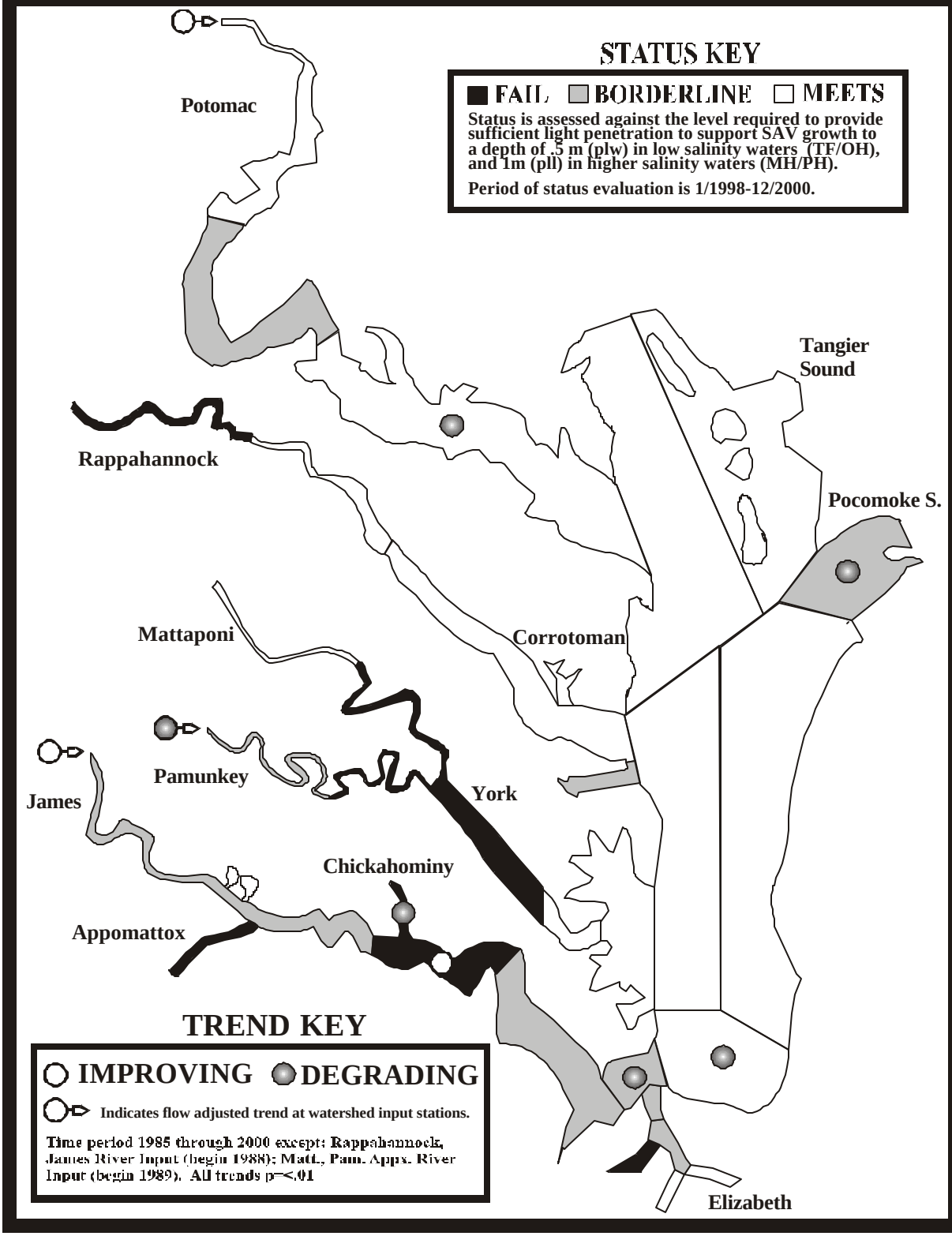


Figure 3.5-6) Suspended Solids Status and Trends



In 1999, the Chesapeake Bay Program's Toxics Subcommittee completed a toxics characterization (see Figure 3.5-7 and Table 3.5-3) of the tidal tributaries of the Chesapeake Bay, which includes all of Virginia's tidal tributaries (*U.S. EPA, 1999. Targeting Toxics: A Characterization Report. A Tool for Directing Management and Monitoring Actions in the Chesapeake Bay's Tidal Rivers. Chesapeake Bay Program, U.S. EPA 903-R-99-010, 1999, 49 pp. and appendices*). The characterization served a dual purpose for the Chesapeake Bay Program and its partners: 1) it was utilized as a guide in the development of the Toxics 2000 Strategy, and 2) it continues to provide the basis to direct management actions, such as toxics monitoring. The characterization process directed the placement of each pre-defined regional area into one of four categories based on chemical contaminant exposure and biological affects. Two contrasting areas include Regions of Concern (e.g., Elizabeth River) which are highly impacted areas and Areas of Low Probability for Adverse Effects which are regional areas that are not impacted by chemical contaminants. Areas of Emphasis have the potential for serious chemical contaminant-related impacts and a fourth category included Areas of Insufficient or Inconclusive Data, where the data were insufficient to place the area into one of the three categories above.

Table 3.5-3) 1999 Chemical Contaminant Characterization Results

VIRGINIA TIDAL TRIBUTARIES	TOXICS CHARACTERIZATION RESULTS
James River	Tidal Upper Segment: Area of Insufficient Data Tidal Middle Segment: Area of Insufficient Data Tidal Lower segment: Area of Emphasis
York River	Tidal Pamunkey: Area of Insufficient Data Tidal Mattaponi: Area of Insufficient Data Upper Middle York: Area of Insufficient Data Lower Middle York: Area of Low Probability for Adverse Effects Upper Mobjack Bay: Area of Low Probability for Adverse Effects Lower Mobjack Bay: Area of Insufficient Data
Rappahannock River	Tidal Upper: Area of Low Probability for Adverse Effects Tidal Middle: Area of Insufficient Data Tidal Lower: Area of Low Probability for Adverse Effects
Potomac River (western shore)	Tidal Upper: Area of Emphasis Tidal Middle: Area of Emphasis Tidal Lower: of Low Probability for Adverse Effects

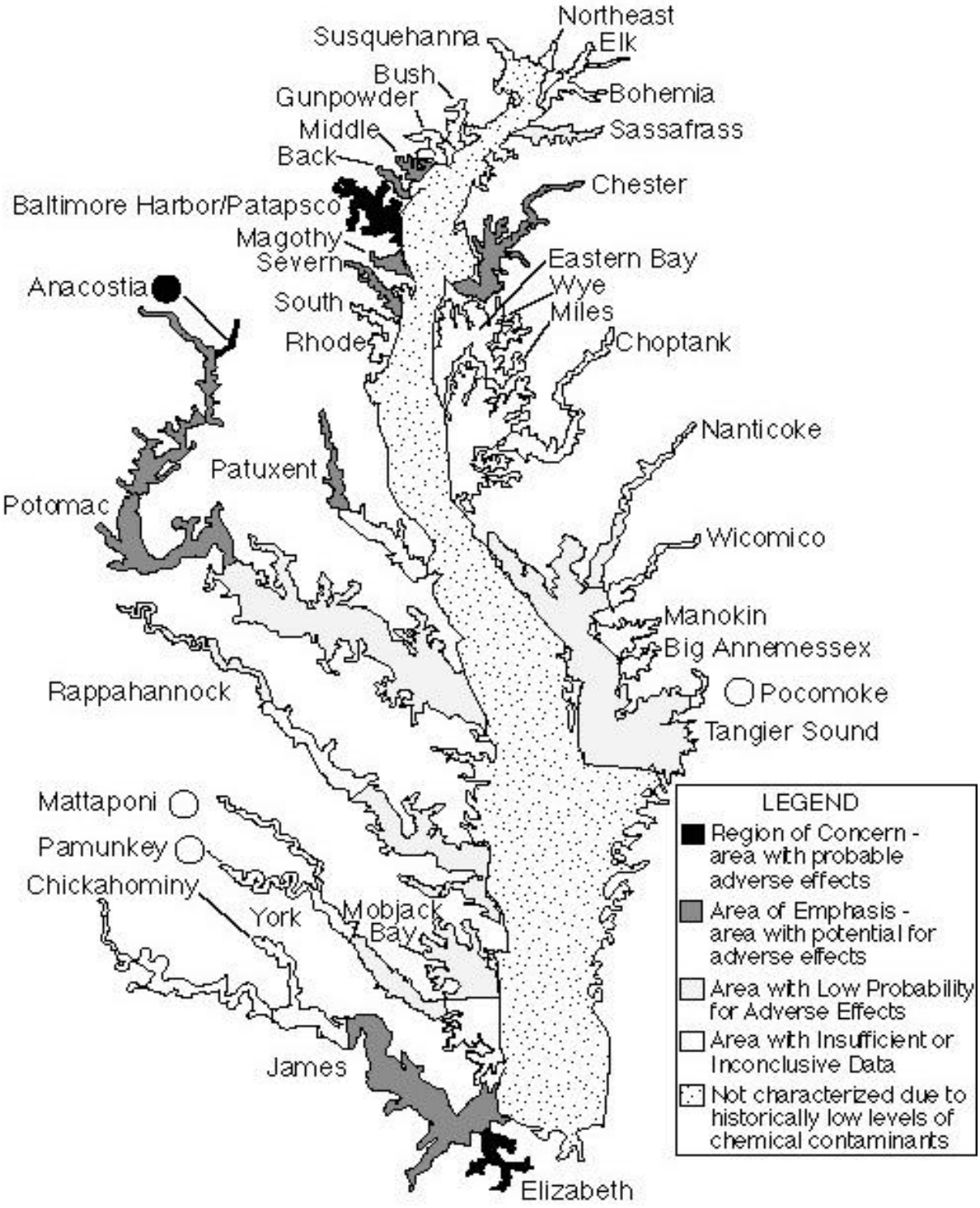
Source: Targeting Toxics: A Characterization Report, A Tool for Directing Management and Monitoring Actions in the Chesapeake Bays Tidal Rivers EPA 903-R-99-010, CBP/TRS 222/106, June 1999

Recent Chemical Contaminant Monitoring in Areas of Insufficient Data not reported in 1999 are:

- Upper and Middle Tidal James River – Even though chemical contaminant data were available for the 1999 toxics characterization, biological "effects" data were lacking which precluded a full characterization. To fill in the data gaps for a definitive characterization, the EPA Chesapeake Bay Program along with DEQ, funded biological and chemical contaminant monitoring in these James River segments in late summer/early fall of 2000.

  DEQ in a partnership with the Virginia Institute of Marine Science (VIMS) performed full chemical contaminant analyses of the water column and sediment along with ambient toxicity tests, in-situ assays and benthic community assessments. Twenty (20) stations were randomly located in this freshwater tidal area from Jamestown Island to the Benjamin Harrison Bridge near Hopewell. The water column and sediment results suggest there may be low incidence of biological effects from chemical contaminants in this stretch of the James River. The observance of low chemical contaminant levels and the lack of toxicological impacts supported this conclusion. While this study was designed to make statements about the entire segment, conclusions from this study cannot rule out the possibility for locally impacted areas.

Figure 3.5-7) Status of Chemical Contaminant Effects on Living Resources in the Chesapeake Bay's Tidal Rivers



Another Chesapeake Bay Program sponsored study performed a sediment quality triad (chemical, toxicity tests, benthos) survey at five (5) stations in the middle tidal segment of the James River near the confluence of the Chickahominy. The authors suggested this segment could be characterized as an Area of Low Probability for Adverse Effects due to chemical contaminants River (*McGee, B. L., D.J. Fisher, J. Ashley, D. Velinsky. 2001. Using the Sediment Quality Triad to Characterize Toxic Conditions in the Chesapeake Bay (1999): An Assessment of the Tidal River Segments in the Bohemia, Magothy, Patuxent, Potomac, James, and York Rivers. U.S. EPA 903-R-01-008. Chesapeake Bay Program Office, Annapolis, MD, 2001, 35 pp. and appendices*).

In a continuation of the VIMS/DEQ partnership during the fall of 2001, a sediment quality triad study was performed on the James River between Hopewell and Richmond. This area was targeted as computer generated random stations did not fall in this stretch of river during the 2000 study and was perceived as a significant data gap. A total of nine (9) stations have been included in this study, with the placement of eight (8) in the James River and one (1) in the Appomatox River. The completion of this study along with the two aforementioned efforts will provide adequate information to the Chesapeake Bay Program such that full characterization can be made in the James River, ranging from Jamestown Island to Richmond.

- Tidal Mattaponi and Pamunkey Rivers - These segments were also characterized as Areas of Insufficient or Inconclusive Data in the 1999 Chesapeake Bay Program report. Similar to the tidal James River, the EPA Chesapeake Bay Program also provided funds to monitor these river segments for toxics contaminants *(Characterization of Toxicity of Chemical Contaminants in Tidal Freshwater Reaches in Chesapeake Bay Tributaries. Maryland Department of Natural Resources, Annapolis, MD ,Proposa*). The assessment included a full chemical and biological assessment such that a full characterization can be made. Results have not yet been made available.

- Upper Middle York River – As part of the McGee et al. study mentioned, a sediment quality triad (chemical, toxicity tests, benthos) survey was performed at five (5) stations in the Upper Tidal York River. The conclusion from this study suggests this segment could be characterized as an Area of Low Probability for Adverse Effects due to chemical contaminants, with the caveat there may be localized impacts.

- Tidal Middle Rappahannock River – A toxics assessment on the Middle segment of the tidal Rappahannock River was conducted during the fall of *1998 (Hall L.W. et al., Ambient Toxicity Testing in Chesapeake Bay – Year 9 Report. Draft, U.S. EPA, Chesapeake Bay Program Office, Annapolis, MD, 2000, 88 pp. and appendices*). This study targeted ten (10) stations with an approach that included water column and sediment toxicity tests, chemical analyses of both media, all in conjunction with fish and benthic community assessments. The results in this segment were mixed. While half the stations showed no impacts due to chemical contaminants, potential problems were observed at the remaining stations. Water Quality Criteria exceedences for metals occurred at two stations. In addition, there was evidence of varying degrees of ambient toxicity and benthic impairment although it was difficult to correlate the observed effects with chemical contaminants. Follow-up study is recommended to confirm the results at selected stations.

The Elizabeth River

The Elizabeth River, a sub-estuary of the James River, is the major deep-water port of the Hampton Roads Harbor. The river system drains over 300 square miles in southeastern Virginia within the cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach. The Elizabeth River serves as the focal point for military activities, industry, and commerce in the Hampton Roads area. The watershed is among the most heavily urbanized and industrialized areas in the state.

In 1993, the Chesapeake Bay Program identified the Elizabeth River system as a Region of Concern as it is one of the most highly polluted bodies of water in the entire Bay watershed. In March 1995, the Commonwealth of Virginia entered into an agreement with the Elizabeth River Project (ERP), a private nonprofit organization, to recommend actions toward an Elizabeth River Regional Action Plan for Toxics Reduction. ERP, a Norfolk-based partnership of citizens, industry, governments, military, and recreational interests, had independently formed to develop an integrated watershed action plan for management of ecological and human health risk.

Water quality monitoring for toxic pollutants and their effects has continued on the Elizabeth River. Past results from FY98-00 have been included in the report entitled "Summary of Key Findings for the State of the River 2000, November 1999 Elizabeth River Project." More recent monitoring that was not available for inclusion in the State of the River 2000 report is as follows:

- Benthic Index of Biotic Integrity (B-IBI) – A study of macrobenthic community health was initiated during the summer of 1999 in the Elizabeth River watershed. The results from the probability based sampling design (i.e., random) estimated the area of bottom communities not meeting the Chesapeake Bay Restoration Goal Index at 72% in 2000 compared to 64.3% in 1999. The observed impact is likely due to sediment chemical contaminants.

- Clean Dissolved Metals – Over the past few years clean metals data have been collected at 14 stations in the Elizabeth River. While several metals have been detected, only dissolved copper has been found at concentrations near or above the respective water quality criterion.

- Fish Histopathology – Recent studies indicate that a small, abundant and non-migratory fish known as a mummichog is an excellent indicator of adverse health effects attributable to chemical contaminant exposure. An examination of internal organs shows that numerous types of lesions, including cancer, can be observed with a prevalence of lesions directly correlated with the presence of chemical contaminants in the environment. The results of monitoring performed on the Elizabeth River has shown a prevalence of lesions ranging from a low of 1.7% from fish collected in the Lafayette River and Western Branch to a high of 85% of the fish collected in the Southern Branch.

- TBT Monitoring – Tributyltin (TBT) data have been collected at 18 stations in the Elizabeth River, Hampton Roads and the lower James River six times a year since 1999. Ambient values typically range from one to ten times the chronic water quality criterion in the Elizabeth River.

In addition to the above, ambient water has been assessed for toxicity and low level concentrations of chemical contaminants. During July 2000, 4 stations were evaluated for their chronic toxicity potential to 4 different test species (2 fish spp. and 2 invertebrate spp.). The tests also served as a species sensitivity evaluation. The data generated from this evaluation suggested ambient toxicity should not exist in the Elizabeth River unless it is related to runoff from a storm event, a spill, or perhaps within a mixing zone. Therefore, ambient water toxicity testing is not presently used for monitoring purposes. To determine if low levels of organic chemicals were present in the water column, virtual fish otherwise known as Semi-Permeable Membrane Devices (SPMDs), were deployed in the water column at several locations. Even though organic compounds may be at low levels in the water column, they can adversely affect the overall health of the biota within the system. The SPMDs concentrate pollutants over time, which is an advantage over current analytical methods since they cannot detect or quantify chemicals in the water at these low levels. The results from the SPMDs confirmed the presence of several classes of compounds in the water column, including polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and organochlorine pesticides (OCPs).

Chapter 3.6 NONPOINT SOURCE ASSESSMENT (notice)

A draft nonpoint source (NPS) assessment follows in this chapter that uses impaired waters information from the 1998 303(d) Impaired Waters List. A draft of the 2002 303(d) List was completed in July 2002 and a copy of those results has been provided to the Department of Conservation and Recreation (DCR) for additional assessment consideration for the 2002 NPS assessment.

This new information is likely to result in changes to the 2002 NPS. It is the intent of DEQ and DCR to have all information finalized by the final release to the public and submittal of the report to EPA, which is scheduled for October 1, 2002.

Chapter 4.1 GROUND WATER PROTECTION PROGRAMS

Ground water programs in Virginia strive to maintain existing high water quality through adopted statutes, regulations, and policies. Advancing ground water protection efforts is the goal of many state programs in numerous state agencies. In late 1986 an interagency committee was formed to stimulate, strengthen, and coordinate ground water protection activities in Virginia. The Ground Water Protection Steering Committee (GWPSC) continues to meet bi-monthly with representation from the following agencies:

Department of Environmental Quality (DEQ)
Department of Health (VDH)
Chesapeake Bay Local Assistance Department (CBLAD)
Department of Mines, Minerals, and Energy (DMME)
Virginia Polytechnic and State University (VPI&SU)
Department of Housing and Community Development (VDH&CD)
Department of Agriculture and Consumer Services (VDACS)
Department of Conservation and Recreation (DCR)
Department of General Services, Division of Consolidated Laboratories (DCLS)
Department of Business Assistance (DBA)
US Geologic Survey (USGS)

The following paragraphs briefly describe ground water protection activities at member agencies. Information provided in Tables 4.1-1, 4.1-2, 4.1-3 and 4.1-4 is presented for the Commonwealth as a whole. System upgrades at the VDH prevented manipulation of listed parameters and detections/volations for public water supply data. In addition, budgetary constraints within the Commonwealth prevent coordinated data collection activities designed to characterize ambient ground water quality and changes to that quality over time on a statistically valid statewide basis.

Source Water and Wellhead Protection Efforts

VDH established several committees in 1998 to develop Virginia=s Source Water Assessment Program. VDH is working with the USGS and the Virginia Rural Water Association to ensure successful program implementation. VDH, through a Drinking Water State Revolving Loan Fund Set-Aside, contracted with the Virginia Rural Water Association to contact waterworks to educate them on the importance of source water protection and to assist them in understanding and developing a source water protection plan. Seventy-five waterworks were visited.

Building grassroots support for ground water and wellhead protection continue to be priorities of the GWPSC. Accomplishments during this reporting period include the voluntary completion of Biennial Wellhead Protection Reports, assisting Virginia Rural Water Association with outreach and education, and development and distribution of another wellhead protection publication entitled *Implementing Wellhead Protection: Model Components for Local Governments in Virginia*. Future efforts will include cooperating with the Virginia Department of Health on source water protection issues. Funding for GWPSC activities, including wellhead protection, is provided through DEQ's Federal Ground Water Protection Grant.

Table 4.1-1 Public Water Supply Systems and Population Served from Virginia=s 1997 Biennial Wellhead Protection Report

Total Number of Public Water Supply (PWS) systems	3,722
Total Number of GW-Dependent PWS Systems	3,387
Total Number of Community Water Supply Systems	1,333
Total Number of GW-Dependent Community Water Supply Systems	1,018
Total Population Relying on Community Water Supply Systems	6,574,305

Total Population Relying on GW-Dependent Community Water Supply Systems	452,571
Total Number of GW-Dependent Non-Transient Non-Community PWS Systems	579
Total Number of GW-Dependent Transient Non-Community PWS Systems	1,790

Ground Water Management Act of 1992

The 1992 session of the Virginia General Assembly adopted the Act and repealed the Ground Water Act of 1973. The Act establishes criteria for the creation of ground water management areas and requires person who withdraw more than 300,000 gallons of ground water per month to obtain permits. The Act requires that previously exempted agricultural ground water withdrawals obtain ground water withdrawal permits. The DEQ adopted regulations to implement the Act effective January 1, 1999. This regulation includes specific requirements for agricultural round water withdrawal permits and requires DEQ to perform technical evaluations of proposed withdrawals.

Storage Tank Compliance Program

The Registration Program tracks ownership and technical information for 14,500 owners of 86,500 USTs and ASTs at 28,000 facilities in the Commonwealth. Each year the Program receives over 2,000 registrations that report new tanks, tank closures, and amendments to existing tank information, such as changes of ownership. DEQ and the public use registration information to determine the identity of persons responsible for pollution prevention measures and cleanup of releases.

The AST Compliance Program regulates AST facilities of 25,000 gallons or greater that store oil. Nearly 1.5 billion gallons of oil are stored in the 2,800 regulated AST facilities across the Commonwealth. Through facility inspections, the Program seeks to ensure that Virginia's AST facilities have measures in place to prevent releases and to respond quickly and effectively when releases occur. Inspectors are able to inspect each AST facility once every five years.

The UST Compliance Program regulates USTs larger than 110 gallons that contain regulated substances, which include most petroleum products. Nearly 350 million gallons of regulated substances are stored in the 33,000 active USTs across the Commonwealth. Through tank inspections, the Program seeks to ensure that USTs in the Commonwealth have measures in place to prevent releases and to have immediate notice of actual releases. Inspectors are able to inspect each UST facility once every 5 years.

Storage Tank Remediation Program

The Remediation Program directs the investigation and cleanup of the petroleum contaminated sites managed by responsible persons. The DEQ ensures that appropriate emergency response, initial abatement measures, site investigation and site remediation are performed by the responsible person. The DEQ also authorizes activities eligible for reimbursement from the Virginia Petroleum Storage Tank Fund.

The DEQ will itself conduct investigation and cleanup of high-priority petroleum contaminated sites in instances where the responsible person is unknown or financially unable to undertake the required work. Through a number of contractors, the DEQ conducts emergency response, initial abatement measures, site investigation and site remediation.

The DEQ also provides immediate, interim, and permanent relief to individuals whose drinking water wells have been rendered unusable by petroleum contamination. Through a DEQ contractor, carbon filtration units (CFUs) are installed and maintained on contaminated wells until a permanent solution is implemented. Permanent solutions typically include extension of an existing public water supply or installation of a new well free from petroleum contamination.

In the past four years more than 5,000 cleanups have been completed. Significant streamlining has been achieved as the program has gained experience in risk-based decision making and made reductions in

administrative burden. Average cleanup time and average cleanup costs per site are among the lowest in the nation.

Waste Permitting Activities

The Resource Conservation and Recovery Act (RCRA) Base Program addresses groundwater quality issues at both permitted and unpermitted land-based units. Information provided in Table 4.1-4 RCRA Corrective Action category is for non-Hazardous and Solid Waste Amendment (HWSA) sites and is divided into two sectors. The term "sites" refers to facilities; most facilities have more than one regulated unit. There are a total of 47 units among the 36 facilities. The "Base Program Correction Action" sites or "Little C" sites are permitted regulated units required to perform corrective action (RUCA) if the ground water concentrations exceed established Ground Water Protection Standards. The second sector is "Unpermitted Land Disposal Facilities (LDF)" where continued operation of the facility is contingent upon removal or decontamination of contaminated media. In instances where the LDF is closed, groundwater monitoring is required to demonstrate that closure performance standards are met. When standards are not met, the site is issued a Post Closure Permit and corrective action is undertaken.

Federal Facilities and Superfund Program

Included in Table 4.1-4 are ground water contamination statistics from the DEQ's Federal Facilities Restoration and Superfund Office. The Federal Facilities Restoration activities include Department of Defense (DOD) installations (Army, Navy, Air Force, Defense Logistics Agency, and Formerly Used Defense Sites) and two NASA installations for a total of 42 installations. Currently 13 Federal Facilities are listed on the National Priority List (NPL) and there are 29 non-NPL sites. Base Realignment and Closure is occurring at seven facilities. Federal funding from the Department of Defense supports the Federal Facilities Restoration program. The Superfund Program, funded with both Federal and State dollars, carries out activities required by law or legal agreements at 21 NPL sites. Three of these sites have now been cleaned up and delisted. Additional activities within this Office include DEQ's Voluntary Remediation Program (VRP) and the Brownfields Program. The Voluntary Remediation Program provides a mechanism for eligible participants to voluntarily clean up properties not mandated for remediation under existing environmental laws. This program serves as a mechanism for cleanup of Brownfields sites. There are currently 135 VRP sites that are either potential candidates for clean up, formally in the program or have been cleaned up under the program. EPA funding supports the Voluntary Remediation Program. The DEQ's Brownfields Program, funded through EPA, is currently under development. None of these four programs currently collect ground water quality data; they do receive and review data collected by outside sources.

Pesticide Disposal Program

The VDACS, in cooperation with the Virginia Pesticide Control Board, has conducted a highly popular Pesticide Disposal Program since 1990. As of December 31, 2000 more than 409.1 tons of unwanted pesticides have been collected from 1,875 agricultural producers, pesticide dealers and commercial pest control firms. This program served all of Virginia’s counties and independent cities by the end of 1998. A new maintenance phase, in which the State was subdivided into four regions, was initiated in 1999 and would be completed by the Fall, 2002. The pesticide disposal program has benefited from a high level of interagency cooperation among the VDACS, DEQ, DCR, DCLS, and Virginia Cooperative Extension. Funding to support this program has been pooled from Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and Clean Water Act (Sections 319 Non Point Source and 106 Ground Water Protection) grants and the Office of Pesticide Services program fees.

Pesticides and Ground Water Management Plan

In response to the EPA Pesticides and Ground Water Strategy, the VDACS submitted a Generic State Management Plan (GSMP) for pesticides and ground water to EPA Region III in 1993 and received EPA concurrence in 1995. The GSMP established a graduated response plan for pesticides detected in ground water, a process for developing pesticide specific management plans (PSMP) should such be required by anticipated federal rule making and a graduated response approach for managing pesticides identified as potential threats to ground water. In 1999, VDACS provided revised cost estimates for

implementing specific pesticides in ground water management plans in the Commonwealth to the US EPA.

Pesticides in Ground Water Monitoring Project

In preparation for implementation of PSMPs, the VDACS completed a “pilot” monitoring project in March 1996. A total of 49 shallow bored wells were sampled in eight localities. Samples were analyzed for alachlor, atrazine, cyanazine, metolachlor, simazine and nitrates. At least one pesticide was detected in nine of the wells. One well exceeded the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act for alachlor (2 ppb) with a detection of 9 ppb. Thirty-four wells had detectable levels of nitrate. Seven wells exceeded the MCL established under the Safe Drinking Water Act of 10 ppm. The highest level of nitrate was 17.2 ppm.

Studies on the Impact of Pesticide Inputs on Plasticulture Operations

In response to allegations that pesticide contaminates in runoff from agricultural fields under plasticulture were causing increased mortality of larval clams grown in aquaculture, the Pesticide Control Board solicited research proposals in 1997 for studies that would: (1) evaluate the fate and transport of pesticides applied to agricultural crops grown under plasticulture and (2) evaluate best management practices that might reduce the impact of pesticide runoff from agricultural fields under plasticulture.

The Pesticide Control Board funded three research projects:

- a laboratory study to evaluate the fate and transport of copper-based pesticides in an estuarine environment using greenhouse-scale marine ecosystem simulators;
- a small field plot study that focused on alternatives that might allow for a reduction in the amount of the traditional pesticide used for the control of fungal and bacterial diseases; and
- a large-scale ecosystem study to assess the acute and chronic impacts on living resources in tidal creeks downstream of plasticulture and evaluate the transport of crop protectants off of selected fields.

All of the research projects were completed by mid-2001. The results indicate that the traditional chlorothalonil and copper-based crop protectants had the potential to cause acute mortality among clams and other estuarine fauna. However, there was no evidence that the presence of plasticulture in the watershed produced long-term, chronic or community-level impacts on estuarine fauna. It was also determined that the traditional crop protectants could be significantly reduced or eliminated through the use of newer, safer crop protectants such as Actigard and Quadris and the use of Tomcast, a disease forecasting program.

Cat Point Creek Watershed-Shallow Ground Water Monitoring

The DCR, in cooperation with the Tidewater Resource Conservation and Development Council, initiated a ground water monitoring study in the Cat Point Creek watershed in December 1995. Land use in the watershed is dominated by “rowcrop” agriculture, grasslands, and forestry. The purpose of this ground water study was to begin a multiple-year process to evaluate the effectiveness of integrated crop management (ICM) in reducing the loading of nitrate and pesticides to the shallow water-table aquifer. ICM incorporates nutrient management and pest management into one plan to be followed by producers. In this study, two producers implemented ICM at three different study sites (sites 1-3) beginning in the spring of 1996. A well cluster, consisting of three wells per cluster, was established in each of the ICM fields and in the control fields. Ground water samples for nutrients were collected twice a month between February and July and on a monthly basis for all other months. Pesticide samples were collected in May and November of 1996. Atrazine was the only pesticide detected in ground water and it was only found in samples collected at the ICM and control fields at site 1 in May 1996. Pesticides were not detected in any of the November, 1996 samples. Ground water monitoring activities were funded through the DEQ's Federal 106 Ground Water Protection Grant.

Polecat Creek Watershed-Shallow Ground Water Monitoring

The CBLAD initiated ground water monitoring for nitrates as part of the Polecat Creek Watershed

project in June 1997. Activities are partially funded by the Clean Water Act, Section 117 Chesapeake Bay program grant funds and partially by the USGS. The ground water study is being conducted by monitoring ground water level and quality in wells screened in the surficial aquifer. The USGS is conducting the ground water monitoring in Caroline County under a cooperative agreement with CBLAD. There are two well transects installed adjacent to agricultural land and forested areas in Coastal and Piedmont hydro-geologic zones and one transect installed within a low-density residential subdivision that uses septic systems for waste treatment. A total of 30 ground water wells are used for monitoring purpose in the project. The water level measurements are done at a six-to-eight weeks interval and water quality samples are collected quarterly during the year in different seasons from all the transact wells. Overall, the USGS is determining water level variations, age-dating, and water chemistry for ground water in this watershed and, ultimately, attempting to learn if pollution is flowing from various types of land uses to surface waters through the ground water systems.

Karst Ground Water Protection Program

The project is implemented by the Natural Areas Management Program in order to document, preserve, and restore the ground water habitats of sensitive species. Project implementation is shared with the Nonpoint Source Management program; an arrangement that highlights the integral connection between the preservation of natural heritage resources and the quality of the State=s waters and drinking water supplies. Staff focus on threats to water quality in a 33-county region underlain by cavernous and/or mined-out bedrock in western Virginia, and work in close cooperation with Soil and Water Conservation Districts, US Geological Survey, and the State=s Natural Area Preserves Systems. Karst ground water protection is promoted through a combination of technical assistance, data collection (monitoring, mapping, and tracer testing), and public outreach, which includes brochures, materials, and educational efforts coordinated through Project Underground and Project WET. With regard to ground water issues, the program facilitates coordination between the diverse group of agencies and institutions affecting nonpoint source management in each basin.

As demand and reliance on ground water resources increase in agricultural areas undergoing unprecedented residential growth, state agencies are working to establish a karst ground water monitoring network in the vicinity of unstudied nonpoint sources, such as land application sites and rural subdivisions. In addition, the Karst Ground Water Protection Program is cooperating with the US Forestry Service on a karst resource inventory on USFS owned lands.

Virginia Nonpoint Source Pollution Management Program

Virginia has recently developed an update document for the Nonpoint Source Pollution Management Program. This recently completed plan outlines current NPS ground water protection activities and establishes ground water protection goals for the future.

"Geology of Virginia" educational activities

The Virginia Department of Mines, Minerals, and Energy and Radford University produced an interactive, multimedia CDROM series to assist educators with Standards of Learning for life sciences. The first CD, an introduction to Virginia geology, was produced in the fall of 1999 with a teacher's guide and was mailed to every high school in the Commonwealth. Since that time three additional CDs and teachers guides have been produced that focus on the Coastal Plain, Piedmont & Blue Ridge, Valley and Ridge & Appalachian Plateau physiographic provinces. Funding was provided through a private-public partnership with DMME, DEQ, CBLAD, USGS, Virginia Department of Education, Charlies W. Barger and Son Construction Company, Inc., Boxlely Company, Inc., Carter Machinery Company, Inc., E. Dillon and Company, Kyanite Mining Corporation, Luck Stone Corporation, Martin Marietta Aggregates, Rockydale Quarries Corporation, Salem Stone Corporation, Tarmac American Inc., Tidewater Quarries Inc., U.S. Silica, Virginia Aggregate Association, and Vulcan Materials Company. The final CD and teachers guide was distributed June 2001.

Virginia Ground Water Festival

The first State sponsored Ground Water Festival was held in September 2000 at Massanetta Springs Conference Center in Harrisonburg, Virginia. 383 sixth grade students from Elkton and Hillyard Middle Schools attended the all day education event focusing on ground water protection. The festival was a success due to the cooperation of a number of agencies and their volunteers. Taking part in the festival were staff from DEQ, DCR, USGS, VDACS, DMME, VDH, Headwaters Soil and Water Conservation District, Rocco Enterprises, Inc., Shenandoah Pure Water 2000 Forum, Conservation Services, Shenandoah Soil and Water Conservation District, Harrisonburg High School, Virginia Ground Water Affiliates, Massanetta Springs Conference Center, Virginia Rural Water Association, Pollution Solutions, Holmans Creek Watershed Committee, and Shenandoah National Park. Funding for the Festival was provided through DEQ's 106 Ground Water Protection Grant from EPA, and a grant from the Perrier Group and National Project W.E.T.

Ground Water Protection Program Conclusion

Ground water programs in Virginia strive to maintain the existing high water quality. The Virginia Ground Water Protection Steering Committee (GWPSC), established in 1986, continues to meet bi-monthly as a vehicle for sharing information, for directing attention to important ground water issues, and for taking the lead on ground water protection initiatives requiring an inter-agency approach. This inter-agency advisory committee is designed to stimulate, strengthen, and coordinate ground water protection activities in the Commonwealth. Ground water protection activities in the Commonwealth are as varied as the funding sources that support them.

Table 4.1- 2 Major Sources of Ground Water Contamination

Contaminant Source	Ten Highest-Priority Sources(/)	Factors Considered in Selecting a Contaminant Source	Contaminants
Agricultural Activities			
Agricultural chemical facilities			
Animal feedlots			
Drainage wells			
Fertilizer applications	/	(F) State GW Protection Strategy	(E)
Irrigation practices			
Pesticide applications	/	(F) State GW Protection Strategy	(A,B)
Storage and Treatment Activities			
Land application	/	(F) State GW Protection Strategy	(E)
Material stockpiles			
Storage tank (above ground)			
Storage tank (underground)	/	(F) State GW Protection Strategy	(D)
Surface impoundments	/	(F) State GW Protection Strategy	(E)
Waste piles			
Disposal Activities			
Landfills	/	(F) State GW Protection Strategy	(M) 40 CFR-App IX
Septic systems	/	(F) State GW Protection Strategy	(J)
Hazardous waste generators			
Hazardous waste sites			
Industrial facilities			
Material transfer operations			
Mining and mine drainage	/	(F) State GW Protection Strategy	(M) Acid Leachate
Pipeline and sewer lines			
Salt water intrusion	/	(F) State GW Protection Strategy	(G)
Urban runoff	/	(F) State GW Protection Strategy	(M) NPS pollutants such as fertilizers & heavy metals
Other sources (please specify)			

A-Inorganic Pesticides
B-Organic Pesticides
C-Halogenated Solvents
D-Petroleum Compounds
E-Nitrite
F-Flouride
G-Salinity/Brine
H-Metals
I-Radionuclides
J-Bacteria
K-Protozoa
L-Viruses
M-Other

Table 4.1-3 Summary of State Ground Water Protection Programs

Programs or Activities	Check* (/)	Implementation Status	Responsible State Agency
Active SARA Title III Program	/	fully-estab.	DEQ
Ambient ground water monitoring system			
Aquifer vulnerability assessment	/	under devel.	VDCR
Aquifer mapping			
Aquifer characterization			
Comprehensive data management system			
EPA-endorsed Core Comprehensive State Ground Water Protection Program (CSGWPP)			
Ground water discharge permits (VPA)	/	fully-estab.	DEQ
Ground water Best Management Practices			
Ground water legislation (Quantity)	/	fully-estab.	DEQ
Ground water classification			
Ground water quality standards	/	fully-estab.	DEQ
Interagency coordination for ground water protection initiatives	/	fully-estab.	DEQ
Nonpoint source controls	/	cont. efforts	VDCR
Pesticide State Management Plan (Generic)	/	fully estab.	VDACS
Pollution Prevention Program			
Resource Conservation and Recovery Act (RCRA) Primacy	/	fully-estab.	DEQ
Source Water Assessment Program	/	fully-estab.	VDH
State Superfund			EPA primacy
State RCRA Program incorporating more stringent requirements than RCRA Primacy			
State septic system regulations	/	fully-estab.	VDH
Underground storage tank installation requirements	/	fully-estab.	DEQ
Underground Storage Tank Remediation Fund	/	fully-estab.	DEQ
Underground Storage Tank Permit Program	/	fully-estab.	DEQ
Underground injection Control Program			EPA primacy
Well abandonment regulations	/	fully-estab.	VDH
Well Installation regulations	/	fully estab.	VDH

Table 4.1-4 Ground Water Contamination Summary

Aquifer Description Commonwealth of Virginia
Data Reporting Period 1/96 - 12/00

Source Type	Present in reporting area	Number of sites in area	Number of sites that are listed and/or have confirmed releases	Number with confirmed groundwater contamination	Contaminants	Number of site investigations (optional)	Number of sites that have been stabilized or have had the source removed (optional)	Number of sites with corrective action plans (optional)	Number of Sites with active remediation (optional)	Number of sites with cleanup completed (optional)
NPL		21	21	15	(A) append 9					
CERCLIS (non-NPL)		200+								
DOD/DOE (NPL) _ (NPL)		13	13	8	(B)					
DOD/DOE(nonNPL)		29	29	15						
UST & AST as of DEC 2000		16,902	16,902		petroleum hydrocarbons				2,841	14,061
RCRA Corrective Action	PERMITTED	19 facilities	19	13	40CFR APP IX	19	1	5	7	
	UNPERMITTED Unpermitted_ land_ based on HSWA Corrective Action	17 facilities	12	12	40CFR APP IX	0	0	0	12	
Underground Injection										
State Sites										
Nonpoint Sources										
Other (specify)										

Source Type Abbreviations

NPL - National Priority List
CERCLIS (non-NPL) - Comprehensive Environmental Response, Compensation, and Liability Information System
DOE - Department of Energy
DOD - Department of Defense
LUST - Leaking Underground Storage Tanks
RCRA - Resource Conservation and Recovery Act

Contaminant Type
(A) listed and characteristic hazardous waste
(B) metals, halogenated organics, POL,PCB, Pesticides

APPENDIX A

Clean Water Act Sections

Sec.305. WATER QUALITY INVENTORY

(b) (1) Each State shall prepare and submit to the Administrator by April 1, 1975, and shall bring up to date by April 1, 1976, and biennially thereafter, a report that shall include—

(A) a description of the water quality of all navigable waters in such State during the preceding year, with appropriate supplemental descriptions as shall be required to take into account seasonal, tidal, and other variations, correlated with the quality of water required by the objective of this ACT (as identified by the Administrator pursuant to criteria published under section 304(a) of this Act) and the water quality described in subparagraph (B) of this paragraph;

(B) an analysis of the extent to which all navigable waters of such State provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities in and on the water;

(C) an analysis of the extent to which the elimination of the discharge of pollutants and a level of water quality which provides for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreational activities in and on the water, have been or will be achieved by the requirements of this Act, together with recommendations as to additional action necessary to achieve such objectives and for what water such additional action is necessary;

(D) an estimate of (1) the environmental impact, (ii) the economic and social costs necessary to achieve the objective of this Act in such State, (iii) the economic and social benefits of such achievement, and (iv) an estimate of the date of such achievement; and

(E) a description of the nature and extent of nonpoint sources of pollutants, and recommendations as to the programs which must be undertaken to control each category of such sources, including an estimate of the costs of implementing such programs. (2) The Administrator shall transmit such State reports, together with an analysis thereof, to Congress on or before October 1, 1975, and October 1, 1976, and biennially thereafter.

GRANTS FOR SEC. 106. POLLUTION CONTROL PROGRAM

(e) Beginning in fiscal year 1974 the Administrator shall not make any grant under this section to any State which has not provided or is not carrying out as a part of its program—

(1) the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, and to compile and analyze data on (including classification according to eutrophic condition), the quality of navigable waters and to the extent practicable, ground waters including biological monitoring; and provision for annually updating such data and including it in the report required under section 305 of this Act;

SEC. 204 LIMITATION AND CONDITIONS

(a) Before approving grants for any projection for any treatment works under section 201(g)(1) the Administrator shall determine—

"that (A) the State in which the project is to be located (1) is implementing any required plan under section 303(e) of this Act and the proposed treatment works are in conformity with such plan, or (ii) is developing such a plan and the proposed treatment works will be in conformity with such plan, and (b) such State is in compliance with section 305(b) of this Act;"

SEC. 314. CLEAN LAKES

(a) Each State shall prepare or establish, and submit to the Administrator for his approval—

"(A) an identification and classification according to eutrophic condition of all publicly owned lakes in such State;
"(B) a description of procedures, processes, and methods (including land use requirements), to control sources of pollution of such lakes;
"(C) a description of methods and procedures, in conjunction with appropriate Federal agencies, to restore the quality of such lakes;
"(D) methods and procedures to mitigate the harmful effects of high acidity, including innovative methods of neutralizing and restoring buffering capacity of lakes and methods of removing from lakes toxic metals and other toxic substances mobilized by high acidity;
"(E) a list and description of those publicly owned lakes in such State for which uses are known to be impaired, including those lakes which are known not to meet applicable water quality standards or which require implementation of control programs to maintain compliance with applicable standards and those lakes in which water quality has deteriorated as a result of high acidity that may reasonably be due to acid deposition; and
"(F) an assessment of the status and trends of water quality in lakes in such State, including but not limited to, the nature and extent of pollution loading from point and nonpoint sources and the extent to which the uses of lakes is impaired as a result of such pollution, particularly with respect to toxic pollution.

“(2) SUBMISSION AS PART OF 305(b) (1) REPORT. – The information required under paragraph (1) shall be included in the report required under section 305(b) (1) of this Act, beginning with the report required under such section by April 1, 1988.

Chesapeake Bay and Small Coastal Basins
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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
WBID	Monitoring Station	Type	Temperature				Dissolved Oxygen				pH				Fecal Coliform				Total Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-C01E	7-ANT000.00	TE		/	3		1	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											1 sample event - bottom violation
P-C01E	7-ANT001.00	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											1 sample event
P-C01E	7-ANT001.50	A,TE		/	24		0	/	24	S	0	/	24	S	0	/	20	S		/			0	/	1	W			0	S	0	S	0	S							
P-C01E	7-ANT002.50	TE		/	2		0	/	2	S	0	/	2	S		/				/			0	/	1	W			0	W											1 sample event
P-C01E	7-BAL000.65	A		/	21		0	/	21	S	0	/	21	S	0	/	20	S		/				/					0	S	0	S	0	S							
P-C01E	7-BLS000.73	SS,PFWQ,TE		/	37		2	/	37	S	0	/	37	S		/				/			0	/	17	S			0	S											
P-C01E	7-COC000.40	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			98 FT/SED, As whole fish., Pb detected
P-C01E	7-COC001.61	A,PFWQ,TE		/	66		2	/	66	S	0	/	66	S	1	/	26	S		/			5	/	23	T			0	S	0	S	0	S							
P-C01E	7-DIV000.00	TE		/	4		1	/	4	S	0	/	4	S		/				/			0	/	1	W			0	W											1 sample event - bottom violation
P-C01E	7-DIV000.62	TE		/	4		1	/	4	S	0	/	4	S		/				/				/																	1 sample event - bottom violation
P-C01E	7-DIV001.24	TE		/	3		1	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											1 sample event - bottom violation
P-C01E	7-DIV001.74	TE		/	3		1	/	3	S	0	/	3	S		/				/				/																	1 sample event - bottom violation
P-C01E	7-DIV002.39	TE		/	2		0	/	2	S	0	/	2	S		/				/			0	/	1	W			0	W											
P-C01E	**7-DYM000.00-BL**	TE		/	3		**3**	**/**	**3**	**N**	0	/	3	S		/				/				/					0	W											1 sample event - bottom violation
P-C01E	7-DYM000.00-TL	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											1 sample event - bottom violation
P-C01E	7-DYM000.62-BL	TE		/	2		0	/	2	S	0	/	2	S		/				/				/					0	W											1 sample event
P-C01E	7-DYM000.62-TL	TE		/	3		0	/	3	S	0	/	3	S		/				/				/					0	W											1 sample event
P-C01E	7-DYM001.34-BL	TE		/	2		0	/	2	S	0	/	2	S		/				/				/																	1 sample event
P-C01E	7-DYM001.34-TL	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											1 sample event
P-C01E	7-DYM001.79	A,TE		/	22		0	/	22	S	0	/	22	S	0	/	20	S		/			1	/	1	W			0	S	0	S	0	S							
P-C01E	7-DYM002.37	TE		/	3		0	/	3	S	0	/	3	S		/				/				/																	1 sample event
P-C01E	7-DYM002.72	TE		/	1		0	/	1	W	0	/	1	W		/				/			1	/	1	W			0	W											
P-C01E	7-FLB000.54-BL	TE		/	2		0	/	2	S	0	/	2	S		/				/				/																	
P-C01E	7-FLB000.54-TL	TE		/	3		0	/	3	S	0	/	3	S		/				/				/																	
P-C01E	7-FLB001.19	TE		/	3		0	/	3	S	0	/	3	S		/				/				/																	
P-C01E	7-GWR008.00	C																													0	S	0	S	0	S	0	S			prev. 7-GWR004.65, chrysene & benzo(a)anthracene whole fish
P-C01E	7-GWR004.85	A,PFWQ,TE		/	57		0	/	57	S	0	/	57	S	0	/	26	S		/			0	/	9	S			0	S	0	S									
P-C01E	7-GWR008.89	A,PFWQ,TE		/	61		6	/	60	S	0	/	60	S	0	/	19	S		/			2	/	27	S			0	S											
P-C01E	7-HEN000.42	TE		/	3		0	/	3	S	0	/	3	S		/				/				/																	
P-C01E	**7-IND000.00**	SS		/	4		**2**	**/**	**4**	**N**	0	/	4	S		/				/			0	/	1	W			0	W											1 sample event - bottom violations
P-C01E	**7-IND000.50**	PFWQ		/	31		**4**	**/**	**31**	**P**	0	/	29	S		/				/			0	/	5	S			0	S											
P-C01E	**7-IND001.23**	TE		/	4		**2**	**/**	**4**	**N**	0	/	4	S		/				/			0	/	1	W			0	W											1 sample event - bottom violations
P-C01E	**7-IND001.42**	TE		/	4		**2**	**/**	**4**	**N**	0	/	4	S		/				/				/																	1 sample event - bottom violations
P-C01E	**7-IND001.80**	TE,C		/	4		**2**	**/**	**4**	**N**	0	/	4	S		/				/			0	/	1	W			0	W	1	T	0	S	1	T	0	S			98 Hg sed, As 1 sp.; 1 sample event - bottom violations
P-C01E	7-IND002.26	A,TE		/	87		1	/	87	S	0	/	86	S	1	/	56	S		/			0	/	24	S			0	S	0	S	0	S							
P-C01E	7-IND002.61	PFWQ,TE		/	23		1	/	23	S	0	/	23	S		/				/			1	/	6	S			0	S											
P-C01E	7-JAR000.00	TE		/	4		0	/	4	S	0	/	4	S		/				/				/																	
P-C01E	7-LRC000.69	TE		/	2		0	/	2	S	0	/	2	S		/				/			0	/	1	W			0	W											
P-C01E	7-LTB000.88	TE		/	3		1	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											1 sample event - bottom violation
P-C01E	7-MIL004.00	A		/	24		0	/	24	S	0	/	24	S	1	/	20	S		/			0	/	2	S			0	S	0	S	0	S							
P-C01E	7-NPC000.12	TE		/	2		0	/	2	S	0	/	2	S		/				/				/																	
P-C01E	7-PIT000.50	TE		/	2		0	/	2	S	0	/	2	S		/				/			0	/	1	W			0	W											
P-C01E	7-PNT000.50	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											
P-C01E	7-TBS001.69	A		/	21		0	/	21	S	0	/	21	S	0	/	20	S		/				/					0	S	0	S	0	S							
P-C01E	7-XDB000.08	A		/	21		2	/	21	S	0	/	21	S	1	/	20	S		/			1	/	1	W			0	S	0	S	0	S							
P-C01R	7-BMS002.08	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-C01R	**7-BMS004.46**	A	0	/	27	S	**7**	**/**	**27**	**N**	1	/	27	S	**4**	**/**	**25**	**P**	0	/	26	S		/					0	S	0	S	0	S							
P-C01R	7-CMS000.12	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-C01R	7-CMS002.00	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-C01R	7-HRB000.54	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-C01R	7-KNR001.85	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-C01R	7-MIL005.19	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-C01R	7-XBF000.46	SS	0	/	1	W	1	/	1	W	1	/	1	W		/				/				/																	
P-C01R	7-XCY000.46	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-C02E	**7-DRN003.40**	A,C		/	23		**3**	**/**	**24**	**P**	2	/	23	S	1	/	26	S		/				/					0	S	0	S	0	S	1	T	0	S			1998 & 2000 Hg 1 species, 2000 Pb 1 species
P-C02R	**7-DRN010.48**	A	0	/	24	S	1	/	25	S	**5**	**/**	**24**	**P**	**3**	**/**	**27**	**P**	0	/	27	S		/					0	S	0	S	0	S							
P-C02R	7-MLS002.15	TE	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/																	
P-C03E	06R17	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI PIAMH
P-C03E	7COB-251-ALL	CMON	0	/	147	S	0	/	192	S		/				/				/				/																	Citizen Monitoring
P-C03E	7FER-129B-ALL	CMON	0	/	97	S	31	/	146	T		/				/				/				/																	Citizen Monitoring
P-C03E	7HEA-134A-ALL	CMON	4	/	61	S	1	/	110	S		/				/				/				/																	Citizen Monitoring
P-C03E	7-PNK005.36-BL	PFWQ,TE		/	1		1	/	1	W	0	/	1	W		/				/				/																	
P-C03E	7-PNK005.36-TL	PFWQ,TE		/	34		2	/	34	S	0	/	30	S		/				/			0	/	17	S			0	S											

Chesapeake Bay and Small Coastal Basins
Appendix B for 2002 305(b) and 303(d) Reports

WBID	Monitoring Station	Type	CONVENTIONAL WATER COLUMN MONITORING DATA #Violations/# Samples/Status: Temperature		Dissolved Oxygen		pH		OTHER WATER COLUMN DATA #Violations/# Samples/Status: Fecal Coliform		Total Phosphorus		Chlorophyll A		#Violations/Status: Metals		Organics		SEDIMENT #Violations/Status: Metals		Organics		FISH TISSUE #Violations/Status: Metals		Organics		BENTHIC: Bio Mon	Station Type	Comments (Bold/Shaded = Impaired Waters; Pink = Threatened Waters)
P-C03E	7-PNK009.53	C																	0	S	0	S	0	S	0	S			98 FT/SED
P-C03E	7-PNK014.33	A,TE	/ 28		0 / 28	S	0 / 28	S	0 / 28	S	/		/				0	S	0	S	0	S							
P-C03E	**7-PNK015.49**	PFWQ,TE	/ 16		**2 / 16**	**P**	0 / 15	S	/		/		0 / 6	S			0	S											
P-C03E	7PNK-128-ALL	CMON	2 / 134	S	0 / 144	S	/		/		/		/																Citizen Monitoring
P-C03E	7PNK-129-ALL	CMON	0 / 173	S	1 / 221	S	/		/		/		/																Citizen Monitoring
P-C03E	7PNK-137A-ALL	CMON	0 / 5	S	0 / 21	S	/		/		/		/																Citizen Monitoring
P-C03E	7PNK-246-ALL	CMON	0 / 14	S	0 / 28	S	/		/		/		/																Citizen Monitoring
P-C03E	7PNK-250A-ALL	CMON	/		0 / 33	S	/		/		/		/																
P-C03E	7PNK-255A-ALL	CMON	/		0 / 23	S	/		/		/		/																Citizen Monitoring
P-C03E	7PNK-255-ALL	CMON	0 / 14	S	0 / 11	S	/		/		/		/																Citizen Monitoring
P-C03E	7PNK-52-ALL	CMON	0 / 152	S	0 / 198	S	/		/		/		/																Citizen Monitoring
P-C03E	7PNK-DR1A-ALL	CMON	0 / 109	S	0 / 155	S	/		/		/		/																Citizen Monitoring
P-C03E	7-SCO000.04	TE	/ 2		0 / 2	S	0 / 2	S	/		/		/																
P-C03E	**MA97/98-0091**	MAIA	/ 4		**2 / 4**	**N**	0 / 4	S	/		/		0 / 4	S					0	S	0	S							low DO in bottom waters
P-C03E	MA97-0291	MAIA	/ 6		1 / 6	S	0 / 6	S	/		/		0 / 10	S															
P-C03R	7-CAV001.62	SS	0 / 2	S	0 / 2	S	0 / 2	S	/		/		/																
P-C03R	**7-HRP001.15**	A	0 / 27	S	**12 / 27**	**N**	0 / 27	S	1 / 25	S	0 / 25	S	/				0	S	0	S	0	S							summer violations
P-C03R	7-WLT002.15	SS	0 / 2	S	0 / 2	S	0 / 2	S	/		/		/																
P-C03R	7-XCZ000.54	SS	0 / 2	S	1 / 2	S	1 / 2	S	/		/		/																
P-C03R	7-XDA000.65	SS	0 / 2	S	0 / 2	S	0 / 2	S	/		/		/																
P-C04E	04M09/MA97-0955	B	/ 1		0 / 1	W	/		/		/		/														MI	B-IBI	Random B-IBI (MOBPH)
P-C04E	05M09	B	/		/		/		/		/		/														VI	B-IBI	Random B-IBI (MOBPH)
P-C04E	7-BKA000.31	TE	/ 3		0 / 3	S	0 / 3	S	/		/		1 / 1	W			0	W											1 sample event
P-C04E	7-BLW001.15	TE	/ 3		0 / 3	S	0 / 3	S	/		/		1 / 1	W			0	W											1 sample event
P-C04E	7-DOC000.38	TE	/ 3		0 / 3	S	0 / 3	S	/		/		0 / 1	W			0	W											1 sample event
P-C04E	7-EDW000.23	TE	/ 2		0 / 2	S	0 / 2	S	/		/		/																
P-C04E	7-ELM000.19	TE	/ 3		0 / 3	S	0 / 3	S	/		/		/																1 sample event
P-C04E	7-EST000.00-BL	TE	/ 3		0 / 3	S	0 / 3	S	/		/		/																
P-C04E	7-EST000.00-TL	TE	/ 6		0 / 6	S	0 / 6	S	/		/		0 / 1	W			0	S											
P-C04E	7-EST001.06-BL	TE	/ 1		0 / 1	W	0 / 1	W	/		/		/																1 sample event
P-C04E	7-EST001.06-TL	TE	/ 3		0 / 3	S	0 / 3	S	/		/		/																1 sample event
P-C04E	7-EST001.80-BL	TE	/ 2		0 / 2	S	0 / 2	S	/		/		/																
P-C04E	7-EST001.80-TL	TE	/ 6		0 / 6	S	0 / 6	S	/		/		1 / 1	W			0	S											
P-C04E	7-EST002.60	SS	/		/		/		/		/		/						0	S	0	S							
P-C04E	7-EST002.65	C	/		/		/		/		/		/						0	S	0	S	1	T	1	T			98 FT/SED, As 1 sp. & PCB 1 sp.
P-C04E	7-EST002.75	A,TE	/ 25		0 / 25	S	0 / 25	S	0 / 26	S	/		/				0	S			0	S							
P-C04E	7-EST003.45-BL	TE	/ 2		0 / 2	S	0 / 2	S	/		/		/																
P-C04E	7-EST003.45-TL	TE	/ 6		0 / 6	S	0 / 6	S	/		/		0 / 1	W			0	S											
P-C04E	7-EST004.45	TE	/ 3		0 / 3	S	0 / 3	S	/		/		/																1 sample event
P-C04E	7-EST005.56	TE	/ 6		0 / 6	S	0 / 6	S	/		/		1 / 1	W			0	S											
P-C04E	7-HAH000.81	TE	/ 4		0 / 4	S	0 / 4	S	/		/		0 / 1	W															1 sample event
P-C04E	7-HAH002.04	TE	/ 3		0 / 3	S	0 / 3	S	/		/		/				0	W											1 sample event
P-C04E	7-HAH002.96	A	/ 22		0 / 22	S	0 / 22	S	0 / 21	S	/		0 / 1	W			0	S	0	S	0	S							
P-C04E	7-HAH003.34	TE	/ 3		0 / 3	S	0 / 3	S	/		/		0 / 1	W			0	W											1 sample event
P-C04E	7-MJB008.06-BL	TE	/ 1		0 / 1	W	0 / 1	W																					1 sample event
P-C04E	7-MJB008.06-TL	TE	/ 3		0 / 3	S	0 / 3	S																					1 sample event
P-C04E	7-MLF000.85	TE	/ 3		0 / 3	S	0 / 3	S	/		/		1 / 1	W			0	W											
P-C04E	7-MLF001.85	TE	/ 3		0 / 3	S	0 / 3	S	/		/		/																
P-C04E	7-MLF002.40	A	/ 21		0 / 21	S	0 / 21	S	0 / 21	S	/		/				0	S	0	S	0	S							
P-C04E	7-MLF002.45	TE	/ 3		0 / 3	S	0 / 3	S	/		/		0 / 1	W			0	W											
P-C04E	7-MLF003.07	TE	/ 4		0 / 4	S	0 / 4	S	/		/		/																
P-C04E	**7-MRC000.69**	TE	/ 3		**2 / 3**	**N**	0 / 3	S	/		/		1 / 1	W			0	W											
P-C04E	7-NOR001.19-BL	TE	/ 3		3 / 3	S	0 / 3	S	/		/		/																1 sample event
P-C04E	7-NOR001.19-TL	TE	/ 4		0 / 4	S	0 / 4	S	/		/		1 / 1	W			0	W											1 sample event
P-C04E	7-NOR002.69	PFCO,TE	/ 43		2 / 43	S	0 / 40	S	/		/		0 / 21	S			0	S											
P-C04E	7-NOR004.99	TE,C	/ 3		0 / 3	S	0 / 3	S	/		/		1 / 1	W			0	W	0	S	0	S	0	S	1	T			98 PCB 1 species, 1 sample event
P-C04E	7-NOR006.38	A,PFCO,TE	/ 65		1 / 65	S	1 / 63	S	0 / 21	S	/		0 / 28	S			0	S	0	S	0	S							
P-C04E	7-NOR006.76	TE	/ 4		0 / 4	S	0 / 2	S	/		/		1 / 1	W			0	W											
P-C04E	7NOR-254-ALL	CMON	/ 42	S	0 / 42	S	/		/		/		/																Citizen Monitoring
P-C04E	7-PUT000.97	TE	/ 5		0 / 5	S	0 / 5	S	/		/		0 / 1	W			0	S											
P-C04E	7-QUE001.23	TE	/ 3		1 / 3	S	0 / 3	S	/		/		0 / 1	W			0	W											
P-C04E	7QUE-252A-ALL	CMON	/ 68	S	0 / 100	S	/		/		/		/																Citizen Monitoring
P-C04E	7QUE-252-ALL	CMON	/ 100	S	0 / 103	S	/		/		/		/																Citizen Monitoring
P-C04E	7-STT000.10	TE	/ 3		0 / 3	S	0 / 3	S	/		/		/																

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status						#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-C04E	7-STT001.00	TE		/	3		0	/	3	S	0	/	3	S		/				/				/																	
P-C04E	7-STT001.92	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											
P-C04E	7-STT002.92	A		/	20		0	/	20	S	0	/	20	S	0	/	21	S		/				/					0	S	0	S	0	S							
P-C04E	7-STT003.11	TE		/	2		1	/	2	S	0	/	2	S		/				/				/																	
P-C04E	7-WIN000.88	A		/	22		0	/	22	S	0	/	22	S	1	/	21	S		/			0	/	1	W			0	S	0	S	0	S							
P-C04E	MA97/98-0080	MAIA		/	4		0	/	4	S	0	/	4	S		/				/			0	/	4	S					0	S	0	S	1	T	0	S			As in flounder & crab
P-C04E	MA97-0063	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C04E	MA97-0065	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C04E	MA97-0066	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C04E	MA97-0068	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C04E	MA97-0069	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C04E	MA97-0070	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C04E	MA98/97-0067	MAIA			4		0		4	S	0		4	S									0		4	S					0	S	0	S	1	T					As in flounder
P-C04R	**7-BUR001.19**	A	0	/	25	S	**4**	/	**25**	**P**	0	/	25	S	2	/	25	S	0	/	25	S		/					0	S			0	S							
P-C05E	7-WAR001.15	TE		/				/			0	/	1	W		/				/				/					0	W											
P-C05E	7-WAR002.82	PFCO,TE		/	31		2	/	31	S	0	/	27	S		/				/			0	/	8	S			0	S											
P-C05E	7-WAR003.61	TE		/				/			0	/	1	W		/				/				/					0	W											
P-C05E	7-WAR005.77	A,PFCO,TE		/	64		4	/	64	S	0	/	62	S	1	/	26	S		/			0	/	19	S			0	S	0	S	0	S							
P-C05R	7-BEA002.82	C																																	0	S	0	S			Fish tissue 1993
P-C05R	**7-FOX002.49**	A,C	0	/	25	S	**4**	/	**25**	**P**	0	/	25	S	**4**	/	**24**	**P**	2	/	24	S		/					0	W	0	S	0	S	1	T	0	S			98 FT/SED, Hg 1 sp.
P-C05E	06R14	B		/				/				/				/				/				/					0	W									SI		Random B-IBI (MOBPH)
P-C06E	03Y01	B		/				/				/				/				/				/															VI		Random B-IBI (MOBPH)
P-C06E	03Y02	B		/				/				/				/				/				/															VI		Random B-IBI (MOBPH)
P-C06E	04M07/MA98-0959	B, MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S									1	T			SI		Random B-IBI (MOBPH), As in flounder
P-C06E	07M11	B		/				/				/				/				/				/															NI		Random B-IBI (MOBPH)
P-C06E	7-FRC000.23	TE		/	3		0	/	3	S	0	/	3	S		/				/				/																	
P-C06E	7-HEY000.50	TE		/	2		0	/	2	S	0	/	2	S		/				/			0	/	1	W			0	W											
P-C06E	7-ROW000.04	A		/	32		0	/	32	S	0	/	32	S	0	/	25	S		/			0	/	6	S			0	S	0	S	0	S							
P-C06E	7-SEN002.08	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	W											
P-C06E	7-SES000.01	TE		/	3		0	/	3	S	0	/	3	S		/				/				/																	
P-C06E	7-SES001.35	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											
P-C06E	7-SEV000.00	TE		/	4		0	/	4	S	0	/	4	S		/				/				/																	
P-C06E	7-SEV001.35-BL	TE		/	2		0	/	2	S	0	/	2	S		/				/				/																	1 sample event
P-C06E	7-SEV001.35-TL	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	W											1 sample event
P-C06E	7-SEV003.38-BL	TE		/	1		0	/	1	W	0	/	1	W		/				/				/																	1 sample event
P-C06E	7-SEV003.38-TL	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	W											1 sample event
P-C06E	7-THC000.54	TE		/	2		0	/	2	S	0	/	2	S		/				/				/																	
P-C06E	MA97-0061	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C06E	MA97-0062	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C06E	MA97-0063	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C06E	MA97-0064	MAIA		/	2		0	/	3	S	1	/	3	S		/				/			0	/	2	S					0	S	0	S							
P-C06E	MA97-0065	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C06E	MA97-0066	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							
P-C06E	WE4.1-TL	CB		/			0	/	152	S	0	/	154	S		/				/			0	/	70	S			0	S											Top layer, same as MA97-0296
P-C06E	WE4.1-BL	CB		/			1	/	168	S	0	/	170	S		/				/			1	/	68	S			0	S											Bottom layer, same as MA97-0296
P-C06R	**7-SEN004.04**	A		/	24		2	/	24	S	0	/	24	S	**10**	/	**24**	**N**		/				/					0	S			0	S							
T-C07E	7-BAK000.00	A		/			0	/	7	S	0	/	7	S	0	/	7	S		/				/					0	S					0	S					
T-C07E	7-BAK001.92	A,C		/			0	/	7	S	0	/	7	S	0	/	7	S		/				/					0	S	0	S	0	S	0	S	0	S			
T-C07E	**7-BRK004.14**	A		/			**13**	/	**58**	**P**	0	/	58	S	**18**	/	**58**	**N**		/				/					0	S					0	S					
T-C07E	7-BCA000.63	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			
T-C07E	7-CHS000.84	A		/			0	/	50	S	0	/	50	S	2	/	52	S		/				/					0	S	0	S	1	T							DDT 2000
T-C07E	**7-NEW001.92**	A		/			2	/	58	S	0	/	58	S	**20**	/	**58**	**N**		/				/					0	S					0	S					
T-C07E	**7-NEW005.44**	A		/			**12**	/	**32**	**N**	0	/	32	S	**21**	/	**32**	**N**		/				/																	
T-C07E	7-NWB000.00	A		/			0	/	7	S	0	/	7	S	1	/	7	S		/				/											0	S					
T-C07E	7-NWB001.34	A		/			0	/	7	S	0	/	7	S	1	/	7	S		/				/					0	S					0	S					
T-C07E	7-NWB002.10	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			
T-C07E	**7-POQ004.12**	A		/			5	/	58	S	0	/	58	S	**10**	/	**59**	**P**		/				/					0	S					0	S					
T-C07E	7-POQ002.11	C		/				/				/				/				/				/							0	S	0	S	0	S	1	T			98 (Benzo(a)pyrene 1 species whole fish)
T-C07E	**7-SWB000.00**	A		/			0	/	7	S	0	/	7	S	**2**	/	**7**	**N**		/				/					0	S					0	S					
T-C07E	7-SWB001.15	A		/			0	/	7	S	0	/	7	S	1	/	7	S		/				/					0	S					0	S					
T-C07E	7-SWB001.91	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			
T-C08E	7-BBY002.88	A		/			0	/	35	S	0	/	35	S	0	/	30	S		/			0	/	15	S			0	S					0	S					
T-C08E	7-CRY000.59	A		/			0	/	29	S	0	/	29	S	0	/	30	S		/				/					0	S	0	S	0	S							

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			MONITORING DATA																																		Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status								#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
T-C08E	7-EBL000.01	A		/			0	/	29	S	0	/	29	S	0	/	30	S		/				/															
T-C08E	7-EBL001.15	A		/			0	/	29	S	0	/	29	S	1	/	30	S		/				/															
T-C08E	7-EBL002.54	A,C		/			1	/	29	S	0	/	29	S	2	/	30	S		/				/					0	S	0	S	0	S	0	S	1	T			98 PCB 1 species
T-C08L	7-LAK000.34	L	0	/	4	S	0	/	4	S	0	/	4	S	0	/	4	S		/			2	/	4	T															
T-C08L	**7-LAS000.06**	L	0	/	27	S	**3**	**/**	**27**	**P**	2	/	27	S	0	/	10	S		/			9	/	11	T			0	S	1	T	0	S							Copper 2000
T-C08L	7-LAS001.03	L	0	/	23	S	0	/	23	S	0	/	23	S	1	/	11	S		/			10	/	12	T			0	S											
T-C08L	7-LAS001.44	L	0	/	18	S	1	/	18	S	0	/	18	S	1	/	9	S		/			10	/	11	T			0	S											
T-C08L	**7-LTR000.04**	L	0	/	32	S	1	/	32	S	**11**	**/**	**32**	**N**	0	/	10	S		/			8	/	11	T			0	S											
T-C08L	7-LTR000.50	C		/				/				/				/				/				/							0	S	2	T							Dibenz[a,h]anthrecene & Total Chlordane sed 1998
T-C08L	7-LTR000.95	L	0	/	22	S	0	/	22	S	0	/	22	S	0	/	10	S		/			10	/	11	T			0	S	1	T	0	S							Copper 2000
T-C08E	7-LKN001.19	A		/			0	/	29	S	0	/	29	S	0	/	30	S		/				/															
T-C08E	7-LKN002.77	A,C		/			0	/	28	S	0	/	28	S	1	/	30	S		/				/					0	S	0	S	0	S	0	S	0	S			
T-C08E	7-LNC000.68	A		/			0	/	29	S	0	/	29	S	2	/	30	S		/				/					0	S					0	S					
T-C08E	**7-LOB001.79**	A		/			**7**	**/**	**59**	**P**	0	/	58	S	**19**	**/**	**59**	**N**		/				/					0	S					0	S					
T-C08E	**7-LOB003.70**	A		/			**9**	**/**	**32**	**N**	0	/	32	S	**19**	**/**	**32**	**N**		/				/																	
T-C08E	7-LYN000.03	A		/			0	/	29	S	0	/	29	S	0	/	30	S		/				/																	
T-C08E	7-LYN000.30	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			
T-C08E	**7-THA000.76**	A		/			**9**	**/**	**59**	**P**	0	/	59	S	**30**	**/**	**58**	**N**		/				/					0	S	0	S	0	S							
T-C08E	**7-THA001.39**	A		/			**7**	**/**	**31**	**P**	0	/	31	S	**19**	**/**	**31**	**N**		/				/																	
T-C08E	7-WES000.62	A		/			0	/	29	S	0	/	29	S	0	/	30	S		/				/																	
T-C08E	7-WES001.68	A		/			0	/	29	S	1	/	29	S	2	/	30	S		/				/																	
T-C08E	**7-WES002.58**	A		/			1	/	29	S	0	/	29	S	**7**	**/**	**30**	**P**		/				/					0	S	0	S	0	S							
T-C08E	**7-XBO001.30**	A		/			**5**	**/**	**37**	**P**	0	/	37	S	**8**	**/**	**36**	**P**		/				/					0	S					0	S					
T-C08L	7-LAW001.00	C		/				/				/				/				/				/							0	S	0	S	0	S	1	T			98 PCB 1 species
T-C08E	**7-LCC000.19**	C		/				/				/				/				/				/							0	S	0	S	0	S	**2**	**P**			98 PCB 2 species
T-C08L	7-MTL000.20	C		/				/				/				/				/				/							0	S	0	S	0	S	1	T			98 PCB 1 species
T-C09E	7-POC000.00	SS		/			0	/	31	S	0	/	32	S		/				/			1	/	32	S															Pfisteria
T-C09R	**7-XAE001.42**	A	0	/	29	S	**3**	**/**	**29**	**P**	**3**	**/**	**29**	**P**	1	/	29	S	3	/	30	S		/					0	S					0	S					
T-C10E	**7-HLD002.67**	A,C		/			2	/	29	S	0	/	29	S	**8**	**/**	**28**	**N**		/				/					0	S	0	S	0	S	0	S	0	S			
T-C10E	7-HUN001.88	A		/			0	/	29	S	0	/	29	S	2	/	29	S		/				/					0	S	1	T	0	S							Arsenic 1999
T-C10E	**7-MES006.92**	A		/			**3**	**/**	**10**	**N**	0	/	10	S	**2**	**/**	**10**	**P**		/				/					0	S					0	S					Natural Conditions
T-C10R	**7-SBB000.17**	A/B	0	/	31	S	0	/	31	S	0	/	31	S	1	/	31	S	29	/	30	T		/			**3**	**N**	0	S					0	S			**MI**		
T-C10R	7-BAG001.50	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			
T-C10R	**7-XAZ000.30**	B	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	2	/	2	T		/					0	S									**MI**		
T-C11E	7-LTH000.14	A		/			0	/	30	S	0	/	30	S	2	/	30	S		/				/					0	S					0	S					
T-C11E	**7-OCB000.10**	A		/			1	/	30	S	0	/	30	S	**6**	**/**	**30**	**P**		/				/					0	S											
T-C11E	7-OCN001.92	A		/			0	/	57	S	0	/	58	S	0	/	29	S		/			0	/	29	S			0	S											
T-C11E	7-OCN003.28	A		/			0	/	30	S	0	/	30	S	1	/	30	S		/				/					0	S											
T-C11E	7-OCN004.56	A,C		/			0	/	30	S	0	/	30	S	2	/	30	S		/				/					0	S	0	S	0	S	0	S	0	S			
T-C11E	**7-ONB000.20**	A		/			**4**	**/**	**29**	**P**	0	/	29	S	**11**	**/**	**29**	**N**		/				/					0	S					0	S					
T-C11E	**7-ONB000.38**	A		/			1	/	30	S	1	/	30	S	**7**	**/**	**30**	**P**		/				/																	Onancock STP outfall
T-C11E	**7-ONB000.56**	A		/			**7**	**/**	**30**	**P**	0	/	30	S	**20**	**/**	**29**	**N**		/				/																	
T-C11E	**7-OSB000.13**	A		/			0	/	30	S	1	/	30	S	**4**	**/**	**30**	**P**		/				/					0	S					0	S					
T-C12E	7-PUN002.12	A		/			0	/	45	S	0	/	45	S	0	/	29	S		/			0	/	30	S			0	S					0	S					
T-C13E	7-NSS000.60	PFWQ		/			0	/	20	S	0	/	20	S		/				/			0	/	18	S															Pfisteria
T-C13E	7-NSS001.62	A		/			0	/	29	S	0	/	29	S	0	/	28	S		/				/					0	S					0	S					
T-C13E	7-OCH001.60	PFWQ		/			0	/	31	S	0	/	31	S		/				/			0	/	31	S															Pfisteria
T-C13E	7-OCH003.82	A		/			0	/	29	S	0	/	29	S	0	/	29	S		/				/					0	S											
T-C13E	7-OCH003.80	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			
T-C14E	7-HUG001.24	A		/			0	/	31	S	0	/	31	S	0	/	31	S		/				/											0	S					
T-C14E	**7-HUG004.40**	A	0	/	30	S	**8**	**/**	**30**	**N**	0	/	30	S	**7**	**/**	**31**	**P**	2	/	30	S		/											0	S					Natural Conditions
T-C14E	7-THG000.36	A		/			0	/	31	S	0	/	31	S	0	/	31	S		/				/											0	S					
T-C15E	7-KNS000.40	A		/			0	/	58	S	0	/	58	S	0	/	30	S		/			0	/	27	S			0	S					0	S					
T-C16E	7-CCH000.00	A,C		/			0	/	29	S	0	/	29	S	1	/	28	S		/				/					0	S	0	S	0	S	0	S	0	S			
T-D01E	7-LTM000.80	A		/			0	/	28	S	0	/	28	S	2	/	28	S		/				/					0	S					0	S					
T-D01E	7-CHI003.77	C																													0	S	0	S	0	S	0	S			
T-D01E	7-LTM001.60	C																													0	S	0	S	0	S	0	S			
T-D02E	**7-ASW003.36**	A,C		/			**4**	**/**	**29**	**P**	0	/	29	S	**4**	**/**	**29**	**P**		/				/					0	S	0	S	0	S	0	S	0	S			
T-D02R	**7-PET000.80**	A/B	0	/	31	S	1	/	31	S	0	/	31	S	**6**	**/**	**30**	**P**	9	/	31	T		/			0	S	0	S					0	S			**MI**		
T-D03E	7-FLL000.50	PFWQ		/			0	/	14	S	0	/	14	S		/				/			0	/	15	S															Pfisteria
T-D03E	7-FLL002.46	A		/			1	/	19	S	0	/	19	S	0	/	19	S		/				/																	
T-D03E	7-GAR001.80	A		/			1	/	19	S	0	/	19	S	0	/	18	S		/				/					0	S					0	S					
T-D03R	**7-GAR006.01**	B	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/			0	S											**MI**		
T-D03R	**7-PAR003.09**	A/B	0	/	31	S	0	/	31	S	0	/	31	S	**6**	**/**	**30**	**P**	15	/	32	T		/			0	S	0	S					0	S			**MI**		

Chesapeake Bay and Small Coastal Basins
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN						OTHER WATER COLUMN DATA								SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																								Pink = Threatened Waters
			#Violations/# Samples/Status						#Violations/# Samples/Status						#Violations/Status		#Violations/Status				#Violations/Status						
	Monitoring				Dissolved				Fecal		Total														Bio	Station	
WBID	Station	Type	Temperature		Oxygen		pH		Coliform		Phosphorus		Chlorophyll A		Metals	Organics	Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
T-D03R	7-PAR001.34	C															0 S	0 S	0 S	0 S					
T-D03R	**7-PAR004.35**	B	0 / 2 S		0 / 2 S		0 / 2 S		0 / 2 S														**VI**		
T-D03R	**7-RSS001.40**	B	0 / 2 S		0 / 2 S		0 / 2 S		0 / 2 S		0 / 2 S												**MI**		
T-D03R	**7-XDE000.40**	B			0 / 2 S		0 / 2 S		0 / 2 S														**MI**		Historical petroleum leak
T-D04E	7-XDF000.11	SS													0 S										
T-D04E	7-RBC002.17	SS													0 S										
T-D04E	7-RBC003.01	SS													0 S										
T-D04R	7-RBC003.87	SS	0 / 1 W		0 / 1 W		0 / 1 W								0 S										
T-D04E	7-PRT001.30	A,C,SS			2 / 29 S		0 / 29 S		0 / 29 S							0 S	0 S	1 T	0 S	0 S					Pyrene sediment 1998
T-D05R	7-HLT002.08	A			0 / 31 S		3 / 31 S		1 / 31 S							0 S			0 S						
T-D05R	**7-TAL000.80**	A			1 / 31 S		2 / 31 S		**5 / 31 P**							0 S			0 S						
T-D06R	**7-MCR002.00**	A			**11 / 30 N**		**12 / 30 N**		2 / 30 S							0 S	0 S	0 S							Natural Conditions
T-D06R	7-OSS000.20	C															0 S	0 S	0 S	0 S					
T-D07E	**7-LAE000.20**	A			3 / 47 S		**5 / 47 P**		1 / 52 S							0 S			0 S						
T-D07E	**7-LAI000.04**	A			3 / 46 S		**6 / 46 P**		1 / 52 S							0 S			0 S						pH: Chla Bloom, 98.
T-D07E	**7-LAI000.18**	A			4 / 44 S		**6 / 44 P**		3 / 48 S							0 S			0 S						pH: Chla Bloom, 98.
T-D07E	**7-LAI000.56**	A			3 / 47 S		**6 / 47 P**		2 / 52 S							0 S			0 S						pH: Chla Bloom, 98.
T-D07E	**7-OWL000.01**	A			4 / 47 S		**5 / 47 P**		4 / 51 S							0 S			0 S						pH: Chla Bloom, 98.
T-D07E	**7-OWL000.77**	A			**5 / 43 P**		4 / 43 S		**8 / 46 P**							0 S			0 S						pH: Chla Bloom, 98.
T-D07E	7-RAC000.00	C															0 S	0 S	0 S	0 S					
T-C07E	7CHS-19-ALL	CMON			2 / 229 S																				Citizen's Monitoring
T-C08E	7BBY-201-ALL	CMON			2 / 72 S																				Citizen's Monitoring
T-C08E	7BBY-870-ALL	CMON			0 / 2 S																				Citizen's Monitoring
T-C08E	7BBY-BB1-ALL	CMON			0 / 54 S																				Citizen's Monitoring
T-C08E	7BWN-EB5-ALL	CMON			0 / 22 S																				Citizen's Monitoring
T-C11E	7CSX-151-ALL	CMON			0 / 85 S																				Citizen's Monitoring
T-C08E	7DIC-EB1-ALL	CMON			5 / 193 S																				Citizen's Monitoring
T-D03E	7FNC-85-ALL	CMON			0 / 4 S																				Citizen's Monitoring
T-C08E	7LKN-LB1-ALL	CMON			0 / 15 S																				Citizen's Monitoring
T-C08E	7LKN-LB2-ALL	CMON			0 / 8 S																				Citizen's Monitoring
T-C08E	7LYN-LC1-ALL	CMON			1 / 149 S																				Citizen's Monitoring
T-C08E	7LYN-LR1-ALL	CMON			0 / 57 S																				Citizen's Monitoring
T-C13E	7NSS-150-ALL	CMON			0 / 231 S																				Citizen's Monitoring
T-C12E	7PUN-86A-ALL	CMON			4 / 113 S																				Citizen's Monitoring
T-C08E	7THA-WB3-ALL	CMON			0 / 51 S																				Citizen's Monitoring
T-C08E	7THU-WB1-ALL	CMON			0 / 210 S																				Citizen's Monitoring
T-C08E	7WHH*-770-ALL	CMON			0 / 11 S																				Citizen's Monitoring
CB-R01-01E	05M18	CB																					VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	05M19	CB																					VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	04M30	CB																					VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	05M21	CB																					VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	06R22	CB																					MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	03M24	CB																					MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	03M25	CB																					MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	04M24	CB																					MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	03M22	CB																					SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	03M27	CB																					SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	03M29	CB																					SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	05M15	CB																					SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	05M23	CB																					SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	07M18	CB																					SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	07M19	CB																					SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	04M25	CB																					NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	07M24	CB																					NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	06R24	CB																					NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	03M23	CB																					NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	03M28	CB																					NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	04M26	CB																					NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-01E	CB5.4	CB																					MI	B-IBI	Fixed B-IBI station 1996-2000 Average
CB-R01-01E	**SEGMENT-BL**	CB			**826 / 2382 N**		0 / 2376 S						3 / 391 S			0 S									Bottom layer
CB-R01-01E	**CB5.5-BL**	CB			**162 / 572 N**		0 / 572 S						0 / 127 S			0 S									Bottom layer
CB-R01-01E	**CB5.4-BL**	CB			**312 / 978 N**		0 / 978 S						1 / 127 S			0 S									Bottom layer
CB-R01-01E	**CB5.3-BL**	CB			**352 / 832 N**		0 / 826 S						2 / 137 S			0 S									Segment Bottom layer

Chesapeake Bay and Small Coastal Basins
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			CONVENTIONAL WATER COLUMN MONITORING DATA			OTHER WATER COLUMN DATA					SEDIMENT		FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters Pink = Threatened Waters
			#Violations/# Samples/Status			#Violations/# Samples/Status			#Violations/Status		#Violations/Status		#Violations/Status				
WBID	Monitoring Station	Type	Temperature	Dissolved Oxygen	pH	Fecal Coliform	Total Phosphorus	Chlorophyll A	Metals	Organics	Metals	Organics	Metals	Organics	Bio Mon	Station Type	Comments
CB-R01-01E	SEGMENT-TL	CB	/	13 / 1585 S	0 / 1585 S	/	/	2 / 397 S		0 S							Top layer
CB-R01-01E	CB5.5-TL	CB	/	2 / 511 S	0 / 511 S	/	/	1 / 132 S		0 S							Top layer
CB-R01-01E	CB5.4-TL	CB	/	4 / 550 S	0 / 550 S	/	/	1 / 127 S		0 S							Top layer
CB-R01-01E	CB5.3-TL	CB	/	7 / 524 S	0 / 524 S	/	/	0 / 138 S		0 S							Segment Top layer
CB-R01-01E	MA97-0909	MAIA	/	/	/	/	/	/			0 S	0 S				MAIA	GT ERL: AS = 9.34ppm
CB-R01-01E	MA97-0909	MAIA	/	/	/	/	/	/			0 S	0 S				MAIA	GT ERL: DIELDRIN = .12 ppb
CB-R01-01E	MA97-0909	MAIA	/	/	/	/	/	/			0 S	0 S				MAIA	GT ERL: NI=31.8ppm
CB-R01-01E	MA97-0903	MAIA	/	/	/	/	/	/			0 S	0 S				MAIA	
CB-R01-02AE	06R16	CB	/	/	/	/	/	/							VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M14	CB	/	/	/	/	/	/							MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M16	CB	/	/	/	/	/	/							MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M22	CB	/	/	/	/	/	/							MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	06R25	CB	/	/	/	/	/	/							MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M09	CB	/	/	/	/	/	/							SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M20	CB	/	/	/	/	/	/							SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M17	CB	/	/	/	/	/	/							SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M21	CB	/	/	/	/	/	/							SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	06R18	CB	/	/	/	/	/	/							SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	06R26	CB	/	/	/	/	/	/							SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M10	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	05M13	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	05M30	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	05M33	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	06R15	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	07M12	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M12	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M14	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M18	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	05M10	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	06R12	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M17	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M21	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M11	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M12	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M18	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M20	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	06R13	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	07M13	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M11	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M15	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M15	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M23	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	07M15	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	07M16	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M19	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	04M13	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	05M12	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	05M14	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	03M13	CB	/	/	/	/	/	/							NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02AE	CB6.1	CB	/	/	/	/	/	/							NI	B-IBI	Fixed B-IBI station 1996-2000 Average
CB-R01-02AE	**SEGMENT-BL**	CB	/	**495 / 3715 P**	0 / 4440 S	/	/	6 / 707 S		0 S							Segment Bottom layer
CB-R01-02AE	**CB7.1S-BL**	CB	/	**91 / 546 P**	1 / 546 S	/	/	0 / 68 S		0 S							Bottom layer
CB-R01-02AE	**CB7.1-BL**	CB	/	**158 / 709 P**	0 / 709 S	/	/	1 / 69 S		0 S							Bottom layer
CB-R01-02AE	**CB6.3-BL**	CB	/	**73 / 427 P**	0 / 436 S	/	/	2 / 131 S		0 S							Bottom layer
CB-R01-02AE	**CB6.2-BL**	CB	/	**47 / 285 P**	0 / 292 S	/	/	0 / 114 S		0 S							Bottom layer
CB-R01-02AE	**CB6.1-BL**	CB	/	**81 / 358 P**	0 / 357 S	/	/	2 / 125 S		0 S							Bottom layer
CB-R01-02AE	SEGMENT-TL	CB	/	30 / 2569 S	0 / 2574 S	/	/	3 / 664 S		0 S							Segment Top layer
CB-R01-02AE	CB7.2-TL	CB	/	6 / 319 S	1 / 319 S	/	/	0 / 67 S		0 S							Top layer
CB-R01-02AE	CB7.2E-TL	CB	/	2 / 269 S	0 / 269 S	/	/	0 / 67 S		0 S							Top layer
CB-R01-02AE	CB7.2E-BL	CB	/	21 / 538 S	0 / 538 S	/	/	0 / 65 S		0 S							Bottom layer
CB-R01-02AE	CB7.2-BL	CB	/	24 / 852 S	0 / 853 S	/	/	0 / 66 S		0 S							Bottom layer
CB-R01-02AE	CB7.1-TL	CB	/	17 / 513 S	0 / 513 S	/	/	0 / 68 S		0 S							Top layer
CB-R01-02AE	CB7.1S-TL	CB	/	1 / 347 S	0 / 347 S	/	/	0 / 67 S		0 S							Top layer
CB-R01-02AE	CB6.3-TL	CB	/	0 / 323 S	0 / 325 S	/	/	2 / 128 S		0 S							Top layer

Chesapeake Bay and Small Coastal Basins
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			CONVENTIONAL WATER COLUMN						OTHER WATER COLUMN DATA						SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																						Pink = Threatened Waters
			#Violations/# Samples/Status						#Violations/# Samples/Status						#Violations/Status				#Violations/Status						
	Monitoring				Dissolved				Fecal		Total												Bio	Station	
WBID	Station	Type	Temperature		Oxygen		pH		Coliform		Phosphorus		Chlorophyll A		Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
CB-R01-02AE	CB6.2-TL	CB	/		2 / 365	S	0 / 368	S	/		/		0 / 133	S		0 S							Top layer
CB-R01-02AE	CB6.1-TL	CB	/		2 / 433	S	0 / 433	S	/		/		1 / 134	S		0 S							Top layer
CB-R01-02AE	MA97-0920	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	GT ERL: NI=23.1ppm
CB-R01-02AE	MA97-0933	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	GT ERL: NI=21.7ppm
CB-R01-02AE	MA97-0938	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	GT ERL: NI=21.3ppm
CB-R01-02AE	MA97-0918	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	
CB-R01-02AE	MA97-0928	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	
CB-R01-02AE	MA97-0941	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	
CB-R01-02AE	MA97-0948	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	
CB-R01-02AE	MA97-0944	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	
CB-R01-02BE	03Y01	CB	/		/		/		/		/		/								VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02BE	06R11	CB	/		/		/		/		/		/								VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02BE	03Y02	CB	/		/		/		/		/		/								VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02BE	06R10	CB	/		/		/		/		/		/								VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02BE	07M06	CB	/		/		/		/		/		/								SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02BE	04M05	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02BE	07M08	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-02BE	WE4.2-TL	CB	/		2 / 439	S	0 / 444	S	/		/		0 / 67	S		0 S							Top layer
CB-R01-02BE	WE4.2-BL	CB	/		33 / 360	S	0 / 366	S	/		/		0 / 70	S		0 S							Bottom layer
CB-R01-02BE	SEGMENT-TL	CB	/		2 / 439	S	0 / 444	S	/		/		0 / 67	S		0 S							Segment Top layer
CB-R01-02BE	SEGMENT-BL	CB	/		33 / 360	S	0 / 366	S	/		/		0 / 70	S		0 S							Segment Bottom layer
CB-R01-03A	05M29	CB	/		/		/		/		/		/								VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03A	06R19	CB	/		/		/		/		/		/								VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03A	06R20	CB	/		/		/		/		/		/								VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03A	06R21	CB	/		/		/		/		/		/								MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03A	04M19	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03A	SEGMENT-TL	CB	/		0 / 656	S	2 / 656	S	/		/		1 / 200	S		0 S							Segment Top layer
CB-R01-03A	SEGMENT-BL	CB	/		20 / 647	S	1 / 647	S	/		/		2 / 203	S		0 S							Segment Bottom layer
CB-R01-03A	LE3.7-TL	CB	/		0 / 221	S	0 / 221	S	/		/		1 / 68	S		0 S							Top layer
CB-R01-03A	LE3.7-BL	CB	/		2 / 202	S	1 / 202	S	/		/		1 / 67	S		0 S							Bottom layer
CB-R01-03A	LE3.6-TL	CB	/		0 / 294	S	0 / 294	S	/		/		0 / 66	S		0 S							Top layer
CB-R01-03A	LE3.6-BL	CB	/		12 / 309	S	0 / 309	S	/		/		1 / 69	S		0 S							Bottom layer
CB-R01-03A	CB5.4W-TL	CB	/		0 / 141	S	2 / 141	S	/		/		0 / 66	S		0 S							Top layer
CB-R01-03A	CB5.4W-BL	CB	/		6 / 136	S	0 / 136	S	/		/		0 / 67	S		0 S							Bottom layer
CB-R01-03A	MA97-0932	MAIA	/		/		/		/		/		/				0 S	0 S				MAIA	
CB-R01-03BE	05M25	CB	/		/		/		/		/		/								MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	07M25	CB	/		/		/		/		/		/								MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	07M21	CB	/		/		/		/		/		/								SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	07M22	CB	/		/		/		/		/		/								SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	07M23	CB	/		/		/		/		/		/								SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	06R23	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	07M20	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	05M16	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	05M22	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	07M17	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03BE	SEGMENT-TL	CB	/		19 / 1467	S	0 / 799	S	/		/		0 / 132	S		0 S							Segment Top layer
CB-R01-03BE	SEGMENT-BL	CB	/		76 / 1262	S	0 / 680	S	/		/		1 / 131	S		0 S							Segment Bottom layer
CB-R01-03BE	EE3.5-TL	CB	/		13 / 680	S	0 / 680	S	/		/		0 / 66	S		0 S							Top layer
CB-R01-03BE	EE3.5-BL	CB	/		37 / 532	S	0 / 532	S	/		/		1 / 64	S		0 S							Bottom layer
CB-R01-03BE	EE3.4-TL	CB	/		0 / 119	S	0 / 119	S	/		/		0 / 66	S		0 S							Top layer
CB-R01-03BE	EE3.4-BL	CB	/		0 / 148	S	0 / 148	S	/		/		0 / 67	S		0 S							Bottom layer
CB-R01-03BE	CB7.1N-TL	CB	/		6 / 668	S	0 / 668	S	/		/		0 / 65	S		0 S							Top layer
CB-R01-03BE	CB7.1N-BL	CB	/		39 / 582	S	0 / 582	S	/		/		2 / 67	S		0 S							Bottom layer
CB-R01-03CE	04M09	CB	/		/		/		/		/		/								MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03CE	06R09	CB	/		/		/		/		/		/								MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03CE	04M07	CB	/		/		/		/		/		/								SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03CE	07M11	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03CE	07M09	CB	/		/		/		/		/		/								NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-03CE	WE4.4-TL	CB	/		0 / 177	S	0 / 180	S	/		/		0 / 67	S		0 S							Top layer
CB-R01-03CE	WE4.4-BL	CB	/		0 / 213	S	0 / 216	S	/		/		0 / 66	S		0 S							Bottom layer
CB-R01-03CE	WE4.3-TL	CB	/		0 / 136	S	0 / 140	S	/		/		0 / 68	S		0 S							Top layer
CB-R01-03CE	WE4.3-BL	CB	/		0 / 146	S	0 / 147	S	/		/		1 / 67	S		0 S							Bottom layer
CB-R01-03CE	WE4.1-TL	CB	/		0 / 152	S	0 / 154	S	/		/		0 / 70	S		0 S							Top layer
CB-R01-03CE	WE4.1-BL	CB	/		1 / 168	S	0 / 170	S	/		/		1 / 68	S		0 S							Bottom layer

Chesapeake Bay and Small Coastal Basins
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			CONVENTIONAL WATER COLUMN						OTHER WATER COLUMN DATA						SEDIMENT				FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																				Pink = Threatened Waters
			#Violations/# Samples/Status						#Violations/# Samples/Status				#Violations/Status		#Violations/Status				#Violations/Status				
	Monitoring			Dissolved				Fecal	Total												Bio	Station	
WBID	Station	Type	Temperature	Oxygen		pH		Coliform	Phosphorus		Chlorophyll A		Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
CB-R01-03CE	SEGMENT-TL	CB	/	0 / 466	S	0 / 474	S	/	/		0 / 205	S		0 S									Segment Top layer
CB-R01-03CE	SEGMENT-BL	CB	/	1 / 527	S	0 / 533	S	/	/		2 / 201	S		0 S									Segment Bottom layer
CB-R01-03CE	MA97-0959	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-03CE	MA97-0061	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-03CE	MA97-0062	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	GT ERL: NI=28.3ppm, AS=8.88ppm, DIELDRIN=.2ppb
CB-R01-03CE	MA97-0063	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-03CE	MA97-0064	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	GT ERL: NI=32.1ppm,AS=9.59ppm
CB-R01-03CE	MA97-0065	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	GT ERL: NI=32.6ppm,AS=10.3ppm,DIELDRIN=.07ppb
CB-R01-03CE	MA97-0066	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-03CE	MA97-0067	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-03CE	MA97-0068	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	GT ERL: NI=32.9ppm,AS=11.3,DIEL=.65ppb,CR=82.6ppm
CB-R01-03CE	MA97-0070	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-04AE	03M07	CB	/	/		/		/	/		/										VI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	06R08	CB	/	/		/		/	/		/										MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	04M08	CB	/	/		/		/	/		/										SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	04M06	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	03M06	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	05M05	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	05M07	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	07M10	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	04M02	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	04M03	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04AE	CB6.4	CB	/	/		/		/	/		/										NI	B-IBI	Fixed B-IBI station 1996-2000 Average
CB-R01-04AE	SEGMENT-TL	CB	/	0 / 340	S	0 / 340	S	/	/		1 / 130	S		0 S									Segment Top layer
CB-R01-04AE	SEGMENT-BL	CB	/	21 / 288	S	0 / 288	S	/	/		0 / 117	S		0 S									Segment Bottom layer
CB-R01-04AE	CB6.4-TL	CB	/	0 / 340	S	0 / 340	S	/	/		1 / 130	S		0 S									Top layer
CB-R01-04AE	CB6.4-BL	CB	/	21 / 288	S	0 / 288	S	/	/		0 / 117	S		0 S									Bottom layer
CB-R01-04AE	MA97-0957	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-04AE	MA97-0970	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-04AE	MA97-0976	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-04BE	05M03	CB	/	/		/		/	/		/										MI	B-IBI	Single random B-IBI station
CB-R01-04BE	SEGMENT-TL	CB	/	0 / 515	S	0 / 515	S	/	/		0 / 166	S		0 S									Segment Top layer
CB-R01-04BE	SEGMENT-BL	CB	/	0 / 1168	S	0 / 1168	S	/	/		2 / 202	S		0 S									Segment Bottom layer
CB-R01-04BE	CB7.4-TL	CB	/	0 / 234	S	0 / 234	S	/	/		0 / 99	S		0 S									Top layer
CB-R01-04BE	CB7.4N-TL	CB	/	0 / 281	S	0 / 281	S	/	/		0 / 67	S		0 S									Top layer
CB-R01-04BE	CB7.4N-BL	CB	/	0 / 457	S	0 / 457	S	/	/		2 / 67	S		0 S									Bottom layer
CB-R01-04BE	CB7.4-BL	CB	/	0 / 711	S	0 / 711	S	/	/		0 / 135	S		0 S									Bottom layer
CB-R01-04BE	7-CHE-68	C	/	/		/		/	/		/								1 T				As exceeds tissue screening value
CB-R01-04BE	MA97-0977	MAIA	/	/		/		/	/		/				0 S	0 S						MAIA	
CB-R01-04FE	06R04	CB	/	/		/		/	/		/										MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	06R06	CB	/	/		/		/	/		/										MI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	07M27	CB	/	/		/		/	/		/										SI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	03M01	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	05M27	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	03M03	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	05M01	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	07M02	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	04M01	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	05M32	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	06R03	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	07M03	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	07M04	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	03M02	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	05M04	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	06R02	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	06R07	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	07M05	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	07M26	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	03M05	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	07M01	CB	/	/		/		/	/		/										NI	B-IBI	Random Probabilistic B-IBI station
CB-R01-04FE	CB8.1	CB	/	/		/		/	/		/										NI	B-IBI	Fixed B-IBI station 1996-2000 Average
CB-R01-04FE	CB7.3E	CB	/	/		/		/	/		/										NI	B-IBI	Fixed B-IBI station 1996-2000 Average
CB-R01-04FE	SEGMENT-TL	CB	/	0 / 1243	S	1 / 1254	S	/	/		0 / 313	S		0 S									Segment Top layer
CB-R01-04FE	SEGMENT-BL	CB	/	3 / 2228	S	0 / 2232	S	/	/		0 / 323	S		0 S									Segment Bottom layer

Chesapeake Bay and Small Coastal Basins
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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA												SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																		Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status								#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
CB-R01-04FE	CB8.1-TL	CB		/			0	/	325	S	0	/	325	S		/				/			0	/	69	S			0	S											Top layer
CB-R01-04FE	CB8.1E-TL	CB		/			0	/	305	S	0	/	305	S		/				/			0	/	69	S			0	S											Top layer
CB-R01-04FE	CB8.1E-BL	CB		/			0	/	669	S	0	/	669	S		/				/			0	/	66	S			0	S											Bottom layer
CB-R01-04FE	CB8.1-BL	CB		/			2	/	258	S	0	/	258	S		/				/			0	/	69	S			0	S											Bottom layer
CB-R01-04FE	CB7.3-TL	CB		/			0	/	269	S	0	/	280	S		/				/			0	/	113	S			0	S											Top layer
CB-R01-04FE	CB7.3E-TL	CB		/			0	/	344	S	1	/	344	S		/				/			0	/	62	S			0	S											Top layer
CB-R01-04FE	CB7.3E--BL	CB		/			0	/	724	S	0	/	724	S		/				/			0	/	62	S			0	S											Bottom layer
CB-R01-04FE	CB7.3--BL	CB		/			1	/	577	S	0	/	581	S		/				/			0	/	126	S			0	S											Bottom layer
CB-R01-05E	05M02	CB		/				/				/				/				/				/															NI	B-IBI	Single random B-IBI station
CB-R01-05E	SEGMENT-TL	CB		/			0	/	240	S	0	/	243	S		/				/			0	/	69	S			0	S											Segment Top layer
CB-R01-05E	SEGMENT-BL	CB		/			0	/	294	S	0	/	297	S		/				/			1	/	69	S			0	S											Segment Bottom layer
CB-R01-05E	LE5.5-TL	CB		/			0	/	240	S	0	/	243	S		/				/			0	/	69	S			0	S											Top layer
CB-R01-05E	LE5.5-BL	CB		/			0	/	294	S	0	/	297	S		/				/			1	/	69	S			0	S											Bottom layer
CB-R01-04FE	07M27	CB		/				/				/				/				/				/															NI	B-IBI	Single random B-IBI station
	Total Stations = 467																																								

Chowan River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status					
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
P-K01R	5AMMR000.69	A	0	/	27	S	0	/	27	S	0	/	27	S	2	/	27	S	0	/	27	S		/					0	S	0	S	0	S							
P-K02R	**5ANMR013.95**	A	0	/	27	S	0	/	27	S	0	/	27	S	**3**	**/**	**27**	**P**	0	/	27	S		/					0	S	0	S	0	S							
P-K03R	**5AFRC002.98**	A	0	/	26	S	0	/	26	S	0	/	26	S	**6**	**/**	**27**	**P**	1	/	27	S		/					0	S	0	S	0	S							
P-K04R	5ASNY000.65	A	0	/	27	S	0	/	27	S	0	/	27	S	1	/	27	S	1	/	27	S		/					0	S	0	S	0	S							
P-K05R	5AMHN073.98	SS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/					0	W											
P-K05R	**5AMHN082.13**	A	0	/	57	S	0	/	57	S	1	/	57	S	**11**	**/**	**58**	**P**	4	/	58	S		/					0	S											
P-K05R	5AMHN083.48	SS		/				/				/				/				/				/							0	S	1	T							96 Chlordane sed
P-K05R	5AMHN087.66	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-K05R	5A-PL-GR-B	SS	0	/	13	S	0	/	13	S	0	/	13	S	0	/	12	S	0	/	13	S		/					0	S											
P-K06R	5AGTC005.40	A	0	/	24	S	0	/	24	S	1	/	24	S	2	/	25	S	0	/	25	S		/					0	S											
P-K06R	**5AGTC025.70**	SS	0	/	14	S	1	/	14	S	**10**	**/**	**14**	**N**	1	/	13	S	0	/	14	S		/					0	S											
P-K06R	**5A-PL-GR-A**	SS	0	/	12	S	0	/	12	S	0	/	12	S	**3**	**/**	**11**	**N**	0	/	12	S		/					0	S											
P-K06R	5A-PL-GR-C	SS	0	/	3	S	0	/	3	S	0	/	3	S	1	/	3	S	0	/	3	S		/					0	S											
P-K06R	5A-PL-GR-D	SS	0	/	3	S	0	/	3	S	0	/	3	S	0	/	3	S	0	/	3	S		/					0	S											
P-K06R	**5AXEA000.04**	SS	0	/	14	S	0	/	14	S	**5**	**/**	**14**	**N**	0	/	13	S	0	/	14	S		/					0	S											
P-K07R	**5ARSE001.22**	A	0	/	25	S	0	/	25	S	0	/	25	S	**11**	**/**	**26**	**N**	0	/	24	S		/					0	S											
P-K07R	**5ARSE006.68**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**	NET	Decline 1998
P-K07R	**5ARSE006.75**	B		/				/				/				/				/				/															**VI**	SS	1998 Special Study - refer to 5ARSE006.68
P-K07R	5ARSE009.87	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	REF	Control Station Alberta STP
P-K08L	5AMHN053.15	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			Fish tissue 1996
P-K08R	**5AMHN068.30**	A	0	/	26	S	0	/	26	S	0	/	26	S	**3**	**/**	**27**	**P**	0	/	26	S		/					0	S											
P-K08R	5ARDC003.33	A	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S		/					0	S											
P-K09R	**5AMHN051.43**	C		/				/				/				/				/				/							0	S	0	S	1	T	**1**	**P**			96 FT/SED, As 2 sp. & benzo(k)fluoranthene 2 sp.
P-K09R	5AMHN022.23	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-K09R	5AMHN034.03	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-K09R	5AMHN048.27	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-K09R	**5AMHN052.34**	A	0	/	58	S	5	/	58	S	2	/	58	S	**12**	**/**	**59**	**P**	1	/	59	S		/					0	S											Hypolimnetic waters
P-K10R	**5ARSK003.08**	A	0	/	26	S	**3**	**/**	**26**	**P**	**4**	**/**	**26**	**P**	**3**	**/**	**26**	**P**	0	/	27	S		/					0	S											
P-K11R	**5ACTT002.73**	SS	0	/	12	S	**3**	**/**	**12**	**N**	0	/	12	S	1	/	12	S	0	/	11	S		/					0	S											
P-K11R	**5ACTT005.89**	SS	0	/	12	S	**3**	**/**	**12**	**N**	**3**	**/**	**12**	**N**	0	/	12	S	0	/	11	S		/					0	S											
P-K11R	**5AFON014.38**	SS	0	/	4	S	**2**	**/**	**4**	**N**	0	/	4	S		/				/				/																	1994 special study
P-K11R	5AFON022.04	A	0	/	22	S	1	/	22	S	2	/	22	S	2	/	23	S	0	/	23	S		/					0	S											
P-K11R	**5AFON025.64**	SS	0	/	16	S	1	/	16	S	**2**	**/**	**16**	**P**	**2**	**/**	**15**	**P**	0	/	15	S		/					0	S											
P-K11R	**5AFON027.33**	SS	0	/	12	S	**2**	**/**	**12**	**P**	1	/	12	S	**3**	**/**	**12**	**N**	0	/	11	S		/					0	S											
P-K12R	5ACNY001.08	SS	0	/	2	S	2	/	2	T	2	/	2	T		/				/				/																	1994 special study
P-K12R	**5AFON001.46**	SS	0		3	S	**2**		**3**	**N**	0		3	S																											1994 special study
P-K12R	**5AFON006.07**	A	0	/	27	S	**8**	**/**	**27**	**N**	**5**	**/**	**27**	**P**	**6**	**/**	**26**	**P**	0	/	27	S		/					0	S											
P-K12R	5AMLS000.77	SS	0	/	3	S	2	/	3	T	1	/	3	S		/				/				/																	1994 special study
P-K12R	5AMLS005.42	SS	0	/	2	S	2	/	2	T	2	/	2	T		/				/				/																	1994 special study
P-K12R	5AMLS007.96	SS	0	/	2	S	2	/	2	T	1	/	2	S		/				/				/																	1994 special study
T-K13R	5AMHN023.40	A	0	/	55	S	0	/	55	S	1	/	55	S	2	/	58	S	0	/	58	S		/																	In Hertford Co. NC
T-K13R	**5ATRR002.50**	A	0	/	55	S	**13**	**/**	**55**	**P**	3	/	55	S	2	/	58	S	0	/	57	S		/			0	S	0	S											Natural Conditions
P-K14L	**5AMDT004.94-BL**	L	0	/	3	S	**3**	**/**	**3**	**N**	0	**/**	1	W																	0	S	0	S							
P-K14L	**5AMDT004.94-TL**	L	0	/	3	S	**2**	**/**	**3**	**N**	0	/	1	W	0	/	1	W	0	/	1	W		/					0	W											Modest Creek Reservoir '96
P-K14R	**5ABHC003.73**	A	0	/	27	S	0	/	27	S	0	/	27	S	**5**	**/**	**27**	**P**	0	/	27	S		/					0	S											
P-K14R	5ANTW132.93	C																													0	S	0	S	1	S	0	S			98 (Pb 1 species whole fish)
P-K14R	5ANTW136.52	C																													0	S	0	S	0	S	0	S			98 FT/SED, previously called 5ANTW132.93
P-K14R	5ANTW155.06	A	0	/	6	S	0	/	6	S	1	/	6	S	1	/	6	S	0	/	6	S		/					0	S											
P-K15R	**5ALNT004.68**	A	0	/	26	S	0	/	26	S	0	/	26	S	**6**	**/**	**27**	**P**	0	/	27	S		/					0	S											
P-K16R	**5ABPC000.12**	A	0	/	26	S	0	/	26	S	0	/	26	S	**9**	**/**	**26**	**N**	0	/	26	S		/					0	S											
P-K16R	5ANTW115.32	SS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/					0	W											
P-K16R	5ANTW118.04	C																													0	S	0	S	0	S	0	S			Fish tissue 1998
P-K16R	**5AXBL000.80**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**	NET	Erosion and sedimentation
P-K16R	5AXBL001.18	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															NI	REF	Reference, Blackstone STP
P-K17R	5ANTW109.02	A	0	/	56	S	0	/	56	S	0	/	56	S	6	/	58	S	0	/	58	S		/					0	S											
P-K16R	5ANTW118.04	C																													0	S	0	S	0	S	0	S			98 FT/SED, Pb detected whole fish
P-K17R	**5AWAQ001.40**	A	0	/	26	S	0	/	26	S	1	/	26	S	**3**	**/**	**27**	**P**	0	/	26	S		/					0	S											
P-K17R	**5AWAQ020.52**	SS	0	/	14	S	0	/	14	S	**7**	**/**	**14**	**N**	**3**	**/**	**13**	**P**	1	/	14	S		/					0	S											
P-K17R	**5AWAQ022.17**	SS	0	/	10	S	**2**	**/**	**10**	**P**	**9**	**/**	**10**	**N**	1	/	9	S	0	/	10	S		/					0	S											
P-K18R	5ASTG005.96	A	0	/	26	S	1	/	26	S	2	/	26	S	2	/	27	S	0	/	26	S		/					0	S											
P-K19R	5AHRS-SOS	CMON																																					NI		Citizen benthic monitoring site

Chowan River Basin
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			CONVENTIONAL WATER COLUMN				OTHER WATER COLUMN DATA					SEDIMENT		FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA															Pink = Threatened Waters
			#Violations/# Samples/Status				#Violations/# Samples/Status			#Violations/Status		#Violations/Status		#Violations/Status				
WBID	Monitoring Station	Type	Temperature	Dissolved Oxygen	pH	Fecal Coliform	Total Phosphorus	Chlorophyll A	Metals	Organics	Metals	Organics	Metals	Organics	Bio Mon	Station Type	Comments
P-K19R	5ANTW073.91	B	0 / 4 S	0 / 4 S	0 / 4 S										NI	REF	Reference, 5th order stream
P-K19R	5ANTW078.20	A	0 / 57 S	1 / 57 S	2 / 57 S	5 / 58 S	0 / 58 S	/		0 S							
P-K19R	5ANTW084.97	SS	/	/	/	/	/	/			0 S	0 S					96 sed
P-K19R	5ANTW091.75	C	/	/	/	/	/	/			0 S	0 S	1 T	1 T			96 fish benzo(k)fluoranthene 1 sp. & As 2 sp.
P-K19R	5ANTW-A-SOS	CMON													NI		Citizen benthic monitoring site
P-K19R	5ANTW-B-SOS	CMON													NI		Citizen benthic monitoring site
P-K19R	5ANTW-C-SOS	CMON													NI		Citizen benthic monitoring site
P-K20R	**5ABTR002.80**	A,SS	0 / 38 S	3 / 38 S	**5 / 38 P**	1 / 38 S	1 / 38 S	/		0 S							
P-K20R	5ASTO028.19	SS	0 / 14 S	0 / 14 S	0 / 14 S	0 / 13 S	0 / 14 S	/		0 S							
P-K20R	**5AWOK000.54**	SS	0 / 14 S	**3 / 14 P**	1 / 14 S	0 / 13 S	0 / 15 S	/		0 S							
P-K21R	5ASTO000.50	SS	/	/	/	/	/	/			0 S	0 S					97 sed, previously named 5ASTO073.54
P-K21R	**5ASTO001.20**	A	0 / 27 S	0 / 27 S	**5 / 27 P**	**3 / 26 P**	0 / 27 S	/		0 S							
P-K21R	5ASTO-SOS	CMON													NI		Citizen benthic monitoring site
P-K22R	**5ASAP013.69**	A	0 / 26 S	**3 / 26 P**	1 / 26 S	**3 / 27 P**	1 / 26 S	/		0 S							
P-K23R	**5ANBT001.26**	A,SS	0 / 39 S	**13 / 39 N**	3 / 39 S	4 / 39 S	0 / 38 S	/		0 S							
P-K23R	5ANTW056.55	SS	/	/	/	/	/	/			0 S	0 S					97 sed
P-K23R	5ANTW061.40	SS	0 / 1 W	0 / 1 W	0 / 1 W	/	/	/									
P-K23R	5ANTW066.34	SS	0 / 1 W	0 / 1 W	0 / 1 W	/	/	/									
P-K23R	**5AROW013.14**	A	0 / 26 S	**3 / 26 P**	**14 / 26 N**	**6 / 26 P**	0 / 27 S	/		0 S							
P-K23R	**5AXDV000.46**	SS	0 / 10 S	**2 / 10 P**	**2 / 10 P**	1 / 11 S	8 / 9 T	/		0 S							
P-K24R	5ANTW042.74	SS	/	/	/	/	/	/			0 S	0 S					96 sed
P-K24R	5ANTW045.45	A	0 / 58 S	1 / 58 S	1 / 58 S	4 / 57 S	0 / 58 S	/		0 S							
P-K24R	5ANTW049.06	SS	0 / 1 W	0 / 1 W	0 / 1 W	/	/	/									
P-K24R	5ANTW052.83	SS	0 / 1 W	0 / 1 W	0 / 1 W	/	/	/									
P-K25R	**5ARCN003.36**	A	0 / 26 S	**5 / 26 P**	**25 / 26 N**	**4 / 21 P**	0 / 26 S	/		0 S							
P-K26R	**5ATRE026.75**	A	0 / 27 S	**8 / 27 N**	**4 / 27 P**	**5 / 21 P**	0 / 27 S	/		0 S							
T-K27R	**5ATRE008.48**	A	0 / 27 S	**6 / 27 P**	**3 / 27 P**	**3 / 28 P**	3 / 28 T										
T-K27R	**5ATRE016.02**	A/B	0 / 29 S	**4 / 29 P**	**3 / 29 P**	1 / 29 S	1 / 30 S	/	0 S	0 S					T		Unconfirmed ranking
T-K28R	5ANTW016.45	B	0 / 2 S	0 / 2 S	0 / 2 S	0 / 2 S	0 / 2 S	/	0 S		0 S	0 S			T		Unconfirmed ranking
T-K28R	5ANTW017.99	C	/	/	/	/	/	/			0 S	0 S					
T-K28R	5ANTW035.44	A	0 / 27 S	0 / 27 S	0 / 27 S	2 / 28 S	0 / 28 S	/	0 S	0 S							
P-K29R	5AASM003.00	SS	0 / 2 S	0 / 2 S	0 / 2 S	0 / 2 S	0 / 2 S	/		0 S							
P-K29R	**5AASM008.12**	A	0 / 26 S	**3 / 26 P**	1 / 26 S	**3 / 27 P**	0 / 26 S	/		0 S	0 S						Natural conditions
P-K29R	**5AASM013.36**	A	0 / 27 S	**8 / 27 N**	**8 / 27 N**	**5 / 27 P**	0 / 26 S	/		0 S							
P-K29R	**5AASM018.95**	SS	0 / 12 S	**4 / 12 N**	**2 / 12 P**	**2 / 11 P**	0 / 11 S	/		0 S							
P-K29R	**5AASM021.22**	SS	0 / 12 S	**3 / 12 N**	**2 / 12 P**	**2 / 12 P**	0 / 11 S	/		0 S							
P-K29R	**5ABLS001.58**	SS	0 / 20 S	**10 / 20 N**	**8 / 20 N**	**3 / 20 P**	0 / 20 S	/		0 S							
P-K29R	**5AGMN000.54**	SS	0 / 13 S	**5 / 13 N**	**11 / 13 N**	1 / 13 S	0 / 12 S	/		0 S							
P-K29R	**5AGMN003.19**	SS	0 / 15 S	**5 / 15 N**	**15 / 15 N**	0 / 14 S	1 / 14 S	/		0 S							
P-K29R	**5ASRE002.12**	SS	0 / 15 S	**5 / 15 N**	**14 / 15 N**	**5 / 15 N**	0 / 14 S	/		0 S							
P-K29R	**5ASRE005.89**	SS	0 / 12 S	**6 / 12 N**	**6 / 12 N**	**8 / 12 N**	6 / 11 T	/		0 S							
P-K29R	**5AXDW001.85**	SS	0 / 9 S	1 / 9 S	**8 / 9 N**	**4 / 11 N**	3 / 8 T	/		0 S							
P-K29R	**5AXDX001.35**	SS	0 / 13 S	**3 / 13 P**	0 / 13 S	**8 / 16 N**	12 / 12 T	/		**2 P**							Ammonia violations - DSS Smithfield Carolls
T-K30R	**5ADMR008.42**	A	0 / 51 S	**11 / 51 P**	4 / 51 S	2 / 53 S	7 / 54 T	/	0 S	0 S							Natural Conditions
T-K30R	5ANTW000.98	C	/	/	/	/	/	/					1 T	4 T			96 FT/SED, As & sum PAH 1 sp & 3 PAHs 3 sp.
T-K30R	5ANTW003.30	A,C,SS	0 / 55 S	3 / 55 S	2 / 55 S	0 / 57 S	1 / 58 S	/			0 S	0 S	0 S	2 T			96 FT/SED, indeno(1,2,3-cd)pyrene 2 sp; 97 Dioxin 1 sp.
T-K30R	5ANTW015.60	B	0 / 2 S	0 / 2 S	0 / 2 S	0 / 2 S	/	/	0 S		0 S	0 S			T		Unconfirmed ranking
T-K30R	5ANTW015.99	A	0 / 55 S	0 / 55 S	0 / 55 S	1 / 55 S	2 / 57 S	/									
P-K31R	**5ABLW092.62**	A	0 / 27 S	**12 / 27 N**	**11 / 27 N**	**4 / 26 P**	0 / 26 S	/		0 S							
P-K31R	**5AWKS009.11**	A	0 / 27 S	**7 / 27 N**	**22 / 27 N**	**5 / 26 P**	0 / 26 S	/		0 S							
P-K32R	**5ABLW058.22**	A	0 / 58 S	**11 / 58 P**	**8 / 58 P**	**8 / 58 P**	0 / 58 S	/		0 S							
P-K32R	**5ABLW074.66**	A	0 / 57 S	**18 / 57 N**	**11 / 57 P**	**10 / 57 P**	0 / 58 S	/		0 S							
P-K32R	**5ACPH006.00**	SS	0 / 12 S	**4 / 12 N**	**3 / 12 N**	**2 / 12 P**	0 / 11 S	/		0 S							
P-K32R	**5ACPP003.20**	A	0 / 25 S	**8 / 25 N**	**4 / 25 P**	**4 / 25 P**	0 / 26 S	/		0 S							
P-K32R	**5ASGS001.19**	SS	0 / 6 S	**4 / 6 N**	**5 / 6 N**	1 / 6 S	2 / 4 T	/		0 S							
P-K32R	**5AOTR001.26**	SS	0 / 12 S	**5 / 12 N**	**3 / 12 N**	**2 / 12 P**	2 / 11 T	/		0 S							
P-K32R	**5AOTR004.31**	SS	0 / 13 S	**3 / 13 P**	**6 / 13 N**	**4 / 13 N**	3 / 10 T	/		1 T							Ammonia violation
P-K32R	**5AOTR005.69**	SS	0 / 11 S	**2 / 11 P**	**6 / 11 N**	0 / 11 S	0 / 10 S	/		0 S							
P-K32R	**5ACPP007.84**	SS	0 / 9 S	**3 / 9 N**	**2 / 9 P**	1 / 9 S	0 / 7 S	/		0 S							
P-K32R	**5A-PL-SCP1B**	SS	0 / 9 S	**3 / 9 N**	**2 / 9 P**	1 / 9 S	0 / 7 S	/		0 S							

Chowan River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN				OTHER WATER COLUMN DATA					SEDIMENT		FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA															Pink = Threatened Waters
			#Violations/# Samples/Status				#Violations/# Samples/Status				#Violations/Status	#Violations/Status		#Violations/Status				
	Monitoring			Dissolved			Fecal	Total								Bio	Station	
WBID	Station	Type	Temperature	Oxygen	pH		Coliform	Phosphorus	Chlorophyll A	Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
P-K32R	5ASRN000.65	B	0 / 2 S	0 / 2 S	0 / 2 S		/	/	/							MI	NET	Bryants Pond algae, disch.
P-K32R	5ASRN001.24	B	0 / 3 S	0 / 3 S	0 / 3 S		/	/	/							VI	NET	Long term degradation
P-K32R	5ASRN002.66	B	0 / 3 S	0 / 3 S	0 / 3 S		/	/	/							MI	NET	Erosion and sedimentation
P-K32R	5ASRN002.96	B	0 / 3 S	0 / 3 S	0 / 3 S		/	/	/							NI	REF	Reference station
P-K32R	5AXDR000.38	SS	0 / 10 S	0 / 10 S	4 / 10 N		6 / 11 N	6 / 9 T	/		0 S							
P-K32R	5AXDS000.54	SS	0 / 9 S	1 / 9 S	9 / 9 N		0 / 9 S	0 / 7 S	/		0 S							
P-K32R	5AXDT000.50	SS	0 / 9 S	0 / 9 S	6 / 9 N		3 / 9 N	8 / 8 T	/		0 S							
P-K32R	5AXDU000.62	SS	0 / 12 S	0 / 12 S	5 / 12 N		2 / 12 P	3 / 11 T	/		0 S							
P-K33R	5ABLW053.01	SS	/	/	/		/	/				0 S	2 T					96 sed chrysene & Total PAH
T-K33R	5ABLW040.22	A	0 / 57 S	11 / 57 P	2 / 57 S		3 / 59 S	2 / 58 S	/	0 S	0 S							Natural Conditions
T-K34R	5ARKN006.40	A	0 / 57 S	21 / 57 N	2 / 57 S		7 / 59 P	0 / 58 S	/	0 S	0 S							Natural Conditions
T-K35R	5ASCK006.96	A	0 / 23 S	1 / 23 S	5 / 23 P		2 / 24 S	0 / 24 S	/									Natural Conditions
T-K35R	5ASCK018.65	A	0 / 25 S	12 / 25 N	15 / 25 N		2 / 25 S	11 / 25 T	/									Natural Conditions
P-K34R	5AMSW006.77	A	0 / 24 S	9 / 24 N	7 / 24 N		3 / 24 P	1 / 25 S	/		0 S							Natural Conditions
P-K35R	5AXDY000.96	SS	0 / 10 S	4 / 10 N	7 / 10 N		7 / 12 N	8 / 9 T	/									Natural Conditions
P-K35R	5AXDZ000.81	SS	0 / 15 S	10 / 15 N	14 / 15 N		0 / 14 S	12 / 13 T	/									Natural Conditions
P-K35R	5AXDZ001.73	SS	0 / 12 S	7 / 12 N	1 / 12 S		7 / 17 N	13 / 13 T	/									Natural Conditions
T-K36R	5ABLW000.30	SS	/	/	/		/	/		0 S								
T-K36R	5ABLW000.60	C	/	/	/		/	/	/					0 S	1 T			PAH, benz(a)anthracene
T-K36R	5ABLW001.10	B	0 / 2 S	0 / 2 S	0 / 2 S		0 / 2 S	0 / 2 S	/	0 S						T		Unconfirmed ranking
T-K36R	5ABLW009.14	A	0 / 55 S	11 / 55 P	1 / 55 P		2 / 57 S	1 / 58 S	/									Natural Conditions
T-K36R	5ABLW009.80	A	0 / 17 S	8 / 17 N	0 / 17 S		1 / 17 S	0 / 16 S	/	0 S	0 S							
T-K36R	5ABLW010.08	C	/	/	/		/	/	/			0 S	0 S					
T-K36R	5ABLW010.60	A	0 / 17 S	8 / 17 N	0 / 17 S		0 / 17 S	0 / 17 S	/	0 S	0 S							
T-K36R	5ABLW011.48	A	0 / 17 S	8 / 17 N	0 / 17 S		1 / 17 S	0 / 17 S	/	0 S	0 S							
T-K36R	5ABLW012.28	A	0 / 17 S	7 / 17 N	0 / 17 S		1 / 17 S	0 / 16 S	/	0 S	0 S							
T-K36R	5ABLW012.96	A	0 / 17 S	8 / 17 N	0 / 17 S		0 / 17 S	1 / 17 S	/	0 S	0 S							
T-K36R	5ABLW013.16	A	0 / 17 S	9 / 17 N	1 / 17 S		1 / 17 S	0 / 17 S	/									
T-K36R	5ABLW014.28	A	0 / 17 S	10 / 17 N	1 / 17 S		0 / 17 S	0 / 17 S	/									
T-K36R	5ABLW014.88	A	0 / 16 S	7 / 16 N	1 / 16 S		0 / 15 S	0 / 15 S	/	0 S	0 S							
T-K36R	5ABLW016.27	A	0 / 16 S	8 / 16 N	1 / 16 S		0 / 16 S	0 / 14 S	/	0 S	0 S							
T-K36R	5ABLW016.93	C										0 S	0 S					
T-K36R	5ABLW022.84	A,C	0 / 27 S	2 / 27 S	2 / 27 S		2 / 27 S	0 / 28 S	/	0 S	0 S	1 T	0 S	0 S	1 T			96 FT/SED, PAHs 3 sp. & sed Ni
T-K37R	5AXDN000.48	A	0 / 35 S	11 / 35 N	25 / 35 N		2 / 37 S	3 / 37 S	/									Natural Conditions (pH)
T-K38R	5ASTN008.78	A/B	0 / 57 S	17 / 57 N	9 / 57 P		0 / 57 S	0 / 59 S	/	0 S	0 S	0 S	0 S			T		Natural Conditions,Benthic Unconfirmed ranking
T-K39R	5BXCK000.00	A	0 / 59 S	5 / 59 S	59 / 59 N		0 / 59 S	0 / 59 S	/	0 S	0 S							Natural Conditions
T-K40R	5BIND001.15	A	0 / 59 S	14 / 59 P	1 / 59 S		5 / 59 S	37 / 57 T	/									
T-K40R	5BNTW007.49	A	0 / 19 S	2 / 19 P	1 / 19 S		0 / 19 S	0 / 18 S	/	0 S	0 S							
T-K40R	5BNTW008.97	A	0 / 19 S	4 / 19 P	2 / 19 P		0 / 19 S	0 / 19 S	/	0 S	0 S							
T-K40R	5BNTW009.49	A	0 / 19 S	3 / 19 P	2 / 19 P		0 / 19 S	0 / 19 S	/	0 S	0 S							
T-K40R	5BNTW010.23	A	0 / 19 S	3 / 19 P	2 / 19 P		0 / 19 S	0 / 19 S	/	0 S	0 S							
T-K40R	5BNTW011.90	A,C	0 / 42 S	16 / 42 N	7 / 42 P		0 / 43 S	1 / 42 S	/	0 S	0 S	0 S	0 S	0 S	0 S			
T-K40R	5BNTW012.86	A	0 / 19 S	11 / 19 N	2 / 19 P		0 / 19 S	0 / 19 S	/	0 S	0 S							
T-K40R	5BXAM000.60	A	0 / 19 S	7 / 19 N	2 / 19 P		1 / 19 S	0 / 18 S	/	0 S	0 S							
T-K41R	5BBKW002.50	A	0 / 58 S	2 / 58 S	0 / 58 S		1 / 59 S	10 / 60 T	/	0 S	0 S							
T-K41R	5BMLD001.92	A	0 / 59 S	16 / 59 N	0 / 59 S		7 / 58 P	22 / 60 T	/	0 S	0 S							
T-K41R	5BNLR000.00	A	0 / 26 S	0 / 26 S	0 / 25 S		0 / 26 S	0 / 26 S	/	0 S	0 S							
T-K41R	5BNLR002.11	A,C	0 / 26 S	1 / 26 S	0 / 25 S		0 / 26 S	0 / 26 S	/	0 S	0 S	1 T	0 S	0 S	0 S			Mercury sediment 1998
T-K41R	5BNLR003.83	A	0 / 26 S	1 / 26 S	0 / 25 S		0 / 26 S	1 / 26 S	/	0 S	0 S							
T-K41R	5BNLR005.56	A	0 / 26 S	1 / 26 S	0 / 25 S		1 / 26 S	2 / 26 S	/	0 S	0 S							
T-K41R	5BNLR007.56	A	0 / 26 S	1 / 26 S	0 / 25 S		0 / 26 S	2 / 26 S	/	0 S	0 S							
T-K41R	5BNLR010.25	A	0 / 26 S	1 / 26 S	0 / 25 S		1 / 26 S	2 / 26 S	/	0 S	0 S	0 S	0 S					
T-K41R	5BNLR010.75	A	0 / 26 S	3 / 26 P	0 / 25 S		1 / 26 S	3 / 26 T	/	0 S	0 S							
T-K41R	5BNLR013.61	A,C	0 / 59 S	11 / 59 P	0 / 58 S		2 / 58 S	4 / 59 S	/	0 S	0 S	0 S	0 S	0 S	0 S			
T-K41R	5BPCT001.79	A	0 / 59 S	27 / 59 N	0 / 59 S		6 / 58 P	21 / 60 T	/									
T-K41R	5BWNC001.73	A	0 / 59 S	3 / 59 S	0 / 59 S		1 / 58 S	7 / 60 S	/	0 S	0 S	0 S	0 S					
T-K41R	5BWNC003.65	A	0 / 53 S	10 / 53 P	0 / 51 S		1 / 51 S	3 / 54 S	/									Natural Conditions
T-K41R	5BWNC010.02	A	0 / 59 S	8 / 59 P	0 / 59 S		18 / 59 N	13 / 59 T	/	0 S	0 S							
T-K42E	5BBBC000.76	A	/	3 / 53 S	1 / 49 S		3 / 50 S	/	7 / 12 T	0 S	0 S							
T-K42E	5BBKY000.99	A	/	0 / 19 S	2 / 19 S		0 / 18 S	/	5 / 10 T	0 S	0 S							
T-K42E	5BBKY003.47	A,C	/	0 / 19 S	1 / 19 S		0 / 18 S	/	7 / 11 T	0 S	0 S	0 S	0 S	0 S	0 S			

Chowan River Basin
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			CONVENTIONAL WATER COLUMN				OTHER WATER COLUMN DATA					SEDIMENT		FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA															Pink = Threatened Waters
			#Violations/# Samples/Status				#Violations/# Samples/Status				#Violations/Status	#Violations/Status		#Violations/Status				
	Monitoring			Dissolved			Fecal	Total								Bio	Station	
WBID	Station	Type	Temperature	Oxygen	pH		Coliform	Phosphorus	Chlorophyll A		Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
T-K42E	5BBKY006.37	A	/	1 / 19 S	0 / 19 S		1 / 18 S	/	6 / 11 T		0 S	0 S							
T-K42E	5BBKY006.48	A	/	0 / 19 S	0 / 19 S		0 / 18 S	/	4 / 9 T		0 S	0 S							
T-K42E	5BHPC000.00	A	/	2 / 19 S	0 / 19 S		1 / 18 S	/	4 / 10 T		0 S	0 S							
T-K42E	5BHPC001.46	A	/	1 / 74 S	1 / 70 S		5 / 72 S	/	9 / 12 T		0 S	0 S	0 S	0 S					
T-K42E	5BMDY000.00	A	/	1 / 53 S	1 / 49 S		5 / 52 S	/	7 / 11 T		0 S	0 S							
T-K42E	**5BNWN000.00**	A	/	3 / 52 S	1 / 50 S		**7 / 51 P**	/	4 / 11 T										
T-K42E	**5BNWN001.84**	A	/	**14 / 53 N**	1 / 50 S		5 / 52 S	/	7 / 12 T		0 S	0 S							Natural conditions
T-K42E	5BSHB000.57	A	/	0 / 19 S	1 / 19 S		0 / 18 S	/	5 / 10 T		0 S	0 S							
	Total Stations = 189																		

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
V-I01R	2-JKS058.60	A	0	/	61	S	0	/	60	S	0	/	60	S	0	/	58	S	0	/	58	S		/			0	S	0	S	0	S	0	S							
V-I01R	2-JKS067.00	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															SI		
V-I01R	2-JKS087.13	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															SI		
V-I01R	2JKS-2-SOS	CMON		/				/				/				/				/				/															LP		
V-I01R	2JKS-6-SOS	CMON		/				/				/				/				/				/															LP		
V-I01R	2MYY-1-SOS	CMON		/				/				/				/				/				/															MP		
V-I01R	2MYY-A-SOS	CMON		/				/				/				/				/				/															LP		
V-I01R	2MYY-B-SOS	CMON		/				/				/				/				/				/															LP		
V-I01R	6021	USFS		/				/				/				/				/				/															SI		
V-I02R	2-BCC004.71	A	0	/	60	S	0	/	59	S	0	/	59	S	0	/	57	S	0	/	58	S		/			0	S	0	S	0	S	0	S							
V-I02R	2-BCC020.81	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															SI		
V-I02R	2-LTB007.76	SS,B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S					SI		
V-I02R	2-XXB000.63	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															SI		
V-I02R	6006	USFS		/				/				/				/				/				/															NI		
V-I02R	6007	USFS		/				/				/				/				/				/															SI		
V-I02R	6016	USFS		/				/				/				/				/				/															SI		
V-I02R	6022	USFS		/				/				/				/				/				/															NI		
V-I02R	6024	USFS		/				/				/				/				/				/															SI		
V-I02R	6025	USFS		/				/				/				/				/				/															SI		
V-I02R	6026	USFS		/				/				/				/				/				/															SI		
V-I02R	6058	USFS		/				/				/				/				/				/															NI		
V-I02R	6065	USFS		/				/				/				/				/				/															SI		
V-I02R	6070	USFS		/				/				/				/				/				/															SI		
W-I03L	**2-JKS044.60-BL**	A	0	/	34	S	**7**	**/**	**32**	**P**	0	/	34	S		/			0	/	36	S		/					0	S	1	T	0	S							Ni Sed
W-I03L	2-JKS044.60-TL	A	0	/	17	S	0	/	16	S	0	/	17	S	0	/	17	S	0	/	18	S	0	/	10	S			0	S											
W-I03L	**2-JKS046.40-BL**	A	0	/	33	S	**8**	**/**	**31**	**P**	0	/	31	S		/			0	/	35	S		/					0	S	1	T	0	S							Ni Sed
W-I03L	2-JKS046.40-TL	A	0	/	17	S	0	/	16	S	0	/	17	S	0	/	17	S	0	/	17	S	0	/	10	S			0	S											
W-I03L	**2-JKS048.90-BL**	A	0	/	32	S	**5**	**/**	**30**	**P**	0	/	32	S		/			0	/	36	S		/					0	S	0	S	0	S							
W-I03L	2-JKS048.90-TL	A	0	/	16	S	0	/	15	S	0	/	15	S	0	/	16	S	0	/	18	S	0	/	10	S			0	S											
W-I03L	2-JKS053.48-TL	A	0	/	13	S	0	/	12	S	0	/	13	S	1	/	14	S	0	/	14	S	0	/	7	S			0	S											
W-I04R	2-FAS000.20	A	1	/	3	S	0	/	3	S	0	/	2	S	0	/	3	S		/				/							0	S	0	S							°C Natural Excd in July; Sta. discont'd 7/96
W-I04R	2-JKS026.01	SS1	0	/	12	S	0	/	12	S	0	/	4	S		/				/				/																	Dissolved Oxygen Bank Grabs
W-I04R	2-JKS026.01	SS2	0	/	463	S	0	/	463	S																															Dissolved Oxygen & Temp Recorder. 1998 9/16 - 21
W-I04R	2-JKS028.22	SS		/				/				/				/				/				/					0	S	0	S	0	S							97 Sed
W-I04R	2-JKS030.65	A,B,SS	0	/	66	S	0	/	66	S	0	/	66	S	0	/	58	S	0	/	57	S		/			0	S	0	S	0	S	0	S					NI	REF	1 SS benthic sur.; 10 reg. program sur.
W-I04R	2-JKS039.01	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	NET	
W-I04R	3028	USFS		/				/				/				/				/				/															NI		
W-I05R	**2-CRE002.37**	A	**14**	**/**	**61**	**P**	0	/	60	S	1	/	60	S	2	/	56	S	0	/	58	S		/			0	S	0	S	0	S	0	S							°C Natural
W-I05R	2-HSR004.56	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
W-I06R	**2-SSC000.25**	A	**2**	**/**	**8**	**P**	0	/	8	S	0	/	8	S	0	/	8	S	0	/	6	S		/					0	S	0	S	0	S							°C Natural - Exceedance in Jul/Aug
W-I07R	2-DNP000.01	SS	0	/	9	S	0	/	9	S	0	/	3	S		/				/				/																	
W-I07R	2-DNP001.98	A	0	/	21	S	0	/	21	S	0	/	20	S	0	/	22	S	0	/	14	S		/					0	S	0	S	0	S							
W-I07R	3005	USFS		/				/				/				/				/				/															NI		
W-I07R	3023	USFS		/				/				/				/				/				/															NI		
W-I07R	3025	USFS		/				/				/				/				/				/															NI		
W-I07R	3026	USFS		/				/				/				/				/				/															NI		
W-I07R	3042	USFS		/				/				/				/				/				/															NI		
W-I08R	2-OGL004.32	B	0	/	8	S	0	/	8	S	0	/	8	S	0	/	8	S	0	/	6	S		/					0	S	0	S	0	S					NI	NET	
W-I09R	2-JKS000.38	A	0	/	58	S	0	/	58	S	0	/	58	S	2	/	58	S	17	/	58	T		/					0	S	1	T	0	S							Ni Sed '00
W-I09R	**2-JKS006.67**	A,B	0	/	67	S	0	/	67	S	0	/	67	S	2	/	58	S	13	/	57	T		/			0	S	0	S	0	S	0	S					**MI**	NET	
W-I09R	2-JKS011.92	SS	0	/	2	S	0	/	2	S		/				/				/				/																	0 DO obs btwn 4.0-5.0 mg/l
W-I09R	**2-JKS013.29**	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/			0	S											**VI**	NET	
W-I09R	2-JKS013.45	SS	0	/	6	S	0	/	6	S	0	/	3	S		/				/				/																	0 DO obs btwn 4.0-5.0 mg/l
W-I09R	2-JKS015.80	SS	0	/	8	S	0	/	9	S		/				/				/				/																	5 DO obs btwn 4.0-5.0 mg/l
W-I09R	2-JKS017.03	SS	0	/	3	S	1	/	3	S		/				/				/				/																	2 DO obs btwn 4.0-5.0 mg/l
W-I09R	2-JKS017.30	SS	0	/	13	S	0	/	14	S	0	/	4	S		/				/				/																	6 DO obs btwn 4.0-5.0 mg/l
W-I09R	**2-JKS018.68**	A,B	0	/	67	S	1	/	67	S	0	/	67	S	1	/	58	S	15	/	58	T		/					0	S	0	S	0	S					**MI**	NET	1 SS '96 benthic sur.; 10 reg. program sur.
W-I09R	2-JKS018.68	SS	0	/	12	S	0	/	12	S	0	/	4	S		/				/				/																	1 DO obs btwn 4.0-5.0 mg/l
W-I09R	2-JKS021.06	SS	0	/	12	S	0	/	12	S	0	/	3	S		/				/				/																	1 DO obs btwn 4.0-5.0 mg/l
W-I09R	**2-JKS021.40**	B,SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															**MI**	SS	1 SS '96 benthic survey
W-I09R	2-JKS022.15	SS1	0	/	17	S	0	/	17	S	0	/	4	S		/				/				/																	4 DO obs btwn 4.0-5.0 mg/l
W-I09R	**2-JKS022.15**	SS2	0	/	481	S	**222**	**/**	**481**	**N**																															Dissolved Oxygen & Temp Recorder. 1998 9/16 - 21

James River Basin
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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring		Dissolved												Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
W-I09R	2-JKS022.55	SS		/				/				/				/				/				/							0	S	2	T							97 Sed PCB & chlorodane
W-I09R	2-JKS022.78	SS	0	/	14	S	0	/	14	S	0	/	3	S		/				/				/																	
W-I09R	2-JKS023.32	SS	0	/	3	S	0	/	3	S	0	/	2	S		/				/				/																	
W-I09R	**2-JKS023.61**	A,B	0	/	68	S	0	/	67	S	0	/	68	S	**19**	**/**	**59**	**N**	26	/	59	T		/					0	S	1	T	1	T					**VI**	NET	Organic Enriched; Sed Zn & PCB
W-I09R	**2-JKS023.61**	SS	0	/	26	S	**6**	**/**	**25**	**P**	0	/	4	S		/				/				/																	Diurnal; 4 DO obs btwn 4-5.0 mg/l
W-I09R	2-JKS023.88	C,SS																													1	T	0	S	0	S	1	T			95 FT/Sed; FT PCB 1sp; Sed Zn
W-I09R	2-JKS024.14	SS	0	/	12	S	0	/	12	S	0	/	4	S		/				/				/																	
W-I09R	2-SMH000.08	A	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S	0	/	1	W		/					0	S	1	T	0	S							Sed NI
W-I09R	2-WLN010.35	A	0	/	17	S	0	/	17	S	0	/	17	S	0	/	15	S	0	/	15	S		/					0	S	0	S	0	S							
W-I09R	3002	USFS		/				/				/				/				/				/															NI		PWS
W-I09R	3003	USFS		/				/				/				/				/				/															NI		
W-I09R	3030	USFS		/				/				/				/				/				/															NI		PWS
W-I09R	3038	USFS		/				/				/				/				/				/															NI		
W-I09R	3039	USFS		/				/				/				/				/				/															NI		
W-I09R	6012	USFS		/				/				/				/				/				/															SI		
W-I09R	6013	USFS		/				/				/				/				/				/															SI		
W-I10R	2-POT030.66	B	0	/	10	S	0	/	8	S	0	/	7	S		/				/				/															NI	REF	
W-I10R	6537	USFS		/				/				/				/				/				/															W		Ephemeral Stream - low water
W-I10R	6538	USFS		/				/				/				/				/				/															NI		
W-I10R	6551	USFS		/				/				/				/				/				/															W		Ephemeral Stream - low water
W-I11R	2-POT000.12	A	0	/	22	S	0	/	22	S	0	/	22	S	1	/	22	S	0	/	14	S		/					0	S	0	S	0	S							
W-I11R	2-POT008.24	SS	0	/	8	S	0	/	8	S	0	/	3	S																											
W-I11R	3040	USFS		/				/				/				/				/				/															NI		
W-I11R	3041	USFS		/				/				/				/				/				/															NI		
W-I11R	3043	USFS		/				/				/				/				/				/															NI		
V-I12R	1002	USFS		/				/				/				/				/				/															SI		
V-I12R	1015	USFS		/				/				/				/				/				/															SI		
V-I12R	2-CWP068.52	A	0	/	20	S	0	/	20	S	0	/	20	S	1	/	19	S	1	/	19	S		/																	
V-I13R	2-BLP000.79	A,B	2	/	66	S	0	/	65	S	0	/	66	S	1	/	56	S	0	/	57	S		/			0	S	0	S	0	S	0	S					NI		
V-I14R	2-CWP050.66	A,B	0	/	23	S	0	/	23	S	0	/	23	S	1	/	15	S	0	/	15	S		/			0	S	0	S	1	T	0	S					NI		Ni
V-I14R	2CWP-SOS	CMON		/				/				/				/				/				/															LP		
V-I14R	2-PTY000.36	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-I14R	2TMP-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I14R	2TMP-SOS	CMON		/				/				/				/				/				/															LP		
V-I14R	6009	USFS		/				/				/				/				/				/															SI		
V-I15R	2-STU005.00	A	0	/	18	S	0	/	18	S	0	/	18	S	0	/	15	S	0	/	15	S		/			0	S	0	S	0	S	0	S							
V-I16R	2CWB-2-SOS	CMON		/				/				/				/				/				/															LP		
V-I16R	6055	USFS		/				/				/				/				/				/															NI		
V-I17R	2-CWP002.43	B																																					NI		
V-I17R	2-CWP002.58	A	0	/	22	S	0	/	22	S	0	/	22	S	0	/	22	S	1	/	15	S		/							0	S	0	S							
V-I17R	2-CWP002.43	B																																					NI		
V-I17R	3050	USFS		/				/				/				/				/				/															SI		
W-I17R	3050	USFS		/				/				/				/				/				/															NI		
W-I18R	2-JMS345.15	SS		/				/				/				/				/				/							0	S	0	S							96 Sed
W-I18R	**2-JMS345.73**	B	0	/	9	S	0	/	9	S	0	/	9	S		/				/				/															**MI**	NET	
W-I18R	2-MIV000.39	A	0	/	21	S	0	/	21	S	0	/	21	S	2	/	22	S	0	/	14	S		/					0	S	0	S	0	S							
W-I18R	2-SKG001.04	A	0	/	3	S	0	/	3	S	0	/	3	S	0	/	3	S		/				/																	Sta. discont'd 7/96
W-I18R	3013	USFS		/				/				/				/				/				/															NI		
W-I18R	3027	USFS		/				/				/				/				/				/															NI		
W-I18R	3029	USFS		/				/				/				/				/				/															NI		
W-I19R	2-CRG062.29	A	0	/	21	S	0	/	21	S	0	/	20	S	0	/	23	S	0	/	16	S		/							0	S	0	S							
W-I19R	2-CRG074.47	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	REF	
W-I19R	2CRG-SOS	CMON	0	/	3	S		/				/				/				/				/															LP		
W-I19R	6541	USFS		/				/				/				/				/				/															NI		
W-I19R	6542	USFS		/				/				/				/				/				/															NI		
W-I19R	8028	USFS		/				/				/				/				/				/															NI		
W-I19R	8110	USFS		/				/				/				/				/				/															NI		
W-I19R	8111	USFS		/				/				/				/				/				/															NI		
W-I20R	2-MEO000.38	A,B	1	/	27	S	0	/	27	S	0	/	24	S	1	/	20	S	0	/	16	S		/					0	S	0	S	0	S					NI	REF	
W-I21R	2-JOB000.39	A,B	0	/	26	S	0	/	26	S	0	/	26	S	1	/	23	S	1	/	16	S		/							0	S	0	S					NI	NET	Station moved to 2-JOB001.17
W-I21R	2-JOB001.17	B	0	/	5	S	0	/	5	S	0	/	3	S		/				/				/															NI	NET	
W-I21R	6543	USFS		/				/				/				/				/				/															W		Ephemeral Stream - low water
W-I21R	6544	USFS		/				/				/				/				/				/															W		Ephemeral Stream - low water

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			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A		Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
W-I21R	6546	USFS		/				/				/				/				/				/														NI		
W-I21R	6550	USFS		/				/				/				/				/				/														NI		
W-I21R	6561	USFS		/				/				/				/				/				/														W		Ephemeral Stream - low water
W-I21R	6562	USFS		/				/				/				/				/				/														W		Ephemeral Stream - low water
W-I21R	6563	USFS		/				/				/				/				/				/														NI		
W-I21R	6564	USFS		/				/				/				/				/				/														W		Survey collection during drought conditions
W-I21R	6565	USFS		/				/				/				/				/				/														NI		
W-I21R	6566	USFS		/				/				/				/				/				/														W		Ephemeral Stream - Collection during drought conditions
W-I21R	6567	USFS		/				/				/				/				/				/														NI		
W-I21R	8029	USFS		/				/				/				/				/				/														NI		
W-I21R	8094	USFS		/				/				/				/				/				/														NI		
W-I21R	8103	USFS		/				/				/				/				/				/														NI		
W-I22R	**2-BAR000.60**	A	**3**	**/**	**18**	**P**	0	/	18	S	0	/	17	S	2	/	20	S	0	/	16	S		/					0	S	0	S								°C Natural
W-I22R	2-CRG001.20	A	0	/	21	S	0	/	21	S	0	/	20	S	1	/	22	S	0	/	14	S		/			0	S	2	T									Ni & Zn Sed.
W-I22R	2-CRG042.34	A	0	/	8	S	0	/	8	S	0	/	8	S	1	/	9	S	0	/	8	S		/			0	S	0	S	0	S								
W-I22R	5600	USFS		/				/				/				/				/				/														W		Possible miss location of station data
W-I22R	6514	USFS		/				/				/				/				/				/														T		1 1996 Survey
W-I22R	6515	USFS		/				/				/				/				/				/														T		1 1996 Survey
W-I22R	6516	USFS		/				/				/				/				/				/														T		1 1997 Survey
W-I22R	6536	USFS		/				/				/				/				/				/														NI		
W-I22R	6547	USFS		/				/				/				/				/				/														NI		
W-I22R	6552	USFS		/				/				/				/				/				/														W		Ephemeral Stream - low water
W-I22R	6568	USFS		/				/				/				/				/				/														NI		
W-I22R	6569	USFS		/				/				/				/				/				/														W		Ephemeral Stream - Survey during drought
W-I23R	2-BAR010.10	A	1	/	8	S	0	/	8	S	0	/	8	S	1	/	9	S	0	/	8	S		/					0	S	0	S								
W-I23R	6517	USFS		/				/				/				/				/				/														W		Survey collection during low water conditions
W-I23R	6518	USFS		/				/				/				/				/				/														W		Survey collection during low water conditions
W-I23R	6519	USFS		/				/				/				/				/				/														W		Survey collection during low water conditions
W-I23R	6520	USFS		/				/				/				/				/				/														NI		
W-I23R	6521	USFS		/				/				/				/				/				/														NI		
W-I23R	6522	USFS		/				/				/				/				/				/														W		Ephemeral Stream - low water
W-I23R	6524	USFS		/				/				/				/				/				/														W		Ephemeral Stream - low water
W-I24R	2-JMS326.30	A,B,SS	0	/	26	S	0	/	26	S	0	/	26	S	0	/	22	S	2	/	15	T		/			0	S	2	T	0	S					SI	NET	96 Sed ZN; AQ Ni & Zn Sed-Bio OK
W-I25R	**2-CAT014.63**	A	0	/	21	S	0	/	21	S	0	/	21	S	**3**	**/**	**23**	**P**	0	/	16	S		/			0	S	1	T	0	S								Ni Sed
W-I25R	6549	USFS		/				/				/				/				/				/														W		Ephemeral Stream - low water- 1 survey
W-I26R	**2-LMC000.40**	A	0	/	21	S	0	/	21	S	0	/	21	S	**3**	**/**	**23**	**P**	0	/	16	S		/			0	S	0	S	0	S								
V-I27R	2-JES000.80	A	1	/	3	S	0	/	3	S	0	/	3	S	0	/	3	S		/				/																	
V-I27R	2-JES002.87	B																																				NI		
V-I27R	2-JMS302.85	A	0	/	58	S	0	/	58	S	1	/	58	S	0	/	57	S	2	/	58	S		/					0	S	0	S								
V-I27R	5500	USFS		/				/				/				/				/				/														NI		
V-I27R	5530	USFS		/				/				/				/				/				/														NI		
V-I27R	5531	USFS		/				/				/				/				/				/														SI		
V-I27R	5532	USFS		/				/				/				/				/				/														NI		
V-I27R	5533	USFS		/				/				/				/				/				/														SI		
V-I27R	5535	USFS		/				/				/				/				/				/														SI		
V-I27R	5536	USFS		/				/				/				/				/				/														SI		
V-I27R	5537	USFS		/				/				/				/				/				/														SI		
V-I27R	5544	USFS		/				/				/				/				/				/														NI		
V-I27R	5574	USFS		/				/				/				/				/				/														T		One Visit
V-I27R	5576	USFS		/				/				/				/				/				/														SI		
V-I27R	5577	USFS		/				/				/				/				/				/														SI		
V-I28R	**2-CEC000.04**	A	0	/	15	S	0	/	15	S	0	/	15	S	**2**	**/**	**13**	**P**	0	/	14	S		/					0	S	0	S								
V-I28R	**2-ELK001.37**	A	**4**	**/**	**14**	**N**	0	/	14	S	0	/	14	S	0	/	12	S	0	/	13	S		/		0	S		0	S	0	S								
V-I28R	2-JMS290.85	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/		0	S	0	S	0	S	0	S							
V-I28R	2-JMS295.68	SS																											0	S	0	S								97 sed
V-I28R	5507	USFS		/				/				/				/				/				/														SI		
V-I28R	5539	USFS		/				/				/				/				/				/														SI		
V-I28R	5540	USFS		/				/				/				/				/				/														NI		
V-I28R	5541	USFS		/				/				/				/				/				/														SI		
V-I28R	5542	USFS		/				/				/				/				/				/														SI		
V-I28R	5543	USFS		/				/				/				/				/				/														SI		
V-I28R	5545	USFS		/				/				/				/				/				/														SI		
V-I28R	5549	USFS		/				/				/				/				/				/														SI		

James River Basin
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			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved						pH				Fecal				Total				Chlorophyll A		Metals		Organics		Metals		Organics		Metals		Organics		Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus																				Mon	Type	Comments
V-I28R	5550	USFS		/				/				/				/				/				/															SI		
V-I28R	5552	USFS		/				/				/				/				/				/															SI		
V-I28R	5553	USFS		/				/				/				/				/				/															SI		
V-I28R	5554	USFS		/				/				/				/				/				/															SI		
V-I28R	5558	USFS		/				/				/				/				/				/															SI		
V-I28R	5578	USFS		/				/				/				/				/				/															T		One Visit
V-I29R	1001	USFS		/				/				/				/				/				/															SI		
V-I29R	1010	USFS		/				/				/				/				/				/															NI		
V-I29R	1012	USFS		/				/				/				/				/				/															SI		
V-I29R	1023	USFS		/				/				/				/				/				/															SI		
V-I29R	1024	USFS		/				/				/				/				/				/															SI		
V-I29R	1025	USFS		/				/				/				/				/				/															NI		
V-I29R	1031	USFS		/				/				/				/				/				/															SI		
V-I29R	2-CFP036.20	A	0	/	15	S	0	/	15	S	0	/	15	S	0	/	14	S	0	/	14	S		/							0	S	0	S							
V-I30R	1004	USFS		/				/				/				/				/				/															SI		
V-I30R	1005	USFS		/				/				/				/				/				/															SI		
V-I30R	1007	USFS		/				/				/				/				/				/															SI		
V-I30R	1016	USFS		/				/				/				/				/				/															SI		
V-I30R	1019	USFS		/				/				/				/				/				/															NI		
V-I30R	1030	USFS		/				/				/				/				/				/															SI		
V-I30R	2-CFP000.02	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI		
V-I30R	2-CFP004.67	A	0	/	60	S	0	/	59	S	0	/	59	S	0	/	56	S	0	/	58	S		/							0	S	0	S							
V-I30R	2CFP-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I31R	**2-BRT000.94**	A,B	**7**	**/**	**29**	**P**	0	/	29	S	0	/	29	S	0	/	24	S	0	/	24	S		/		0	S	0	S	0	S	0	S						SI		
V-I31R	2BRT-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I31R	2BRT-SOS	CMON		/				/				/				/				/				/															LP		
V-I31R	3001	USFS		/				/				/				/				/				/															SI		
V-I31R	3018	USFS		/				/				/				/				/				/															SI		
V-I31R	3031	USFS		/				/				/				/				/				/															T		One Visit
V-I32R	**2-LCF000.02**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**		
V-I32R	**2-LCF000.76**	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/															**VI**		
V-I32R	2-LCF004.80	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															SI		
V-I32R	2-LCF007.00	A	0	/	60	S	0	/	59	S	0	/	59	S	1	/	56	S	0	/	58	S		/							0	S	0	S							
V-I32R	2-LCF010.83	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															SI		
V-I32R	2-XMO000.04	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-I33R	2-CGB001.80	A	0	/	25	S	0	/	25	S	0	/	25	S	2	/	24	S	0	/	24	S		/							0	S	0	S							
V-I33R	2-KRR001.54	A,B	0	/	20	S	0	/	20	S	0	/	20	S	0	/	13	S	0	/	14	S		/		0	S	0	S	0	S	0	S						SI		
V-I33R	2KRR-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I33R	2-MRY029.17	SS																													0	S	1	T							96 sed DDT
V-I33R	2-MRY038.10	A	0	/	17	S	0	/	17	S	0	/	16	S	0	/	17	S	0	/	17	S		/							0	S	0	S							
V-I33R	2-MRY038.29	A	0	/	43	S	0	/	43	S	0	/	43	S	0	/	42	S	0	/	42	S		/		0	S	0	S	0	S	0	S							
V-I33R	2-MRY043.64	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															SI		
V-I33R	2MRY-2-SOS	CMON		/				/				/				/				/				/															LP		
V-I33R	2MRY-C-SOS	CMON		/				/				/				/				/				/															LP		
V-I34R	**2-HYS001.41**	A,B	**6**	**/**	**29**	**P**	0	/	29	S	0	/	29	S	2	/	24	S	1	/	24	S		/							0	S	0	S						SI		
V-I34R	2HYS-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I35R	2-MIS000.04	A	0	/	25	S	0	/	25	S	0	/	25	S	1	/	24	S	0	/	24	S		/							0	S	0	S							
V-I35R	2-MRY023.81	SS																													0	S	0	S							97 sed
V-I35R	2-MRY023.42	A	0	/	1	W	0	/	1	W	0	/	1	W		/	0			/	0			/		0	S	0	S	0	S	0	S							
V-I35R	2MRY-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I35R	2MRY-A-SOS	CMON		/				/				/				/				/				/															LP		
V-I35R	2SRR*-SOS	CMON		/				/				/				/				/				/															MP		
V-I35R	2WOS*-12-SOS	CMON		/				/				/				/				/				/															LP		
V-I35R	2WOS*-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I35R	2WOS*-SOS	CMON		/				/				/				/				/				/															LP		
V-I35R	2WST-11-SOS	CMON		/				/				/				/				/				/															LP		
V-I35R	2WST-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I36R	2NTL-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I36R	2-SMR001.52	B	0	/	2	S	0	/	2	S	1	/	2	S		/				/				/		0	S	0	S	0	S	0	S						NI		
V-I36R	2-STH000.21	A,B	0	/	62	S	0	/	62	S	0	/	61	S	2	/	58	S	0	/	59	S		/							0	S	0	S						NI		
V-I36R	2STH-1A-SOS	CMON		/				/				/				/				/				/															LP		
V-I36R	2STH-1-SOS	CMON		/				/				/				/				/				/															LP		
V-I36R	2STH-2A-SOS	CMON		/				/				/				/				/				/															LP		
V-I36R	2STH-2-SOS	CMON		/				/				/				/				/				/															LP		

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring		Dissolved												Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Metals				Organics				Metals		Organics		Mon	Type	Comments
V-I36R	2STH-SOS	CMON		/				/				/				/				/				/																	LP		
V-I36R	5018	USFS		/				/				/				/				/				/																	SI		
V-I36R	5019	USFS		/				/				/				/				/				/																	T		One Visit
V-I36R	5020	USFS		/				/				/				/				/				/																	T		One Visit
V-I36R	5021	USFS		/				/				/				/				/				/																	T		One Visit
V-I36R	5022	USFS		/				/				/				/				/				/																	SI		
V-I36R	5059	USFS		/				/				/				/				/				/																	SI		
V-I36R	5063	USFS		/				/				/				/				/				/																	T		One Visit
V-I36R	5069	USFS		/				/				/				/				/				/																	T		One Visit
V-I36R	**5095**	USFS		/				/				/				/				/				/																	**VI**		acid-tolerant insects, low pH and ANC, this stream was limed in 1999
V-I36R	5096	USFS		/				/				/				/				/				/																	T		One Visit
V-I36R	5097	USFS		/				/				/				/				/				/																	T		One Visit
V-I37R	2-MRY000.09	A	0	/	43	S	0	/	43	S	0	/	43	S	1	/	42	S	3	/	41	S		/			0	S	0	S	0	S	0	S									
V-I37R	2-MRY000.46	A	0	/	17	S	0	/	17	S	0	/	16	S	1	/	17	S	0	/	17	S		/							0	S	0	S									
V-I37R	2-MRY004.88	SS																													0	S	0	S									97 sed
V-I37R	2-MRY005.39	A	0	/	59	S	0	/	59	S	0	/	58	S	2	/	57	S	0	/	58	S		/			0	S	0	S	0	S	0	S									
V-I37R	2-MRY011.86	A	1	/	2	S	0	/	2	S	0	/	2	S		/				/				/			0	S	0	S	0	S	0	S									
V-I37R	2-MRY013.00	C																													0	S	0	S	0	S	1	T					95 PCB in 1 species
V-I37R	2-MRY014.78	A	0	/	59	S	0	/	59	S	0	/	58	S	2	/	58	S	0	/	58	S		/			0	S	0	S	0	S	0	S									
V-I37R	2MRY-3-SOS	CMON		/				/				/				/				/				/																	LP		
V-I37R	2MRY-4-SOS	CMON		/				/				/				/				/				/																	LP		
V-I37R	2MRY-B-SOS	CMON		/				/				/				/				/				/																	LP		
V-I37R	5066	USFS		/				/				/				/				/				/																	T		One Visit
V-I37R	5091	USFS		/				/				/				/				/				/																	SI		
V-I38R	2-BLD000.22	A,B	0	/	22	S	0	/	22	S	0	/	22	S	0	/	20	S	0	/	20	S		/																	SI		
V-I38R	2-BLD001.00	A	0	/	39	S	0	/	38	S	0	/	38	S	2	/	39	S	0	/	38	S		/							0	S	0	S									
V-I38R	2BLD-1-SOS	CMON		/				/				/				/				/				/																	LP		
V-I38R	2BLD-SOS	CMON		/				/				/				/				/				/																	LP		
V-I38R	2-NBF002.52	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	SI		
V-I38R	5570	USFS		/				/				/				/				/				/																	NI		
W-H01R	2-HUO000.40	A	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/				/																			Sta. discont'd 6/96
W-H01R	2-JMS275.75	A	0	/	58	S	0	/	58	S	0	/	58	S	3	/	60	S	4	/	59	S		/					0	S	0	S	0	S									Candidate for 1998 FC 303(d) Removal
W-H01R	2-JMS280.98	SS		/				/				/				/				/				/							0	S	0	S									97 Sed
W-H01R	2-JMS282.28	A	0	/	58	S	0	/	58	S	0	/	58	S	3	/	60	S	3	/	59	S		/					0	S	0	S	0	S									Candidate for 1998 FC 303(d) Removal
W-H01R	**2-RED000.16**	A	0	/	22	S	0	/	22	S	0	/	21	S	**5**	**/**	**21**	**P**	0	/	16	S		/					0	S	0	S	0	S									
W-H01R	5510	USFS		/				/				/				/				/				/																	NI		
W-H01R	5525	USFS		/				/				/				/				/				/																	NI		
W-H01R	5546	USFS		/				/				/				/				/				/																	NI		
W-H01R	5547	USFS		/				/				/				/				/				/																	W		Ephemeral Stream - low water 1 sur/site ??
W-H01R	5556	USFS		/				/				/				/				/				/																	W		Ephemeral Stream - low water
W-H01R	5557	USFS		/				/				/				/				/				/																	NI		
W-H01R	5559	USFS		/				/				/				/				/				/																	NI		
W-H01R	5560	USFS		/				/				/				/				/				/																	NI		
C-H02R	5093	USFS		/				/				/				/				/				/																	NI		
C-H02R	5100	USFS		/				/				/				/				/				/																	NI		
C-H02R	5101	USFS		/				/				/				/				/				/																	NI		
C-H02R	5102	USFS		/				/				/				/				/				/																	NI		
C-H02R	5103	USFS		/				/				/				/				/				/																	W		Ephemeral Stream - low water
C-H03R	**2-BKW000.40**	A	0	/	22	S	0	/	22	S	0	/	21	S	**9**	**/**	**21**	**N**	0	/	16	S		/					0	S	1	T	0	S									Hg Sed
C-H03R	**2-FSG000.85**	A	0	/	22	S	0	/	22	S	0	/	21	S	**5**	**/**	**21**	**P**	0	/	15	S		/					0	S	0	S	0	S									
C-H03R	**2-IVA000.22**	A	0	/	19	S	0	/	19	S	0	/	18	S	**3**	**/**	**18**	**P**	0	/	13	S		/					0	S	0	S	0	S									
C-H03R	**2-JMS258.54**	A,C,SS	0	/	58	S	0	/	58	S	0	/	58	S	**12**	**/**	**59**	**P**	6	/	58	T		/					0	S	0	S	0	S	0	S	0	S					95 FT/Sed
C-H03R	2-JMS261.02	SS		/				/				/				/				/				/							0	S	0	S									PWS; 96 Sed
C-H03R	2-JMS271.19	SS		/				/				/				/				/				/							0	S	0	S									PWS; 96 Sed
C-H04R	**2-GRA002.89**	A	0	/	6	S	1	/	6	S	0	/	6	S	**3**	**/**	**6**	**N**	1	/	6	S		/					0	S	0	S	0	S									PWS
C-H04R	2-HAZ000.04	A	0	/	22	S	0	/	22	S	0	/	21	S	0	/	21	S	0	/	16	S		/					0	S	0	S	0	S									PWS
C-H05R	2-BCR000.20	A	0	/	22	S	0	/	22	S	0	/	21	S	2	/	21	S	0	/	16	S		/					0	S	0	S	0	S									
C-H05R	2CVB-1-SOS	CMON	0	/	1	W		/				/				/				/				/																	LP		
C-H05R	2-JMS231.24	SS		/				/				/				/				/				/							0	S	1	T									96 Sed; DDT
C-H05R	2-JMS232.21	SS		/				/				/				/				/				/							0	S	0	S									96 Sed
C-H05R	2-JMS245.25	SS		/				/				/				/				/				/							0	S	0	S									97 Sed
C-H05R	2-JMS255.22	SS		/				/				/				/				/				/							0	S	0	S									97 Sed

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			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A		Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
C-H06R	**2-WIC000.40**	A,B	0	/	22	S	0	/	22	S	0	/	22	S	**3**	**/**	**23**	**P**	0	/	17	S		/			0	S	0	S	0	S					NI	REF	
C-H07R	2-BTC000.16	A	0	/	23	S	0	/	22	S	0	/	23	S	2	/	23	S	0	/	17	S		/			0	S	0	S	0	S							
V-H08R	**2-JMS229.14**	A,C,SS	0	/	58	S	0	/	58	S	0	/	58	S	**8**	**/**	**59**	**P**	6	/	59	T		/					0	S	0	S	0	S	3	T			95 FT/SED PCB, DDE, Total DDT 1 sp.
V-H09R	2-TYE020.67	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/													SI		
V-H09R	2-TYE026.22	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/													NI		
V-H09R	2-TYE032.71	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S					
V-H09R	2-XXM000.01	SS	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/													NI		
V-H09R	5098	USFS		/				/				/				/				/				/													SI		
V-H10R	**2-PNY005.29**	A,B	0	/	69	S	0	/	69	S	3	/	69	S	**6**	**/**	**59**	**P**	1	/	59	S		/			0	S	0	S	0	S	0	S			NI		
V-H10R	2-PNY008.15	A,B	0	/	6	S	0	/	6	S	1	/	6	S	0	/	6	S	0	/	6	S		/					0	S	0	S	0	S			NI		
V-H10R	5009	USFS		/				/				/				/				/				/													SI		
V-H10R	5038	USFS		/				/				/				/				/				/													SI		
V-H10R	5099	USFS		/				/				/				/				/				/													T		One Visit
C-H11R	2-BUF013.53	A	0	/	20	S	0	/	20	S	0	/	20	S	0	/	20	S	0	/	14	S		/			0	S	0	S	0	S							PWS
C-H11R	2-BUF023.21	A	0	/	6	S	0	/	6	S	0	/	6	S	0	/	5	S	0	/	6	S		/			0	S	0	S	0	S							
C-H11R	2-BUF002.10	A	0	/	62	S	0	/	62	S	0	/	62	S	5	/	58	S	2	/	59	S		/	0	S	0	S	0	S	0	S							
C-H12R	**2-RTD003.08**	A	0	/	20	S	0	/	20	S	0	/	20	S	**3**	**/**	**20**	**P**	5	/	13	T		/			0	S	0	S	0	S							
C-H12R	**2-RTD003.30**	A	0	/	20	S	0	/	20	S	0	/	20	S	**4**	**/**	**20**	**P**	0	/	14	S		/			0	S	0	S	0	S							
V-H13R	2-RKR000.02	A	0	/	13	S	0	/	13	S	0	/	13	S	1	/	12	S	0	/	13	S		/					0	S	0	S							
V-H13R	2-TYE007.59	SS																											0	S	0	S							96 sed
V-H13R	2-TYE000.30	A	1	/	62	S	0	/	62	S	0	/	62	S	3	/	59	S	2	/	59	S		/	0	S	0	S	0	S	0	S							
V-H14R	2-JMS210.51	SS																											0	S	0	S							96 sed
V-H14R	2-JMS212.54	SS																											0	S	0	S							97 sed
V-H14R	2-JMS215.91	SS																											0	S	0	S							97 sed
V-H14R	2-SCM000.23	A	0	/	25	S	0	/	25	S	1	/	25	S	1	/	26	S	0	/	27	S		/			0	S											
V-H15R	2AND-1-SOS	CMON		/				/				/				/				/				/													LP		
V-H15R	2RFN-1-SOS	CMON		/				/				/				/				/				/													LP		
V-H15R	2-RFS001.00	A	0	/	24	S	0	/	24	S	0	/	24	S	1	/	22	S	0	/	23	S		/					0	S	0	S							
V-H15R	2WMS-1-SOS	CMON		/				/				/				/				/				/													LP		
V-H16R	2-RKF000.19	A	0	/	62	S	0	/	62	S	0	/	62	S	2	/	58	S	1	/	59	S		/	0	S	0	S	0	S	0	S							
V-H16R	2-RKF023.33	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/													SI		
V-H16R	2-RKF026.42	A	0	/	10	S	0	/	10	S	0	/	10	S	1	/	9	S	0	/	10	S		/															
V-H17R	2-BLR003.00	A	0	/	12	S	0	/	12	S	0	/	12	S	1	/	12	S	0	/	12	S		/					0	S	0	S							
V-H17R	**2-LTD000.96**	A	0	/	25	S	0	/	25	S	0	/	25	S	**6**	**/**	**26**	**P**	0	/	27	S		/			0	S											
V-H17R	**2-RKI003.40**	A	0	/	25	S	0	/	25	S	1	/	25	S	**5**	**/**	**26**	**P**	0	/	27	S		/			0	S											
V-H17R	2-JMS194.44	SS																											0	S	0	S							97 sed
V-H17R	2-JMS184.22	SS																											0	S	0	S							97 sed
V-H17R	2-JMS189.31	A	0	/	62	S	0	/	62	S	0	/	62	S	3	/	57	S	2	/	59	S		/	0	S	0	S	0	S	0	S							
V-H17R	**2-TOT002.61**	A	0	/	61	S	1	/	61	S	0	/	61	S	**7**	**/**	**57**	**P**	1	/	59	S		/	0	S	0	S	0	S	0	S							
V-H18R	2-HNF008.28	A	0	/	12	S	0	/	12	S	0	/	12	S	1	/	12	S	0	/	12	S		/			0	S	0	S	0	S							
V-H19R	2-HRD000.25	SS																											0	S	1	T	0	S	0	S			95 FT/SED, sed DDT
V-H19R	**2-HRD011.57**	A	0	/	60	S	0	/	60	S	1	/	60	S	**8**	**/**	**56**	**P**	2	/	59	S		/					0	S	0	S							
C-H20R	**2-NOR003.28**	SS	0	/	5	S	0	/	5	S	0	/	5	S		/			1	/	1	W		/													**MI**		
C-H20R	2-NOR003.59	SS	0	/	5	S	0	/	5	S	0	/	5	S		/			0	/	1	W		/													NI		
C-H20R	2-NOR000.02	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/					0	S	0	S	0	S	0	S	NI		
C-H20R	2-JMS176.63	A, C	0	/	57	S	0	/	57	S	1	/	57	S	4	/	55	S	3	/	59	S		/			0	S	0	S	0	S	0	S	0	S			95 FT/SED
C-H20R	2-JMS176.48	SS		/				/				/				/				/				/					0	S	0	S							96 sed
C-H20R	2-JMS173.92	SS		/				/				/				/				/				/					0	S	0	S							96 sed
C-H20R	2-JMS073.63			/				/				/				/				/				/					0	S									
C-H20R	**2-BGC000.58**	A	0	/	26	S	0	/	25	S	0	/	26	S	**4**	**/**	**27**	**P**	0	/	27	S		/			0	S	0	S	0	S							
C-H21R	**PL-1A**	SS	0	/	10	S	0	/	10	S	0	/	10	S	**3**	**/**	**10**	**N**	0	/	10	S		/															Hog Farm Special Study Station
C-H21R	PL-1B	SS	0	/	10	S	0	/	10	S	0	/	10	S	1	/	10	S	0	/	10	S		/															Hog Farm Special Study Station
C-H21R	**PL-1C**	SS	0	/	10	S	0	/	10	S	0	/	10	S	**2**	**/**	**10**	**P**	0	/	10	S		/															Hog Farm Special Study Station
C-H21R	**PL-20A**	SS	0	/	10	S	0	/	10	S	0	/	10	S	**5**	**/**	**10**	**N**	0	/	10	S		/															Hog Farm Special Study Station
C-H21R	**PL-20B**	SS	0	/	10	S	0	/	10	S	0	/	10	S	**3**	**/**	**9**	**N**	0	/	9	S		/															Hog Farm Special Study Station
C-H21R	**PL-23A**	SS	0	/	10	S	0	/	10	S	**2**	**/**	**10**	**P**	**2**	**/**	**10**	**P**	0	/	10	S		/															Hog Farm Special Study Station
C-H21R	PL-23B	SS	0	/	5	S	0	/	5	S	0	/	5	S	0	/	8	S	0	/	5	S		/															Hog Farm Special Study Station
C-H21R	**PL-23CA**	SS	0	/	9	S	0	/	9	S	0	/	9	S	**2**	**/**	**9**	**P**	0	/	9	S		/															Hog Farm Special Study Station
C-H21R	**PL-23DB**	SS	0	/	10	S	0	/	10	S	**3**	**/**	**10**	**N**	1	/	10	S	0	/	10	S		/															Hog Farm Special Study Station

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A		Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
C-H21R	**2-NTH001.65**	A	0	/	27	S	0	/	27	S	0	/	27	S	**4**	**/**	**27**	**P**	0	/	27	S		/				0	S	0	S	0	S							
C-H22R	**2-SLT003.88**	A	0	/	25	S	0	/	25	S	1	/	25	S	**4**	**/**	**26**	**P**	0	/	27	S		/				0	S											
V-H23R	2-BRX000.43	SS	0	/	1	W		/			0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-H23R	2-BRX000.66	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															SI		
V-H23R	2-BRX001.62	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
V-H23R	2-BVR005.70	A	0	/	15	S	0	/	15	S	0	/	15	S	1	/	14	S	0	/	14	S		/			0	S	0	S	0	S	0	S							
V-H23R	2-DLN001.42	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															SI		
V-H23R	2-LKN003.70	A	0	/	13	S	0	/	13	S	0	/	13	S	0	/	12	S	1	/	13	S		/							0	S	0	S							
V-H23R	2-LKN005.47	A	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S		/																	
V-H23R	2-MCM005.12	A	0	/	61	S	0	/	61	S	0	/	61	S	2	/	59	S	0	/	59	S		/			0	S	0	S	0	S	1	T							PCBs
V-H23R	2-MCM018.92	A,B	0	/	12	S	0	/	12	S	0	/	12	S	1	/	12	S	0	/	12	S		/							0	S	0	S					SI		
V-H23R	2MCM-1-SOS	CMON		/				/				/				/				/				/															LP		
V-H23R	2-PNG001.09	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/															SI		
V-H23R	2SYC-SOS	CMON		/				/				/				/				/				/															LP		
V-H24R	2-MNR000.39	A	0	/	17	S	0	/	17	S	0	/	17	S	1	/	14	S	0	/	14	S		/			0	S	0	S	0	S	0	S							
V-H24R	2MNR-2-SOS	CMON		/				/				/				/				/				/															LP		
V-H25R	2-BKM002.01	A	0	/	25	S	0	/	24	S	0	/	25	S	1	/	23	S	0	/	24	S		/							0	S	0	S							
V-H25R	2BKM-3-SOS	CMON		/				/				/				/				/				/															LP		
V-H26R	2-IVC000.02	A	0	/	3	S	0	/	3	S	0	/	3	S	0	/	2	S	0	/	2	S		/			0	S	0	S	0	S	0	S							
V-H26R	**2-IVC010.20**	A	0	/	12	S	0	/	12	S	1	/	12	S	**2**	**/**	**12**	**P**	0	/	12	S		/																	
V-H26R	2-RRS003.12	A	0	/	60	S	2	/	60	S	1	/	60	S	2	/	59	S	0	/	59	S		/			0	S	0	S	0	S	0	S							
V-H26R	2-RSS004.50	C																																	0	S	0	S			Fish tissue 1994
V-H26R	2-RRS005.35	A	0	/	25	S	0	/	25	S	1	/	25	S	1	/	23	S	1	/	24	S		/			0	S	0	S	0	S	0	S							
V-H26R	2RRS-5-SOS	CMON		/				/				/				/				/				/															LP		
V-H27R	2-RRN002.19	A	0	/	29	S	0	/	29	S	0	/	29	S	0	/	28	S	0	/	29	S		/							0	S	0	S							
V-H27R	2-RRN010.92	A	0	/	32	S	0	/	32	S	1	/	32	S	1	/	31	S	0	/	29	S		/			0	S	0	S	0	S	0	S							
V-H27R	2RRN-4-SOS	CMON		/				/				/				/				/				/															LP		
V-H27R	2RRN-6-SOS	CMON		/				/				/				/				/				/															LP		
V-H27R	**2-SFR000.60**	A	0	/	15	S	0	/	15	S	0	/	15	S	**2**	**/**	**14**	**P**	1	/	14	S		/			0	S	0	S	0	S	0	S							
V-H28R	2CBR*-SOS	CMON		/				/				/				/				/				/															LP		
V-H28R	2MEA*-B-SOS	CMON		/				/				/				/				/				/															HP		
V-H28R	**2-MSC000.60**	A	0	/	26	S	0	/	26	S	0	/	26	S	**4**	**/**	**23**	**P**	0	/	24	S		/			0	S	0	S	0	S	0	S							
V-H28R	**2-MWC000.60**	A	0	/	26	S	0	/	26	S	0	/	26	S	**4**	**/**	**23**	**P**	0	/	24	S		/							0	S	0	S							
V-H28R	2MWC-8-SOS	CMON		/				/				/				/				/				/															MP		
V-H28R	2MWC-SOS	CMON		/				/				/				/				/				/															LP		
V-H28R	2-RVN037.54	A	0	/	25	S	0	/	25	S	1	/	25	S	0	/	23	S	0	/	24	S		/			0	S	0	S	0	S	0	S							
V-H28R	2RVN-7-SOS	CMON		/				/				/				/				/				/															LP		
V-H28R	2SNK-SOS	CMON		/				/				/				/				/				/															MP		
V-H29R	2-RVN016.41	SS																													0	S	0	S							96 sed
V-H29R	2-RVN015.97	A	0	/	60	S	0	/	60	S	1	/	60	S	0	/	59	S	8	/	59	T		/							0	S	0	S							
V-H29R	2-RVN033.65	A	0	/	60	S	0	/	60	S	0	/	60	S	1	/	59	S	12	/	59	T		/			0	S	0	S	0	S	0	S							
V-H29R	2RVN-10-SOS	CMON		/				/				/				/				/				/															LP		
V-H29R	2RVN-9-SOS	CMON		/				/				/				/				/				/															LP		
V-H30R	2-RVN008.84	SS																													0	S	0	S							97 sed
V-H30R	2-MCK000.40	A	0	/	26	S	0	/	26	S	1	/	26	S	0	/	24	S	0	/	24	S		/							0	S	0	S							
V-H30R	2MCK-11-SOS	CMON		/				/				/				/				/				/															LP		
V-H30R	2-XGF000.82	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-H31R	2-LSD001.23	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															NI		
V-H31R	2-RVN003.35	SS																													0	S	0	S							96 sed
V-H31R	2-RVN001.64	A	0	/	17	S	0	/	17	S	1	/	17	S	0	/	15	S	0	/	16	S		/							0	S	0	S							
V-H31R	2-RVN000.17	C																													0	S	0	S	0	S	0	S			Fish tissue 1995
V-H31R	2RVN-12-SOS	CMON		/				/				/				/				/				/															LP		
V-H31R	2RVN-14-SOS	CMON		/				/				/				/				/				/															LP		
V-H31R	2RVN-SOS	CMON		/				/				/				/				/				/															LP		
V-H32R	2-CXB005.39	A	0	/	25	S	0	/	25	S	0	/	25	S	1	/	23	S	0	/	24	S		/							0	S	0	S							
V-H32R	2CXB-13-SOS	CMON		/				/				/				/				/				/															LP		
P-H33L	**2-STG000.21-BL**	SS	0	/	2	S	**2**	**/**	**2**	**N**	0	/	1	S		/				/				/							0	S	0	S							
P-H33L	2-STG000.21-TL	SS	0	/	4	S	0	/	4	S	0	/	1	S	0	/	1	W	0	/	1	W		/					0	W											
P-H33L	**2-STG000.91-BL**	SS	0	/	4	S	**4**	**/**	**4**	**N**	0	/	4	S		/				/				/							0	S	0	S							
P-H33L	2-STG000.91-TL	SS	0	/	3	S	0	/	3	S	0	/	3	S	0	/	1	W	0	/	1	W		/					0	W											
P-H33R	**2-DCR003.00**	A	0	/	27	S	**3**	**/**	**27**	**P**	0	/	27	S	0	/	27	S	0	/	27	S		/					0	S											
P-H33R	**2-DCR007.93**	SS	0	/	2	S	**2**	**/**	**2**	**N**	0	/	2	S		/				/				/																	94 Data

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-H33R	2DCR-A-PIE	CMON	0	/	8	S		/				/				/				/				/																	Piedmont TMDL Study
P-H33R	2DCR-B-PIE	CMON	2	/	8	T		/				/				/				/				/																	Piedmont TMDL Study
P-H33R	2DCR-C-PIE	CMON	1	/	8	S		/				/				/				/				/																	Piedmont TMDL Study
P-H33R	2DCR-D-PIE	CMON	0	/	8	S		/				/				/				/				/																	Piedmont TMDL Study
P-H33R	2DCR-E-PIE	CMON	0	/	8	S		/				/				/				/				/																	Piedmont TMDL Study
P-H33R	2DCR-F-PIE	CMON	0	/	8	S		/				/				/				/				/																	Piedmont TMDL Study
P-H33R	2-JMS154.78	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-H33R	2-JMS157.28	A,USGS,CB	0	/	196	S	0	/	196	S	3	/	55	S	4	/	57	S	3	/	64	S		/					0	S			0	S							Same as USGS 02035000, TBT study,TF5.0J
P-H33R	2-JMS165.57	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-H33R	2MXM-PIE	CMON	0	/	8	S		/				/				/				/				/																	Piedmont TMDL Study
P-H34R	**2-BYR003.35**	A	0	/	27	S	0	/	27	S	0	/	27	S	**3**	**/**	**27**	**P**	0	/	27	S		/					0	S											
C-H35R	2-WLL044.78	A	0	/	26	S	0	/	26	S	0	/	26	S	2	/	26	S	0	/	26	S		/					0	S											Station ID changed to WLS044.78
C-H35R	**PL-24A**	SS	0	/	10	S	0	/	10	S	0	/	10	S	**3**	**/**	**10**	**N**	0	/	10	S		/																	Hog Farm Special Study Station
C-H35R	**PL-24B**	SS	0	/	10	S	**3**	**/**	**10**	**N**	0	/	10	S	1	/	10	S	0	/	10	S		/																	Hog Farm Special Study Station
C-H35R	**PL-24C**	SS	0	/	9	S	0	/	10	S	0	/	9	S	**4**	**/**	**10**	**N**	0	/	10	S		/																	Hog Farm Special Study Station
C-H36R	**2-WLS004.27**	A	0	/	26	S	0	/	26	S	0	/	26	S	**3**	**/**	**27**	**P**	0	/	27	S		/					0	S											
C-H36R	2-WLS000.35	C														/								/							0	S	0	S	0	S	0	S			Fish tissue 1995
C-H36R	2-WLS009.91	SS		/				/				/				/				/				/							0	S	0	S							97 sed
C-H36R	**PL-21A**	SS	0	/	10	S	0	/	10	S	1	/	10	S	**4**	**/**	**10**	**N**	0	/	10	S		/																	Hog Farm Special Study Station
C-H36R	**PL-21B**	SS	0	/	10	S	0	/	10	S	1	/	10	S	**3**	**/**	**10**	**N**	1	/	9	S		/																	Hog Farm Special Study Station
P-H37R	**2-BLG002.60**	A	0	/	27	S	0	/	27	S	0	/	27	S	**3**	**/**	**27**	**P**	0	/	27	S		/					0	S											
P-H38R	2-BDC000.79	A	0	/	27	S	0	/	27	S	0	/	27	S	1	/	27	S	0	/	27	S		/					0	S											
P-H38R	2-FIN000.81	A	0	/	27	S	0	/	27	S	2	/	27	S	2	/	27	S	0	/	27	S		/					0	S											
P-H38R	2-JMS136.00	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-H39R	2-BOR001.73	A	0	/	20	S	1	/	20	S	2	/	20	S	1	/	20	S	0	/	20	S		/					0	S											
P-H39R	2-DPR001.00	SS	0	/	1	S	0	/	1	S	0	/	1	S		/				/				/																	94 Data
P-H39R	**2-DPR002.46**	SS	0	/	43	S	**6**	**/**	**43**	**P**	0	/	43	S	**18**	**/**	**41**	**N**	3	/	40	S		/					0	S											
P-H39R	TKHC-01	SS	0	/	26	S	1	/	26	S	0	/	26	S	1	/	23	S	0	/	26	S		/					0	S											Richmond Regional PDC
P-H39R	**TKHC-02**	SS	0	/	26	S	**11**	**/**	**26**	**N**	0	/	26	S	1	/	23	S	3	/	26	T		/					0	S											Richmond Regional PDC
P-H39R	**TKHC-03**	SS	0	/	26	S	**10**	**/**	**26**	**N**	0	/	26	S	0	/	23	S	0	/	26	S		/					0	S											Richmond Regional PDC
P-H39R	**TKHC-04**	SS	0	/	26	S	**14**	**/**	**26**	**N**	1	/	26	S	0	/	23	S	0	/	26	S		/					0	S											Richmond Regional PDC
P-H39R	**2-JMS110.07**	SS	0	/	58	S	0	/	57	S	0	/	58	S	**28**	**/**	**58**	**N**		/				/																	CSO Summer Study - **GMFC 30/30**
P-H39R	**2-JMS110.30**	A,CB	0	/	115	S	0	/	115	S	2	/	114	S	**20**	**/**	**118**	**P**	0	/	59	S	0	/	18	S			0	S											CSO Summer Study - **GMFC 26/59, TF5.2**
P-H39R	**2-JMS110.31**	A	0	/	58	S	0	/	58	S	0	/	58	S	**21**	**/**	**59**	**N**		/				/																	CSO Summer Study - **GMFC 22/30**
P-H39R	**2-JMS110.34**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**	NET	CSO's, south side James R.
P-H39R	**2-JMS110.44**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**	NET	CSO's, north side James R.
P-H39R	**2-JMS110.49**	A	0	/	57	S	0	/	57	S	0	/	57	S	**24**	**/**	**58**	**N**		/				/																	CSO Summer Study - **GMFC 23/30**
P-H39R	**2-JMS110.90**	A	0	/	3	S	0	/	3	S	0	/	1	W	**12**	**/**	**58**	**P**		/				/																	CSO Summer Study - **GMFC 20/30**
P-H39R	**2-JMS111.17**	A	0	/	64	S	0	/	62	S	0	/	62	S	**25**	**/**	**59**	**N**	0	/	14	S		/					0	S											CSO Summer Study - **GMFC 24/30**
P-H39R	**2-JMS111.32**	A	0	/	59	S	**14**	**/**	**58**	**P**	0	/	58	S	**38**	**/**	**59**	**N**		/				/					0	S											CSO Summer Study - **GMFC 27/30**
P-H39R	**2-JMS111.35**	A	0	/	58	S	0	/	58	S	0	/	58	S	**12**	**/**	**58**	**P**		/				/																	CSO Summer Special Study - **GMFC 20/30**
P-H39R	**2-JMS111.47**	A	0	/	57	S	0	/	57	S	0	/	57	S	**17**	**/**	**58**	**N**		/				/																	CSO Summer Study - **GMFC 20/30**
P-H39R	**2-JMS111.48**	A	0	/	58	S	**16**	**/**	**58**	**N**	0	/	58	S	**33**	**/**	**59**	**N**		/				/																	CSO Summer Special Study - **GMFC 28/30**
P-H39R	**2-JMS111.55**	A	0	/	58	S	6	/	58	S	1	/	58	S	**23**	**/**	**59**	**N**		/				/																	CSO Summer Study - **GMFC 24/30**
P-H39R	**2-JMS112.33**	A	0	/	57	S	1	/	57	S	0	/	57	S	**17**	**/**	**58**	**N**		/				/																	CSO Summer Study - **GMFC 21/30**
P-H39R	**2-JMS112.37**	A	0	/	57	S	**16**	**/**	**57**	**N**	0	/	57	S	**22**	**/**	**58**	**N**		/				/																	CSO Summer Study - **GMFC 25/29**
P-H39R	**2-JMS112.79**	A	0	/	58	S	0	/	58	S	0	/	58	S	**13**	**/**	**58**	**N**		/				/																	CSO Summer Study - **GMFC 21/29**
P-H39R	2-JMS113.39	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-H39R	**2-JMS115.29**	A,B	0	/	61	S	0	/	61	S	0	/	61	S	3	/	59	S		/				/															NI	REF	Reference, CSO's - **GMFC 9/30**
P-H39R	2-JMS115.75	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-H39R	2-JMS117.35	A	0	/	58	S	0	/	58	S	0	/	58	S	5	/	58	S	2	/	59	S		/					0	S											
P-H39R	2-JMS129.14	SS		/				/				/				/				/				/							1	T	0	S							96 Cd sed
P-H39R	2JMS-35-ALL	CMON	0	/	156	S	0	/	196	S		/				/				/				/																	Citizen Monitoring Station
P-H39R	2JMS-53-ALL	CMON	0	/	28	S	0	/	27	S		/				/				/				/																	Citizen Monitoring Station
P-H39R	**2-LIY001.73**	SS	0	/	37	S	**4**	**/**	**37**	**P**	1	/	37	S	**10**	**/**	**35**	**N**	1	/	34	S		/																	
P-H39R	**2-PWT000.57**	A	0	/	19	S	0	/	19	S	0	/	19	S	**3**	**/**	**19**	**P**	0	/	19	S		/					0	S											
P-H39R	**2-RDD000.19**	A	0	/	26	S	0	/	26	S	0	/	26	S	**8**	**/**	**26**	**N**	0	/	26	S		/					0	S											
P-H39R	**2-TKO004.69**	A	0	/	49	S	**24**	**/**	**49**	**N**	5	/	49	S	**6**	**/**	**47**	**P**	2	/	46	S		/					0	S											
P-H39R	2-TKO010.64	SS	0	/	41	S	2	/	41	S	1	/	41	S	3	/	39	S	1	/	38	S		/					0	S											
P-H39R	MA97-0674	MAIA	0	/	3		0	/	3	S	0	/	3	S		/				/			0	/	3	S															MAIA Data, Same as 2-JMS110.30

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
C-J01R	2-APP118.04	A	0	/	58	S	0	/	57	S	0	/	58	S	12	/	55	P	3	/	57	S		/					0	S											
C-J01R	2-APP105.76	SS		/				/				/				/				/				/							0	S	0	S							96 sed
C-J01R	2-APP143.57	A	0	/	8	S	0	/	8	S	0	/	8	S	0	/	9	S	0	/	9	S		/					0	S	0	S	0	S							
C-J01R	2APP-A-CVW	CMON	0	/	1	W		/				/				/				/				/																	Citizen Monitoring Station
C-J01R	2APP-B-CVW	CMON	0	/	12	S	0	/	12	S		/				/				/				/																	Citizen Monitoring Station
C-J01R	2APP-D-CVW	CMON	0	/	12	S	0	/	13	S		/				/				/				/																	Citizen Monitoring Station
C-J01R	2APP-F-CVW	CMON	0	/	13	S	0	/	13	S		/				/				/				/																	Citizen Monitoring Station
C-J01R	2VGN-CVW	CMON	0	/	8	S	0	/	7	S		/				/				/				/																	Citizen Monitoring Station
C-J02R	2-BFL002.00	A	0	/	27	S	0	/	27	S	1	/	27	S	2	/	27	S	0	/	27	S		/					0	S											
C-J02R	2-SPA001.46	A	0	/	27	S	0	/	27	S	0	/	27	S	3	/	27	P	0	/	27	S		/					0	S											
C-J02R	2BFL-B-CVW	CMON	0	/	11	S	0	/	13	S																															Citizen Monitoring Station
C-J03R	2-SDY003.00	A	0	/	24	S	0	/	24	S	0	/	24	S	1	/	24	S	0	/	24	S		/					0	S											
C-J03R	2-LIT002.40	A	0	/	13	S	0	/	13	S	0	/	13	S	3	/	13	P	0	/	13	S		/					0	W											Hog Farm Special Study Station
C-J03R	2-MBN000.96	A	0	/	6	S	2	/	6	N	0	/	2	S	0	/	1	W	0	/	1	W	0	/	1	W			0	W											
C-J03R	2-SDY004.27	A	0	/	11	S	7	/	11	N	0	/	2	S	1	/	1	W	0	/	1	W	0	/	1	W			0	S	0	S	0	S							
C-J03R	2-SDY005.85	A	0	/	5	S	2	/	5	N	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W			0	W											
C-J03R	2SDY-3-CVW	CMON	0	/	4	S	0	/	4	S		/				/				/				/																	Citizen Monitoring Station
C-J03R	2SDY-4-CVW	CMON	0	/	2	S	0	/	2	S		/				/				/				/																	Citizen Monitoring Station
C-J03R	2SDY-5-CVW	CMON	0	/	2	S	0	/	2	S		/				/				/				/																	Citizen Monitoring Station
C-J03R	2SDY-6-CVW	CMON	0	/	2	S	0	/	2	S		/				/				/				/																	Citizen Monitoring Station
C-J03R	2SDY-7-CVW	CMON	0	/	2	S	0	/	1	W		/				/				/				/																	Citizen Monitoring Station
C-J03R	2SDY-8-CVW	CMON	0	/	3	S	0	/	1	W		/				/				/				/																	Citizen Monitoring Station
C-J03R	2SDY-9-CVW	CMON	0	/	2	S	1	/	2	S		/				/				/				/																	Citizen Monitoring Station
C-J04R	2-BSR002.82	A	0	/	25	S	0	/	24	S	0	/	25	S	4	/	23	P	0	/	24	S		/					0	S	0	S	0	S							
C-J04R	PL-25A	A	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S		/					0	S											Hog Farm Special Study Station
C-J04R	PL-25B	A	0	/	10	S	0	/	10	S	1	/	10	S	0	/	10	S	0	/	10	S		/					0	S											Hog Farm Special Study Station
C-J04R	PL-25C	A	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S		/					0	S											Hog Farm Special Study Station
C-J04R	2BSR-B-CVW	CMON	0	/	1	W	0	/	3	S		/				/				/				/																	Citizen Monitoring Station
C-J04R	2BSR-C-CVW	CMON	0	/	1	W	0	/	2	S		/				/				/				/																	Citizen Monitoring Station
C-J04R	2MLS-CVW	CMON		/			0	/	3	S		/				/				/				/																	Citizen Monitoring Station
C-J05L	2-BRI010.78	A	0	/	5	S	2	/	6	N	0	/	3	S	0	/	1	W	0	/	1	W		/					0	W	0	S	0	S							Top Meter Only
C-J05R	2-BRI001.00	A	0	/	25	S	0	/	24	S	0	/	25	S	4	/	16	P	0	/	24	S		/					0	S	0	S	0	S							
C-J05R	2BRI-A-CVW	CMON	0	/	13	S	0	/	13	S		/				/				/				/																	Citizen Monitoring Station
C-J05R	2BRI-B-CVW	CMON	0	/	1	W	0	/	1	W		/				/				/				/																	Citizen Monitoring Station
C-J05R	2BRI-C-CVW	CMON	0	/	1	W	0	/	1	W		/				/				/				/																	Citizen Monitoring Station
C-J06R	2-APP090.12	A	0	/	60	S	0	/	59	S	0	/	60	S	14	/	58	P	2	/	58	S		/					0	S											
C-J06R	2-BGU001.39	A	0	/	27	S	0	/	27	S	1	/	27	S	2	/	27	S	0	/	27	S		/					0	S											
C-J06R	2-SYL001.26	A	0	/	27	S	0	/	27	S	0	/	27	S	11	/	27	N	1	/	27	S		/					0	S											
C-J06R	2-APP091.04	SS		/				/				/				/				/				/							0	S	0	S							97 sed
C-J06R	PL-45A	SS	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/				/					0	S											Hog Farm Special Study Station
C-J06R	2-HRP000.42	SS	0	/	12	S	0	/	12	S	1	/	12	S	5	/	13	N	4	/	11	T		/					1	W			0	S							Hog Farm Special Study Station
C-J06R	2-ANG001.27	SS	0	/	11	S	1	/	11	S	0	/	11	S	9	/	11	N	4	/	11	T		/									0	S							Hog Farm Special Study Station
C-J06R	2-ANG003.35	SS	0	/	10	S	0	/	10	S	0	/	10	S	7	/	11	N	1	/	10	S		/					0	W			0	S							Hog Farm Special Study Station
C-J06R	2GRF-CVW	CMON	0	/	2	S	0	/	2	S		/				/				/				/																	Citizen Monitoring Station
C-J06R	2LUI-A-CVW	CMON	0	/	5	S	0	/	3	S		/				/				/				/																	Citizen Monitoring Station
C-J06R	2LUI-B-CVW	CMON	0	/	11	S	0	/	11	S		/				/				/				/																	Citizen Monitoring Station
C-J06R	2SAY*-A-CVW	CMON	0	/	1	W		/				/				/				/				/																	Citizen Monitoring Station
C-J06R	2SAY*-B-CVW	CMON	0	/	2	S	0	/	2	S		/				/				/				/																	Citizen Monitoring Station
P-J07R	2-APP058.29	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-J07R	2-APP060.91	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-J07R	2-APP081.80	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-J07R	2APP-C-CVW	CMON	0	/	3	S	0	/	3	S																															Citizen Monitoring Station
P-J07R	2-RFD002.58	SS	0	/	21	S	0	/	21	S	0	/	21	S	1	/	21	S	0	/	21	S		/					0	S											
P-J07R	2-SQT001.54	A	0	/	25	S	8	/	25	N	14	/	25	N	0	/	25	S	0	/	25	S		/					0	S											Natural Swamp waters
P-J08R	2-FLA001.95	A	0	/	27	S	0	/	27	S	0	/	27	S	5	/	27	P	2	/	27	S		/					0	S											
P-J08R	2FLA-A-CVW	CMON	0	/	5	S	0	/	5	S																															Citizen Monitoring Station
P-J08R	2FLA-B-CVW	CMON	0	/	2	S	0	/	2	S																															Citizen Monitoring Station
P-J09R	2APP-E-CVW	CMON	0	/	5	S	0	/	5	S																															Citizen Monitoring Station
P-J09R	2-NBB001.54	A	0	/	14	S	0	/	14	S	0	/	14	S	5	/	15	N	0	/	13	S		/					0	S											Hog Farm Special Study Station
P-J09R	2-NBB002.92	A	0	/	13	S	0	/	13	S	0	/	13	S	5	/	13	N	0	/	13	S		/					0	S											Hog Farm Special Study Station
P-J09R	2-NBB003.65	A	0	/	27	S	0	/	27	S	0	/	27	S	4	/	27	P	2	/	27	S		/					0	S											
P-J09R	2NBB-A-CVW	CMON	0	/	1	W	0	/	1	W																															Citizen Monitoring Station

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-J09R	**2-XQK000.15**	A	0	/	5	S	0	/	5	S	0	/	5	S	**7**	**/**	**7**	**N**	3	/	5	T		/					0	S											Hog Farm Special Study Station
P-J10R	**2-APP050.23**	A	0	/	60	S	0	/	60	S	1	/	60	S	**11**	**/**	**60**	**P**	1	/	60	S		/					0	S											
P-J10R	2-APP052.39	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-J11R	**2-DPC005.20**	A	0	/	27	S	0	/	26	S	1	/	27	S	**4**	**/**	**25**	**P**	0	/	26	S		/					0	S											
P-J11R	2-DPC010.88	SS	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/																	
P-J11R	**2-DPC019.03**	A	0	/	27	S	**10**	**/**	**26**	**N**	1	/	27	S	0	/	26	S	1	/	26	S		/					0	S											Natural Conditions
P-J11R	**2-WET004.96**	SS	0	/	20	S	0	/	20	S	0	/	20	S	**3**	**/**	**20**	**P**	0	/	20	S		/					0	S											
P-J11R	**2-XGP001.80**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**	NET	Solids deposits. Crewe STP
P-J11R	2-XGP002.20	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	REF	Reference. Raw sewage 1993.
P-J12R	**2-WPK003.23**	A	0	/	48	S	**16**	**/**	**48**	**N**	**17**	**/**	**48**	**N**	3	/	48	S	0	/	48	S		/					0	S											
P-J12R	2-WPK007.08	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/																	
P-J12R	**WTPC-1**	SS	0	/	18	S	**4**	**/**	**18**	**P**	**14**	**/**	**18**	**N**		/			1	/	18	S		/					0	S											Richmond Regional PDC Study
P-J12R	**WTPC-2**	SS	0	/	49	S	**7**	**/**	**49**	**P**	**23**	**/**	**49**	**N**		/			0	/	49	S		/					0	S											Richmond Regional PDC Study
P-J12R	**WTPC-3**	SS	0	/	49	S	**19**	**/**	**49**	**N**	**16**	**/**	**49**	**N**		/			0	/	49	S		/					0	S											Richmond Regional PDC Study
P-J12R	WTPC-4	SS	0	/	45	S	2	/	45	S	3	/	45	S		/			0	/	45	S		/					0	S											Richmond Regional PDC Study
P-J12R	**WTPC-5**	SS	0	/	36	S	**4**	**/**	**36**	**P**	**28**	**/**	**36**	**N**		/			1	/	36	S		/					0	S											Richmond Regional PDC Study
P-J12R	**WTPC-6**	SS	0	/	39	S	4	/	39	S	**30**	**/**	**39**	**N**		/			0	/	39	S		/					0	S											Richmond Regional PDC Study
P-J12R	**WTPC-7**	SS	0	/	49	S	**16**	**/**	**49**	**N**	**8**	**/**	**49**	**P**		/			0	/	49	S		/					0	S											Richmond Regional PDC Study
P-J12R	WTPC-9	SS	0	/	49	S	0	/	49	S	1	/	49	S		/			2	/	49	S		/					0	S											Richmond Regional PDC Study
P-J12R	WTPC-10	SS	0	/	49	S	0	/	49	S	3	/	49	S		/			0	/	49	S		/					0	S											Richmond Regional PDC Study
P-J12R	WTPC-11	SS	0	/	1	W	1	/	1	W	0	/	1	W		/			0	/	1	W		/					0	W											Richmond Regional PDC Study
P-J12R	**2-WTK001.50**	A	0	/	27	S	**10**	**/**	**27**	**N**	**13**	**/**	**27**	**N**	2	/	27	S	0	/	27	S		/					0	S											
P-J13R	2-NMZ011.69	A	0	/	27	S	0	/	27	S	0	/	27	S	2	/	27	S	0	/	27	S		/					0	S											
P-J14R	2-WNK003.38	A	0	/	27	S	0	/	27	S	1	/	27	S	0	/	27	S	0	/	27	S		/					0	S											
P-J15E	**2-APP001.53**	A,CB		/	168		0	/	166	S	1	/	112	S	**7**	**/**	**59**	**P**		/			4	/	18	T			0	S	0	S	0	S	0	S	**1**	**P**			95 FT/SED, Pb 1 sp. & PCB 3 sp., TF5.4
P-J15E	**2-APP004.12**	SS		/				/				/				/				/				/													**1**	**P**			97 PCB 5 species
P-J15E	2-APP005.19	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-J15E	MA97-0071	MAIA		/	1		0	/	2	S	0	/	2	S		/				/			2	/	2	T					0	S	0	S							MAIA data
P-J15E	MA97-0677	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			3	/	3	T															MAIA data, Same as 2-APP001.53
P-J15R	**2-APP012.79**	A	0	/	59	S	0	/	59	S	0	/	59	S	**14**	**/**	**58**	**P**	1	/	58	S		/					0	S											
P-J15R	2-APP013.00	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															NI	REF	Reference, 6th order stream
P-J15R	2-APP015.38	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-J15R	2-APP016.38	A,USGS,CB	0	/	168	S	0	/	164	S	2	/	167	S		/			0	/	31	S		/					0	S											Same as USGS station 02041650, TF5.0A
P-J16L	2-DYC000.19	SS	0	/	4	S	0	/	5	S	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W			0	W											
P-J16L	**2-SFT031.28**	A	0	/	6	S	**2**	**/**	**6**	**N**	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W			0	W	0	S	0	S							
P-J16L	2-SFT032.53	SS	0	/	4	S	0	/	4	S	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W			0	W											
P-J16L	2-SFT033.71	SS	0	/	3	S	1	/	3	S	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W			0	W											
P-J16R	**2-SFT035.26**	A	0	/	25	S	2	/	25	S	**6**	**/**	**25**	**P**	**3**	**/**	**25**	**P**	1	/	25	S		/					0	S											Natural Conditions
P-J17R	**2-SFT004.92**	A	0	/	26	S	0	/	26	S	2	/	26	S	**5**	**/**	**26**	**P**	0	/	26	S		/					0	S											
P-J17R	**2-SFT019.15**	A	0	/	27	S	**4**	**/**	**27**	**P**	1	/	27	S	**4**	**/**	**27**	**P**	0	/	27	S		/					0	S											
P-G01E	**2-JMS098.64**	SS		/				/				/				/				/				/													**1**	**P**			1997 PCB 4 species
P-G01E	**2-JMS099.30**	SS,CB		/	296		0	/	293	S	0	/	168	S	**17**	**/**	**121**	**N***		/			0	/	18	S			0	S											**GMFC 20/58, TF5.3**
P-G01E	2-JMS100.16	SS		/				/				/				/				/				/							0	S	0	S							1996 sed
P-G01E	**2-JMS101.03**	SS		/	58		0	/	57	S	0	/	58	S	**19**	**/**	**59**	**N***		/				/																	CSO Summer Study - **GMFC 19/30**
P-G01E	**2-JMS103.15**	A		/	57		0	/	57	S	0	/	57	S	**23**	**/**	**59**	**N***		/				/																	CSO Summer Study - **GMFC 23/30**
P-G01E	2-JMS104.08	SS																											0	S			0	S							TBT study
P-G01E	**2-JMS104.16**	A,CB		/	190		0	/	188	S	0	/	108	S	**7**	**/**	**60**	**P**		/	109	S	0	/	19	S			0	S			0	S							TF5.2A
P-G01E	**2-JMS104.58**	SS		/	57		0	/	57	S	0	/	57	S	**20**	**/**	**59**	**N***		/				/					0	S			0	S							CSO Summer Study - **GMFC 20/30,** TBT study
P-G01E	2-JMS105.08	SS																											0	S			0	S							TBT study
P-G01E	2-JMS105.90	SS																											0	S			0	S							TBT study
P-G01E	2-JMS106.35	SS																													0	S									Lead battery study
P-G01E	2-JMS106.40	SS																											0	S			0	S							TBT study
P-G01E	2-JMS106.90	SS																											0	S			0	S							TBT study
P-G01E	**2-JMS107.51**	SS		/	57		0	/	57	S	0	/	57	S	**16**	**/**	**59**	**N***													0	S									CSO Summer Study - **GMFC 25/30**
P-G01E	2-JMS108.44	SS																													0	S									Lead battery study
P-G01E	2-JMS108.63	SS																													1	T									Lead battery study, Pb over ER-M
P-G01E	2-JMS108.71	SS																													0	S									Lead battery study
P-G01E	2-JMS108.74	SS																													0	S									Lead battery study
P-G01E	2-JMS108.76	SS																													1	T									Lead battery study, Pb over ER-M
P-G01E	2-JMS108.77	SS																													0	S									Lead battery study
P-G01E	2-JMS108.92	SS																													0	S									Lead battery study
P-G01E	**2-JMS109.39**	SS	0	/	51		0	/	50	S	0	/	51	S	**20**	**/**	**53**	**N***	0	/	11	S																			CSO Summer Study **- GMFC 19/24**
P-G01E	2-JMS109.47	SS																																							Lead battery study

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-G01E	2-JMS109.77	SS																											0	S											Lead battery study
P-G01E	MA97-0675	MAIA		/	6		0	/	6	S	0	/	3	S									0	/	3	S															MAIA data, Same as 2-JMS104.16
P-G01E	MA97-0676	MAIA		/	6		0	/	6	S	0	/	3	S									0	/	3	S															MAIA Data, Same as 2-JMS099.30
P-G01R	**2-ALM000.42**	A	0	/	26	S	0	/	26	S	0	/	26	S	**5**	**/**	**27**	**P**	0	/	27	S		/					0	S										
P-G01R	**2-FAC000.85**	A	0	/	46	S	0	/	46	S	0	/	46	S	**8**	**/**	**47**	**P**	0	/	47	S		/					0	S										
P-G01R	**2-GOD000.07**	SS	0	/	20	S	0	/	20	S	0	/	20	S	**12**	**/**	**21**	**N**	3	/	21	T							0	S										
P-G02E	03J30	B		/				/				/																									NI	B-IBI	Random B-IBI JMSTF
P-G02E	2-JMS078.49	SS																											0	S			0	S							TBT study
P-G02E	**2-JMS078.99**	SS		/	58		0	/	58	S	0	/	58	S	**7**	**/**	**59**	**P**											0	S			0	S							CSO Summer Study - **GMFC 7/30,** TBT study
P-G02E	2-JMS079.49	SS																											0	S			0	S							TBT study
P-G02E	**2-JMS080.76**	SS		/	49		0	/	48	S	1	/	49	S	**5**	**/**	**49**	**N***																							94 CSO Summer Study - **GMFC 8/23**
P-G02E	2-JMS081.19	SS																											0	S	0	S									97 sed
P-G02E	2-JMS084.34	SS																											0	S	0	S									96 sed
P-G02E	2-JMS084.63	SS																											0	S	0	S	0	S	0	S					92 FT/SED
P-G02E	**2-JMS086.22**	SS																																	**1**	**P**					97 PCB 5 species
P-G02E	**2-JMS087.01**	A		/	115		0	/	113	S	0	/	115	S	**14**	**/**	**118**	**P**											0	S											**GMFC 13/59**
P-G02E	2-JMS088.81	SS		/	58		0	/	57	S	1	/	58	S	2	/	59	S																							CSO Summer Study - GMFC 2/30
P-G02E	**2-JMS091.00**	SS		/	58		0	/	58	S	0	/	58	S	**8**	**/**	**59**	**N***																							CSO Summer Study - **GMFC 8/30**
P-G02E	**2-JMS093.21**	SS		/	51		0	/	50	S	0	/	51	S	**8**	**/**	**52**	**N***																							94 CSO Summer Study - **GMFC 11/24**
P-G02E	**2-JMS094.96**	SS		/	58		0	/	57	S	0	/	58	S	**12**	**/**	**59**	**N***																							CSO Summer Study - **GMFC 12/30**
P-G02E	2-JMS095.26	SS		/				/				/																	0	S											
P-G02E	**2-JMS096.22**	SS		/	58		1	/	58	S	0	/	57	S	**10**	**/**	**59**	**N***																							CSO Summer Study - **GMFC 10/30**
P-G02E	**2-JMS097.41**	SS		/	58		0	/	58	S	0	/	58	S	**14**	**/**	**59**	**N***																							CSO Summer Study - **GMFC 14/30**
P-G02R	2-BAY000.42	SS	0	/	1	W	0	/	1	W	1	/	1	W																											
P-G02R	2-DLK001.19	SS	0	/	1	W	0	/	1	W	1	/	1	W																											
P-G02R	**2-FOM003.60**	A	0	/	27	S	0	/	27	S	**20**	**/**	**27**	**N**	**6**	**/**	**27**	**P**	0	/	27	S							0	S	0	S	0	S							
P-G02R	2-FOM005.49	SS	0	/	1	W	0	/	1	W	0	/	1	W																											
P-G02R	2-FOM006.87	SS	0	/	1	W	0	/	1	W	1	/	1	W										/																	
P-G02R	2-ROT003.12	SS	0	/	1	W	0	/	1	W	0	/	1	W										/																	
P-G02R	2-TIC002.69	SS	0	/	1	W	0	/	1	W	0	/	1	W										/																	
P-G03E	03J28	B		/				/				/												/													MI	B-IBI	Random B-IBI JMSTF
P-G03E	03J29	B		/				/				/												/													MI	B-IBI	Random B-IBI JMSTF
P-G03E	04J30	B		/				/				/												/													MI	B-IBI	Random B-IBI JMSTF
P-G03E	05J23	B		/				/				/												/													NI	B-IBI	Random B-IBI JMSTF
P-G03E	05J24	B		/				/				/												/													NI	B-IBI	Random B-IBI JMSTF
P-G03E	06J24	B		/				/				/												/													MI	B-IBI	Random B-IBI JMSTF
P-G03E	07J23	B		/				/				/												/													NI	B-IBI	Random B-IBI JMSTF
P-G03E	07J25	B		/				/				/												/													NI	B-IBI	Random B-IBI JMSTF
P-G03E	2-BLY000.20	SS		/				/				/												/							5	T								97 sed PCB, chlordane, DDE, DDT & Total DDT
P-G03E	**2-BLY000.55**	SS		/				/				/												/							3	T			**1**	**P**				97 PCB 5 sp. & sed PCB, chlordane & DDT
P-G03E	**2-BLY000.65**	A		/	60		**12**	**/**	**59**	**P**	1	/	60	S	**20**	**/**	**56**	**N**						/					0	S	0	S	1	T							PCBs
P-G03E	2-CTC000.02	SS		/				/				/				/				/				/									6	T							97 sed PCB, chlordane, DDD, DDE, DDT & Total DDT
P-G03E	2-GRV000.01	SS		/				/				/				/				/				/									0	S							97 sed
P-G03E	2-GRV000.57	SS		/				/				/				/				/				/									0	S							97 sed
P-G03E	2-JMS065.81	SS		/				/				/				/				/				/					0	W	0	S									
P-G03E	2-JMS066.35	SS		/				/				/				/				/				/							0	S									
P-G03E	**2-JMS066.88**	C,SS		/				/				/				/				/				/											**1**	**P**				97 PCB 5 sp.
P-G03E	2-JMS067.56	SS		/				/				/				/				/				/							0	S									
P-G03E	2-JMS068.49	SS		/				/				/				/				/				/							0	S									
P-G03E	2-JMS068.64	SS		/				/				/				/				/				/							0	S									
P-G03E	2-JMS068.68	SS		/				/				/				/				/				/					0	W	0	S									
P-G03E	2-JMS068.87	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-G03E	2-JMS069.08	A,CB		/	205		0	/	202	S	0	/	115	S	2	/	59	S		/	118		4	/	18	T			0	S											TF5.5A
P-G03E	2-JMS072.08	SS		/				/				/				/				/				/																	
P-G03E	2-JMS074.25	SS		/				/				/				/				/				/							0	S									
P-G03E	2-JMS074.29	SS		/				/				/				/				/				/					0	S	0	S									
P-G03E	**2-JMS074.44**	A,SS		/	58		0	/	57	S	1	/	57	S	**7**	**/**	**59**	**P**		/				/					0	S	0	S	2	T	0	S	**2**	**P**		PCB 95 3sp & 97 4sp;Sed DDT & dibenz(a,h)anthracene;00-94 FT Kepone
P-G03E	2-JMS075.04	A,CB		/	219		0	/	217	S	1	/	114	S	5	/	58	S		/			7	/	18	T			0	S											TF5.5
P-G03E	2-JMS075.81	SS		/				/				/				/				/				/									3	T							97 sed PCB, chlordane, Total DDT Metabolites
P-G03E	2-JMS076.18	SS		/				/				/				/				/				/									2	T							97 sed PCB, chlordane
P-G03E	2-JMS076.64	SS																											0	S			0	S							TBT study
P-G03E	2-JMS076.94	SS		/				/				/				/				/				/									0	S							97 sed
P-G03E	2-JMS077.14	SS																											0	S			0	S							TBT study
P-G03E	2-JMS077.64	SS																											0	S			0	S							TBT study

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			MONITORING DATA																																		Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
P-G03E	2-JMS077.84	SS	0	/	1	W	0	/	1	W	0	/	1	W																													
P-G03E	2JMS-30-ALL	CMON		/	109		0	/	157	S		/				/				/				/																	Citizen Monitoring Station
P-G03E	2JMS-39-ALL	CMON		/	172		1	/	217	S		/				/				/				/																	Citizen Monitoring Station
P-G03E	MA97-0678	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			3	/	3	T															MAIA Data
P-G03E	MA97-0679	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			3	/	3	T															MAIA Data, Same as JMS075.04
P-G03E	MA97-0951	MAIA		/	4		0	/	4	S	0	/	1	W		/				/				/																	MAIA Data, Same as JMS074.44
P-G03E	TF5.5	B		/				/				/				/				/				/													SI	B-IBI	B-IBI Fixed Chesapeake Bay Benthic Sta
P-G03E/R	PCB Study	SS		/				/				/				/				/				/									1	T						PCBs (35-40 stations)
P-G03E	2-PTH000.23	SS		/				/				/				/				/				/									5	T						97 sed PCB, chlordane, DDD, DDT & Total DDT
P-G03E	**H-3**	SS		/	9		**2**	/	**9**	**P**	0	/	9	S	0	/	8	S		/				/					0	S									Hopewell Estuarine Restoration Initiative (HERMA Project)
P-G03E	H-4	SS		/	8		0	/	8	S	0	/	8	S	0	/	7	S		/				/					0	S									HERMA Project station
P-G03E	**H-5**	SS		/	9		0	/	9	S	**3**	/	**9**	**N**	0	/	8	S		/				/					0	S									HERMA Project station
P-G03E	**BC-1**	SS		/	11		1	/	11	S	**2**	/	**11**	**P**	0	/	10	S		/				/					0	S									HERMA Project station
P-G03E	**BC-2/Station B**	SS,B		/	12		1	/	12	S	**2**	/	**12**	**P**	**2**	/	**10**	**P**		/				/					0	S							Inconclusive		HERMA Project station
P-G03E	**BC-3**	SS		/	11		**2**	/	**11**	**P**	**2**	/	**11**	**P**	1	/	10	S		/				/					1	T									HERMA Project - Acute NH3-N viol. in mixing zone
P-G03E	BC-4	SS		/	5		1	/	5	S	1	/	5	S	0	/	4	S		/				/					0	S									HERMA Project station
P-G03E	BC-5	SS		/	3		0	/	3	S	0	/	3	S	1	/	3	S		/				/					0	S									HERMA Project station
P-G03E	BC-6	SS		/	3		1	/	3	S	0	/	3	S	1	/	3	S		/				/					0	S									HERMA Project station
P-G03R	BC-7	SS		/	3		1	/	3	S	0	/	3	S	1	/	3	S	0	/	2	S		/					0	S									HERMA Project station
P-G03R	**BC-8**	SS		/	3		0	/	3	S	0	/	3	S	**2**	/	**3**	**N**	1	/	2	S		/					0	S									HERMA Project station
P-G03R	**BC-9**	SS		/	3		0	/	3	S	1	/	3	S	**2**	/	**3**	**N**	0	/	2	S		/					0	S									HERMA Project station
P-G03R	BC-10	SS		/	3		0	/	3	S	1	/	3	S	1	/	3	S	0	/	2	S		/					0	S									HERMA Project station
P-G03E	Station A	B		/	3		0	/	3	S	0	/	3	S		/				/				/					0	S							Inconclusive		HERMA Project station
P-G03E	Station C	B		/	12		0	/	12	S	1	/	12	S		/				/				/					0	S							Inconclusive		HERMA Project station
P-G03R	2-BLY002.40	SS		/				/				/				/				/				/									0	S						97 sed
P-G03R	2-BLY003.42	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	**2-BLY005.72**	C		/				/				/				/				/				/															**3**	**P**			97 PCB 4 sp, Aldrin 2 sp & Heptachlor epoxide 1 s.
P-G03R	2-ETR000.50	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-ETR003.00	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-GLB000.19	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-GUN002.58	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	**2-GUN004.00**	A	0	/	27	S	**7**	/	**27**	**N**	**22**	/	**27**	**N**	1	/	27	S	0	/	27	S		/					0	S	0	S	0	S					Natural Conditions
P-G03R	2-HEC004.92	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-KMG001.15	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-PHC000.46	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-SLM001.23	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-WER001.93	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G03R	2-WER002.89	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																
P-G04E	03J25	B		/				/				/				/				/				/													MI	B-IBI	Random B-IBI JMSTF
P-G04E	03J26	B		/				/				/				/				/				/													VI	B-IBI	Random B-IBI JMSTF
P-G04E	03J27	B		/				/				/				/				/				/													VI	B-IBI	Random B-IBI JMSTF
P-G04E	05J19	B		/				/				/				/				/				/													MI	B-IBI	Random B-IBI JMSTF
P-G04E	05J20	B		/				/				/				/				/				/													VI	B-IBI	Random B-IBI JMSTF
P-G04E	05J21	B		/				/				/				/				/				/													VI	B-IBI	Random B-IBI JMSTF
P-G04E	07J21	B		/				/				/				/				/				/													NI	B-IBI	Random B-IBI JMSTF
P-G04E	07J22	B		/				/				/				/				/				/													NI	B-IBI	Random B-IBI JMSTF
P-G04E	04J27	B		/				/				/				/				/				/													MI	B-IBI	Random B-IBI JMSOH
P-G04E	04J28	B		/				/				/				/				/				/													NI	B-IBI	Random B-IBI JMSOH
P-G04E	04J29	B		/				/				/				/				/				/													VI	B-IBI	Random B-IBI JMSOH
P-G04E	05J17	B		/				/				/				/				/				/													VI	B-IBI	Random B-IBI JMSOH
P-G04E	06J20	B		/				/				/				/				/				/													MI	B-IBI	Random B-IBI JMSOH
P-G04E	06J23	B		/				/				/				/				/				/													MI	B-IBI	Random B-IBI JMSOH
P-G04E	07J20	B		/				/				/				/				/				/													NI	B-IBI	Random B-IBI JMSOH
P-G04E	2-JMS050.55			/				/				/				/				/				/							0	S								
P-G04E	2-JMS050.57	A		/	58		0	/	57	S	0	/	58	S	1	/	59	S		/				/					0	S									
P-G04E	2-JMS052.52			/				/				/				/				/				/							0	S								
P-G04E	2-JMS053.34	SS		/				/				/				/				/				/							0	S	0	S					97 sed
P-G04E	2-JMS055.75			/				/				/				/				/			0	/	1	W					0	S								
P-G04E	2-JMS055.94	A,CB		/	225		0	/	223	S	0	/	116	S	0	/	61	S		/			0	/	20	S			0	S									TF5.6
P-G04E	2-JMS056.12	SS		/				/				/				/				/				/							0	S								
P-G04E	2-JMS059.24	SS		/				/				/				/				/				/							0	S	0	S					97 sed
P-G04E	MA97/98-0971	MAIA		/	4		0	/	4	S	0	/	1	W		/				/			0	/	2	S													MAIA Data
P-G04E	MA97-0682	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			1	/	3	S													MAIA Data, Same as 2-JMS055.94
P-G04E	MA97-0965	MAIA		/	1	W	0	/	1	W		/				/				/				/															MAIA Data

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
P-G04E	MA97-0968	MAIA		/	1	W	0	/	1	W		/				/				/				/																		MAIA Data
P-G04R	**2-WRD005.40**	A	0	/	24	S	0	/	24	S	0	/	24	S	**4**	**/**	**24**	**P**	0	/	25	S		/					0	S											
P-G05R	02042260	USGS	0	/	140	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G05R	02042284	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G05R	02042287	USGS	0	/	41	S	0	/	2	S	0	/	40	S		/				/				/			0	S													
P-G05R	02042426	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G05R	2-CHK076.59	A	0	/	56	S	5	/	56	S	2	/	56	S	5	/	55	S	0	/	57	S		/					0	S											
P-G05R	2CHK-CR2-ALL	CMON	0	/	4	S	0	/	59	S		/				/				/				/																	Citizen Monitoring Station
P-G05R	2CHK-CR9-ALL	CMON	0	/	33	S	0	/	60	S		/				/				/				/																	Citizen Monitoring Station
P-G05R	2LKH-13-ALL	CMON	0	/	29	S	4	/	47	S		/				/				/				/																	Citizen Monitoring Station
P-G05R	2MDT-4-ALL	CMON	0	/	5	S	0	/	23	S		/				/				/				/																	Citizen Monitoring Station
P-G05R	2NTR-3-ALL	CMON	0	/	4	S	0	/	8	S		/				/				/				/																	Citizen Monitoring Station
P-G05R	2RKB-CR1-ALL	CMON	0	/	14	S	1	/	37	S		/				/				/				/																	Citizen Monitoring Station
P-G05R	**2-UPM003.53**	A	0	/	58	S	0	/	58	S	1	/	58	S	**23**	**/**	**59**	**N**	3	/	59	S		/					0	S											
P-G05R	2UPM-CR5-ALL	CMON	0	/	5	S	0	/	11	S		/				/				/				/																	Citizen Monitoring Station
P-G05R	**2-XDD000.84**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**	NET	NPS Tyson Foods
P-G05R	2-XDD001.23	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	REF	Reference, Tyson Foods
P-G05R	**RRPDC UHB-1**	SS	0	/	50	S	0	/	50	S	1	/	50	S	**42**	**/**	**50**	**N**		/				/																	
P-G05R	**RRPDC UHB-10**	SS	0	/	50	S	**7**	**/**	**50**	**P**	2	/	49	S	**25**	**/**	**50**	**N**		/				/																	
P-G05R	**RRPDC UHB-11**	SS	0	/	23	S	0	/	23	S	0	/	23	S	**10**	**/**	**23**	**N**		/				/																	
P-G05R	**RRPDC UHB-12**	SS	0	/	23	S	**4**	**/**	**23**	**P**	1	/	23	S	**8**	**/**	**23**	**N**		/				/																	
P-G05R	**RRPDC UHB-2**	SS	0	/	50	S	0	/	50	S	0	/	50	S	**29**	**/**	**50**	**N**		/				/																	
P-G05R	**RRPDC UHB-3**	SS	0	/	50	S	4	/	50	S	0	/	50	S	**18**	**/**	**49**	**N**		/				/																	
P-G05R	**RRPDC UHB-4**	SS	0	/	50	S	3	/	50	S	1	/	49	S	**28**	**/**	**50**	**N**		/				/																	
P-G05R	**RRPDC UHB-5**	SS	0	/	50	S	1	/	50	S	1	/	50	S	**40**	**/**	**49**	**N**		/				/																	
P-G05R	**RRPDC UHB-6**	SS	0	/	50	S	**9**	**/**	**50**	**P**	1	/	49	S	**20**	**/**	**50**	**N**		/				/																	
P-G05R	**RRPDC UHB-7**	SS	0	/	48	S	0	/	48	S	1	/	48	S	**23**	**/**	**48**	**N**		/				/																	
P-G05R	**RRPDC UHB-8**	SS	0	/	50	S	**10**	**/**	**50**	**P**	1	/	49	S	**14**	**/**	**50**	**N**		/				/																	
P-G05R	RRPDC UHB-9 (A)	SS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																	
P-G05R	**RRPDC UHB-9 (B)**	SS	0	/	50	S	0	/	50	S	1	/	49	S	**15**	**/**	**50**	**N**		/				/																	
P-G06R	2042429	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042432	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042433	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042437	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042438	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042439	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042442	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042446	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2042447	USGS	0	/	13	S		/			0	/	13	S		/				/				/			0	S													
P-G06R	2042448	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	**2042454**	USGS	0	/	11	S		/			**3**	**/**	**12**	**N**		/				/				/			0	S													
P-G06R	2042460	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	20424410	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G06R	2-CHK042.22	USGS	0	/	13	S	0	/	1	W	0	/	13	S		/				/				/			0	S													USGS station 02042470
P-G06R	2-CHK042.37	SS		/				/				/				/				/				/							0	S	1	T							96 PAH sed
P-G06R	2-CHK049.59	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													USGS station 02042445
P-G06R	2-CHK054.37	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-G06R	**2-CHK055.04**	A,USGS	0	/	69	S	**14**	**/**	**69**	**P**	**8**	**/**	**57**	**P**	5	/	56	S	0	/	58	S		/			0	S	0	S	0	S	0	S							Natural Cond.; also USGS station 02042440
P-G06R	**2-CHK062.57**	A	0	/	39	S	**18**	**/**	**39**	**N**	**5**	**/**	**39**	**P**	**5**	**/**	**39**	**P**	2	/	40	S		/					0	S											
P-G06R	2NES-11-ALL	CMON	1	/	17	S	4	/	37	T		/				/				/				/																	Citizen Monitoring Station
P-G06R	2TIS-CR12-ALL	CMON	1	/	17	S	2	/	36	S		/				/				/				/																	Citizen Monitoring Station
P-G06R	**2-WOS002.69**	A,USGS	0	/	98	S	2	/	68	S	**20**	**/**	**94**	**P**	**12**	**/**	**53**	**P**	0	/	54	S		/			0	S	0	S	0	S	0	S							USGS station 02042455
P-G06R	2WOS-6-ALL	CMON	0	/	5	S	0	/	15	S		/				/				/				/																	Citizen Monitoring Station
P-G07L	2-CHK026.94 - tl	Lake	0	/	3	S	0	/	3	S	0	/	3	S	0	/	1	W	0	/	1	W	1	/	1	W			0	W											Chickahominy Lake
P-G07L	2-CHK026.94 - bl	Lake	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Chickahominy Lake
P-G07L	2-CHK024.07 - tl	Lake	0	/	3	S	0	/	3	S	0	/	4	S	0	/	1	W	0	/	1	W	1	/	1	W			0	W											Chickahominy Lake
P-G07L	**2-CHK024.07 - bl**	Lake	0	/	4	S	**3**	**/**	**4**	**N**	0	/	4	S		**/**				**/**				**/**							0	S	0	S							Chickahominy Lake
P-G07R	02042475	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G07R	02042476	USGS	0	/	5	S	0	/	1	W	0	/	5	S		/				/				/			0	S													
P-G07R	02042477	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S													
P-G07R	02042478	USGS	0	/	43	S	0	/	18	S	0	/	59	S		/				/				/			0	S													
P-G07R	02042480	USGS	0	/	4	S	0	/	1	W	0	/	4	S		/				/				/			0	S													Special Study Station 2-SMN001.38
P-G07R	**2-CHK032.77**	A	0	/	59	S	0	/	59	S	6	/	59	S	**3**	**/**	**60**	**P**	0	/	60	S		/					0	S	0	S	0	S							
P-G07R	2-CHK035.26	USGS	0	/	83	S	0	/	16	S	8	/	79	S		/				/				/			0	S													USGS Station 02042500

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			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-G07R	2-CHK035.30	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	REF	Reference, 4th order swamp
P-G07R	2-CNR000.89	SS	0	/	7	S	0	/	7	S	1	/	7	S	1	/	7	S	1	/	7	S		/					0	S											Hog Farm Special Study Station
P-G07R	**2-CNR001.16**	SS	0	/	7	S	0	/	7	S	**2**	**/**	**7**	**N**	**3**	**/**	**7**	**N**	0	/	7	S		/					0	S											Hog Farm Special Study Station
P-G07R	**2-CNR001.54**	SS	0	/	8	S	0	/	8	S	**2**	**/**	**8**	**P**	**2**	**/**	**7**	**N**	0	/	7	S		/					0	S											Hog Farm Special Study Station
P-G07R	2-JRN000.81	A	0	/	38	S	0	/	38	S	2	/	38	S	1	/	39	S	0	/	39	S		/					0	S	0	S	0	S							
P-G08E	05J18	B		/				/				/				/				/				/															MI	B-IBI	random B-IBI JMSOH
P-G08E	2-CHK002.17	A		/	59		0	/	59	S	0	/	59	S	1	/	60	S		/				/					0	S	0	S	0	S							
P-G08E	2-CHK002.20	SS		/				/				/				/				/				/													1	T			00 - 94 FT Kepone
P-G08E	2-CHK006.14	A,CB		/	144		0	/	142	S	0	/	114	S	0	/	63	S		/			0	/	20	S			0	S											RET5.1A
P-G08E	2-CHK012.12/07J19	SS,B		/				/				/				/				/				/							0	S							NI	B-IBI	random B-IBI CHKOH
P-G08E	2-CHK014.33	A		/	59		0	/	59	S	1	/	59	S	1	/	60	S		/				/					0	S	0	S	0	S							
P-G08E	**2-CHK023.64**	A,C		/	59		0	/	59	S	**9**	**/**	**59**	**P**	2	/	60	S		/				/					0	S	0	S	0	S							
P-G08E	2CHK-8-ALL	CMON		/	39	S	0	/	59	S		/				/				/				/																	Citizen Monitoring Station
P-G08E	MA97-0077	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S					0	S	0	S							MAIA Data
P-G08E	MA97-0641	MAIA		/	6		0	/	6	S	0	/	6	S	0	/	3	S		/			0	/	3	S															MAIA Data, Same as 2-CHK006.14
P-G08R	**2-MOC005.97**	A	0	/	27	S	**15**	**/**	**27**	**N**	**14**	**/**	**27**	**N**	**3**	**/**	**27**	**P**	3	/	27	T		/					0	S	0	S	0	S							
P-G09L	**2-DSC007.54-TL**	Lake	0	/	3	S	0	/	3	S	**2**	**/**	**3**	**N**	0	/	1	W		/			1	/	1	W															
P-G09L	2-DSC007.54-BL	Lake	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	
P-G09L	**2-DSC006.46 -TL**	Lake	0	/	3	S	0	/	3	S	**2**	**/**	**3**	**N**	0	/	1	W	0	/	1	W	1	/	1	W			0	W											
P-G09L	**2-DSC006.46 -BL**	Lake	0	/	3	S	**3**	**/**	**3**	**N**	0	/	3	S		/				/				/							0	S	0	S							
P-G09L	**2-DSC005.85 - TL**	Lake	0	/	4	S	0	/	4	S	**2**	**/**	**4**	**N**	0	/	1	W	0	/	1	W	1	/	1	W			0	W											
P-G09L	**2-DSC005.85 - BL**	Lake	0	/	3	S	**3**	**/**	**3**	**N**	0	/	1	W		/				/				/																	
P-G09R	**02042726**	USGS	0	/	37	S	**5**	**/**	**16**	**N**	0	/	33	S		/				/				/			**2**	**P**													Special Study Station 2-DSC012.67, Fe & Mn
P-G09R	**2-BDM004.12**	A	0	/	26	S	**7**	**/**	**26**	**N**	0	/	26	S	2	/	26	S	5	/	26	T		/					0	S	0	S	0	S							
P-G09R	**2-DSC012.67**	A	0	/	20	S	1	/	20	S	0	/	20	S	**3**	**/**	**20**	**P**	1	/	20	S		/					0	S	0	S	0	S							
T-G10E	**2-CGE001.41**	A		/			**4**	**/**	**24**	**P**	0	/	25	S	**3**	**/**	**24**	**P**		/				/					0	S											
T-G10E	2-CLG000.23	A		/			0	/	57	S	1	/	58	S	5	/	58	S		/				/																	
T-G10E	**2-MIC000.03**	A		/			0	/	57	S	1	/	57	S	**8**	**/**	**59**	**P**		/				/																	
T-G10E	**2-POW000.60**	A		/			0	/	57	S	1	/	57	S	**8**	**/**	**59**	**P**		/				/					0	S	0	S	0	S							
T-G10E	2-JMS046.00	C,SS		/				/				/				/				/				/													1	T			00 - 94 FT Kepone
T-G10E	2-JMS044.08	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
T-G10E	2-JMS046.73	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
T-G10E	2-JMS047.33	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
T-G10E	2-JMS047.81	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
T-G10E	2-JMS042.92	A,CB		/			0	/	365	S	0	/	139	S	1	/	60	S		/			0	/	59	S			0	S											RET5.2
T-G10E	2-JMS042.46	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
T-G10E	2-JMS040.03	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
T-G10E	2-JMS032.59-TL	A,CB		/			0	/	157	S	0	/	57	S	1	/	60	S		/			0	/	59	S			0	S											LE5.1
T-G10E	2-JMS032.59-BL	A,CB		/			0	/	225	S	0	/	58	S		/				/				/																	LE5.1
T-G10R	**2-POW006.77**	A/B		/			3	/	60	S	1	/	60	S	3	/	58	S		/				/															**MI**		
T-G11E	2-CKT000.19	A		/			0	/	26	S	0	/	27	S	0	/	25	S		/				/					0	S	0	S	0	S							
T-G11E	2-CKT000.84	A		/			0	/	27	S	0	/	27	S	0	/	25	S		/				/					0	S	2	T	0	S							Copper, Nickel: 1995
T-G11E	2-CKT002.22	A		/			0	/	27	S	0	/	27	S	0	/	25	S		/				/					0	S	0	S	0	S							
T-G11E	**2-DEP000.26**	A		/			0	/	57	S	0	/	58	S	**9**	**/**	**58**	**P**		/				/					0	S	2	T	1	T							Zinc 1996;Copper 2000; PCB 2000
T-G11E	2-JMS029.60	A		/			0	/	20	S	0	/	19	S		/				/			0	/	22	S															
T-G11E	2-JMS021.04-TL	A,CB		/			0	/	114	S	0	/	58	S	0	/	60	S		/			1	/	59	S			0	S											LE5.2
T-G11E	2-JMS021.04-BL	A/B,CB		/			0	/	177	S	0	/	58	S		/				/				/															T		LE5.2, B-IBI Fixed Station,Segment JMSMH
T-G11E	2-JMS013.10-TL	A,CB		/			1	/	87	S	0	/	57	S	0	/	60	S		/			1	/	59	S			0	S											LE5.3
T-G11E	2-JMS013.10-BL	A,CB		/			0	/	153	S	0	/	57	S		/				/				/																	LE5.3
T-G11E	**2-JMS017.01**	C,SS		/				/				/				/				/				/											0	S	**5**	**P**			94 PCB & chlor 1 sp.; 96 PCB 4 sp.,94-98 Kepone
T-G11E	2-JOG000.62	A		/			0	/	27	S	0	/	27	S	1	/	27	S		/				/					0	S	0	S	0	S							
T-G11E	2-PGN000.00	A		/			0	/	27	S	O	/	27	S	1	/	27	S		/				/					0	S	0	S	0	S							
T-G11E	2-PGN000.80	A		/			0	/	27	S	0	/	27	S	2	/	27	S		/				/																	
T-G11E	2-PGN001.19	A		/			0	/	35	S	0	/	35	S	2	/	26	S		/			0	/	15	S			0	S	0	S	0	S							
T-G11E	2-PGN002.58	A		/			0	/	27	S	0	/	27	S	1	/	28	S		/				/																	
T-G11E	05J05	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Sta.,Segment PGNMH
T-G11E	05J07	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Sta.,Segment PGNMH
T-G11E	**2-PGN003.57**	A		/			2	/	27	S	0	/	27	S	**4**	**/**	**27**	**P**		/				/					0	S	0	S	0	S							
T-G11E	**2-PGN004.57**	A		/			2	/	27	S	0	/	27	S	**3**	**/**	**25**	**P**		/				/					0	S	0	S	0	S							
T-G11E	**2-PGN005.46**	A		/			**4**	**/**	**27**	**P**	0	/	27	S	**4**	**/**	**26**	**P**		/				/					0	S	0	S	0	S							
T-G11E	**2-PGN006.65**	A		/			**5**	**/**	**27**	**P**	0	/	27	S	**4**	**/**	**26**	**P**		/				/					0	S	0	S	0	S							
T-G11E	**2-PGN007.44**	A		/			**5**	**/**	**27**	**P**	0	/	27	S	**4**	**/**	**25**	**P**		/				/																	
T-G11E	**2-PGN008.42**	A		/			**5**	**/**	**26**	**P**	0	/	26	S	**5**	**/**	**25**	**P**		/				/					0	S	0	S	0	S							

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status							
	Monitoring		Dissolved												Fecal			Total																					Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform			Phosphorus			Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
T-G11R	2-PGN010.07	A		/			0	/	56	S	0	/	56	S	4	/	56	S		/				/					0	S	0	S	0	S							
T-G11E	**2-WWK003.98**	A		/			1	/	58	S	0	/	58	S	**6**	**/**	**59**	**P**		/				/					0	S	0	S	0	S							
T-G11E	03J04	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J07	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J08	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J09	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J11	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J12	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J14	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J15	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J16	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J07	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J10	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J11	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J15	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J16	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J17	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J19	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J20	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J22	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J23	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	05J08	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	05J09	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	05J10	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	05J13	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	05J26	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	05J28	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	03J05	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J05	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J06	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	04J14	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J04	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J05	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J08	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J09	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J10	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J11	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J12	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J13	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J14	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J16	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J27	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	06J29	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J07	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J08	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J09	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J10	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J11	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J12	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J13	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J14	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J15	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J26	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	07J27	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSMH
T-G11E	2-WWK000.00	PFWQ		/			0	/	17	S	0	/	17	S		/				/			0	/	16	S															Pfiesteria
T-G11R	2-CPN004.81	B	0	/	2	S	0	/	2	S	0	/	2	S		/			0	/	2	S		/															NI		
T-G11R	2-BAP000.80	B	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S		/				/															NI		
T-G11R	2-CKT005.72	B	0	/	2	S	0	/	2	S	0	/	2	S		/			0	/	2	S		/															T		Unverified MI = Threatened
T-G13E	2-XXX-63(Suffolk TCC Lake)	L,C,SS		/				/				/				/				/				/							0	S	4	T	0	S	0	S			00 FT/SED, sed Chlordane,DDE,DDD&Total DDT
T-G13E	2-XXX-64(Suffolk J Lake)	L,C,SS		/				/				/				/				/				/							0	S	0	S	0	S	0	S			00 FT/SED
T-G13E	2-BEN001.42	A		/			1	/	56	S	2	/	56	S	3	/	55	S		/				/					0	S	0	S	0	S							
T-G13E	2-NAN000.20	A		/			0	/	27	S	0	/	27	S	0	/	25	S		/				/					0	S	0	S	0	S							
T-G13E	2-NAN002.77	A		/			0	/	26	S	0	/	26	S	0	/	25	S		/				/					0	S	0	S	0	S							

James River Basin
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			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved						pH				Fecal				Total				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus																						Mon	Type	Comments
T-G13E	2-NAN005.82	A		/			0	/	27	S	0	/	27	S	0	/	25	S		/				/					0	S	0	S	0	S									
T-G13E	2-NAN007.89	A		/			0	/	26	S	0	/	26	S	0	/	24	S		/				/					0	S	0	S	0	S									
T-G13E	2-NAN010.69	A		/			0	/	26	S	0	/	26	S	2	/	23	S		/				/					0	S	0	S	0	S									
T-G13E	2-NAN013.50	A		/			2	/	26	S	0	/	26	S	2	/	24	S		/				/					0	S	0	S	0	S									
T-G13E	**2-NAN019.14**	A		/			**8**	**/**	**56**	**P**	1	/	56	S	**23**	**/**	**57**	**N**		/				/																		
T-G13E	**2-SGL001.00**	A		/			**9**	**/**	**56**	**P**	**15**	**/**	**56**	**N**	**27**	**/**	**57**	**N**		/				/																		
T-G13E	**2-SGL001.50**	A		/			**4**	**/**	**30**	**P**	**20**	**/**	**30**	**N**	**18**	**/**	**31**	**N**		/				/																		
T-G13E	04J08	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment NANMH
T-G13E	04J09	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment NANMH
T-G13E	05J01	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment NANMH
T-G13E	06J02	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment NANMH
T-G13E	06J03	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment NANMH
T-G13E	07J06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment NANMH
T-G14R	**2-CRL004.04**	B	0	/	2	S	0	/	2	S	**2**	**/**	**2**	**N**	0	/	2	S	0	/	2	S		/															T		Unverified MI = Threatened
T-G15E	2-WLY001.38	C,SS																											0	S	0	S	1	T	0	S					98 FT/SED, As 1 sp.
T-G15E-01	2-SBE000.57	C,SS		/				/				/				/				/				/											1	T					93 FT, PCB 1 sp.
T-G15E-01	**2-SBE001.53**	A		/			1	/	22	S	0	/	22	S	**6**	**/**	**58**	**P**		/			0	/	72	S	**14**	**P**	0	S	1	T	1	T							Zn 96, PCB: 96 TBT chronic
T-G15E-01	**2-SBE001.98**	A		/			0	/	4	S	0	/	4	S	0	/	7	S		/			0	/	118	S	**10**	**P**													TBT chronic
T-G15E-01	**2-SBE002.30**	A,C,SS		/			1	/	18	S	0	/	18	S	**3**	**/**	**22**	**P**		/				/					0	S	0	S	0	S			1	T			93 FT, PCB 1 sp.
T-G15E-01	**2-SBE002.88**	A		/			1	/	18	S	0	/	18	S	2	/	22	S		/			0	/	54	S	**10**	**P**	0	S	0	S	0	S							TBT chronic
T-G15E-01	**2-SBE004.61**	A		/			1	/	18	S	0	/	18	S	1	/	22	S		/			0	/	54	S	**10**	**P**	0	S	0	S	0	S							TBT chronic
T-G15E-01	2-SBE005.48	A,C,SS		/			1	/	18	S	0	/	18	S	0	/	22	S		/				/					0	S	0	S	0	S			1	T			93 FT, PCB 1 sp.
T-G15E-01	**2-SBE006.26**	A		/			0	/	4	S	0	/	4	S	0	/	7	S		/			0	/	120	S	**10**	**P**													TBT chronic
T-G15E-01	2-SBE008.40	A		/			1	/	22	S	0	/	22	S	1	/	29	S		/			0	/	71	S	0	S	0	S	0	S	0	S							
T-G15E-01	2-SBE006.00	C,SS		/				/				/				/				/				/							0	S	0	S	0	S	2	T			98 FT/SED, PCB 1 sp. & sum PAH 1 sp.
T-G15E-01	2-SBE007.46	C,SS		/				/				/				/				/				/							0	S	0	S	1	T	1	T			98 FT/SED, Pb 1 sp. & PCB 1 sp.
T-G15E	2-WLY001.38	C																													0	S	0	S	0	S	0	S			Fish tissue 1998
T-G15E-01	**SBE2**	B																											0	S									**VI**	B-IBI	B-IBI Fixed Station
T-G15E-01	**SBE5**	B																											0	S									**VI**	B-IBI	B-IBI Fixed Station
T-G15E-01	07Z20	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	07Z21	B																																					MI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	07Z23	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	07Z24	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	07Z25	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S01	B																																					SI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S02	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S03	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S04	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S06	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S07	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S08	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S09	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S10	B																																					NI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S11	B																																					MI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S13	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S14	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S15	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S16	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S17	B																																					SI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S18	B																																					SI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S19	B																																					SI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S20	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S21	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S22	B																																					SI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S24	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S25	B																																					MI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S26	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S27	B																																					VI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	S28	B																																					NI	B-IBI	B-IBI Random Station, segment SBEMH
T-G15E-01	**2-DEC000.54**	C,SS		/				/				/				/				/				/							1	T	1	T	0	S	**1**	**P**			00 & 98 FT/SED, 00 PCB 5 sp. & '98 PCB 2 sp., 98 sed Hg & PCB
T-G15E-02	**2-IND000.98**	A		/			0	/	36	S	0	/	36	S	**10**	**/**	**35**	**N**		/				/																		
T-G15E-02	**2-EBE000.40**	A		/			1	/	22	S	0	/	23	S	3	/	29	S		/			4	/	117	S	**14**	**P**	0	S	2	T	0	S							Zinc: 94-95, TBT chronic
T-G15E-02	**2-EBE001.64**	SS		/				/				/				/				/				/			**10**	**P**													TBT chronic
T-G15E-02	**2-EBE002.98**	A,CB		/			0	/	67	S	0	/	67	S	**5**	**/**	**33**	**P**		/			1	/	29	S	**10**	**P**	0	S											TBT chronic, EBB01

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN						OTHER WATER COLUMN DATA										SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																										Pink = Threatened Waters
			#Violations/# Samples/Status						#Violations/# Samples/Status								#Violations/Status				#Violations/Status								
	Monitoring				Dissolved				Fecal		Total														Bio	Station		
WBID	Station	Type	Temperature		Oxygen		pH		Coliform		Phosphorus		Chlorophyll A		Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
T-G15E-02	**2-BRO001.35**	A	/		**12 / 59 P**		0 / 60 S		**32 / 58 N**		/		/			0 S	0 S	0 S					
T-G15E-02	**2-BRO002.95**	A	/		**6 / 30 P**		0 / 30 S		**19 / 30 N**		/		/										
T-G15E-02	07Z13	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	07Z14	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E01	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E02	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E03	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E04	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E05	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E06	B	/		/		/		/		/		/								MI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E08	B	/		/		/		/		/		/								MI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E09	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E10	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E11	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E12	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E15	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E16	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E19	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E20	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E21	B	/		/		/		/		/		/								MI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E22	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E23	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E24	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E25	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E26	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E27	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E28	B	/		/		/		/		/		/								MI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E29	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	E30	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, segment EBEMH
T-G15E-02	2-EBE001.20	C,SS	/		/		/		/		/		/										1 T				93 FT, PCB 1 sp.
T-G15E-03	2-ELI002.00	A,CB	/		0 / 114 S		0 / 114 S		0 / 58 S		/		0 / 59 S			0 S							LE5.6
T-G15E-03	**2-ELI003.52**	A	/		0 / 4 S		0 / 4 S		0 / 7 S		/		1 / 120 S		**10 P**	0 S							ELC01 TBT chronic
T-G15E-03	**2-ELI004.79**	A,CB	/		0 / 70 S		0 / 70 S		1 / 37 S		/		3 / 31 S		**10 P**	0 S							ELD01 TBT chronic
T-G15E-03	2-ELI006.92	A,CB	/		1 / 68 S		0 / 68 S		2 / 35 S		/		1 / 32 S		0 S	0 S							ELE01
T-G15E-03	2-ELI000.69	C,SS	/		/		/		/		/		/										0 S				93 FT, PCB study
T-G15E-03	**ER-F-01**	SS													**13 P**								TBT chronic
T-G15E-03	2-ELI005.58	C,SS	/		/		/		/		/		/										1 T				93 FT, PCB 1 sp.
T-G15E-03	07Z06	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z07	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z08	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z26	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z31	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z33	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z01	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z02	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z03	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z04	B	/		/		/		/		/		/								MI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z05	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z06	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z07	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z08	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z09	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z10	B	/		/		/		/		/		/								MI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z11	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z12	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z13	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z14	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z15	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z16	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z17	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z09	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z12	B	/		/		/		/		/		/								VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	07Z28	B	/		/		/		/		/		/								NI	B-IBI	B-IBI Random Station, Segment ELIMH
T-G15E-03	07Z30	B	/		/		/		/		/		/								SI	B-IBI	B-IBI Random Station, Segment ELIMH

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring					Dissolved									Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature			Oxygen				pH					Coliform				Phosphorus				Chlorophyll A				Metals				Metals				Organics				Mon	Type	Comments
T-G15E-03	Z18	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, Segment ELIMH
T-G15E-03	Z19	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, Segment ELIMH
T-G15E-03	Z20	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, Segment ELIMH
T-G15E-03	Z21	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z22	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, Segment ELIPH
T-G15E-03	Z23	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, Segment ELIMH
T-G15E-03	Z24	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, Segment ELIMH
T-G15E-03	Z25	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, Segment ELIMH
T-G15E-04	2-WBE000.56	A		/		0	/	18	S	0	/	18	S	1	/	21	S		/				/						0	S	1	T	0	S								Zinc, 1995
T-G15E-04	**2-WBE004.44**	A,CB		/		1	/	66	S	0	/	65	S	**5**	**/**	**36**	**P**		/		2	/	31	S	0	S	0	S													WBB05
T-G15E-04	**2-WBE002.11**	A,C,SS		/		0	/	4	S	0	/	4	S	0	/	7	S		/		1	/	118	S	0	S									**2**	**P**					93 FT, PCB 2 sp.
T-G15E-04	07Z10	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	07Z11	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W01	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W02	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W03	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W04	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W05	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W07	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W08	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W09	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W10	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W11	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W12	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W13	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W14	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W16	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W17	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W18	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W19	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W22	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W23	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W24	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W25	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W26	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W27	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-04	W28	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment WBEMH
T-G15E-05	2-LAF000.00	A		/		0	/	17	S	0	/	17	S	0	/	21	S		/				/																		
T-G15E-05	**2-LAF003.83**	A,CB		/		1	/	69	S	0	/	69	S	**6**	**/**	**36**	**P**		/		3	/	30	S	0	S	0	S													LFB01
T-G15E-05	2-LAF001.15	A,C,SS,CB		/		0	/	69	S	0	/	69	S	1	/	36	S		/		2	/	29	S	0	S	0	S							0	S					93 FT, PCB study, LFA01
T-G15E-05	07Z01	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	07Z02	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	07Z03	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	07Z04	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	07Z05	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L01	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L02	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L03	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L04	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L05	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L07	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L08	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L09	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L10	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L11	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L12	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L13	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L14	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L15	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L16	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L17	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L18	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment LAFMH

James River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
T-G15E-05	L19	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L20	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L21	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L22	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L23	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L24	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station, segment LAFMH
T-G15E-05	L25	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station, segment LAFMH+AP1136
T-G15E-06	2-JMS005.72-TL	A,CB,B		/			1	/	190	S	0	/	57	S	0	/	58	S		/			0	/	58	S			0	S									SI	B-IBI	LE5.4, B-IBI fixed station
T-G15E-06	2-JMS005.72-BL	A/B,CB		/			0	/	330	S	0	/	58	S		/				/				/															SI	B-IBI	LE5.4, B-IBI fixed station
T-G15E-06	03J01	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	03J02	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	04J01	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	04J02	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	04J03	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	05J04	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	05J06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	05J29	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	06J06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	06J07	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	07J01	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	07J02	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	07J03	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment JMSPH
T-G15E-06	2-JMS002.39	C,SS		/				/				/				/				/				/													0	S			93 FT, PCB study
T-G15	BRUCE INLET	SS		/				/				/				/				/				/					0	S	1	T	0	S							Zinc 2000
T-G15-02E	2MAI-76-ALL	CMON		/			16	/	195	S		/				/				/				/																	Citizen's Monitoring
T-G10E	2CHK-CR7-ALL	CMON		/			0	/	3	S		/				/				/				/																	Citizen's Monitoring
T-G11E	2PGN-32-ALL	CMON		/			18	/	249	S		/				/				/				/																	Citizen's Monitoring
T-G11E	2JMS-MON1-ALL	CMON		/			0	/	2	S		/				/				/				/																	Citizen's Monitoring
T-G15-01E	2SBE-72-ALL	CMON		/			22	/	198	T		/				/				/				/																	Citizen's Monitoring
T-G15-01E	2SBE-75-ALL	CMON		/			9	/	189	S		/				/				/				/																	Citizen's Monitoring
T-G15-01E	2NMC-73-ALL	CMON		/			34	/	194	T		/				/				/				/																	Citizen's Monitoring
T-G15-06E	2MIG-MON2-ALL	CMON		/			0	/	4	S		/				/				/				/																	Citizen's Monitoring
	Total Stations = 1216																																								

New River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

Bold/Shaded = Impaired Waters
Pink = Threatened Waters

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		
			MONITORING DATA																																						
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total				Chlorophyll A																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus								Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
S-N01R	9-HTN009.20	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															NI	net	
S-N02R	9-WLS002.57	A	0	/	29	S	0	/	29	S	0	/	29	S	0	/	27	S	0	/	27	S	0	/	0	W					0	S	0	S							
S-N02R	9-NEW188.71	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	net	
S-N02R	9-NEW187.46	A	0	/	56	S	0	/	60	S	0	/	59	S	4	/	56	S	1	/	55	S	0	/	0	W	0	S			0	S	0	S							
S-N02R	9-NEW158.40	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			00 FT/SED, Hg 1 sp. (lat/lon error)
S-N03R	9-FXC003.39	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI		
S-N03R	9-FXC000.84	A	2	/	28	S	0	/	28	S	0	/	28	S	2	/	27	S	0	/	28	S	0	/	0	W					0	S	0	S							
S-N04R	9-PBC002.69	A	0	/	20	S	0	/	17	S	0	/	17	S	1	/	16	S	3	/	16	T	0	/	0	W					0	S	0	S							
S-N04R	9-PBC001.12	A	0	/	8	S	0	/	8	S	0	/	8	S	1	/	7	S	1	/	8	S	0	/	0	W					0	S	0	S							
S-N04R	9-NEW179.98	C		/				/				/				/				/				/							0	S	0	S							96 SED
S-N04R	9-NEW176.85	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			00 FT/SED, Hg 1 sp. & SED Ni
S-N04R	9-LVR001.34	A	0	/	19	S	0	/	23	S	0	/	23	S	2	/	20	S	1	/	21	S	0	/	0	W					2	T	0	S							Ni
S-N05R	**9-EKC003.78**	A	0	/	29	S	0	/	30	S	0	/	30	S	**3**	**/**	**24**	**P**	0	/	30	S	0	/	0	W					0	S	0	S							
S-N06R	9-NEW156.55	C		/				/				/				/				/				/							0	S	0	S							96 SED
S-N06R	9-NEW148.23	A	0	/	55	S	0	/	58	S	1	/	58	S	2	/	55	S	1	/	56	S	0	/	0	W					0	S	0	S	0	S	0	S			
S-N06R	9-NEW140.02	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			96 SED, 92 FT
S-N06R	9-NEW136.35	C		/				/				/				/				/				/							0	S	0	S							96 SED
S-N06R	9-CST016.82	A	0	/	20	S	0	/	23	S	0	/	23	S	1	/	19	S	0	/	22	S	0	/	0	W					1	T	0	S							Ni
S-N06R	9-CST015.07	A	0	/	0	W	0	/	0	W	0	/	0	W	0	/	1	W	0	/	1	W	0	/	0	W					0	S	0	S							
S-N06R	9-CST013.29	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	ref	
S-N06R	9-CST010.18	B	0	/	1	W		/			0	/	1	W		/				/				/															NI	net	
S-N06R	**9-CST002.64**	A,B,C	0	/	21	S	0	/	26	S	0	/	26	S	2	/	20	S	0	/	24	S	0	/	0	W					2,2	T	0	S	0	S	0	S	**MI**	net	Zn,Ni, 00 FT/SED
S-N06R	9-CST001.31	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	net	
S-N07R	9-CRK003.00	A	0	/	29	S	0	/	28	S	0	/	28	S	2	/	26	S	0	/	27	S	0	/	0	W					1	T	0	S							PCB
S-N08L	NEW132.86	L	0	/	6	S	0	/	6	S	0	/	2	S	0	/	1	W	0	/	1	W		/			0	S	0	S			0	S							Byllesby Reservoir (AEP)
S-N08L	NEW129.80	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																	Buck Reservoir (AEP)
S-N08R	9-NEW127.49	A	0	/	58	S	0	/	60	S	1	/	60	S	3	/	52	S	2	/	56	S	0	/	0	W	0	S			0	S	0	S							
S-N08R	9-NEW124.51	C		/				/				/				/				/				/							0	S	0	S							97 SED
S-N08R	9-NEW117.42	C		/				/				/				/				/				/							2	T	0	S							97 Pb & Zn SED
S-N08R	9079	USFS		/				/				/				/				/				/															NI		USFS-Powder Mill Creek
S-N08R	9078	USFS		/				/				/				/				/				/															NI		USFS-Big Branch
S-N08R	9071	USFS		/				/				/				/				/				/															NI		USFS-Big Branch
S-N09R	9-CPL018.37	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/															T	net	additional monitoring needed
S-N09R	9-CPL003.10	A	0	/	31	S	0	/	31	S	0	/	31	S	1	/	26	S	1	/	30	S	0	/	0	W					0	S	0	S							
S-N09R	9074	USFS		/				/				/				/				/				/															NI		USFS-Francis Mill Creek
S-N09R	9068	USFS		/				/				/				/				/				/															NI		USFS-West Fork Dry Run
S-N09R	9003	USFS		/				/				/				/				/				/															NI		USFS-East Fork Dry Run
S-N10R	**9-RDC033.94**	A	0	/	12	W	0	/	12	S	0	/	12	S	**3**	**/**	**12**	**P**	0	/	12	S		/															NI	net	
S-N10R	9-RDC033.83	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	net	
S-N10R	9-RDC033.24	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	net	
S-N11R	9-RDC009.00	A,C	0	/	20	S	0	/	24	S	0	/	24	S	0	/	22	S	1	/	23	S	0	/	0	W					0	S	0	S	0	S	1	T			00 FT/SED, PCB 1 sp.
S-N11R	9-GLD000.24	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			00 FT/SED
S-N11R	03167000	USGS	0	/	40	S	0	/	40	S	0	/	40	S	2	/	33	S	0	/	40		0	/	0																Reed Creek @ Graham's Forge
S-N12R	9-CVR002.57	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															NI	net	
S-N12R	7032	USFS		/				/				/				/				/				/															NI		USFS-Mudlick Branch
S-N13R	9-RIC034.08	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	ref	
S-N14R	9-RIC029.23	A	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S	0	/	12	S	0	/	0	W					0	S	0	S	0	S	0	S			00 FT/SED
S-N14R	9-RIC002.95	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI		
S-N14R	9-RIC000.50	A,C	0	/	33	S	0	/	31	S	0	/	31	S	2	/	26	S	1	/	30	S	0	/	0	W					0	S	0	S	0	S	0	S			00 FT/SED, Pb detected 1 sp.
S-N15R	9-RIC001.81	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI		
S-N15R	9-LRI001.62	A	0	/	32	S	0	/	25	S	0	/	25	S	0	/	23	S	0	/	24	S	0	/	0	W					1	T	0	S							Zn
W-N16L	**9-NEW087.14-TL**	A	0	/	17	S	0	/	17	S	**6**	**/**	**18**	**N**	0	/	15	S	0	/	20	S		/					0	S											
W-N16L	**9-NEW087.14-BL**	A	0	/	34		**22**	**/**	**33**	**N**	2	/	36	S		/			1	/	39	S		/					0	S	0	S	0	S							
W-N16L	9-NEW088.86	C,SS		/				/				/				/				/				/							0	S	0	S	0	S	1	T			NEW-4; 00 FT PCB 1 sp./Sed
W-N16L	**9-NEW089.34-TL**	A	0	/	17	S	0	/	17	S	**3**	**/**	**18**	**P**	0	/	18	S	0	/	20	S		/					1	S											NEW-4 (1 NH3-N)
W-N16L	**9-NEW089.34-BL**	A		/	34		**19**	**/**	**34**	**N**	0	/	36	S		/			0	/	39	S		/					0	S	0	S	0	S							NEW-4
W-N16L	9-NEW092.66-TL	A	0	/	17	S	0	/	17	S	1	/	17	S	0	/	18	S	0	/	20	S		/					0	S											NEW-4
W-N16L	**9-NEW092.66-BL**	A		/	34		**20**	**/**	**34**	**N**	0	/	36	S		/			0	/	40	S		/					0	S	0	S	0	S							NEW-4
W-N16L	9-NEW098.32-TL	A	0	/	72	S	0	/	72	S	0	/	72	S	2	/	76	S	14	/	77	T	0	/	10	S			0	S											NEW-4
W-N16L	**9-NEW098.32-BL**	A		/	16		**5**	**/**	**16**	**N**	0	/	15	S		/			5	/	18	T		/					0	S	0	S	0	S							NEW-4
W-N16L	9-NEW100.54	SS		/				/				/				/				/				/											0	S	0	S			NEW-4; 93 FT
W-N16L	9-NEW105.05	C,SS		/				/				/				/				/				/							1	T	0	S	0	S	1	T			NEW-4; 00 FT/Sed; PCB FT 1 sp.; Zn Sed

New River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

Bold/Shaded = Impaired Waters
Pink = Threatened Waters

			CONVENTIONAL WATER COLUMN				OTHER WATER COLUMN DATA						SEDIMENT				FISH TISSUE				BENTHIC		
			MONITORING DATA																				
			#Violations/# Samples/Status				#Violations/# Samples/Status				#Violations/Status		#Violations/Status				#Violations/Status						
	Monitoring				Dissolved		Fecal	Total													Bio	Station	
WBID	Station	Type	Temperature		Oxygen		pH	Coliform	Phosphorus	Chlorophyll A	Metals	Organics	Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
W-N16L	9-NEW105.05B	SS	/		/		/	/	/	/			1 T	0 S							NEW-4; 00 FT/Sed; Zn Sed
W-N16L	9NEW-CL10-FC	CMON	/		/		/	/	7 / 18 T	0 / 11 S											NEW-4
W-N16L	9NEW-CL11-FC	CMON	/		/		/	/	5 / 18 T	0 / 11 S											NEW-4
W-N16L	9NEW-CL12-FC	CMON	/		/		/	/	6 / 18 T	0 / 11 S											NEW-4
W-N16L	9NEW-CL1-FC	CMON	/		/		/	0 / 9 S	0 / 17 S	0 / 11 S											NEW-4
W-N16L	9NEW-CL2A-FC	CMON	/		/		/	0 / 3 W	/	/											Sta location unknown
W-N16L	9NEW-CL2-FC	CMON	/		/		/	0 / 9 S	3 / 18 T	0 / 11 S											NEW-4;2 FC replicates analyzed w/ no exceedances
W-N16L	9NEW-CL3-FC	CMON	/		/		/	0 / 9 S	2 / 18 T	0 / 11 S											NEW-4;2 FC replicates analyzed w/ no exceedances
W-N16L	9NEW-CL4-FC	CMON	/		/		/	0 / 9 S	2 / 18 T	0 / 11 S											NEW-4;2 FC replicates analyzed w/ no exceedances
W-N16L	9NEW-CL5-FC	CMON	/		/		/	0 / 8 S	4 / 18 T	0 / 11 S											NEW-4;2 FC replicates analyzed w/ no exceedances
W-N16L	9NEW-CL8-FC	CMON	/		/		/	/	1 / 18 S	2 / 11 T											NEW-4
W-N16L	9NEW-CL9-FC	CMON	/		/		/	/	2 / 18 T	1 / 11 S											NEW-4
W-N16L	9-PKC000.00-TL	A	0 / 16 S		0 / 16 S		1 / 17 S	0 / 18 S	1 / 19 S	0 / 10 S		0 S									NEW-5
W-N16L	**9-PKC000.00-BL**	A	0 / 32 S		**19 / 32 N**		0 / 34 S	/	1 / 38 S	/		0 S	1 T	0 S							NEW-5; Zn in Sed
W-N16L	9-PKC004.16-TL	A	0 / 16 S		0 / 16 S		1 / 16 S	0 / 17 S	0 / 18 S	0 / 10 S		0 S									NEW-5
W-N16L	9-PKC004.16-BL	A	/		/		/	/	/	/			3 T	0 S							NEW-5; Sed Cu, Pb & Zn
W-N16L	**9-PKC004.65**	A,C,SS	0 / 58 S		0 / 58 S		0 / 58 S	2 / 60 S	1 / 60 S	/	0 S	0 S			0 S	**1 P**					NEW-5; 00 FT PCB 1 sp (adjacent to station 9-PKC007.82)
W-N16L	9-PKC004.65B	SS	/		/		/	/	/	/			2 T	1 T							NEW-5; 00 Sed Cu, Zn & C'Dane
W-N16L	9PKC-CL6A-FC	CMON	/		/		/	0 / 3 W	/	/											Sta location unknown
W-N16L	9PKC-CL6-FC	CMON	/		/		/	0 / 8 S	3 / 18 T	3 / 11 T											NEW-5;2 FC replicates analyzed w/ no exceedances
W-N16L	9PKC-CL7-FC	CMON	/		/		/	/	11 / 18 T	2 / 11 T											NEW-5;2 FC replicates analyzed w/ no exceedances
W-N16R	9-NEW106.83	A	0 / 5 S		0 / 5 S		0 / 5 S	1 / 5 S	0 / 3 S	/		0 S									NEW-4; Sta discontiued '96 restart '00
W-N16R	9-NEW107.51	A	0 / 58 S		0 / 58 S		0 / 58 S	3 / 52 S	1 / 56 S	/		0 S	2 T	0 S							Pb & Zn Sed
W-N16R	9-NEW107.65	B	/		/		/	/	/	/									NI	NET	98 "D" List (MI)
W-N17L	9-PKC017.11	C	/		/		/	/	/	/					0 S	0 S					NEW-5; 93 FT
W-N17R	7038	USFS	/		/		0 / 1 W	/	/	/											PWS,NEW-5;
W-N17R	8090	USFS	/		/		0 / 2 W	/	/	/											PWS,NEW-5;
W-N17R	8091	USFS	/		/		0 / 2 W	/	/	/											PWS,NEW-5;
W-N17R	8092	USFS	/		/		0 / 2 W	/	/	/											NEW-5;
W-N17R	8093	USFS	/		/		0 / 2 W	/	/	/											NEW-5;
W-N17R	**9-PKC007.80**	B	0 / 8 S		0 / 7 S		0 / 7 S	/	/	/									**MI**	NET	NEW-5;
W-N17R	**9-PKC007.82**	C,SS	/		/		/	/	/	/			2 T	1 T	0 S	**1 P**					NEW-5; 00 Sed=Cu,Zn&C-Dane FT=PCB 1sp(adjacent to 9-PKC004.65)
W-N17R	**9-PKC009.29**	A,B	0 / 29 S		0 / 28 S		0 / 28 S	**4 / 21 P**	0 / 17 S	/		0 S	1 T	0 S					**MI**	NET	NEW-5; Zn in Sed
W-N17R	9-PKC011.11	A,B	0 / 28 S		0 / 28 S		0 / 28 S	1 / 21 S	0 / 17 S	/		0 S	2 T	4 T					NI	NET	NEW-5; Tot. DDT & metabolites in Sed------ **Bio OK.**
W-N17R	9-XAG000.25	A	0 / 1 W		0 / 1 W		0 / 1 W	0 / 1 W	0 / 1 W	/											NEW-5;
W-N18R	**9-CBC001.00**	B	0 / 9 S		0 / 9 S		0 / 8 S	/	/	/									**MI**	NET	PWS
W-N18R	**9-CBC004.38**	A,B	0 / 65 S		0 / 65 S		0 / 65 S	**21 / 60 N**	36 / 59 T	/		0 S	0 S	0 S					**MI**	NET	PWS
W-N18R	**9-CBC006.35**	A,B,C,SS	0 / 66 S		0 / 66 S		0 / 65 S	**21 / 59 N**	3 / 60 S	/		0 S	0 S	0 S	0 S	0 S			**MI**	NET	00 FT/Sed
W-N18R	9CNL-1-SOS	CMON	0 / 1 W		/		/	/	/	/									LP		
W-N18R	9CNL-2-SOS	CMON	0 / 1 W		/		/	/	/	/									HP		Possible in epheremal portion; Verification needed
W-N18R	9CNL-5-SOS	CMON	0 / 10 S		/		/	/	/	/									LP		
W-N18R	9-NEW079.19	C,SS	/		/		/	/	/	/			0 S	0 S	0 S	0 S					PWS; 00 FT/Sed
W-N18R	9-NEW081.72	A	0 / 58 S		0 / 58 S		0 / 58 S	6 / 60 S	0 / 60 S	/	0 S	0 S	1 T	0 S							Zn in Sed
W-N18R	9PLM-1-SOS	CMON	0 / 1 W		/		/	/	/	/									LP		PWS
W-N18R	9PLM-SOS	CMON	0 / 2 S		/		/	/	/	/									LP		PWS
W-N19R	**9-LRV059.33**	A	**3 / 16 P**		0 / 16 S		0 / 15 S	1 / 16 S	0 / 13 S	/			0 S	0 S							°C Natural
W-N20R	**9-DDD000.04**	SS	1 / 2 S		0 / 2 S		0 / 2 S	**4 / 4 N**	0 / 1 W	/		0 W									**Dodd Cr. SS GM = 1/1**
W-N20R	9-DDD002.62	C	/		/		/	/	/	/			0 S	0 S	0 S	0 S					00 FT/Sed; 98 "D"-Listed
W-N20R	**9-DDD002.70**	SS	1 / 2 S		0 / 2 S		0 / 2 S	**4 / 4 N**	0 / 1 W	/		0 W									**Dodd Cr. SS GM = 1/1**
W-N20R	**9-DDD004.64**	A	1 / 19 S		0 / 19 S		0 / 18 S	**2 / 19 P**	0 / 13 S	/			0 S	0 S							98 "D"-Listed
W-N20R	**9-DDD004.75**	SS	1 / 2 S		0 / 2 S		0 / 2 S	**4 / 4 N**	0 / 1 W	/		0 W									**Dodd Cr. SS GM = 1/1**
W-N20R	**9-DDD006.27**	SS	1 / 2 S		0 / 2 S		0 / 2 S	**3 / 4 N**	0 / 1 W	/		0 W									**Dodd Cr. SS GM = 1/1**
W-N20R	**9-DDD008.20**	SS	1 / 1 W		0 / 1 W		0 / 1 W	1 3 S	0 / 1 W			0 W									**Dodd Cr. SS GM = 1/1**
W-N20R	9DDD-SOS	CMON	0 / 4 S		/		/	/	/	/									LP		
W-N20R	**9-DDW000.02**	SS	**2 / 2 N**		0 / 2 S		0 / 2 S	**4 / 4 N**	0 / 1 W	/		0 W									Dodd Cr. SS; °C Natural **GM = 1/1**
W-N20R	**9-DDW004.02**	SS	0 / 2 S		0 / 2 S		0 / 2 S	**4 / 4 N**	0 / 1 W	/		0 W									**Dodd Cr. SS GM = 1/1**
W-N20R	9REE-SOS	CMON	0 / 3 S		/		/	/	/	/									LP		
W-N20R	9-XDA000.01	SS	0 / 1 W		0 / 1 W		0 / 1 W	/	0 / 1 W	/		0 W									Dodd Cr. SS
W-N20R	9-XDB000.49	SS	0 / 1 W		0 / 1 W		0 / 1 W	/	0 / 1 W	/		0 W									Dodd Cr. SS
W-N20R	**9-XDC000.48**	SS	1 / 2 S		0 / 2 S		0 / 2 S	**4 / 4 N**	0 / 1 W	/		0 W									**Dodd Cr. SS GM = 1/1**
W-N20R	9-XDD000.25	SS	/		0 / 1 W		0 / 1 W	/	0 / 1 W	/		0 W									Dodd Cr. SS
W-N21L	9-LRV000.44-TL	A	0 / 1 W		0 / 1 W		0 / 1 W	0 / 1 W	1 / 1 W	/		0 S									
W-N21L	9-LRV000.44-BL	A	/		/		/	/	/	/			0 S	0 S							
W-N21R	**03170000**	USGS	0 / 15 S		0 / 14 S		0 / 14 S	**2 / 14 P**	1 / 15 S	/											

Bold/Shaded = Impaired Waters
Pink = Threatened Waters

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		
			MONITORING DATA																																				
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring		Dissolved												Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
W-N21R	9-LRV000.34	A	0	/	23	S	0	/	23	S	0	/	23	S	2	/	23	S	0	/	17	S		/					0	S	0	S	0	S							PWS
W-N21R	9-LRV002.91	SS		/				/				/				/				/				/							0	S	0	S							96 Sed
W-N21R	9-LRV006.16	SS		/				/				/				/				/				/							0	S	0	S							96 Sed
W-N21R	9-LRV026.31	SS		/				/				/				/				/				/							0	S	0	S							97 Sed
W-N21R	9LRV-1-SOS	CMON	0	/	7	S		/				/				/				/				/															LP		
W-N21R	**9-MDW004.62**	SS	0	/	3	S	0	/	3	S	0	/	3	S	**3**	**/**	**4**	**N**	0	/	1	W		/					0	W											Mill Cr. SS; GM 1/1
W-N21R	**9-MLC000.17**	SS	0	/	3	S	0	/	3	S	0	/	3	S	**2**	**/**	**4**	**N**	1	/	2	S		/					0	S											Mill Cr. SS; GM 1/1
W-N21R	**9-MLC001.31**	SS	0	/	4	S	0	/	4	S	0	/	4	S	**2**	**/**	**5**	**N**	1	/	2	S		/					0	S											Mill Cr. SS; GM 1/1
W-N21R	**9-MLC002.74**	SS	0	/	5	S	0	/	5	S	0	/	4	S	**4**	**/**	**5**	**N**	1	/	1	W		/					0	S											Mill Cr. SS; GM 1/1
W-N21R	**9-MLC005.44**	A	0	/	20	S	0	/	20	S	0	/	20	S	**6**	**/**	**20**	**N**	0	/	14	S		/					0	S	0	S	0	S	0	S	0	S			00 FT/Sed; 98 "D"-Listed
W-N21R	**9-MLC006.00**	SS	0	/	5	S	0	/	5	S	0	/	5	S	**2**	**/**	**5**	**N**	1	/	2	S		/					0	S											Mill Cr. SS; GM 0/1
W-N21R	9-PPL000.01	SS		/				/				/			1	/	1	W	1	/	1	W		/																	Mill Cr. SS
W-N21R	**9-PPL001.27**	SS	0	/	2	S	0	/	2	S	0	/	2	S	**2**	**/**	**2**	**N**	1	/	1	W		/					0	W											Mill Cr. SS
W-N21R	**9-XDE000.95**	SS	0	/	5	S	0	/	5	S	0	/	5	S	**4**	**/**	**5**	**N**	1	/	2	S		/					0	S											Mill Cr. SS; GM 1/1
W-N21R	**9-XDF000.11**	SS	0	/	5	S	0	/	5	S	0	/	5	S	**3**	**/**	**5**	**N**	0	/	2	S		/					0	S											Mill Cr. SS; GM 1/1
W-N22R	8018	USFS		/				/			0	/	2	W		/				/				/																	
W-N22R	8025	USFS		/				/			0	/	2	W		/				/				/															NI		
W-N22R	8026	USFS		/				/			0	/	2	W		/				/				/															NI		
W-N22R	8027	USFS		/				/			0	/	2	W		/				/				/															NI		
W-N22R	8030	USFS		/				/			0	/	1	W		/				/				/															NI		
W-N22R	8115	USFS		/				/				/				/				/				/															NI		
W-N22R	**9-BCK009.47**	A,B	0	/	23	S	0	/	23	S	0	/	23	S	**17**	**/**	**23**	**N**	2	/	17	T		/					0	S	0	S	0	S	0	S	0	S	**VI**	NET	00 FT/Sed
W-N22R	**9-NEW066.90**	C,SS		/				/				/				/				/				/							0	S	0	S	0	S	**1**	**P**			PWS; VDH Fish Adv.; 00 FT/Sed; FT PCB 1 sp
W-N22R	9-NEW075.53	A	0	/	9	S	0	/	9	S	0	/	9	S	0	/	9	S	0	/	9	S		/					0	S	1	T	0	S							PWS; VDH Fish Adv.; Zn Sed
W-N22R	9-NEW077.36	SS		/				/				/				/				/				/							2	T	0	S							PWS; 96 Sed Cd & Pb
W-N22R	9PTY-SOS	CMON	1	/	1	W		/				/				/				/				/															LP		
W-N22R	**9-STE002.41**	A	0	/	23	S	0	/	23	S	0	/	23	S	**3**	**/**	**23**	**P**	0	/	17	S		/					0	S	0	S	0	S	0	S	0	S			00 FT/Sed
W-N22R	**9-STE006.69**	B	0	/	9	S	0	/	9	S	0	/	9	S		/				/				/															**MI**	NET	
W-N22R	9STE-1-SOS	CMON	0	/	8	S		/				/				/				/				/															HP		
W-N22R	9STE-3-SOS	CMON	0	/	6	S		/				/				/				/				/															MP		
W-N22R	9STE-4-SOS	CMON	0	/	4	S		/				/				/				/				/															MP		
W-N22R	9STE-5-SOS	CMON	0	/	4	S		/				/				/				/				/															LP		
W-N22R	9STE-6-SOS	CMON	0	/	2	S		/				/				/				/				/															LP		
W-N22R	9STE-7-SOS	CMON	0	/	3	S		/				/				/				/				/															LP		
W-N22R	9-TOM002.19	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	REF/NET	PWS
W-N22R	9TOM-1-SOS	CMON	0	/	5	S		/				/				/				/				/															LP		
W-N22R	9TOM-2-SOS	CMON	0	/	4	S		/				/				/				/				/															LP		PWS
W-N22R	9TOM-SOS	CMON	0	/	1	W		/				/				/				/				/															LP		
W-N23R	9-NEW056.22	A	0	/	58	S	0	/	58	S	0	/	58	S	0	/	59	S	0	/	60	S		/			0	S	0	S	1	T	1	T							VDH Fish Adv.; Zn & PCB Sed
W-N23R	9-NEW057.83	SS		/				/				/				/				/				/							1	T	0	S							VDH Fish Adv.; 96 Sed Zn
W-N23R	9-SNK012.06	B	0	/	10	S	0	/	10	S	0	/	10	S		/				/				/															NI	REF	
W-N23R	9SNK-A-SOS	CMON	0	/	3	S		/				/				/				/				/															LP		
W-N23R	9SNK-B-SOS	CMON	0	/	5	S		/				/				/				/				/															LP		
W-N23R	9SNK-C-SOS	CMON	0	/	1	W		/				/				/				/				/															LP		
W-N24R	8003	USFS		/				/			0	/	1	W		/				/				/															NI		
W-N24R	**9-LRY000.28**	A	1	/	17	S	0	/	17	S	0	/	17	S	**2**	**/**	**17**	**P**	0	/	12	S		/					0	S	0	S	0	S							
W-N24R	9LRY-SOS	CMON	0	/	4	S		/				/				/				/				/															LP		
W-N24R	9-NEW049.38	SS		/				/				/				/				/				/							0	S	0	S							VDH Fish Adv.; 97 Sed
W-N25R	9-WLK004.34	A	0	/	23	S	0	/	23	S	0	/	23	S	1	/	23	S	0	/	17	S		/					0	S	0	S	1	T							PCB Sed
W-N25R	9-WLK012.05	SS		/				/				/				/				/				/							0	S	0	S							97 Sed
W-N25R	9-WLK026.12	SS		/				/				/				/				/				/							0	S	0	S							97 Sed
W-N25R	9-WLK044.06	A	0	/	30	S	0	/	30	S	0	/	30	S	1	/	29	S	0	/	27	S		/					0	S	0	S	0	S							
W-N25R	9-WLK050.85	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/															NI	NET	
W-N25R	9WLK-RWR1-SOS	CMON	0	/	3	S		/				/				/				/				/															LP		
W-N25R	9WLK-SOS	CMON	0	/	3	S		/				/				/				/				/															LP		
S-N26R	**9-KBL007.29**	A	0	/	31	S	0	/	30	S	1	/	30	S	**3**	**/**	**29**	**P**	0	/	27	S	0	/	0	W					0	S	0	S							
S-N26R	9-KBL007.24	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															SI		
S-N26R	8023	USFS		/				/				/				/				/				/															NI		USFS-Dismal Creek@Horse Camp
S-N26R	8011	USFS		/				/				/				/				/				/															NI		USFS-Pearis Thompson Branch
S-N26R	7047	USFS		/				/				/				/				/				/															NI		USFS-Kimberling Creek
W-N27R	9-LWK000.77	A	0	/	22	S	0	/	22	S	0	/	22	S	1	/	22	S	0	/	17	S		/					0	S	0	S	0	S							
W-N27R	9-LWK020.72	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	NET	

New River Basin

Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status								#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
W-N27R	9LWK-SOS	CMON	0	/	1	W		/				/				/				/				/															LP		
W-N28R	8021	USFS		/				/			0	/	1	W		/				/				/															NI		
W-N28R	8081	USFS		/				/				/				/				/				/															W		Ephemeral Stream- Unassessed
W-N28R	8083	USFS		/				/				/				/				/				/															NI		
W-N28R	8112	USFS		/				/			0	/	1	W		/				/				/															NI		
W-N28R	8114	USFS		/				/			0	/	1	W		/				/				/															NI		
W-N28R	8128	USFS		/				/			0	/	1	W		/				/				/															NI		
W-N28R	9-SNC000.20	A,B,C,S	0	/	26	S	0	/	26	S	0	/	25	S	1	/	18	S	0	/	13	S		/					0	S	0	S	0	S	0	S	1	T	NI	NET	00 FT/Sed; FT PCB 1 sp
W-N28R	9-SNC002.88	B	0	/	9	S	0	/	10	S	0	/	9	S		/				/				/															SI	NET	
W-N28R	9-SNC005.04	B	0	/	10	S	0	/	10	S	0	/	9	S		/				/				/															NI	REF/NE	Used as REF for downstream benthic stations
W-N29R	03176500	USGS	0	/	16	S	0	/	16	S	0	/	15	S	1	/	16	S	0	/	16	S		/																	
W-N29R	8024	USFS		/				/			2	/	2	W		/				/				/															NI		
W-N29R	8104	USFS		/				/			1	/	1	W		/				/				/															NI		
W-N29R	**9-NEW030.15**	A,C	0	/	58	S	0	/	58	S	0	/	58	S	1	/	60	S	1	/	60	S		/			0	S	0	S	0	S	0	S	0	S	**1**	**P**			VDH Fish Adv.; 00 FT/Sed FT PCB 1 sp
W-N29R	9-NEW033.36	SS		/				/				/				/				/				/							1	T	0	S							VDH Fish Adv.; 96 Sed Zn
W-N29R	9-NEW040.97	SS		/				/				/				/				/				/							0	S	0	S							VDH Fish Adv.; 96 Sed
S-N30R	9-WFC034.82	B	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/															NI		
S-N30R	**9-WFC032.47**	A	0	/	12	S	0	/	12	S	0	/	12	S	**2**	**/**	**10**	**P**	0	/	12			/															NI		
S-N30R	7052	USFS		/				/				/				/				/				/															NI		USFS-Wolf Creek
S-N31R	**9-HCC001.40**	A,B,C	0	/	6	S	0	/	18	S	0	/	18	S	**4**	**/**	**10**	**N**	0	/	11	S		/							0	S	0	S	0	S	0	S	**MI**	net	00 FT/SED
W-N32R	9-WFC000.20	A	0	/	25	S	0	/	25	S	0	/	25	S	2	/	23	S	0	/	16	S		/					0	S	0	S	0	S							
W-N32R	9-WFC003.69	B,C,SS	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/							1	T	5	T	0	S	0	S	NI	REF	00 FT/Sed Pb & 5 PAHs- Bio OK
W-N32R	9-WFC016.45	A	0	/	29	S	0	/	29	S	0	/	29	S	1	/	26	S	0	/	27	S		/					0	S	0	S	0	S							
W-N32R	9-WFC019.04	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/															NI	NET	
S-N33R	9-LAC000.92	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															NI	net	
S-N33R	**9-LAC000.56**	A	0	/	12	S	0	/	12	S	0	/	12	S	**2**	**/**	**10**	**P**	0	/	12	S		/															NI	net	
W-N34R	**9-RHC000.08**	A	0	/	21	S	0	/	21	S	0	/	21	S	**7**	**/**	**21**	**N**	0	/	17	S		/					0	S	0	S	0	S							
W-N35R	9-ADR000.13	A	0	/	20	S	0	/	20	S	0	/	20	S	0	/	20	S	0	/	16	S		/					0	S	0	S	1	T							DDT Sed
S-N36R	9BST-2-SOS	CMON																																					NI		
S-N36R	9BST-1-SOS	CMON																																					NI		
S-N36R	9-BST029.71	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			00 FT/SED
S-N36R	**9-BST029.57**	A	0	/	39	S	0	/	39	S	0	/	39	S	**6**	**/**	**37**	**P**	0	/	36	S	0	/	0	W					0	S	0	S							
S-N36R	**9-BST023.05**	A	0	/	56	S	0	/	58	S	0	/	58	S	**9**	**/**	**51**	**P**	4	/	55	S	0	/	0	W					0	S	0	S							
S-N36R	**9-BST022.27**	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															**MI**		
S-N36R	**9-BST021.26**	C		/				/				/				/				/				/							0	S	0	S	0	S	**2**	**P**			VDH Fish Adv.-PCB; 00 FT/SED,PCB 2sp&Heptachlor epox 1sp,Pb detect 1sp
S-N37R	**9-LRR002.19**	A	0	/	31	S	**13**	**/**	**30**	**N**	0	/	30	S	**4**	**/**	**30**	**P**	1	/	28	S	0	/	0	W					5,2,1,1,1,1,1	T	0	S							Pb,Zn,Be,Cd,Cr,Cu,Ni,Th
S-N37R	**9-LRR001.39**	B,C	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/							0	S	0	S	1	T	0	S	**VI**	net	00 FT/SED, 00 Pb detected 1 sp.
	Total Stations = 219																																								

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
N-A01R	**1aPIA001.80**	A	0	/	22	S	0	/	22	S	1	/	21	S	**5**	**/**	**22**	**P**	1	/	22	S							0	S	0	S	0	S								
N-A01R	1aXCO000.39	A													0	/	1	W	1	/	1	W																				
N-A01R	1aPIA-8-LWC	CMON																																					LP	CMON	Good Rating
N-A02R	**1aCAX004.57**	A,B	0	/	61	S	1	/	60	S	0	/	57	S	**6**	**/**	**51**	**P**	1	/	54	S					0	S	0	S	0	S	0	S					NI	REF	
N-A02R	**1aNOC000.42**	A	0	/	23	S	0	/	23	S	0	/	22	S	**7**	**/**	**22**	**N**	0	/	22	S					0	S	0	S	0	S	0	S							
N-A02R	1aNOC004.38	SS	0	/	12	S	0	/	12	S	0	/	9	S	1	/	11	S	0	/	12	S							0	S											
N-A02R	1aNOC009.13	SS	0	/	13	S	0	/	13	S	1	/	9	S	1	/	13	S	0	/	13	S							0	S											
N-A02R	**1aSOC001.66**	A	0	/	23	S	0	/	23	S	0	/	22	S	**6**	**/**	**22**	**N**	1	/	22	S					0	S	0	S	0	S	0	S							
N-A02R	**1aSOC007.06**	SS	0	/	11	S	0	/	11	S	0	/	8	S	**2**	**/**	**11**	**P**	0	/	11	S							0	S											
N-A02R	**1aSOC012.38**	SS	0	/	12	S	0	/	12	S	0	/	8	S	**3**	**/**	**12**	**P**	0	/	12	S							0	S											
N-A02R	1aCAX-3-LWC	CMON																																					LP	CMON	Good Rating
N-A02R	1aMIH-11-LWC	CMON																																					LP	CMON	Good Rating
N-A02R	1aNOC-1-LWC	CMON																																					LP	CMON	Good Rating
N-A02R	1aSOC-4-LWC	CMON																																					HP	CMON	Poor Rating
N-A03R	**1aLIM001.16**	A	0	/	22	S	0	/	22	S	1	/	21	S	**9**	**/**	**22**	**N**	0	/	22	S							0	S	0	S	0	S							
N-A04R	1aGOO044.36	A,B	0	/	50	S	0	/	49	S	0	/	47	S	3	/	48	S	1	/	52	S					0	S	0	S	0	S	0	S					NI	NET	
N-A05R	**1aCRM001.20**	A	0	/	23	S	0	/	23	S	1	/	21	S	**6**	**/**	**22**	**N**	1	/	22	S							0	S	0	S	0	S							
N-A05R	1aGOO022.44	A	0	/	49	S	0	/	48	S	0	/	46	S	3	/	50	S	1	/	53	S							0	S	0	S	0	S							
N-A05R	1aPAE-12-LWC	CMON																																					LP	CMON	Good Rating
N-A06R	**1aNOG005.69**	A	0	/	18	S	0	/	18	S	1	/	17	S	**7**	**/**	**18**	**N**	2	/	18	T							0	S	0	S	0	S							
N-A06R	1aCRF-6-LWC	CMON																																					LP	CMON	Good Rating
N-A06R	1aNOG-7-LWC	CMON																																					MP	CMON	Moderate Rating
N-A07R	**1aBEC004.76**	A	0	/	21	S	1	/	21	S	1	/	20	S	**7**	**/**	**21**	**N**	0	/	21	S							0	S	0	S	0	S							
N-A07R	1aBUS-10-LWC	CMON																																					LP	CMON	Good Rating
N-A07R	1aNOB-9-LWC	CMON																																					MP	CMON	Moderate Rating
N-A08L	1aBEE000.40	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W					1	T	0	S			0	S							97 Mn in PWS water
N-A08L	1aBEE001.40	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	S											
N-A08R	**1aGOO002.38**	A,B,C	0	/	61	S	0	/	60	S	0	/	57	S	**6**	**/**	**51**	**P**	1	/	54	S					0	S	0	S	0	S	0	S	0	S		0	S		SI	NET	96 FT/SED
N-A08R	1AGOO012.83	SS																													0	S	0	S								97 sed
N-A08R	**1aLIV004.78**	A,B	0	/	31	S	0	/	31	S	1	/	29	S	**7**	**/**	**24**	**N**	1	/	24	S							0	S	0	S	0	S					SI	NET	
N-A08R	1aSYC002.03	A	0	/	23	S	0	/	23	S	0	/	22	S	2	/	22	S	0	/	22	S					1	T	0	S	0	S	0	S							99 Mn in PWS water
N-A08R	**1aSYC004.93**	SS	0	/	11	S	0	/	11	S	0	/	8	S	**4**	**/**	**10**	**N**	0	/	11	S							0	S											
N-A08R	**1aSYC007.43**	SS	0	/	13	S	0	/	13	S	0	/	9	S	**2**	**/**	**12**	**P**	1	/	13	S							0	S											
N-A08R	**1aSFS000.28**	SS	0	/	12	S	0	/	12	S	0	/	8	S	**3**	**/**	**11**	**N**	1	/	12	S							0	S											
N-A08R	1aTUS000.37	A	0	/	22	S	0	/	22	S	0	/	21	S	2	/	22	S	2	/	22	S							0	S											
N-A08R	1aTUS-2-LWC	CMON																																					HP	CMON	Poor Rating
N-A09R	1aBRB002.15	A	0	/	51	S	0	/	50	S	0	/	48	S	3	/	50	S	0	/	53	S					1	T	0	S	0	S	0	S							98 Mn in PWS water
N-A09R	1aHPR003.87	A	0	/	22	S	0	/	22	S	0	/	21	S	0	/	21	S	1	/	22	S					0	S	0	S	1	T	0	S							Thallium in sediment in '97
N-A10R	**1aSUG004.42**	A	0	/	17	S	0	/	17	S	0	/	16	S	**3**	**/**	**18**	**P**	1	/	18	S							0	S	0	S	0	S							
N-A10R	1aSUG-SLR1-SOS	CMON																																					HP	CMON	Cit Mon: 2/5 Fair ; 3/5 Poor Rating
N-A10R	1aSUG-SLR2-SOS	CMON																																					HP	CMON	Cit Mon: 3/3 Poor Rating
N-A10R	1aSUG-SLR3-SOS	CMON																																					MP	CMON	Cit Mon: 2/11 Excel.; 4/11 Good; 3/11 Fair; 2 /11 Poor
N-A10R	1aSUG-SOS	CMON																																					LP	CMON	Cit Mon: 2/5 Excellent; 2/5 Good; 1/5 Fair
N-A11R	**1aDIF000.86**	A,B	0	/	56	S	0	/	56	S	0	/	50	S	4	/	49	S	2	/	48	S					1	T	0	S	0	S	0	S					**MI**	NET	99 Mn in PWS water
N-A11R	1aDIF008.44	A	0	/	22	S	0	/	22	S	0	/	21	S	1	/	21	S	1	/	22	S					0	S	0	S	0	S	0	S							
N-A11R	1aBUN-19-ANS	CMON																																					LP	CMON	Good Rating
N-A11R	1aNIC-20-ANS	CMON																																					LP	CMON	Good Rating
N-A11R	1aWOT-12-ANS	CMON																																					MP	CMON	Fair Rating
N-A11R	1aCLA*-PB1-SOS	CMON																																					LP	CMON	Cit Mon: 1/3 Excellent; 2/3 Good Rating
N-A11R	1aCOL*-DR20-SOS	CMON																																					HP	CMON	Cit Mon: 2/2 Poor Rating
N-A11R	1aCOV-DR13-SOS	CMON																																					MP	CMON	Cit Mon: 1/4 Excellent; 1/4 Good P&2/4 Fair Rating
N-A11R	1aCOV-DR18-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-A11R	1aCOV-DR28-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Fair Rating
N-A11R	1aDIF-DR1-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Good; 1/2 Fair Rating
N-A11R	1aDIF-DR2-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Good; 2/3 Fair Rating
N-A11R	1aDIF-DR4-SOS	CMON																																					MP	CMON	Cit Mon: 1/3 Good; 1/3 Fair; 1/3 Poor Rating
N-A11R	1aDIF-DR25-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Fair Rating
N-A11R	1aDIF-DR26-SOS	CMON																																					LP	CMON	Cit Mon: 1/2 Excellent; 1/2 Fair Rating
N-A11R	1aDIF-DR31-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Fair Rating

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
N-A11R	1aLID-DR22-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Fair ; 1/2 Poor Rating
N-A11R	1aLID-DR23-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Fair ; 1/2 Poor Rating
N-A11R	1aSCO-SCOT1-SOS	CMON																																					MP	CMON	Cit Mon: 3/4 Fair ; 1/4 Poor Rating
N-A11R	1aSFR*-DR24-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Fair Rating
N-A11R	1aSNA-DR3-SOS	CMON																																					MP	CMON	Cit Mon: 4/11 Good; 4/11 Fair; 3/11 Poor Rating
N-A11R	1aSNA-DR11-SOS	CMON																																					HP	CMON	Cit Mon: 1/3 Fair ; 2/3 Poor Rating
N-A11R	1aSNA-DR15-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Fair Rating
N-A11R	1aSNA-DR29-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Fair Rating
N-A11R	1aSNA-DR30-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Poor Rating
N-A11R	1aWOT-DR6-SOS	CMON																																					MP	CMON	Cit Mon: 1/6 Good; 4/6 Fair; 1/6 Poor Rating
N-A11R	1aWOT-DR8-SOS	CMON																																					MP	CMON	Cit Mon: 1/7 Excel.; 3/7 Good; 2/7 Fair; 1/7 Poor
N-A11R	1aWOT-DR9-SOS	CMON																																					LP	CMON	Cit Mon: 5/10 Excel.; 3/10 Good; 2/10 Fair Rating
N-A12E	**1aFOU000.19**	A		/	51	S	0	/	51	S	1	/	46	S	**13**	**/**	**53**	**P**	3	/	53	S	0	/	16	S			1	T			1	T							99 Chlordane in sed, ammonia in 2000
N-A12E	**1AFOU000.45**	C,SS																																	0	S	**1**	**P**			97 FT/SED, PCB 3 sp.
N-A12R	**1aFOU004.22**	A	0	/	22	S	0	/	22	S	1	/	19	S	**5**	**/**	**22**	**P**	1	/	22	S					0	S	0	S											
N-A12R	**1aPIM000.15**	A	0	/	45	S	0	/	45	S	0	/	40	S	**7**	**/**	**48**	**P**	2	/	47	S					0	S	0	S	0	S	0	S							
N-A12R	**1aPIM004.16**	A	0	/	17	S	0	/	17	S	0	/	15	S	**5**	**/**	**18**	**N**	2	/	18	T							0	S	0	S	0	S							
N-A12R	1aPIM-PIM2-SOS	CMON																																					MP	CMON	Cit Mon: 3/3 Fair Rating
N-A12R	1aPIM-PIM3-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Fair ; 1/2 Poor Rating
N-A13E	**1aHUT000.01**	A,C		/	53	S	2	/	53	S	1	/	48	S	**9**	**/**	**54**	**P**	1	/	54	S	1	/	16	S	0	S	**4**	**N**	0	S	1	T	0	S	**1**	**P**			NH3 in water, 00/96 FT/SED, 00 PCB 4 sp/96 PCB 2 sp, 00,99,96 sed chlordane
N-A13E	1aHFF000.38	A																											0	W											
N-A13R	**1aBAL001.40**	A	0	/	21	S	0	/	21	S	0	/	19	S	**4**	**/**	**22**	**P**	0	/	23	S							0	S	1	T									Silver in sediment in '97.
N-A13R	1aHOR001.30	A	0	/	22	S	0	/	22	S	0	/	19	S	2	/	22	S	1	/	23	S							0	S											
N-A13R	1aHOR005.48	B																																					MI	SS	8/2/99 Survey
N-A13R	1aTRI001.88	B																																					MI	SS	7/22/99 Survey
N-A13R	1AHOR-CAM1-SOS	CMON																																					HP	CMON	Cit Mon: 1/4 Fair ; 3/4 Poor Rating
N-A13R	1AHOR-CAM2-SOS	CMON																																					HP	CMON	Cit Mon: 1/4 Fair ; 3/4 Poor Rating
N-A14E	1aDOU000.60	A		/	46	S	0	/	45	S	3	/	41	S	1	/	48	S	1	/	49	S	9	/	21	T			1	T	0	S	0	S							Ammonia exceedance in '96.
N-A14E	**1ALIF000.01**	C																													0	S	1	T	0	S	**1**	**P**			00 & 96 FT/SED, 00 PCB 5 sp & 96 PCB 1 sp, 00 & 96 sed chlordane
N-A14E	1aLIF000.19	A		/	53	S	0	/	52	S	1	/	48	S	4	/	55	S	3	/	54	S	7	/	15	T	0	S	0	S	0	S	0	S							
N-A15E	1aPOH000.21	A		/	19	S	0	/	19	S	0	/	15	S	0	/	22	S	0	/	22	S	5	/	10	T			1	T											Ammonia exceedance in '00
N-A15E	**1aPOH000.32**	C																													0	S	1	T	0	S	**1**	**P**			00 FT/SED, PCB 3 sp. & sed chlordane
N-A15E	**1aPOH002.32**	A		/	47	S	2	/	47	S	0	/	44	S	0	/	50	S	3	/	51	S	12	/	21	T	0	S	**5**	**N**	0	S	0	S							Ammonia in water column
N-A15R	**01653900**	USGS	0	/	15	S	0	/	9	S	0	/	15	S	**13**	**/**	**15**	**N**																							USGS station.
N-A15R	01653985	USGS	0	/	3	S	1	/	3	S	0	/	3	S	1	/	2	S																							USGS station.
N-A15R	01653995	USGS	0	/	3	S	0	/	3	S	0	/	3	S	1	/	1	S																							USGS station.
N-A15R	**01654000**	USGS	0	/	181	S	2	/	168	S	0	/	185	S	**42**	**/**	**92**	**N**	2	/	49	S							0	S											USGS station.
N-A15R	**1aACO014.57**	A	0	/	17	S	0	/	17	S	0	/	16	S	**2**	**/**	**19**	**P**	1	/	19	S					0	S	0	S	0	S	0	S							
N-A15R	01654520	USGS	0	/	3	S	0	/	3	S	0	/	3	S	1	/	1	S																							USGS station.
N-A15R	0165470810	USGS	0	/	1	W	0	/	1	W	0	/	1	W					0	/	1	W																			USGS station.
N-A15R	0165509350	USGS	0	/	1	W	0	/	1	W	0	/	1	W																											USGS station.
N-A15R	**1aACO006.10**	A,B	0	/	52	S	0	/	52	S	0	/	46	S	4	/	51	S	1	/	51	S					0	S	0	S	0	S	0	S					**MI**	NET	
N-A15R	1aACO-AC2-SOS	CMON																																					HP	CMON	Cit Mon: 5/13 Fair ; 8/13 Poor Rating
N-A15R	1aACO-AC2B-SOS	CMON																																					HP	CMON	Cit Mon: 3/10 Fair ; 7/10 Poor Rating
N-A15R	1aACO-AC6-SOS	CMON																																					HP	CMON	Cit Mon: 1/3 Fair ; 2/3 Poor Rating
N-A15R	1aACO-AC9-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Poor Rating
N-A15R	1aCRK-AC1-SOS	CMON																																					HP	CMON	Cit Mon: 6/6 Poor Rating
N-A15R	1aLOE-AC4-SOS	CMON																																					HP	CMON	Cit Mon: 2/2 Poor Rating
N-A15R	1aLOE-AC7-SOS	CMON																																					HP	CMON	Cit Mon: 1/3 Fair ; 2/3 Poor Rating
N-A15R	1aLOE-AC8-SOS	CMON																																					HP	CMON	Cit Mon: 1/3 Fair ; 2/3 Poor Rating
N-A16R	**1APOH004.79**	C																													0	S	0	S	0	S	**2**	**P**			96 FT/SED, PCB 2 sp, PAH 3 sp. (Pb 1 sp)
N-A16R	**1aPOH007.65**	A	0	/	20	S	0	/	20	S	0	/	18	S	**3**	**/**	**19**	**P**	0	/	20	S					0	S	0	S	0	S	0	S							Correct RM is 5.68.
N-A16R	1aPOH-POH3-SOS	CMON																																					MP	CMON	Cit Mon: 6/11 Fair ; 5/11 Poor Rating
N-A16R	1aPOH-POH4-SOS	CMON																																					HP	CMON	Cit Mon: 5/11 Fair ; 6/11 Poor Rating
N-A16R	1aPOH-POH5-SOS	CMON																																					HP	CMON	Cit Mon: 1/7 Fair ; 6/7 Poor Rating
N-A16R	1aPOH-POH6-SOS	CMON																																					HP	CMON	Cit Mon: 3/3 Poor Rating
N-A16R	1aPOH-POH8-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Fair ; 1/2 Poor Rating
N-A16R	1aSID-POH1-SOS	CMON																																					MP	CMON	Cit Mon: 3/11 Good; 5/11 Fair; 3/11 Poor Rating
N-A17R	**1aCER016.46**	A,B	0	/	32	S	0	/	32	S	0	/	29	S	**4**	**/**	**24**	**P**	3	/	24	T							0	S	0	S	0	S					NI	NET	
N-A17R	1ACER016.74	SS																													0	S	0	S							96 sed
N-A17R	**1aCER025.25**	A	0	/	23	S	0	/	23	S	0	/	21	S	**5**	**/**	**23**	**P**	0	/	23	S							0	S	0	S	0	S							

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
N-A17R	**1aLIL001.43**	A	0	/	25	S	0	/	25	S	0	/	23	S	**5**	**/**	**24**	**P**	1	/	24	S					0	S	0	S	0	S	0	S							
N-A17R	1aCER-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-A18R	01656120	USGS	0	/	46	S	1	/	45	S	0	/	45	S					4	/	45	S							0	S											USGS station.
N-A18R	**1aCER006.00**	A	0	/	51	S	0	/	50	S	0	/	45	S	**10**	**/**	**49**	**P**	1	/	51	S					0	S	0	S	0	S	0	S							
N-A18R	**1aCER009.52**	SS	0	/	11	S	0	/	11	S	0	/	8	S	**3**	**/**	**11**	**N**	2	/	11	T							0	S											
N-A18R	01656100	USGS	0	/	7	S																																			
N-A19L	1aBRU016.28	L																	0		1	W					0	S	0	S											
N-A19L	1aBRU017.58	L	0	/	1	W					0	/	1	W					0	/	1	W							0	S											
N-A19L	1aBRU018.78	L	0	/	1	W					0	/	1	W					0	/	1	W							0	S											
N-A19R	**1aBRU007.58**	A	0	/	25	S	0	/	25	S	0	/	23	S	**4**	**/**	**24**	**P**	0	/	24	S					0	S	0	S	0	S	0	S							
N-A19R	**1aBRU020.12**	A	0	/	21	S	0	/	21	S	0	/	19	S	**4**	**/**	**21**	**P**	0	/	20	S							0	S	0	S	0	S							
N-A19R	**1aKET000.80**	A	0	/	21	S	0	/	21	S	0	/	19	S	**6**	**/**	**20**	**N**	0	/	20	S					0	S	0	S	0	S	0	S							
N-A19R	1aSOT001.44	A,B	0	/	32	S	0	/	32	S	0	/	29	S	2	/	22	S	0	/	21	S							0	S	1	T	0	S					SI	NET	Silver in sediment in '99 (and '95)
N-A19R	1aCAE-6-ANS	CMON																																					LP	CMON	Excellent Rating
N-A20R	1aOCC024.74	A	0	/	21	S	0	/	21	S	0	/	19	S	0	/	21	S	0	/	21	S							0	S											
N-A21R	1aBUL025.94	A	0	/	23	S	0	/	23	S	0	/	21	S	0	/	23	S	0	/	23	S							0	S	0	S	0	S							
N-A21R	1aLII003.97	A	0	/	23	S	0	/	23	S	0	/	21	S	0	/	23	S	1	/	23	S							0	S	0	S	0	S							
N-A21R	1aCAA-7-ANS	CMON																																					LP	CMON	Good Rating
N-A21R	1aLII-13-ANS	CMON																																					LP	CMON	Good Rating
N-A21R	1aYOU-15-ANS	CMON																																					MP	CMON	Fair Rating
N-A21R	1aYOU-4-ANS	CMON																																					MP	CMON	Fair Rating
N-A21R	1aYOU-5-ANS	CMON																																					MP	CMON	Fair Rating
N-A22R	1aCUB003.74	A	0	/	24	S	0	/	24	S	0	/	21	S	2	/	23	S	0	/	23	S					0	S	0	S	0	S	0	S							
N-A22R	1aBIR-10-ANS	CMON																																					HP	CMON	Poor Rating
N-A22R	1aWAL*-9-ANS	CMON																																					LP	CMON	Excellent Rating
N-A22R	1aBIR-CR4-SOS	CMON																																					LP	CMON	Cit Mon: 1/2 Excellent; 1/2 Good Rating
N-A22R	1aBIR-CR5-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Good; 1/2 Fair Rating
N-A22R	1aCUB-CR1-SOS	CMON																																					LP	CMON	Cit Mon: 3/4 Good; 1/4 Fair Rating
N-A22R	1aCUB-CR3-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-A22R	1ACUB-CR6-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-A23R	1ABUL005.80	C																													0	S	0	S	0	S	0	S			99 FT/SED
N-A23R	1ABUL006.64	SS																													0	S	2	T							'97 PCB & DDT sed
N-A23R	**1aBUL010.28**	A,B	0	/	56	S	0	/	55	S	0	/	52	S	2	/	47	S	0	/	50	S					0	S	0	S	0	S	0	S					**MI**	NET	
N-A23R	1aBUL011.03	SS													0	/	1	W																							
N-A23R	**1aPOE002.00**	A,B	0	/	30	S	0	/	30	S	0	/	27	S	1	/	21	S	0	/	22	S					0	S	0	S	0	S	0	S					**MI**	NET	
N-A23R	1aPIY-17-ANS	CMON																																					MP	CMON	Fair Rating
N-A23R	1aPOE-14-ANS	CMON																																					MP	CMON	Fair Rating
N-A23R	1aPOE-18-ANS	CMON																																					MP	CMON	Fair Rating
N-A23R	1aPOP*-8-ANS	CMON																																					LP	CMON	Excellent Rating
N-A23R	1aPYB*-A01-ANS	CMON																																					MP	CMON	Poor Rating (monitored once)
N-A23R	1aJOH-JMC1-SOS	CMON																																					LP	CMON	Cit Mon: 6/11 Excel.; 4/11 Good; 1/11 Fair Rating
N-A23R	1aJOH-JMC2-SOS	CMON																																					LP	CMON	Cit Mon: 4/10 Excel.; 5/10 Good; 1/10 Poor Rating
N-A23R	1aJOH-JMC3-SOS	CMON																																					MP	CMON	Cit Mon: 1/2 Good; 1/2 Fair Rating
N-A23R	1aJOH-JMC4-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-A24L	**1aOCC-RE02-TL**	OWML	0	/	1560	S	**294**	**/**	**1552**	**P**	2	/	532	S					38	/	196	T	1	/	194	S	**7**	**N**													OWML Station: 7/19 Cu
N-A24L	**1aOCC-RE02-BL**	OWML	0	/	1264	S	**616**	**/**	**1258**	**N**	0	/	467	S					104	/	195	T					**4**	**N**													OWML Station: 4/20 Cu
N-A24L	**1aOCC-RE15-TL**	OWML	0	/	956	S	62	/	951	S	0	/	372	S					50	/	192	T	0	/	190	S	**6**	**N**													OWML Station: 6/20 Cu
N-A24L	**1aOCC-RE15-BL**	OWML	0	/	760	S	**335**	**/**	**758**	**N**	0	/	342	S					98	/	190	T					**3**	**N**													OWML Station: 3/20 Cu
N-A24L	**1aOCC-RE30-TL**	OWML	0	/	581	S	0	/	580	S	0	/	292	S					85	/	196	T	3	/	194	S	**6**	**N**													OWML Station: 6/18 Cu
N-A24L	**1aOCC-RE30-BL**	OWML	0	/	556	S	**77**	**/**	**555**	**P**	0	/	290	S					80	/	195	T	0	/	1	W	**8**	**N**													OWML Station: 8/20 Cu
N-A24L	**1aOCC-RE35-TL**	OWML	0	/	769	S	23	/	765	S	0	/	331	S					118	/	196	T	4	/	192	S	**3**	**N**													OWML Station: 3/20 Cu
N-A24L	**1aOCC-RE35-BL**	OWML	0	/	514	S	**161**	**/**	**513**	**N**	0	/	270	S					124	/	192	T					1	S													OWML Station: 1/19 Cu
N-A24R	1aBED-2-ANS	CMON																																							Insufficient data
N-A24R	1aHOO-1-ANS	CMON																																					HP	CMON	Poor Rating
N-A24R	1aSAD-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-A25E	**1ANEA000.51**	C																													0	S	0	S	0	S	**1**	**P**			'96 PCB 2 species
N-A25E	**1aNEA000.57**	A,C		/	47	S	0	/	47	S	**9**	**/**	**42**	**P**	1	/	51	S	1	/	52	S	17	/	21	T			0	S	0	S	0	S	0	S	**1**	**P**			'00 PCB 5 species
N-A25E	1ANEA-965-ALL	CMON		/	101	S	1	/	131	S																															Cit Mon
N-A25E	1AOCC-766-ALL	CMON		/	115	S	0	/	150	S																															Cit Mon
N-A25E	**1AOCC002.47**	A,C		/	44	S	0	/	43	S	**9**	**/**	**38**	**P**	0	/	46	S	0	/	47	S	10	/	20	T	0	S	0	S	0	S	0	S	0	S	**1**	**P**			'96 PCB -2 species

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
N-A25E	1aOCC006.71	A		/	22	S	0	/	22	S	1	/	20	S	1	/	21	S	0	/	22	S							0	S	0	S	0	S								
N-A25R	**1aNEA002.89**	A	0	/	24	S	0	/	24	S	1	/	22	S	**5**	**/**	**23**	**P**	1	/	24	S					0	S	0	S	0	S	0	S								
N-A25R	**1aWLB000.06**	A	0	/	20	S	0	/	20	S	0	/	18	S	**5**	**/**	**20**	**P**	7	/	20	T					0	S	0	S	0	S	1	T							97 DDT in sed
N-A25R	01657882	USGS									0	/	19	S					3	/	31	S							0	S											USGS Station
N-A25R	01657880	USGS									0	/	12	S					3	/	18	S							0	S											USGS Station
N-A25R	01657875	USGS									0	/	9	S					9	/	23	T							0	S											USGS Station
N-A25R	01657870	USGS									0	/	7	S					2	/	11	T							0	S											USGS Station
N-A25R	01657865	USGS									0	/	11	S					17	/	26	T							0	S											USGS Station
N-A25R	1aNEA-1-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Poor Rating
N-A25R	1aNEA-N1-SOS	CMON																																					HP	CMON	Cit Mon: 2/2 Poor Rating
N-A25R	1aNEA-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Poor Rating
N-A26E	1aPOW-865-ALL	CMON		/	155	S	1	/	200	S																															Cit Mon
N-A26E	1aPOW-765-ALL	CMON		/	65	S	0	/	90	S																															Cit Mon
N-A26E	**1aCHO003.65**	A		/	48	S	1	/	48	S	**6**	**/**	**42**	**P**	1	/	49	S	0	/	48	S					0	S	0	S	0	S	0	S								
N-A26R	**01660110**	USGS	0	/	63	S	2	/	63	S	**13**	**/**	**63**	**P**					0	/	61	S																			USGS station.
N-A26R	01659000	USGS	0	/	12	S	0	/	12	S	0	/	12	S	0	/	7	S	0	/	11	S																			USGS station.
N-A26R	**1aPOW003.11**	A,C	0	/	20	S	0	/	20	S	0	/	18	S	**2**	**/**	**19**	**P**	0	/	20	S							0	S	0	S	0	S	0	S	**2**	**P**			96 FT/SED, PCB 3 sp & PAHs 2 sp.
N-A26R	**1aQUA004.46**	A,C	0	/	50	S	0	/	50	S	0	/	45	S	2	/	52	S	2	/	53	S					0	S	0	S	0	S	0	S	0	S	**1**	**P**			96 PCB 2 sp.
N-A26R	01658500	USGS	0	/	68	S	0	/	64	S	1	/	64	S	0	/	31	S	0	/	64	S							0	S											USGS station.
N-A26R	01658698	USGS	0	/	26	S	0	/	26	S	0	/	26	S					11	/	29	T							0	S											USGS station.
N-A26R	01658705	USGS	0	/	28	S	0	/	28	S	0	/	28	S					14	/	30	T							0	S											USGS station.
N-A26R	1aPOW-11-ANS	CMON																																					MP	CMON	Fair Rating
N-A26R	1aPOW-16-ANS	CMON																																					MP	CMON	Fair Rating
N-A27L	1aAUA012.15	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W					1	T	0	W	0	S	0	S							Cu in water in 9/97.
N-A27L	1aAUA012.55	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	W											
N-A27L	1aBED000.19	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	W											
N-A27R	01660500	USGS	0	/	50	S	0	/	50	S	1	/	50	S	1	/	33	S	1	/	49	S							0	S											USGS station.
N-A27R	1aBED002.97	A	0	/	19	S	0	/	19	S	0	/	17	S	0	/	18	S	0	/	18	S					0	S	0	S	0	S	0	S							
N-A27R	1aAUA014.51	A	0	/	21	S	1	/	21	S	0	/	19	S	1	/	19	S	1	/	20	S					2	T	0	S	0	S	0	S							3/99 Fe & Mn in PWS water
N-A27R	01660350	USGS	0	/	14	S	0	/	14	S	0	/	14	S					0	/	14	S					2	T													7/96 Fe & Mn in PWS water
N-A27R	01660380	USGS	0	/	14	S	0	/	13	S	1	/	13	S					0	/	13	S					2	T													7/96 Fe & Mn in PWS water
N-A28E	1aAUA003.71	A		/	43	S	0	/	43	S	2	/	38	S	0	/	41	S	0	/	42	S	9	/	18	T			0	S	0	S	0	S							
N-A29E	**1aPOM001.04**	C																													0	S	0	S	1	T	**1**	**P**			00 FT/SED, PCB 4 sp., As (& Pb) 1 sp.
N-A29E	**1aPOM002.41**	A		/	42	S	0	/	42	S	**5**	**/**	**37**	**P**	0	/	40	S	1	/	41	S							0	S	0	S	0	S							
N-A29L	1ALOH002.20	C																													0	S	0	S	0	S	0	S			Fish tissue 1996
N-A29L	**1ALOM007.93**	L	0	/	10	S	0	/	10	S	**2**	**/**	**10**	**P**	0	/	11	S	0	/	12	S					0	S	0	S	0	S	0	S							Stream Code should be LOH.
N-A29L	1aPOM013.02	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W					1	T	0	W											Cu in water in 9/96
N-A29R	**1aACC006.13**	A	0	/	20	S	0	/	20	S	1	/	18	S	**2**	**/**	**18**	**P**	0	/	19	S					0	S	0	S	0	S	0	S							
N-A29R	**1aPOM006.72**	A	0	/	20	S	**3**	**/**	**20**	**P**	1	/	18	S	1	/	18	S	1	/	19	S					0	S	0	S	0	S	0	S							
N-A30E	**1aUMC004.43**	A		/	21	S	0	/	21	S	**2**	**/**	**19**	**P**	1	/	20	S	0	/	22	S	3	/	6	T			0	S	0	S	0	S							
N-A30E	**1aWLL001.30**	A		/	20	S	**3**	**/**	**20**	**P**	0	/	18	S	1	/	20	S	2	/	21	S	3	/	6	T			0	S	0	S	0	S							
N-A30E	1AUMC-DL3-ALL	CMON		/	14	S																																			Cit Mon
N-A30E	1AUMC-DL4-ALL	CMON		/	14	S																																			Cit Mon
N-A30R	1aUMC009.61	A	0	/	19	S	1	/	19	S	1	/	17	S	0	/	20	S	0	/	21	S							0	S	0	S	0	S							
N-A30R	**1aWLL002.21**	A	0	/	21	S	**3**	**/**	**21**	**P**	1	/	19	S	0	/	21	S	4	/	21	T	3	/	6	T			0	S											Chloride in water (8/21)
P-A31E	1AMAO000.15	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											
P-A31E	1AMAO000.42	A		/	31		0	/	30	S	1	/	31	S	0	/	21	S		/			2	/	10	T			0	S	0	S	0	S							
P-A31E	1AMAO001.92	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											
P-A31E	1AMAO004.08	A		/	2		0	/	2	S	0	/	2	S	0	/	1	W		/				/					0	W	**1**	**T**	0	S							Ni in sediment 1994
P-A31E	1AMON000.96	A		/	60		0	/	59	S	1	/	60	S	2	/	60	S		/			1	/	1	W			0	S	0	S	0	S							
P-A31E	1AMON001.38	TE		/	3		0	/	3	S	0	/	3	S		/				/			0	/	1	W			0	W											
P-A31E	1AMON001.91	PFWQ		/	31		0	/	31	S	1	/	31	S		/				/			2	/	17	T			0	S											
P-A31E	1AMON002.60	TE		/	2		0	/	2	S	0	/	2	S		/				/			0	/	1	W			0	W											
P-A31E	**1APOP000.38**	A		/	21		0	/	20	S	0	/	21	S	**3**	**/**	**20**	**P**		/				/					0	S	0	S	0	S							
P-A31E	1APOP-1-ALL	CMON	4	/	157	S	0	/	200	S		/				/				/				/																	Citizen monitoring
P-A31E	1AROS001.05	A		/	21		2	/	20	S	0	/	21	S	1	/	21	S		/				/					0	S	0	S	0	S							
P-A31R	1ABUP001.19	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/																	
P-A31R	1ACAS000.58	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/																	
P-A31R	1AFOX000.23	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/																	

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																		Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status						#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																				
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals	Organics	Bio Mon	Station Type	Comments
P-A31R	1AFOX002.12	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1AGRU000.02	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1AKIG000.62	SS	0	/	1	W	0	/	1	W	1	/	1	W																									
P-A31R	**1AMAO007.46**	A	0	/	27	S	0	/	26	S	**21**	**/**	**27**	**N**	**8**	**/**	**26**	**N**	0	/	25	S		/					0	S	0	S	0	S					
P-A31R	1AMRC002.81	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1AMRC003.12	SS	0	/	1	W	1	/	1	W	1	/	1	W		/				/				/															
P-A31R	1AMRC004.04	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	**1APIN000.57**	A	0	/	20	S	**3**	**/**	**20**	**P**	**2**	**/**	**18**	**P**	1	/	19	S	0	/	20	S		/					0	S	0	S	0	S					Two pH data points discarded
P-A31R	1APIN003.08	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1APIN004.94	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1APIN006.17	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1APIN007.24	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1APOP003.92	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1AXHM000.38	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A31R	1AXHN000.58	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/															
P-A32E	1ABAN000.10	TE		/	2		0	/	2	S	0	/	2	S		/				/				/															
P-A32E	1ABNC000.23	TE		/	3		0	/	3	S	0	/	3	S		/				/				/														1 sample event
P-A32E	1ABUB001.35	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	S									
P-A32E	1ACAP000.77	TE		/	1		0	/	1	W	0	/	1	W		/				/				/														1 sample event
P-A32E	1ACUR000.19	TE		/	3		0	/	3	S	0	/	3	S		/				/				/															
P-A32E	1ALOW001.35	PFCO	0	/	48	S	1	/	48	S	1	/	44	S		/				/			0	/	22	S			0	S									
P-A32E	1ALOW002.55	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	W									1 sample event
P-A32E	1ALOW003.71	TE		/	4		0	/	4	S	0	/	4	S		/				/				/															1 sample event
P-A32E	1ALOW004.73	PFCO		/	49		2	/	49	S	1	/	46	S		/				/			1	/	29	S			0	S									
P-A32E	1ALOW004.77	A		/	22		1	/	22	S	1	/	22	S	1	/	21	S		/			1	/	1	W			0	S	0	S	0	S					
P-A32E	**1ANOM000.50**	SS,TE		/	5		**2**	**/**	**5**	**N**	0	/	5	S		/				/				/															1 sample event - anoxic bottom waters
P-A32E	1ANOM001.62	PFCO,TE		/	47		0	/	47	S	1	/	43	S		/				/			2	/	22	S			0	S									
P-A32E	1ANOM002.91	TE		/	4		0	/	4	S	0	/	4	S		/				/				/															1 sample event
P-A32E	1ANOM004.10	TE		/	4		0	/	4	S	0	/	4	S		/				/			1	/	1	W			0	W									1 sample event
P-A32E	1ANOM004.72	PFCO,TE		/	32		1	/	32	S	0	/	30	S		/				/			0	/	9	S			0	S									
P-A32E	1ANOM005.68	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	W									1 sample event
P-A32E	1ANOM005.99	A		/	60		0	/	59	S	2	/	60	S	0	/	60	S		/			1	/	1	W			0	S	0	S	0	S					
P-A32E	1ANOM006.37	TE		/	23		2	/	23	S	1	/	21	S		/				/			1	/	21	S			0	S									
P-A32E	1ANOM007.79	TE		/	2		0	/	2	S	0	/	2	S		/				/			0	/	1	W			0	W									1 sample event
P-A32E	1ANOM-1A-ALL	CMON		/	112	S	0	/	154	S		/				/				/				/															Citizen monitoring
P-A32E	1ANOM-3-ALL	CMON		/	118	S	0	/	156	S		/				/				/				/															Citizen monitoring
P-A32E	1AWEA000.17	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	W									1 sample event
P-A32R	1ANOM011.37	A	0	/	26	S	0	/	26	S	1	/	26	S	2	/	26	S	0	/	26	S		/					0	S	0	S	0	S					
P-A32R	1ASCA001.39	A		/				/				/				/				/				/									2	T					PCB (2/2), 1984, 1985
P-A33E	1ABOM000.46	A		/	22		0	/	22	S	1	/	22	S	2	/	21	S		/				/					0	S	0	S	0	S					
P-A33E	1AGAD000.77	A		/	22		0	/	22	S	1	/	22	S	0	/	21	S		/				/					0	S	0	S	0	S					
P-A33E	1ALOG001.20	A,TE		/	30		0	/	30	S	0	/	30	S	0	/	27	S		/				/					0	S	0	S	0	S					
P-A33E	1ASOV000.96	TE		/	10		0	/	10	S	0	/	10	S		/				/			0	/	10	S			0	S									
P-A33E	1AXDW000.08	A		/	22		0	/	22	S	1	/	22	S	0	/	21	S		/				/					0	S	0	S	0	S					
P-A33E	1AYEO001.15	TE		/	1		0	/	1	W	0	/	1	W		/				/			0	/	1	W			0	W									
P-A33R	**1AMIA004.12**	A	0	/	27	S	0	/	27	S	**3**	**/**	**27**	**P**	**4**	**/**	**26**	**P**	1	/	26	S		/					0	S	0	S	0	S					
P-A34E	1ACOA001.44	A		/	27		0	/	27	S	0	/	27	S	0	/	27	S		/				/					0	S	0	S	0	S					
P-A34E	1ACOA002.41	TE		/	10		0	/	10	S	0	/	10	S		/				/			1	/	11	S			0	S									
P-A34E	1ACOC000.42	A		/	22		0	/	22	S	0	/	22	S	0	/	21	S		/				/					0	S	0	S	0	S					
P-A34E	1ACOO000.27	TE		/	2		0	/	2	S	0	/	2	S		/				/			1	/	1	W			0	W									
P-A34E	1ACUT000.58	A		/	22		0	/	22	S	0	/	22	S	2	/	20	S		/			0	/	1	W			0	S	0	S	0	S					
P-A34E	1AHAC000.96	A		/	22		0	/	22	S	0	/	22	S	0	/	20	S		/				/					0	W	0	S	0	S					
P-A34E	1ALIS001.00	TE		/	3		0	/	3	S	0	/	3	S		/				/			1	/	1	W			0	S									
P-A34E	1ALIS002.00	A,PFCO		/	53		0	/	53	S	0	/	51	S	0	/	20	S		/			0	/	7	S			0	S	0	S	0	S					
P-A34E	1ALIS002.62	TE		/	1		0	/	1	W	0	/	1	W		/				/			1	/	1	W			0	W									
P-A34E	1ALIS003.23-BL	TE		/	2		1	/	2	S	0	/	2	S		/				/				/															
P-A34E	1ALIS003.23-TL	TE		/	2		0	/	2	S	0	/	2	S		/				/				/															
P-A34E	1ALIS004.20	PFCO		/	50		1	/	50	S	0	/	46	S		/				/			1	/	26	S			0	S									
P-A34E	1ALIS005.08	TE		/	1		0	/	1	W	0	/	1	W		/				/			1	/	1	W			0	W									
P-A34E	1APRE001.58	A		/	22		0	/	22	S	0	/	22	S	1	/	21	S		/				/					0	S	0	S	0	S					
P-A34E	1ASPN000.08	A		/	22		0	/	22	S	0	/	22	S	1	/	21	S		/				/					0	S	0	S	0	S					
P-A34R	**1ACON000.96**	A	0	/	27		0	/	27	S	2	/	27	S	**3**	**/**	**26**	**P**	3	/	26	T		/					0	S	0	S	0	S					

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA												SEDIMENT				FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status		#Violations/Status				
	Monitoring						Dissolved								Fecal				Total														Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
V-B01R	1ASTT006.12	A	0	/	15	S	0	/	15	S	0	/	15	S	1	/	15	S	0	/	13	S		/							0	S	0	S								
V-B02R	**1ASOA001.00**	A,B	**3**	**/**	**15**	**P**	0	/	17	S	0	/	15	S	0	/	14	S	0	/	14	S		/			0	S											SI		
V-B02R	**1ASTC000.02**	A	**2**	**/**	**15**	**P**	0	/	15	S	0	/	15	S	1	/	14	S	0	/	14	S		/							0	S	0	S							
V-B02R	**1ASTC000.72**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**		
V-B02R	1ASTC004.27	A,B	0	/	9	S	0	/	9	S	0	/	9	S		/				/				/			0	S	0	S	0	S	0	S					NI		
V-B02R	**1AWSC003.67**	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															**VI**		
V-B02R	1AWSC003.79	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															SI		
V-B03R	**1ASFP002.56**	A	**3**	**/**	**15**	**P**	0	/	15	S	0	/	15	S	1	/	14	S	0	/	14	S		/			0	S			1	T	0	S							Ni
V-B04R	1ASLP034.20	A	0	/	14	S	0	/	14	S	0	/	14	S	0	/	13	S	0	/	14	S		/			0	S			0	S	0	S							
V-B05R	**1ABAR047.26**	A	**3**	**/**	**15**	**P**	0	/	15	S	0	/	15	S	0	/	13	S	0	/	14	S		/			0	S			0	S	0	S							
V-B05R	1ALIG008.64	A	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	2	/	2	T		/																	
V-B05R	1ALIG008.94	A	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/																	
V-B05R	1BBAR046.01	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															SI		
V-B06R	**1AHOC006.23**	A,B	**8**	**/**	**31**	**N**	0	/	31	S	0	/	31	S	1	/	23	S	1	/	24	S		/			0	S			0	S	0	S					**MI**		
V-B07R	1ABAB004.54	A	0	/	14	S	0	/	14	S	0	/	14	S	1	/	13	S	0	/	14	S		/							0	S	0	S							
V-B08R	**1AOPE036.13**	A	0	/	59	S	0	/	59	S	0	/	59	S	**8**	**/**	**59**	**P**	16	/	59	T		/			0	S			0	S	0	S							
V-B08R	1AOPE038.36	SS		/				/				/				/				/				/			0	S	0	S	0	S	0	S							
V-B09R	**1AABR000.78**	A,B	0	/	65	S	0	/	65	S	0	/	64	S	**9**	**/**	**58**	**P**	3	/	59	S		/			0	S			0	S	0	S					**MI**		
V-B09R	1ALIR000.95	A	0	/	25	S	0	/	24	S	0	/	25	S	2	/	23	S	1	/	24	S		/							0	S	0	S							
V-B09R	**1AOPE025.10**	A	0	/	60	S	0	/	60	S	0	/	60	S	**7**	**/**	**59**	**P**	30	/	59	T		/			0	S			0	S	0	S							
V-B09R	1ARED000.46	A,B	0	/	26	S	0	/	25	S	0	/	26	S	2	/	24	S	1	/	24	S		/							0	S	0	S					T		One survey
V-B09R	1BOPE029.61	B	0	/	5	S	0	/	5	S	0	/	4	S		/				/				/															SI		
V-B10R	**1BMDL060.48**	A	0	/	13	S	0	/	13	S	0	/	13	S	**6**	**/**	**13**	**N**	0	/	12	S		/							0	S	0	S							
V-B10R	**1BMDL061.07**	A	0	/	14	S	0	/	14	S	0	/	14	S	**2**	**/**	**13**	**P**	0	/	13	S		/							0	S	0	S							
V-B10R	1BMDL-1-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B10R	1BMDL-5-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B10R	1BXDN000.36	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B11R	1003	USFS		/				/				/				/				/				/															SI		
V-B11R	1011	USFS		/				/				/				/				/				/															NI		
V-B11R	1BJEN002.46	A	0	/	15	S	0	/	15	S	0	/	15	S	0	/	15	S	0	/	14	S		/			0	S	0	S	0	S	0	S							
V-B11R	1BMDL051.36	A	0	/	21	S	0	/	20	S	0	/	21	S	1	/	20	S	0	/	19	S		/							0	S	0	S							
V-B12R	**1BLEW002.91**	A	0	/	58	S	0	/	57	S	0	/	57	S	**25**	**/**	**58**	**N**	0	/	58	S		/							0	S	1	T							PCBs
V-B12R	**1BLEW006.95**	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															**VI**		
V-B12R	1BMDL022.09	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B12R	1BMDL029.46	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B12R	1BMDL036.08	A	0	/	58	S	0	/	57	S	1	/	58	S	3	/	57	S	0	/	58	S		/							0	S	0	S							
V-B12R	1BMDL-8-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B12R	1BMDL-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B13R	**1BMFT005.11**	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															**MI**		
V-B13R	**1BMFT006.20**	A,B	0	/	27	S	0	/	27	S	0	/	27	S	**6**	**/**	**23**	**N**	0	/	22	S		/							0	S	0	S					**MI**		
V-B13R	2020	USFS		/				/				/				/				/				/															NI		
V-B13R	2021	USFS		/				/				/				/				/				/															T		One Visit
V-B14R	01624620	USGS	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S		/				/																	
V-B14R	01624660	USGS	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S		/				/																	
V-B14R	01624700	USGS	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S		/				/																	
V-B14R	**01624800**	USGS	0	/	9	S	0	/	9	S	0	/	9	S	**7**	**/**	**9**	**N**		/				/																	
V-B14R	01624900	USGS	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/				/																	
V-B14R	1BCST007.42	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															SI		
V-B14R	**1BCST012.32**	A	0	/	60	S	0	/	59	S	0	/	60	S	**12**	**/**	**58**	**P**	20	/	59	T		/							0	S	0	S							
V-B14R	1BCST016.48	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B14R	**1BCST021.76**	A	0	/	60	S	0	/	59	S	0	/	60	S	**25**	**/**	**56**	**N**	2	/	58	S		/			0	S			0	S	0	S							
V-B14R	1BXCK001.83	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B15R	**1BMDL001.83**	A	0	/	60	S	0	/	60	S	0	/	60	S	**7**	**/**	**56**	**P**	2	/	58	S		/							0	S	0	S							
V-B15R	**1BPCD001.03**	A	0	/	57	S	1	/	56	S	0	/	57	S	**35**	**/**	**54**	**N**	2	/	56	S		/							0	S	0	S							
V-B15R	1BXBF002.75	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B16R	**1BNTH036.96**	A	0	/	15	S	0	/	14	S	**7**	**/**	**15**	**N**	0	/	13	S	0	/	13	S		/			0	S			0	S	0	S							

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status						#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																		Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
V-B16R	2005	USFS		/				/				/				/				/				/															NI		
V-B16R	2012	USFS		/				/				/				/				/				/															NI		
V-B16R	2044	USFS		/				/				/				/				/				/															SI		
V-B17R	**1BNTH021.00**	A	0	/	61	S	0	/	60	S	0	/	61	S	**9**	**/**	**56**	**P**	1	/	58	S		/			0	S	0	S	0	S	0	S							
V-B17R	1BNTH022.25	A		/				/				/				/			0	/	4	S		/																	
V-B17R	1BNTH030.35	A	0	/	7	S	0	/	7	S	0	/	6	S	1	/	6	S	0	/	6	S		/							0	S	0	S							
V-B17R	1BNTH-A-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B18R	**1BBRY006.94**	A	0	/	14	S	0	/	13	S	**2**	**/**	**14**	**P**	0	/	11	S	0	/	12	S		/			0	S			0	S	0	S							
V-B18R	**1BBVR002.75**	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															**MI**		
V-B18R	**1BBVR003.60**	A,B	**3**	**/**	**14**	**P**	0	/	13	S	0	/	14	S	**3**	**/**	**12**	**P**	0	/	12	S		/							0	S	0	S					SI		
V-B18R	**2019**	USFS		/				/				/				/				/				/															**MI**		acid-tolerant insects, low pH and ANC, stream was limed in 1999
V-B18R	2022	USFS		/				/				/				/				/				/															NI		
V-B18R	2023	USFS		/				/				/				/				/				/															SI		
V-B18R	2042	USFS		/				/				/				/				/				/															SI		
V-B18R	2043	USFS		/				/				/				/				/				/															T		One Visit
V-B19R	**1BMSS001.35**	A	6	/	60	S	0	/	59	S	0	/	60	S	**26**	**/**	**56**	**N**	0	/	58	S		/			0	S	0	S	0	S	0	S							
V-B19R	1BMSS003.01	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/															SI		
V-B19R	1BMSS-1-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B20R	**1BDUR010.66**	A	0	/	16	S	0	/	15	S	**3**	**/**	**16**	**P**	0	/	14	S	0	/	13	S		/			0	S			0	S	0	S							Inappropriate pH standard
V-B20R	2001	USFS		/				/				/				/				/				/															SI		
V-B20R	2002	USFS		/				/				/				/				/				/															NI		
V-B20R	2003	USFS		/				/				/				/				/				/															NI		
V-B20R	2017	USFS		/				/				/				/				/				/															SI		
V-B20R	2018	USFS		/				/				/				/				/				/															SI		
V-B21R	**1BDUR000.02**	A	0	/	58	S	0	/	57	S	0	/	58	S	**20**	**/**	**60**	**N**	3	/	63	S		/			0	S	0	S	0	S	0	S							
V-B21R	1BDUR000.11	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															SI		
V-B21R	1BDUR001.05	SS	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/																	
V-B21R	1BDUR003.36	A		/				/				/				/			0	/	4	S		/																	
V-B21R	1BDUR006.46	SS	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/																	
V-B21R	**1BDUR007.66**	A	**4**	**/**	**26**	**P**	0	/	25	S	2	/	26	S	1	/	25	S	0	/	25	S		/							0	S	0	S							
V-B21R	1BDUR-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B21R	1BHNY003.76	SS	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S	0	/	2	S		/																	
V-B22R	01621050	USGS	0	/	47	S	0	/	49	S	0	/	48	S		/			2	/	34	S		/																	
V-B22R	**1BMDD000.40**	A	0	/	61	S	0	/	60	S	0	/	61	S	**46**	**/**	**62**	**N**	13	/	69	T		/			0	S	1	T	0	S	0	S							N03-N - PWS
V-B22R	**1BMDD002.10**	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/															**MI**		
V-B22R	1BMDD003.74	A		/				/				/				/			1	/	4	S		/																	
V-B22R	1BMDD005.15	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B22R	**1BMDD005.81**	A,B	0	/	66	S	2	/	64	S	1	/	66	S	**38**	**/**	**60**	**N**	8	/	63	T		/			0	S	0	S	0	S	0	S					**MI**		
V-B22R	1BMDD-1-SOS	CMON		/				/				/				/				/				/															LP		
V-B23R	1BNTH002.28	SS		/				/				/				/				/				/							0	S	0	S							
VAV-B23R	1BNTH002.28	SS		/				/				/				/				/				/							0	S	0	S							96 SED
V-B23R	1BNTH004.10	**C**		/				/				/				/				/				/											2	T					Hg in 99 2 sp exceed EPA new proposed criteria
V-B23R	**1BNTH014.08**	A	0	/	60	S	0	/	59	S	0	/	60	S	**20**	**/**	**59**	**N**	39	/	60	T		/							0	S	0	S							
V-B23R	1BNTH014.48	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															SI		
V-B23R	1BNTH-B-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B23R	1BNTH-C-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B23R	1BWMR*-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B24R	**1BLGC000.96**	A	0	/	18	S	0	/	18	S	0	/	18	S	**7**	**/**	**17**	**N**	2	/	18	T		/			0	S	0	S	0	S	0	S							
V-B24R	1BLGC-1-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B25R	1BCKS001.03	SS	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S	0	S							
V-B25R	**1BCKS003.04**	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/															**MI**		
V-B25R	**1BCKS003.10**	A	0	/	60	S	1	/	59	S	0	/	60	S	**54**	**/**	**61**	**N**	20	/	61	T		/			0	S	0	S	0	S	0	S							
V-B25R	1BCKS007.26	SS	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/							0	S	0	S							
V-B25R	1BCKS-1-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B25R	1BCKS-2-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B25R	1BCKS-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B25R	1BXBU001.70	SS	0	/	1	W	1	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/																	More Sampling Recommended

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
V-B25R	**1BXBU004.00**	SS	0	/	2	S	0	/	2	S	0	/	2	S	**2**	**/**	**2**	**N**	0	/	2	S		/																	
V-B26R	**01621395**	USGS	0	/	2	S	0	/	2	S	0	/	2	S	**3**	**/**	**3**	**N**		/				/																	
V-B26R	**01621397**	USGS	0	/	2	S	1	/	2	S	0	/	2	S	**2**	**/**	**3**	**N**		/				/																	
V-B26R	**01621410**	USGS	0	/	3	S	0	/	3	S	0	/	3	S	**2**	**/**	**4**	**N**		/				/																	
V-B26R	**01621425**	USGS	0	/	3	S	0	/	3	S	0	/	3	S	**2**	**/**	**4**	**N**		/				/																	
V-B26R	**01621440**	USGS	0	/	3	S	0	/	3	S	0	/	3	S	**3**	**/**	**4**	**N**		/				/																	
V-B26R	**01621470**	USGS	0	/	9	S	0	/	9	S	0	/	9	S	**8**	**/**	**9**	**N**		/				/																	
V-B26R	**1BBLK000.38**	A	0	/	61	S	0	/	60	S	0	/	61	S	**48**	**/**	**61**	**N**	6	/	62	S		/			0	S	0	S	0	S	0	S							
V-B26R	1BBLK005.27	SS	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/							0	S	0	S							
V-B26R	**1BBLK005.62**	B	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/															**VI**		
V-B26R	1BBLK-1-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B26R	1BBLK-2-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B27R	**1BPLR000.08**	B	0	/	9	S	0	/	9	S	0	/	9	S		/				/				/															**VI**		
V-B27R	**1BPLR000.16**	A	0	/	59	S	1	/	58	S	0	/	59	S	**47**	**/**	**61**	**N**	17	/	61	T		/							0	S	0	S							
V-B27R	**1BPLR000.76**	SS	0	/	2	S	0	/	2	S	0	/	2	S	**2**	**/**	**2**	**N**	0	/	2	S		/																	
V-B27R	**1BPLR001.30**	SS	0	/	2	S	0	/	2	S	0	/	2	S	**2**	**/**	**2**	**N**	0	/	2	S		/																	
V-B27R	1BPLR003.84	SS	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S	0	/	2	S		/																	
V-B27R	1BPLR004.22	SS	0	/	2	S	0	/	2	S	0	/	2	S	1	/	2	S	0	/	1	W		/																	
V-B27R	1BPLR-2-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B28R	1BBYR-1-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B28R	**1BNKD000.80**	A	0	/	59	S	0	/	58	S	0	/	59	S	**22**	**/**	**56**	**N**	1	/	58	S		/							0	S	0	S							
V-B28R	1BNKN-1-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B29L	**1BCNG003.13 BL**	L	0	/	21	S	**21**	/	**21**	**N**																															
V-B29L	1BCNG003.13 TL	L	0	/	21	S	0	/	21	S	0	/	7	S																											
V-B29R	1BCNG003.10	SS	0	/	5	S	0	/	5	S	0	/	5	S	1	/	6	S	0	/	6	S		/																	
V-B29R	1BCNG003.85	SS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	2	S	0	/	2	S		/																	
V-B29R	**1BDKR000.18**	SS	0	/	1	W	0	/	1	W	0	/	1	W	**2**	**/**	**2**	**N**	0	/	2	S		/																	
V-B29R	**1BMIC001.00**	A,B	0	/	64	S	0	/	63	S	0	/	64	S	**35**	**/**	**61**	**N**	4	/	61	S		/							0	S	0	S					**MI**		
V-B29R	1BMIC003.00	SS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																	
V-B30R	**1BSTH041.68**	A	0	/	60	S	0	/	59	S	0	/	60	S	**13**	**/**	**55**	**P**	2	/	58	S		/			0	S			0	S	0	S							
V-B30R	5071	USFS		/				/				/				/				/				/															T		One Visit
V-B31R	**1BBCK000.78**	A,B	0	/	26	S	0	/	26	S	1	/	27	S		/				/				/															**MI**		
V-B31R	1BCLS003.60	C		/				/				/				/				/				/											0	S	0	S			
V-B31R	5073	USFS		/				/				/				/				/				/															SI		
V-B31R	5074	USFS		/				/				/				/				/				/															SI		More Monitoring Recommended
V-B31R	**5084**	USFS		/				/				/				/				/				/															**VI**		below un-used water supply res. (often low water, pH and ANC
V-B31R	5104	USFS		/				/				/				/				/				/															T		One visit
V-B32R	1BPAN002.70	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															SI		
V-B32R	1BSTH000.02	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B32R	1BSTH000.19	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S			
V-B32R	1BSTH000.19	C		/				/				/				/				/				/							0	S	0	S	0	S	1	T			FT/SED, benzo(k)fluoranthene 1 sp
V-B32R	**1BSTH004.21**	C		/				/				/				/				/				/											**2**	**P**					Hg in 99 2 sp+VDH Fish Advis
V-B32R	**1BSTH007.80**	A	0	/	63	S	0	/	62	S	0	/	63	S	**7**	**/**	**55**	**P**	3	/	58	S		/			0	S			1	T	0	S							Hg Fish Advis
V-B32R	1BSTH014.49	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B32R	**1BSTH014.60**	C		/				/				/				/				/				/											**3**	**P**					Hg in 99 3 sp+VDH Fish Advis+AP143
V-B32R	**1BSTH020.44**	C		/				/				/				/				/				/											**2**	**P**					Hg in 99 2 sp+VDH Fish Advis
V-B32R	**1BSTH021.72**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**		
V-B32R	1BSTH022.19	A	0	/	2	S	0	/	1	W	0	/	2	S		/				/				/			0	S	0	S	0	S	0	S							
V-B32R	1BSTH023.73	A	0	/	2	S	0	/	1	W	0	/	2	S		/				/				/			0	S	0	S	0	S	0	S							
V-B32R	**1BSTH025.10**	C		/				/				/				/				/				/											**2**	**P**					Hg in 99 2 sp+VDH Fish Advis+Proposed EPA criteria exceed
V-B32R	1BSTH025.83	A	0	/	2	S	0	/	1	W	0	/	2	S		/				/				/			0	S	0	S	0	S	0	S							
V-B32R	1BSTH026.12	C		/				/				/				/				/				/											1	T					1 sp exceeds EPA's new proposed criteria.
V-B32R	1BSTH027.08	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															SI		
V-B32R	1BSTH027.85	A	0	/	61	S	0	/	60	S	1	/	61	S	0	/	57	S	0	/	59	S		/							0	S	0	S							
V-B33R	**1BSSF100.10**	A,C	0	/	59	S	0	/	59	S	0	/	59	S	**12**	**/**	**56**	**P**	12	/	57	T		/							0	S	0	S	**3**	**P**					Hg in 99 3 sp+VDH Fish Advis
V-B33R	1BSSF102.49	C		/				/				/				/				/				/											1	T					Hg in 99 1 sp+VDH Fish Advis
V-B34R	**1BCBR000.80**	A	0	/	25	S	0	/	24	S	0	/	25	S	**5**	**/**	**23**	**P**	2	/	24	S		/							0	S	0	S							

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			MONITORING DATA																																		Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Mon	Type	Comments
V-B35R	**1BBON000.60**	A	0	/	16	S	0	/	16	S	0	/	16	S	**3**	**/**	**15**	**P**	11	/	15	T		/							0	S	0	S					
V-B35R	1BHKL002.23	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI		
V-B35R	1BQAL004.30	A	0	/	20	S	0	/	19	S	0	/	20	S	1	/	20	S	18	/	20	T		/																	
V-B35R	**1BQAL004.47**	B	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/															**MI**		
V-B35R	**1BQAL005.13**	B	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/															**VI**		
V-B35R	**1BQAL005.18**	B	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/															**MI**		
V-B35R	1BQAL005.29	A	0	/	20	S	0	/	19	S	0	/	20	S	0	/	20	S	3	/	20	T		/																	
V-B35R	1BSSF079.78	SS		/				/				/				/				/				/							1	T	1	T							97 Hg & DDT sed
V-B35R	1BSSF092.46	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B35R	4008	USFS		/				/				/				/				/				/															SI		
V-B36R	1BNAK001.24	A,B	0	/	18	S	0	/	18	S	0	/	18	S	0	/	15	S	0	/	15	S		/			0	S			0	S	0	S					SI		
V-B37R	1BCUB000.40	A,B	0	/	64	S	0	/	63	S	0	/	64	S	3	/	57	S	1	/	60	S		/							0	S	0	S					SI		
V-B37R	1BCUB-FP12-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B37R	**1BSSF062.97**	C		/				/				/				/				/				/											**3**	**P**					Hg in 99 3 sp +VDH Fish Advis
V-B37R	1BSSF063.17	C,SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B37R	1BSSF065.57	C		/				/				/				/				/				/							0	S	0	S	0	S	1	T			96 PCB 2 species
V-B37R	1BSSF068.16	SS		/				/				/				/				/				/							0	S	0	S							
V-B37R	1BSSF065.57	C		/				/				/				/				/				/							0	S	0	S	0	S	2	T			96 FT/SED, PCB 1 sp & 2 PAHs
V-B37R	1BSSF068.16	SS		/				/				/				/				/				/							0	S	0	S							96 sed
V-B37R	**1BSSF078.20**	A	0	/	63	S	0	/	61	S	0	/	63	S	**6**	**/**	**56**	**P**	20	/	59	T		/			0	S	0	S	0	S	0	S							
V-B37R	**1BSSF078.24**	C		/				/				/				/				/				/											**3**	**P**					Hg in 99 3 sp +VDH Fish Advis
V-B37R	1BSSF-FP1-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B37R	4005	USFS		/				/				/				/				/				/															SI		
V-B37R	4006	USFS		/				/				/				/				/				/															NI		
V-B37R	4007	USFS		/				/				/				/				/				/															SI		
V-B37R	4020	USFS		/				/				/				/				/				/															SI		
V-B37R	4047	USFS		/				/				/				/				/				/															T		One Visit
V-B37R	4048	USFS		/				/				/				/				/				/															NI		
V-B38R	1BBIG001.80	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															SI		
V-B38R	**1BMLC000.40**	A	0	/	60	S	0	/	59	S	0	/	60	S	**17**	**/**	**59**	**N**	2	/	60	S		/							0	S	0	S							
V-B38R	1BMLC-FP13-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B38R	**1BSSF054.20**	A,C	0	/	64	S	0	/	63	S	0	/	64	S	**7**	**/**	**59**	**P**	12	/	60	T		/			0	S	0	S	0	S	0	S	**2**	**P**					Hg in 99 2 sp +VDH Fish Advis
V-B38R	1BSSF054.80	SS		/				/				/				/				/				/							0	S	0	S							97 sed
V-B38R	1BSSF054.80	SS		/				/				/				/				/				/							0	S	0	S							
V-B38R	4001	USFS		/				/				/				/				/				/															NI		
V-B38R	4083	USFS		/				/				/				/				/				/															NI		
V-B39R	**1BHKS000.96**	A,B	0	/	63	S	0	/	62	S	0	/	63	S	**9**	**/**	**58**	**P**	3	/	60	S		/							0	S	0	S					NI		
V-B39R	1BHKS005.79	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B39R	**1BHKS009.58**	A	**6**	**/**	**14**	**N**	0	/	13	S	0	/	14	S	**4**	**/**	**13**	**N**	0	/	14	S		/							0	S	0	S							
V-B39R	1BHKS-FP6-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B39R	1BHKS-FP8-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B39R	**1BPSS000.64**	A	0	/	15	S	0	/	14	S	0	/	15	S	**6**	**/**	**14**	**N**	0	/	13	S		/							0	S	0	S							
V-B39R	1BPSS-FP7-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B40R	1BSSF010.18	C		/				/				/				/				/				/											1	T					Hg in 99 1 sp +VDH Fish Advis
V-B40R	1BSSF020.70	C		/				/				/				/				/				/											1	T					Hg in 99 1 sp +VDH Fish Advis
V-B40R	1BSSF029.68	SS		/				/				/				/				/				/							0	S	0	S							96 sed
V-B40R	1BSSF031.38	A	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/			0	S			0	S	0	S							
V-B40R	1BSSF037.60	C		/				/				/				/				/				/											1	T					Hg in 99 1 sp + VDH Fish Advis
V-B40R	4052	USFS		/				/				/				/				/				/															NI		
V-B40R	4053	USFS		/				/				/				/				/				/															T		One Visit
V-B41R	01631000	USGS	0	/	75	S	0	/	73	S	5	/	77	S		/			20	/	76	T		/																	
V-B41R	1BSSF000.19	A	0	/	59	S	0	/	59	S	0	/	59	S	1	/	58	S	6	/	58	T		/			0	S			0	S	0	S							
V-B41R	**1BSSF000.58**	C		/				/				/				/				/				/							0	S	0	S	0	S	**6**	**P**			PCB, PAH 2 sp., benzo(a)pyrenedibenz(a,h)anthracene Indeno[1,2,3-cd]pyrene 1 sp.
V-B41R	1BSSF003.50	C		/				/				/				/				/				/							0	S	0	S	0	S	1	T			92 PCB 1 species
V-B41R	1BSSF003.56	A	0	/	57	S	0	/	56	S	0	/	57	S	5	/	55	S	5	/	58	S		/			0	S	0	S											
V-B41R	1BSSF004.43	SS		/				/				/				/				/				/							0	S	0	S							
V-B42R	1BNFS102.20	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															SI		

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status						#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																		Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
V-B42R	2040	USFS		/				/				/				/				/				/															SI		
V-B42R	2041	USFS		/				/				/				/				/				/															SI		
V-B43R	1BLTD001.15	A	0	/	11	S	0	/	10	S	0	/	11	S	1	/	10	S	0	/	10	S		/			0	S	0	S	0	S	0	S							
V-B43R	2016	USFS		/				/				/				/				/				/															NI		
V-B43R	2025	USFS		/				/				/				/				/				/															NI		
V-B44R	1BFHW000.48	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B44R	1BSMK001.73	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI		
V-B44R	2013	USFS		/				/				/				/				/				/															SI		
V-B44R	2014	USFS		/				/				/				/				/				/															SI		
V-B44R	2015	USFS		/				/				/				/				/				/															NI		
V-B44R	2024	USFS		/				/				/				/				/				/															NI		
V-B45R	01632000	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	01632070	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	**1BHMN002.09**	A,B	0	/	67	S	0	/	66	S	0	/	57	S	**16**	**/**	**58**	**N**	0	/	57	S		/			0	S	0	S	0	S	0	S					**MI**		
V-B45R	**1BHMN005.03**	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/															**MI**		
V-B45R	**1BHMN007.59**	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/															**MI**		
V-B45R	1BHMN-2-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B45R	**1BLOM000.24**	B	0	/	9	S	0	/	9	S	0	/	9	S		/				/				/															**MI**		
V-B45R	1BLOM-1-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B45R	**1BNFS081.42**	A	0	/	61	S	0	/	60	S	0	/	61	S	**8**	**/**	**59**	**P**	13	/	60	T		/			0	S	0	S	0	S	0	S							
V-B45R	1BNFS090.16	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
VAV-B45R	1BNFS093.53	A,C	0	/	60	S	0	/	59	S	1	/	60	S	2	/	58	S	1	/	60	S		/			0	S	0	S	0	S	0	S	1	T	3	T			96 fish Pb detected sp. & benz(a)anthracene 1 sp., benzo(k)fluoranthene 1 sp., indeno(1,2,3
V-B45R	**1BTRL000.02**	A,B	0	/	33	S	0	/	32	S	0	/	33	S	**6**	**/**	**23**	**N**	1	/	23	S		/			0	S	0	S	0	S	0	S					**MI**		
V-B45R	383711784744	USGS	0	/	3	S	2	/	3	W	0	/	3	S		/				/				/																	Flow < 7Q10
V-B45R	383715784728	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	383728784915	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	383738784701	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	383741784703	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	383801785032	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	383810784651	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	383815784626	USGS	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/																	
V-B45R	383820784511	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	383833784508	USGS	0	/	1	W	1	/	1	W		/				/				/				/																	Flow < 7Q10
V-B45R	383835784508	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	38390784153	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	383938784114	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	384044784038	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B45R	384114783950	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	384159783923	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	384160783921	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	384315783921	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B45R	384349783843	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B46R	**1BLNV000.71**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**		
V-B46R	**1BLNV001.22**	A	0	/	60	S	0	/	58	S	0	/	60	S	**19**	**/**	**60**	**N**	3	/	60	S		/			0	S	0	S	0	S	0	S							
V-B47R	**1BSMT004.60**	A	0	/	60	S	0	/	59	S	0	/	60	S	**10**	**/**	**59**	**P**	10	/	60	T		/																	
V-B47R	1BSMT005.71	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															SI		
V-B47R	1BSMT006.62	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															SI		
V-B47R	**1BSMT023.18**	A	0	/	25	S	0	/	24	S	0	/	25	S	**8**	**/**	**23**	**N**	0	/	23	S		/			0	S	0	S	0	S	0	S							
V-B47R	**4015**	USFS		/				/				/				/				/				/															**MI**		acid-tolerant insects, low pH and ANC... was limed in 93, 97 & 99
V-B47R	**4072**	USFS		/				/				/				/				/				/															**MI**		acid-tolerant insects, low pH and ANC... was limed in 93, 97 & 99
V-B47R	4073	USFS		/				/				/				/				/				/															NI		
V-B47R	**4074**	USFS		/				/				/				/				/				/															**MI**		acid-tolerant insects, low pH and ANC... was limed in 93, 97 & 2000
V-B48R	01633000	USGS	0	/	3	S	1	/	3	S	0	/	3	S		/				/				/																	Flow < 7Q10
V-B48R	01633050	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B48R	1BCKD-BS12-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B48R	**1BMIL002.20**	A	0	/	31	S	0	/	30	S	0	/	31	S	**3**	**/**	**23**	**P**	0	/	23	S		/							0	S	0	S					SI		
V-B48R	1BMIL-BS11-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
V-B48R	1BMIL-BS1-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B48R	1BMIL-BS3A-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B48R	1BMIL-BS4-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B48R	1BMIL-BS5A-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B48R	1BMIL-BS5-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B48R	1BMIL-BS6-SOS	CMON		/				/				/				/				/				/															HP		Citizen monitoring
V-B48R	1BMIL-BS9-SOS	CMON		/				/				/				/				/				/															LP		Citizen monitoring
V-B48R	1BNFS066.50	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B48R	1BNFS070.67	A	0	/	61	S	0	/	60	S	0	/	61	S	5	/	59	S	8	/	60	T		/			0	S	0	S	0	S	0	S							
V-B48R	1BSRT-BS7-SOS	CMON		/				/				/				/				/				/															MP		Citizen monitoring
V-B48R	384444783822	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B48R	384830783358	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B48R	384920783255	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B49R	**1BSTY001.22**	A	**11**	**/**	**57**	**P**	0	/	56	S	0	/	57	S	**7**	**/**	**58**	**P**	39	/	57	T		/																	
V-B49R	1BSTY004.24	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/															SI		
V-B49R	**1BSTY005.85**	A	**12**	**/**	**56**	**P**	0	/	55	S	0	/	56	S	2	/	56	S	0	/	56	S		/			0	S	0	S	0	S	0	S							
V-B49R	1BSTY006.73	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															SI		
V-B49R	1BSTY021.08	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B49R	384929783360	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B49R	4002	USFS		/				/				/				/				/				/															SI		
V-B49R	4016	USFS		/				/				/				/				/				/															SI		
V-B49R	**4027**	USFS		/				/				/				/				/				/															**VI**		acid-tolerant insects, low pH and ANC...was limed in 93, 94,97, 2000
V-B49R	4028	USFS		/				/				/				/				/				/															SI		
V-B49R	4029	USFS		/				/				/				/				/				/															NI		
V-B50R	1BNFS043.06	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B50R	1BNFS054.75	A	0	/	58	S	0	/	57	S	1	/	58	S	5	/	58	S	23	/	56	T		/			0	S	0	S	0	S	0	S							
V-B50R	**1BNPC000.02**	A	0	/	13	S	0	/	13	S	0	/	13	S	**2**	**/**	**13**	**P**	0	/	13	S		/			0	S	0	S	0	S	0	S							
V-B50R	1BPGH000.60	A,B	0	/	26	S	0	/	25	S	0	/	26	S	2	/	23	S	0	/	23	S		/							0	S	0	S					SI		
V-B50R	**1BTMB000.54**	A,B	0	/	30	S	0	/	29	S	0	/	30	S	1	/	22	S	1	/	23	S		/							0	S	0	S					**MI**		
V-B50R	1BTMB002.22	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S							
V-B50R	384942783126	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	384950783241	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	384951783243	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385041783156	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385043783148	USGS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	Flow < 7Q10
V-B50R	385048783142	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385136783003	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385217782935	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385307782848	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385313782846	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385410782853	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385412782715	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385435782535	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B50R	385443782739	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B51R	01634000	USGS	0	/	82	S	0	/	79	S	7	/	82	S		/			23	/	80	T		/																	
V-B51R	**1BNFS000.57**	A	0	/	60	S	0	/	60	S	0	/	60	S	3	/	59	S	8	/	59	T		/			0	S			0	S	0	S	0	S	**3**	**P**			96 FT/SED PCB 2 species, PAHs 1 sp
V-B51R	1BNFS007.58	SS		/				/				/				/				/				/							0	S	0	S							
V-B51R	1BNFS010.34	A	0	/	57	S	0	/	56	S	0	/	57	S	4	/	56	S	16	/	58	T		/			0	S	0	S	0	S	0	S							
V-B51R	1BTBL000.26	A	0	/	14	S	0	/	13	S	0	/	14	S	1	/	13	S	0	/	13	S		/			0	S	0	S	0	S	0	S							
V-B51R	1BTBL001.27	A	0	/	10	S	0	/	10	S	0	/	10	S	1	/	9	S	0	/	10	S		/																	
V-B51R	385706782260	USGS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/																	Flow < 7Q10
V-B51R	385715782232	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B51R	385726782300	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B51R	385836781613	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B51R	385849781724	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B51R	385853781726	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
V-B51R	385858781904	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
V-B51R	385901781857	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
V-B51R	385904782203	USGS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
V-B52R	**1BCDR023.47**	A	**6**	**/**	**24**	**P**	0	/	23	S	0	/	24	S	1	/	22	S	0	/	23	S		/							0	S	0	S								
V-B52R	1BCDR043.01	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI			
V-B52R	1BXOS000.01	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
V-B52R	**4003**	USFS		/				/				/				/				/				/															**VI**		acid-tolerant insects, low pH and ANC... limed in 90 and again in 97
V-B53R	1BCDR013.29	A	0	/	57	S	0	/	56	S	0	/	57	S	2	/	56	S	1	/	57	S		/							0	S	0	S								
V-B53R	1BCDR015.49	B		/				/				/				/				/				/															SI			
V-B54R	1BPSG000.20	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															SI			
V-B54R	1BPSG001.36	A	0	/	57	S	0	/	56	S	0	/	57	S	4	/	56	S	0	/	57	S		/																		
V-B54R	1BPSG030.24	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI			
V-B54R	1BPSG031.99	A,B	0	/	9	S	0	/	9	S	1	/	9	S		/				/				/			0	S	0	S	0	S	0	S					NI			
V-B54R	4014	USFS		/				/				/				/				/				/															SI			
V-B54R	4018	USFS		/				/				/				/				/				/															T		One Visit
V-B54R	4077	USFS		/				/				/				/				/				/															SI			
V-B54R	4081	USFS		/				/				/				/				/				/															NI			
V-B54R	4082	USFS		/				/				/				/				/				/															NI			
V-B55R	1BMAN004.83	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S								
V-B55R	1BSHN043.92	SS		/				/				/				/				/				/							0	S	0	S								96 sed
V-B55R	1BSHN048.00	A	0	/	60	S	0	/	60	S	0	/	60	S	2	/	59	S	6	/	59	T		/			0	S			0	S	0	S								
V-B55R	1BSHN052.03	C,SS		/				/				/				/				/				/							0	S	1	T	0	S	1	T			92 PCB 1 species & sed
V-B55R	1BSHN053.63	SS		/				/				/				/				/				/							0	S	0	S								96 sed
V-B56L	1BCRO009.19	Above	0	/	55	S	0	/	55	S		/			0	/	6	S	0	/	7	S		/							0	S	0	S								
V-B56L	**1BCRO009.19**	Below	0	/	37	S	**42**	**/**	**43**	**N**		/				/				/				/													0	S				
V-B56L	1BCRO009.79	Above	0	/	27	S	0	/	26	S		/			0	/	5	S	0	/	7	S		/							0	S	0	S								
V-B56L	**1BCRO009.79**	Below	0	/	27	S	**6**	**/**	**7**	**N**		/				/				/				/													0	S				
V-B56L	1BXCE000.63	Above	0	/	22	S	0	/	21	S		/			0	/	6	S	0	/	7	S		/							0	S	0	S			0	S				
V-B56L	1BXCE000.63	Below	0	/	6	S	0	/	6	S		/				/				/				/																		
V-B56R	1BCRO000.43	A	0	/	7	S	0	/	6	S	0	/	7	S	1	/	6	S	0	/	6	S		/							0	S	0	S								
V-B56R	**1BCRO002.75**	A	0	/	18	S	0	/	18	S	0	/	18	S	**2**	**/**	**16**	**P**	1	/	17	S		/			0	S	0	S	0	S	0	S								
V-B56R	1BSTV004.80	A	0	/	24	S	0	/	23	S	0	/	24	S	2	/	23	S	2	/	23	S		/							0	S	0	S								
V-B57R	1BRSC001.42	A	0	/	1	W	0	/	1	W	0	/	1	W	0	/	0		0	/	0			/			0	S	0	S	0	S	0	S								
V-B57R	1BSHN034.16	SS		/				/				/				/				/				/							0	S	0	S								97 sed
V-B57R	**1BSHN038.27**	C		/				/				/				/				/				/							0	S	0	S	1	T	**3**	**P**			96 PCB 5 sp, chlordane,heptachlor epoxide&Pb detected, 99 PCB 4 sp.
V-B57R	**1BSPR000.40**	A,B	3	/	34	S	0	/	33	S	0	/	34	S	3	/	33	S	1	/	32	S		/							0	S	0	S					**MI**		
V-B58R	1BSHN022.63	A,C	0	/	59	S	0	/	59	S	0	/	59	S	3	/	59	S	3	/	58	S		/							0	S	0	S	2	T	0	S			Hg in 99 1sp + Exceeded New EPA Proposed Criteria
V-B58R	**1BSHN022.86**	C,SS		/				/				/				/				/				/													**1**	**P**			VDH Fish Adv.-PCB, 99 FT PCB 3 sp.
V-B58R	**1BSHN028.15**	C,SS		/				/				/				/				/				/													**1**	**P**			99 FT PCB 1 sp, 8 samples
V-B58R	1BSHN025.26	SS		/				/				/				/				/				/							0	S	0	S							96 sed
	Total Stations = 654																																								

Rappahannock Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
N-E01R	**3-RPP175.51**	A,B,C	0	/	19	S	0	/	19	S	0	/	18	S	**3**	**/**	**20**	**P**	0	/	19	S					0	S	0	S	0	S	0	S	0	S	0	S	NI	NET	95 FT/SED
N-E01R	**3-THU004.69**	A	0	/	17	S	0	/	17	S	0	/	16	S	**4**	**/**	**16**	**P**	1	/	18	S							0	S	1	T	0	S							Zinc in sediment in '97
N-E01R	3THU-JMS	CMON	0	/	8	S	0	/	8	S					1	/	8	S	0	/	9	S																			Cit Mon
N-E01R	3-THM001.40	SS	0	/	9	S	0	/	9	S	0	/	6	S	0	/	10	S	0	/	10	S							0	S											
N-E01R	**3-THW004.68**	SS	0	/	8	S	0	/	8	S	0	/	6	S	**2**	**/**	**8**	**P**	1	/	8	S																			
N-E02R	**3-CAE000.25**	A	0	/	18	S	1	/	18	S	0	/	17	S	**3**	**/**	**18**	**P**	1	/	19	S							0	S	0	S	0	S							
N-E02R	**3-GRT001.70**	A,B	0	/	28	S	1	/	28	S	0	/	26	S	**3**	**/**	**18**	**P**	3	/	19	T							0	S	0	S	0	S					NI	NET	
N-E02R	3-RPP150.32	B	0	/	7	S	0	/	7	S	0	/	7	S																									NI	NET	
N-E02R	3-RPP153.32	SS																													0	S	0	S							96 sed
N-E02R	3CAE-JMS	CMON	0	/	7	S	0	/	7	S		/			1	/	7	S	0	/	9	S																			Cit Mon
N-E02R	3GRT-JMS	CMON	0	/	8	S	0	/	8	S		/			2	/	7	T	0	/	9	S																			Cit Mon
N-E02R	3GRT-3A-SOS	CMON																																					LP	CMON	Cit Mon: 2/4 Excellent ; 2/4 Good Rating
N-E03R	3-HUE000.20	A,B	0	/	30	S	0	/	30	S	0	/	28	S	1	/	21	S	2	/	21	S							0	S	0	S	0	S					NI	NET	
N-E03R	3HUE-A-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E03R	3HUE-1-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E03R	3HUE-B-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good (Brokenback Run)
N-E03R	3POH-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-E04R	**3-HAZ018.29**	A	0	/	20	S	0	/	20	S	0	/	18	S	**3**	**/**	**21**	**P**	0	/	20	S					0	S	0	S	0	S	0	S							
N-E04R	3-HAZ032.54	A,B	0	/	30	S	0	/	30	S	0	/	28	S	0	/	21	S	1	/	21	S							0	S	0	S	0	S					NI	NET	
N-E04R	3-HAZ042.43	B	0	/	9	S	0	/	9	S	0	/	8	S																									NI	REF	
N-E04R	3HAZ-A-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E04R	3HAZ-B-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E05R	**3-RUS005.66**	A	0	/	17	S	0	/	17	S	0	/	16	S	**3**	**/**	**18**	**P**	0	/	18	S							0	S	3	T									Total DDT, DDT and DDE in sed in '97
N-E05R	3-THO014.38	C																													0	S	0	S	0	S	0	S			95 FT/SED
N-E05R	3-THO021.19	A	0	/	19	S	0	/	19	S	0	/	18	S	1	/	20	S	0	/	20	S							0	S	0	S	0	S							
N-E05R	3THR-1-SOS	CMON																																					LP	CMON	Cit Mon: 3/5 Excellent ; 2/5 Good Rating
N-E05R	3THR-3-SOS	CMON																																					LP	CMON	Cit Mon: 2/2 Good Rating
N-E05R	3THR-4-SOS	CMON																																					LP	CMON	Cit Mon: 2/2 Good Rating
N-E05R	3THR-7-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E05R	3THR-SOS	CMON																																					LP	CMON	Cit Mon: 2/2 Excellent Rating
N-E05R	3THO-1-SOS	CMON																																					LP	CMON	Cit Mon: 1/2 Excellent ; 1/2 Good Rating
N-E05R	3THO-2-SOS	CMON																																					LP	CMON	Cit Mon: 2/2 Excellent Rating
N-E05R	3RUS-1-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-E05R	3RUS-6-SOS	CMON																																					MP	CMON	Cit Mon: 2/2 Fair Rating
N-E05R	3COV-A-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-E05R	3COV-C-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-E06R	**3-THO006.50**	A	0	/	20	S	0	/	20	S	0	/	19	S	**3**	**/**	**20**	**P**	0	/	20	S					0	S	0	S	0	S	0	S							
N-E06R	3BTL-9-SOS	CMON																																					LP	CMON	Cit Mon: 1/2 Good; 1/2 Fair Rating
N-E06R	3THO-SOS	CMON																																					MP	CMON	Cit Mon: 1/1 Fair Rating
N-E07R	3-HAZ009.58	C																													0	S	0	S	0	S	0	S			95 FT/SED
N-E07R	**3-MUU000.82**	A	0	/	19	S	0	/	19	S	0	/	17	S	**5**	**/**	**20**	**P**	0	/	20	S							0	S	0	S	0	S							
N-E07R	**3-MUU004.98**	SS	0	/	10	S	0	/	10	S	0	/	7	S	**2**	**/**	**11**	**P**	1	/	11	S							0	S											
N-E07R	**3-MUU010.72**	SS	0	/	10	S	1	/	10	S	0	/	7	S	**2**	**/**	**11**	**P**	1	/	11	S							0	S											
N-E07R	3WLS-154-ALL	CMON	0	/	56	S	0	/	55	S																															
N-E08R	**3-BOS000.72**	SS	0	/	9	S	0	/	9	S	0	/	7	S	**4**	**/**	**7**	**N**	1	/	9	S							0	S											
N-E08R	3-CRA000.82	SS	0	/	8	S	0	/	8	S	1	/	6	S	1	/	7	S	0	/	8	S							0	S											
N-E08R	**3-MAH000.19**	A	0	/	18	S	**2**	**/**	**18**	**P**	1	/	17	S	**5**	**/**	**18**	**N**	0	/	18	S					0	S	0	S	0	S	0	S							
N-E08R	**3-MAH004.18**	SS	0	/	9	S	0	/	9	S	0	/	7	S	**3**	**/**	**9**	**N**	1	/	9	S							0	S											
N-E08R	3-RPP147.10	A,B	0	/	60	S	0	/	60	S	0	/	54	S	4	/	51	S	0	/	54	S					0	S	0	S	0	S							NI	NET	
N-E08R	3-BWN-SOS	CMON																																					MP	CMON	Cit Mon: 2/2 Fair Rating - formerly id'd as 1BBRN-SOS
N-E08R	3MAH-JMS	CMON	0	/	6	S	0	/	5	S					2	/	6	T	3	/	8	T																			Cit Mon
N-E08R	3RPP-156-ALL	CMON	0	/	1	W	0	/	1	W																															Cit Mon
N-E09L	3-MTN025.17	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W					2	T	0	S	0	S	0	S							Lake Pelham, Cu and Mn in PWS waters.
N-E09L	3-MTN028.68	L	0	/	1	W	0	/	1	W	0	/	1	W					0	/	1	W							0	S	0	S	0	S							Mountain Run Lake
N-E09R	**3-MTN000.59**	A,B	0	/	64	S	0	/	64	S	0	/	57	S	**9**	**/**	**53**	**P**	2	/	55	S					0	S	0	S	0	S	0	S					NI	NET	
N-E09R	3-MTN014.88	C																													0	S	0	S	0	S	1	T			99 FT/SED, PCB 1 sp.
N-E09R	3-MTN022.49	A	0	/	22	S	0	/	22	S	0	/	20	S	2	/	23	S	0	/	23	S							0	S	0	S	0	S							
N-E10R	3-ALC002.74	SS	0	/	11	S	0	/	11	S	0	/	8	S	0	/	11	S	0	/	11	S							0	S											
N-E10R	**3-DPR001.70**	A	0	/	17	S	0	/	17	S	0	/	15	S	**5**	**/**	**16**	**N**	0	/	18	S							0	S	0	S	0	S							
N-E10R	3-DPR004.93	SS	0	/	11	S	1	/	11	S	0	/	8	S	1	/	10	S	0	/	11	S							0	S											
N-E10R	3-DPR008.98	SS	0	/	8	S	0	/	8	S	0	/	6	S	0	/	7	S	0	/	8	S							0	S											
N-E10R	3-RPP132.67	B	0	/	6	S	0	/	6	S	0	/	6	S																									NI	NET	
N-E10R	3RPP-120-ALL	CMON	0	/	53	S	0	/	53	S																															Cit Mon

Rappahannock Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN				OTHER WATER COLUMN DATA					SEDIMENT		FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA															Pink = Threatened Waters
			#Violations/# Samples/Status				#Violations/# Samples/Status			#Violations/Status		#Violations/Status		#Violations/Status				
	Monitoring		Dissolved				Fecal	Total								Bio	Station	
WBID	Station	Type	Temperature	Oxygen	pH		Coliform	Phosphorus	Chlorophyll A	Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
N-E11R	**3-RAP077.28**	A	0 / 18 S	0 / 18 S	0 / 16 S		**3 / 18 P**	0 / 17 S		0 S	0 S	0 S	0 S					
N-E11R	3-RAP082.43	B	0 / 8 S	0 / 8 S	0 / 8 S											NI	NET	
N-E11R	3GAR-1-SOS	CMON														LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E11R	3GAR-2-SOS	CMON														LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E12R	3-RAP066.54	A	0 / 5 S	0 / 5 S	0 / 5 S		0 / 4 S	0 / 5 S			0 S	0 S	0 S					
N-E13R	**3-BLU002.60**	A	0 / 23 S	0 / 23 S	0 / 21 S		**5 / 22 P**	0 / 23 S			0 S	0 S	0 S					
N-E13R	**3-RAP045.08**	A	0 / 51 S	0 / 51 S	0 / 45 S		**7 / 49 P**	0 / 53 S			0 S	0 S	0 S					
N-E14R	3-ROB022.56	B	0 / 10 S	0 / 10 S	0 / 9 S											NI	NET	
N-E14R	**3-ROB024.06**	A	0 / 21 S	0 / 21 S	0 / 19 S		**5 / 21 P**	3 / 21 T			0 S	0 S	0 S					
N-E14R	3ROB-B-SOS	CMON														LP	CMON	Cit Mon: 1/1 Good Rating
N-E14R	3ROE-SOS	CMON														LP	CMON	Cit Mon: 1/1 Good Rating
N-E15R	**3-LDR000.70**	A,B	0 / 30 S	0 / 30 S	0 / 28 S		**4 / 21 P**	1 / 21 S			0 S	0 S	0 S			NI	NET	
N-E15R	**3-LDR003.19**	SS	0 / 10 S	0 / 10 S	0 / 7 S		**2 / 9 P**	2 / 10 T			0 S							
N-E15R	3-ROB001.90	A,B	0 / 60 S	0 / 60 S	0 / 54 S		1 / 49 S	1 / 53 S			0 S	0 S	0 S			NI	REF	
N-E15R	3ROB-A-SOS	CMON														LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E16R	3-CED000.59	A	0 / 22 S	1 / 22 S	0 / 20 S		2 / 23 S	0 / 23 S			0 S	0 S	0 S					
N-E16R	3-RAP035.58	SS										0 S	0 S					97 sed
N-E17R	**3-MIR004.05**	A	0 / 24 S	0 / 24 S	0 / 22 S		**6 / 22 N**	0 / 23 S		0 S	0 S	0 S	0 S					
N-E17R	**3-MTR003.51**	A	0 / 23 S	0 / 23 S	0 / 21 S		**6 / 23 N**	0 / 23 S		0 S	0 S	0 S	0 S					
N-E17R	3-MTR008.31	SS	0 / 1 W	0 / 1 W			0 / 1 W	0 / 1 W										
N-E17R	3-MTR010.60	SS	0 / 1 W	0 / 1 W			1 / 1 W	0 / 1 W										
N-E17R	3-MTR013.17	SS	0 / 1 W	0 / 1 W			1 / 1 W	0 / 1 W										
N-E18R	3-RAP000.01	C										0 S	0 S	0 S	0 S			95 FT/SED
N-E18R	3-RAP001.37	SS										0 S	0 S					97 sed
N-E18R	3-RAP006.00	SS										0 S	0 S					96 sed
N-E18R	**3-RAP006.53**	A,B	0 / 64 S	0 / 64 S	0 / 57 S		**9 / 51 P**	2 / 56 S		0 S	0 S	0 S	0 S			NI	REF	
N-E18R	3-RAP015.94	SS										0 S	0 S					97 sed
N-E19L	3-MOT000.39	A	0 / 1 W	0 / 1 W	0 / 1 W		0 / 1 W	0 / 1 W		0 S	0 S	0 S	0 S					
N-E19L	3-MOT001.19	A	0 / 1 W	0 / 1 W	0 / 1 W		0 / 1 W	0 / 1 W			0 S							
N-E19R	3-ENG001.10	A	0 / 19 S	0 / 19 S	0 / 17 S		0 / 18 S	0 / 19 S			0 S	0 S	0 S					
N-E19R	01668000	USGS	0 / 151 S	0 / 150 S	3 / 149 S			0 / 4 S			0 S							USGS Station (same as 3-RPP113.37)
N-E19R	166799050	USGS	0 / 1 W	0 / 1 W	0 / 1 W			0 / 1 W										USGS Station (same as 3-RPP113.37)
N-E19R	3-RPP118.57	SS										0 S	0 S					97 sed
N-E19R	3-RPP123.80	B	0 / 6 S	0 / 6 S	0 / 5 S											NI	NET	
N-E19R	3ENG-123-ALL	CMON	0 / 143 S	0 / 196 S														Cit Mon
N-E19R	3ENG-123A-ALL	CMON	0 / 80 S	0 / 80 S														Cit Mon
N-E19R	3RPP-6-ALL	CMON	0 / 161 S	0 / 211 S														Cit Mon
N-E20E	3-RPP104.47	A	/ 49 S	0 / 49 S	0 / 45 S		3 / 37 S	0 / 51 S	1 / 5 S		0 S	0 S	0 S					
N-E20E	3-RPP104.79	SS										0 S	0 S					97 sed
N-E20E	3-RPP107.91	A	/ 49 S	0 / 49 S	0 / 44 S		3 / 39 S	1 / 51 S	0 / 6 S		0 S	0 S	0 S					
N-E20E	3-RPP110.57	A	/ 52 S	0 / 52 S	0 / 48 S				0 / 20 S	0 S	0 S	0 S						
N-E20E	3-RPP111.20	SS										0 S	0 S					96 sed (Rivermile 109.1).
N-E20E	3-RPP111.29	C										0 S	0 S	0 S	0 S			95 FT/SED, (Rivermile 109.19)
N-E20E	3RPP-7-ALL	CMON	/ 145 S	0 / 190 S														Cit Mon
N-E20E	3RPP-121-ALL	CMON	/ 75 S	0 / 74 S														Cit Mon
N-E20E	3RPP-8-ALL	CMON	/ 46 S	0 / 64 S														Cit Mon
N-E20R	**3-CLB000.50**	A	0 / 21 S	0 / 21 S	**2 / 18 P**		2 / 20 S	2 / 21 S			0 S	0 S	0 S					
N-E20R	3-HAL000.57	A	0 / 21 S	0 / 21 S	0 / 19 S		2 / 20 S	0 / 21 S			0 S	0 S	0 S					
N-E20R	3-MAP002.61	A	0 / 21 S	0 / 21 S	1 / 18 S		0 / 19 S	1 / 20 S		0 S	0 S	0 S	0 S					
N-E20R	3MAP-1-SOS	CMON														MP	CMON	Cit Mon: 1/1 Poor Rating
N-E20R	3MAP-2-SOS	CMON														MP	CMON	Cit Mon: 1/1 Poor Rating
N-E20R	3MAP-4-SOS	CMON														MP	CMON	Cit Mon: 1/1 Fair Rating
N-E20R	3MAP-5-SOS	CMON														LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E20R	3MAP-5.5-SOS	CMON														LP	CMON	Cit Mon: 1/1 Excellent Rating
N-E20R	3MAP-6-SOS	CMON														LP	CMON	Cit Mon: 1/1 Good Rating
N-E20R	3MAP-7-SOS	CMON														MP	CMON	Cit Mon: 1/1 Fair Rating
N-E20R	3MAP-8-SOS	CMON														MP	CMON	Cit Mon: 1/1 Fair Rating
N-E20R	3MAP-9-SOS	CMON														MP	CMON	Cit Mon: 1/1 Poor Rating
N-E20R	3MAP-10-SOS	CMON														MP	CMON	Cit Mon: 1/1 Fair Rating
N-E20R	3MAP-12-SOS	CMON														MP	CMON	Cit Mon: 1/1 Fair Rating
N-E20R	3MAP-14-SOS	CMON														LP	CMON	Cit Mon: 1/1 Good Rating
N-E20R	3MAP-16-SOS	CMON														MP	CMON	Cit Mon: 1/1 Poor Rating
N-E21E	3-RPP073.71	SS										0 S	0 S					96 sed
N-E21E	**3-RPP080.19**	A,CB	/ 210	0 / 210 S	0 / 189 S		**6 / 51 P**		2 / 22 S	0 S	0 S	0 S	0 S					TF3.2

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring		Dissolved												Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
N-E21E	**3-RPP091.55**	A,CB		/	121		0	/	120	S	0	/	110	S	**7**	**/**	**52**	**P**					1	/	21	S			0	S	0	S	0	S							TF3.1B
N-E21E	3-RPP098.05	SS																													0	S	0	S							97 sed
N-E21E	**3-RPP098.81**	A,CB		/	122	S	0	/	121	S	1	/	112	S	**9**	**/**	**48**	**P**					0	/	21	S	0	S	0	S	0	S	0	S							TF3.1E
N-E21E	3-RPP099.73	SS																													0	S	0	S							96 sed. Correct rivermile is approximately 91.0.
N-E21R	3-MUY001.43	A	0	/	16	S	0	/	16	S	1	/	14	S	1	/	17	S	0	/	18	S							0	S	0	S	0	S							
N-E21R	166818510	USGS	0	/	1	W	0	/	1	W	0	/	1	W					0	/	1	W																			USGS Station
N-E21R	166819110	USGS	0	/	1	W	0	/	1	W	1	/	1	W		/			0	/	1	W																			USGS Station
N-E21R	166813550	USGS	0	/	1	W	0	/	1	W	1	/	1	W		/			0	/	1	W																			USGS Station
N-E21R	166814550	USGS	0	/	1	W	0	/	1	W	1	/	1	W		/			0	/	1	W																			USGS Station
N-E21E	03R28	B																																					NI	B-IBI	Random B-IBI (RPPTF)
N-E21E	03R29	B																																					NI	B-IBI	Random B-IBI (RPPTF)
N-E21E	04R30	B																																					MI	B-IBI	Random B-IBI (RPPTF)
N-E21E	06M25	B																																					NI	B-IBI	Random B-IBI (RPPTF)
P-E22E	05R24	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPTF)
P-E22E	06M24	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPTF)
P-E22E	06M27	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPTF)
P-E22E	07R24	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPTF)
P-E22E	07R25	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPTF)
P-E22E	04R29	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPOH)
P-E22E	05R21	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPOH)
P-E22E	05R22	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPOH)
P-E22E	05R23	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPOH)
P-E22E	07R22	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPOH)
P-E22E	07R23	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPOH)
P-E22E	03R26	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E22E	06M23	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E22E	3-RPP050.04	SS		/				/				/				/				/				/							0	S	1	T							96 chlordane sed
P-E22E	3-RPP051.01	A,CB		/	186	S	0	/	185	S	0	/	115	S	5	/	59	S		/			0	/	20	S			0	S											TF3.3
P-E22E	3-RPP054.43	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-E22E	3-RPP058.80	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-E22E	3-RPP063.32	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-E22E	3-RPP064.40	A		/	153	S	0	/	153	S	1	/	113	S	4	/	60	S		/			2	/	18	T			0	S											TF3.2A
P-E22E	MA97/98-1066	MAIA		/				/				/				/				/			0	/	2	S									1	T					98 MAIA Data, Fish Tissue - Arsenic
P-E22E	MA97-0810	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			0	/	3	S															MAIA Data
P-E22E	MA97-0811	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			0	/	3	S															MAIA Data
P-E22E	RP10	Tox																																							Threatened
P-E22E	RP9	Tox																																							Threatened
P-E22E	TF3.3	B		/				/				/				/				/				/															SI	B-IBI	B-IBI fixed station
P-E22R	**3-OCC010.47**	A	0	/	29	S	1	/	29	S	**6**	**/**	**29**	**P**	**3**	**/**	**28**	**P**	0	/	28	S		/					0	S											Swamp waters
P-E23E	03R24	B																																					NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	03R25	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	04R26	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E23E	04R27	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E23E	04R28	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	05R16	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E23E	05R17	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E23E	05R18	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E23E	05R19	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	05R20	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	05R26	B																																					NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	06M21	B																																					NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	06M22	B																																					NI	B-IBI	Random B-IBI (RPPMH)
P-E23E	07R20	B																																					MI	B-IBI	Random B-IBI (RPPMH)
P-E23E	07R21	B																																					VI	B-IBI	Random B-IBI (RPPMH)
P-E23E	3CAT-4-ALL	CMON		/	20		0	/	20	S		/				/				/				/																	Citizen Monitoring
P-E23E	3CAT-8-ALL	CMON		/	20		0	/	20	S		/				/				/				/																	Citizen Monitoring
P-E23E	**3-HOK000.74**	A,C,SS		/	57		0	/	57	S	4	/	54	S	**12**	**/**	**59**	**P**		/				/					0	S	0	S	0	S	0	S	0	S			STP upstream (Tappahannock); Fish tissue 1995
P-E23E	**3-PIS004.79**	A		/	19		1	/	19	S	**2**	**/**	**18**	**P**	0	/	21	S		/				/					0	S											
P-E23E	3-RPP042.12	A,CB		/	152		1	/	152	S	0	/	113	S	2	/	60	S		/	111		0	/	19	S			0	S											RET3.1
P-E23E	3-RPP043.02	A		/	60		0	/	60	S	0	/	58	S		/				/			0	/	34	S			0	S											
P-E23E	3-RRP-690-ALL	CMON		/	46		0	/	94	S		/				/				/				/																	Citizen Monitoring
P-E23E	MA97-0799	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			0	/	3	S															MAIA Data
P-E23E	**RET3.1**	B		/				/				/				/				/				/															**VI**	B-IBI	B-IBI = Fixed Chesapeake Bay Benthic Station

Rappahannock Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-E23E	RP5	Tox																																							Threatened
P-E23E	RP6	Tox																																							
P-E23E	RP7	Tox																																							
P-E23E	RP8	Tox																																							
P-E23R	**3-CAT011.62**	A	0	/	60	S	4	/	60	S	**30**	/	**57**	**N**	4	/	58	S	0	/	58	S		/					0	S											
P-E23R	3CAT-1-ALL	CMON	0	/	7	S	0	/	7	S		/				/				/				/																	Citizen Monitoring
P-E23R	3CAT-2-ALL	CMON	0	/	7	S	0	/	7	S		/				/				/				/																	Citizen Monitoring
P-E23R	**3-MTL004.82**	A	0	/	66	S	**17**	/	**66**	**N**	**32**	/	**63**	**N**	2	/	38	S	0	/	38	S		/					0	S											
P-E23R	**3-PIS009.24**	A,B	0	/	7	S	0	/	7	S	**4**	/	**7**	**N**	0	/	7	S	0	/	7	S		/					0	S									NI	REF	Ecoregion Reference
P-E24E	03R23	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E24E	04R23	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E24E	04R24	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E24E	04R25	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E24E	05R15	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E24E	06M16	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E24E	06M17	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E24E	06M19	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E24E	06M20	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E24E	07R18	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E24E	07R19	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E24E	**3-TOT005.11**	A		/	27		0	/	27	S	1	/	27	S	**3**	/	**26**	**P**		/	27			/					0	S	0	S	0	S							
P-E24E	MA97-0802	MAIA		/	6		0	/	6	S	0	/	3	S		/				/			0	/	3	S															MAIA Data
P-E24E	MA97-0905	MAIA		/	2		0	/	1	W		/				/				/				/																	MAIA Data
P-E24R	**3-BMS002.00**	A	0	/	25	S	0	/	25	S	1	/	25	S	**5**	/	**23**	**P**	4	/	24	T		/					0	S	0	S	0	S							
P-E25E	03R10	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R11	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R12	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R13	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R14	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R15	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R16	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R17	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R18	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R20	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R21	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	03R22	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R10	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R11	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R12	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R13	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R15	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R16	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R17	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R20	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R21	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	04R22	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R05	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R06	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R07	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R09	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R10	B		/				/				/				/				/				/															SI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R11	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R12	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R13	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R14	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	05R27	B		/				/				/				/				/				/															SI	B-IBI	Random B-IBI (RPPMH)
P-E25E	06M09	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	06M10	B		/				/				/				/				/				/															SI	B-IBI	Random B-IBI (RPPMH)
P-E25E	06M11	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	06M12	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	06M13	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	06M14	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	06M15	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)

Rappahannock Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA												SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																		Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total				Chlorophyll A												Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus						Metals	Organics	Metals		Organics		Metals		Organics		Mon	Type	Comments
P-E25E	06M28	B		/			/				/				/				/				/												NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	07R11	B		/			/				/				/				/				/												NI	B-IBI	Random B-IBI (RPPMH)
P-E25E	07R12	B		/			/				/				/				/				/												VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	07R13	B		/			/				/				/				/				/												VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	07R14	B		/			/				/				/				/				/												VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	07R15	B		/			/				/				/				/				/												VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	07R17	B		/			/				/				/				/				/												MI	B-IBI	Random B-IBI (RPPMH)
P-E25E	07R27	B		/			/				/				/				/				/												VI	B-IBI	Random B-IBI (RPPMH)
P-E25E	3-DEE000.31	A		/	19		0	/	19	S	0	/	19	S	1	/	17	S		/				/				0	S	0	S	0	S					
P-E25E	**3-FAM002.62**	A		/	20		0	/	20	S	1	/	20	S	**4**	**/**	**19**	**P**		/				/				0	S	0	S	0	S					
P-E25E	3-LAN000.00	A		/	35		2	/	35	S	0	/	35	S		/				/			0	/	8	S		0	S									
P-E25E	3-LAN001.69	A		/	21		0	/	21	S	1	/	21	S		/				/			0	/	23	S		0	S									
P-E25E	3-LAN002.81	A		/	19		0	/	19	S	0	/	19	S	1	/	17	S		/				/				0	S	0	S	0	S					
P-E25E	3-LGG001.92	A		/	21		0	/	21	S	0	/	21	S	1	/	20	S		/				/				0	S									
P-E25E	3-MTT000.31	A		/	20		0	/	20	S	0	/	20	S	0	/	18	S		/				/				0	S	0	S	0	S					
P-E25E	3-MUB000.46	A		/	18		0	/	18	S	0	/	18	S	1	/	16	S		/				/				0	S	0	S	0	S					
P-E25E	3-ROS000.99	C,SS																															0	S			93 FT, PCB study
P-E25E	**3-ROS001.35**	A		/	21		0	/	21	S	1	/	21	S	**3**	**/**	**20**	**P**		/				/				0	S	0	S	0	S					
P-E25E	**3-RPP017.72-BL**	A,CB		/	178		**45**	**/**	**178**	**N**	0	/	56	S		/				/	54			/				0	S									Low DO in bottom waters, LE3.2
P-E25E	3-RPP017.72-TL	A,CB		/	119		0	/	119	S	0	/	58	S	0	/	60	S		/	56		0	/	18	S		0	S									Low DO in bottom waters, LE3.2
P-E25E	**3-RPP025.52-BL**	A,CB		/	94		**18**	**/**	**94**	**P**	0	/	55	S	0	/	1	W		/	54			/				0	S									Low DO in bottom waters - 18/94, LE3.1
P-E25E	3-RPP025.52-TL	A,CB		/	83		0	/	83	S	0	/	57	S	0	/	59	S		/	54		0	/	22	S		0	S									Low DO in bottom waters - 18/94, LE3.1
P-E25E	3-RPP031.57-BL	A,CB		/	89		6	/	89	S	0	/	56	S		/				/				/														RET3.2
P-E25E	3-RPP031.57-TL	A,CB		/	57		0	/	57	S	0	/	57	S	1	/	59	S		/	114		0	/	18	S		0	S									RET3.2
P-E25E	3-URB001.00	A		/	47		1	/	48	S	0	/	45	S	1	/	47	S		/			0	/	2	S		0	S	0	S	0	S					
P-E25E	3-URB001.50	A		/	44		1	/	44	S	0	/	42	S	1	/	20	S		/			0	/	18	S		0	S	0	S	0	S					
P-E25E	3URB-61-ALL	CMON		/	175		0	/	225	S		/				/				/				/														Citizen Monitoring
P-E25E	3URB-63-ALL	CMON		/	149		0	/	193	S		/				/				/				/														Citizen Monitoring
P-E25E	3URB-65-ALL	CMON		/	182		0	/	234	S		/				/				/				/														Citizen Monitoring
P-E25E	**LE3.2**	B		/				/				/				/				/				/											**VI**	B-IBI	B-IBI = Fixed Chesapeake Bay Benthic Station
P-E25E	MA97/98-0915	MAIA		/	4		0	/	4	S	0	/	1	W		/				/			0	/	2	S						1	T	0	S			97-98 MAIA Data, 98 Fish Tissue - Arsenic
P-E25E	**MA97-0792**	MAIA		/	6		**2**	**/**	**6**	**N**	0	/	3	S		/				/			0	/	3	S												MAIA Data, Low DO in bottom waters - 2/3
P-E25E	**MA97-0793**	MAIA		/	6		**3**	**/**	**6**	**N**	0	/	3	S		/				/			0	/	3	S												MAIA Data, Low DO in bottom waters - 3/3
P-E25E	MA97-0906	MAIA		/	2		0	/	2	S		/				/				/				/														MAIA Data
P-E25E	MA97-0907	MAIA		/	1		0	/	1	W		/				/				/				/														MAIA Data
P-E25E	MA97-0908	MAIA		/	1		0	/	1	W		/				/				/				/														MAIA Data
P-E25E	MA97-0910	MAIA		/	1		0	/	1	W		/				/				/				/														MAIA Data
P-E25E	MA97-0911	MAIA		/	2		0	/	2	S		/				/				/				/														MAIA Data
P-E25E	MA97-0912	MAIA		/	2		0	/	2	S		/				/				/				/														MAIA Data
P-E25E	MA97-0913	MAIA		/	1		0	/	1	W		/				/				/				/														MAIA Data
P-E25E	MA97-0914	MAIA		/	1		0	/	1	W		/				/				/				/														MAIA Data
P-E25E	MA97-0917	MAIA		/	1		1	/	1	W		/				/				/				/														MAIA Data
P-E25E	RP1	Tox																																				Threatened
P-E25E	RP2	Tox																																				
P-E25E	RP3	Tox																																				Threatened
P-E25E	RP4	Tox																																				
P-E25R	**3-LGG004.54**	A	0	/	24	S	**3**	**/**	**24**	**P**	1	/	24	S	2	/	24	S	0	/	23	S		/				0	S	0	S	0	S					
P-E26E	03R01	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	03R02	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	03R04	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	03R06	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	03R08	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	03R09	B		/				/				/				/				/				/											VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	04R01	B		/				/				/				/				/				/											VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	04R02	B		/				/				/				/				/				/											SI	B-IBI	Random B-IBI (RPPMH)
P-E26E	04R04	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	04R05	B		/				/				/				/				/				/											VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	04R06	B		/				/				/				/				/				/											MI	B-IBI	Random B-IBI (RPPMH)
P-E26E	04R07	B		/				/				/				/				/				/											VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	04R08	B		/				/				/				/				/				/											VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	05R01	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	05R02	B		/				/				/				/				/				/											MI	B-IBI	Random B-IBI (RPPMH)
P-E26E	05R03	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	05R04	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	06M01	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	06M02	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	06M03	B		/				/				/				/				/				/											NI	B-IBI	Random B-IBI (RPPMH)

Rappahannock Basin

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA												SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																		Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
P-E26E	06M04	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	06M06	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	06M07	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	06M08	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R01	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R02	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R03	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R04	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R06	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R07	B		/				/				/				/				/				/															SI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R08	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R09	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R10	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (RPPMH)
P-E26E	07R26	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (RPPMH)
P-E26E	3-BRD000.62	A		/	22		0	/	22	S	0	/	22	S	1	/	21	S		/				/					0	S	1	T	0	S							Zn, Cu
P-E26E	3-CEB001.92	A		/	38		0	/	39	S	0	/	38	S	3	/	40	S		/			0	/	1	W			0	S	0	S	0	S							
P-E26E	3-CRR001.38	A		/	31		0	/	30	S	0	/	28	S		/				/			0	/	7	S			0	S											
P-E26E	**3-CRR003.38-BL**	A,CB		/	128		**20**	**/**	**128**	**P**	0	/	70	S		/				/				/																	Low DO in bottom waters, LE3.3
P-E26E	3-CRR003.38-TL	A,CB		/	106		0	/	106	S	0	/	100	S	0	/	60	S		/			0	/	53	S			0	S											LE3.3
P-E26E	3CTM-135-ALL	CMON		/	119		1	/	158	S		/				/				/				/																	
P-E26E	3-CTR001.06	A		/	29		2	/	29	S	0	/	29	S		/				/			0	/	15	S			0	S											
P-E26E	3-LOL000.77	A		/	22		0	/	22	S	0	/	22	S	1	/	21	S		/			0	/	1	W			0	S	0	S	0	S							
P-E26E	**3-RPP000.01**	C,SS																																			**1**	**P**			94 PCB (5 of 10 samples)
P-E26E	3-RPP008.42	C		/				/				/				/				/				/											0	S	1	T			95 PCB 1 species
P-E26E	**3-RPP010.60-BL**	A,CB		/	152		**20**	**/**	**152**	**P**	0	/	58	S		/				/				/																	Low DO in bottom waters, LE3.4
P-E26E	3-RPP010.60-TL	A,CB		/	149		5	/	149	S	0	/	58	S	0	/	62	S		/			0	/	22	S			0	S											LE3.4
P-E26E	**LE3.4**	B		/				/				/				/				/				/															**VI**	B-IBI	B-IBI = Fixed Chesapeake Bay Benthic Station
P-E26E	**LE3.4B**	B		/				/				/				/				/				/															**VI**	B-IBI	B-IBI = Fixed Chesapeake Bay Benthic Station
P-E26E	**MA97/98-0926**	MAIA		/	3		**2**	**/**	**3**	**N**		/				/				/			0	/	2	S									1	T					97-98 MAIA Data, 98 Fish Tissue - Arsenic
P-E26E	**MA97-0288**	MAIA		/	10		**2**	**/**	**10**	**N**	0	/	10	S		/				/			0	/	10	S															MAIA Data
P-E26E	**MA97-0796**	MAIA		/	6		**3**	**/**	**6**	**N**	0	/	3	S		/				/			0	/	3	S															MAIA Data, Low DO in bottom waters - 3/6
P-E26E	MA97-0919	MAIA		/	1		0	/	1	W		/				/				/				/																	MAIA Data
P-E26E	MA97-0922	MAIA		/	1		0	/	1	W		/				/				/				/																	MAIA Data
P-E26E	MA97-0923	MAIA		/	2		0	/	2	S		/				/				/				/																	MAIA Data
P-E26E	MA97-0924	MAIA		/	1		0	/	1	W		/				/				/				/																	MAIA Data
P-E26E	MA97-0925	MAIA		/	1		0	/	1	W		/				/				/				/																	MAIA Data
P-E26E	MA97-0927	MAIA		/	2		0	/	2	S		/				/				/				/																	MAIA Data
P-E26R	**3-BLD000.58**	A	0	/	26	S	1	/	26	S	0	/	26	S	**7**	**/**	**26**	**N**	0	/	25	S		/					0	S	0	S									
	Total Stations = 353																																								

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
W-L01R	4ABTM000.04	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	NI	NET	WQ-P
W-L01R	4ABTM011.02	B		/				/				/				/				/				/																	NI	REF	Benthic survey to assist with Tier III determination.
W-L01R	4ADAB-2-SOS	CMON	0	/	3	S		/				/				/				/				/																	LP		WQ-P
W-L01R	4AELT-4-SOS	CMON	1	/	3	S		/				/				/				/				/																	LP		WQ-P
W-L01R	4AELT-6-SOS	CMON	1	/	6	S		/				/				/				/				/																	LP		WQ-P
W-L01R	4AELT-7-SOS	CMON	0	/	3	S		/				/				/				/				/																	LP		WQ-P
W-L01R	4AELT-8-SOS	CMON	0	/	1	W		/				/				/				/				/																	LP		WQ-P
W-L01R	4AGOS000.71	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/																	NI	REF	WQ-P
W-L01R	4AGOS-SOS	CMON	0	/	1	W		/				/				/				/				/																	LP		WQ-P
W-L01R	4ARSF002.20	A	2	/	23	S	0	/	23	S	0	/	23	S	2	/	23	S	0	/	18	S		/						0	S	0	S	0	S								PWS; WQ-P
W-L01R	4ARSF004.63	C,SS		/				/				/				/				/				/								0	S	0	S	0	S	0	S				WQ-P; 99 FT/Sed
W-L01R	4ARSF006.60	SS		/				/				/				/				/				/								0	S	0	S								WQ-P; 96 Sed
W-L01R	4ARSF011.52	C,SS		/				/				/				/				/				/								0	S	0	S			0	S				WQ-P; 96 Sed (93 FT-OK)
W-L01R	4ARSF011.73	A	1	/	9	S	0	/	9	S	0	/	9	S	1	/	9	S	0	/	10	S		/						0	S	0	S	0	S								WQ-P
W-L01R	4ARSF012.43	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																	SI	NET	WQ-P
W-L01R	4ARSF-2-SOS	CMON	2	/	12	S		/				/				/				/				/																	LP		WQ-P
W-L02R	4ACDN002.20	C,SS		/				/				/				/				/				/								0	S	1	T	0	S	0	S				WQ-P; 99 FT/Sed C'dane; FT Pb detected 1 sp
W-L02R	4ARNF002.97	A	0	/	13	S	0	/	13	S	0	/	13	S	0	/	14	S	0	/	8	S		/						0	S	0	S								PWS; WQ-P
W-L02R	4ARNF013.60	C,SS		/				/				/				/				/				/								0	S	1	T	1	T	0	S				WQ-P; 99 FT/Sed As 2sp; Pb detect. 1sp Sed-DDT; 93 T2 FT.-OK
W-L02R	**4ARNF015.09**	A	0	/	9	S	0	/	9	S	0	/	9	S	**4**	**/**	**9**	**N**	0	/	10	S		/						0	S	0	S								WQ-P
W-L02R	4ARNF-4-SOS	CMON	0	/	1	W		/				/				/				/				/																	W		Location unknown
W-L02R	4ARNF-6-SOS	CMON	0	/	3	S		/				/				/				/				/																	LP		WQ-P
W-L02R	**4AWLN000.40**	A	0	/	22	S	0	/	22	S	0	/	22	S	**7**	**/**	**23**	**N**	0	/	18	S		/						0	S	0	S								WQ-P
W-L03R	**4AROA212.17**	A,B	**11**	**/**	**67**	**P**	0	/	67	S	1	/	66	S	**6**	**/**	**59**	**P**	0	/	59	S		/						0	S	0	S	1	T						SI	NET	PWS; WQ-P; °C Nat; C-Dane Sed
W-L03R	4AROA212.99	C,SS		/				/				/				/				/				/								0	S	0	S	0	S	0	S				PWS; WQ-P; 99 FT/Sed
W-L03R	**4AROA216.33**	C,SS		/				/				/				/				/				/								0	S	1	T	0	S	**1**	**P**				PWS; WQ-P; 99 FT PCB 1 sp; Sed
W-L03R	4AROA216.34	SS		/				/				/				/				/				/								0	S	0	S								PWS; WQ-P; 97 Sed
W-L03R	**4AROA219.99**	C,SS		/				/				/				/				/				/														**1**	**P**				PWS; WQ-P; 93 T2 FT
W-L03R	4AROA224.54	B	1	/	9	S	0	/	9	S	0	/	9	S		/				/				/																	NI	REF	WQ-P
W-L03R	**4AROA227.42**	A	**7**	**/**	**59**	**P**	0	/	59	S	0	/	59	S	3	/	59	S	0	/	59	S		/						0	S	0	S	0	S								PWS; WQ-P;°C Nat
W-L03R	4ASNY-SOS	CMON	0	/	1	W		/				/				/				/				/																	HP		WQ-P
W-L04R	4AJRC-406-SOS	CMON	0	/	1	W		/				/				/				/				/																	LP		PWS; NEW-1; WQ-P
W-L04R	4AMSN000.60	C,SS		/				/				/				/				/				/								0	S	2	T	0	S	0	S				WQ-P; 99 FT/Sed; sed 2 PAHs
W-L04R	**4AMSN000.67**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**6**	**/**	**7**	**N**	0	/	7	S		/																		**WQ-P; SS975101-Geo Mean (GM) 3/3**
W-L04R	**4AMSN002.36**	SS	0	/	7	S	0	/	7	S	0	/	7	S	0	/	7	S	0	/	7	S		/																		**WQ-P; SS975101-GM 3/3**
W-L04R	**4AMSN003.36**	SS	0	/	7	S	0	/	7	S	0	/	7	S	1	/	7	S	0	/	7	S		/																		**WQ-P; SS975101-GM 3/3**
W-L04R	**4AMSN006.92**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**2**	**/**	**7**	**N**	0	/	7	S		/																		**WQ-P; SS975101-GM 3/3**
W-L04R	4AMSN009.11	SS	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/																			WQ-P; SS975101 GM 0/0
W-L04R	4AMSN012.62	SS	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S		/																		WQ-P; SS975101-GM 0/3
W-L04R	4AMSN-SOS	CMON	0	/	1	W		/				/				/				/				/																	LP		WQ-P
W-L04R	4AMUR001.63	A	0	/	3	S	0	/	3	S	0	/	3	S	1	/	3	S	0	/	3	S		/																			WQ-P
W-L04R	4AMUR-A-SOS	CMON	0	/	3	S		/				/				/				/				/																	LP		WQ-P
W-L04R	4AMUR-B-SOS	CMON	0	/	1	W		/				/				/				/				/																	MP		WQ-P
W-L04R	**4AORE000.19**	A	0	/	3	S	0	/	3	S	0	/	3	S	0	/	3	S	0	/	2	S		/						0	S												**WQ-P; 303(d) Listed '96-'98; Insufficient data to Delist**
W-L04R	4APEE001.04	A,C,SS	0	/	23	S	0	/	22	S	0	/	23	S	1	/	23	S	0	/	17	S		/						0	S	0	S	5	T	0	S	1	T				WQ-P; 99 FT/Sed; FT PCB 1 sp; Sed C'Dane & 4 PAHs; SS975101
W-L04R	**4APEE001.04**	SS	0	/	7	S	0	/	7	S	0	/	7	S	1	/	7	S	0	/	7	S		/																		**WQ-P; SS975101-GM 2/3**
W-L04R	4APEE003.55	SS	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/																			WQ-P; SS975101
W-L04R	4APEE004.84	SS	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/																			WQ-P; SS975101
W-L04R	4AROA198.04	SS		/				/				/				/				/				/								0	S	0	S								PWS; WQ-P; 97 Sed
W-L04R	**4AROA199.20**	C,SS		/				/				/				/				/				/														**1**	**P**				PWS; WQ-P; 93 T2 Study (adjacent to ROA 206.80)
W-L04R	**4AROA199.60**	C,SS		/				/				/				/				/				/								0	S	2	T	0	S	**1**	**P**				PWS; WQ-P; 99 FT PCB 3 sp; Sed C-Dane & DDT
W-L04R	**4AROA202.20**	A,B	0	/	64	S	0	/	64	S	0	/	64	S	**15**	**/**	**59**	**N**	2	/	59	S		/						0	S	0	S	1	T						**MI**	NET	WQ-P; C'Dane Sed
W-L04R	**4AROA205.67**	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	**MI**	NET	WQ-P
W-L04R	**4AROA206.03**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/																	**MI**	NET	Inaccessible moved to 4AROA205.67 in 2000
W-L04R	**4AROA206.80**	C,SS		/				/				/				/				/				/								0	S	0	S	0	S	**1**	**P**				WQ-P; 99 FT/SED; FT PCB 1 sp; (adjacent to ROA 199.20)
W-L04R	**4AROA206.95**	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/																	**MI**	NET	WQ-P
W-L04R	4AXLR000.42	SS	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S		/																			WQ-P; SS975101 GM 0/0
W-L05L	**4ACRV006.19-BL**	A	0	/	11	S	**8**	**/**	**11**	**N**	0	/	11	S		/			2	/	11	T		/						0	S	0	S	0	S								
W-L05L	4ACRV006.19-TL	A	0	/	11	S	0	/	11	S	0	/	11	S	0	/	11	S	0	/	10	S	0	/	10	S				0	S												
W-L05R	4ACOO000.16	SS	0	/	7	S	0	/	7	S	0	/	7	S	1	/	7	S	0	/	7	S		/						0	S												WQ-P; SS975101-GM 0/2
W-L05R	**4ACRV000.28**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**2**	**/**	**7**	**N**		/				/						0	S												**WQ-P; SS975101-GM 2/2**
W-L05R	4ACRV004.40	SS	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/						0	S												WQ-P; SS975101
W-L05R	**4AGLA000.20**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**4**	**/**	**7**	**N**	1	/	7	S		/						0	S												**WQ-P; SS975101-GM 2/2**
W-L05R	**4AGLA001.60**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**2**	**/**	**7**	**N**	0	/	7	S		/						0	S												**WQ-P; SS975101-GM 2/2**
W-L05R	**4AGLA004.39**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**4**	**/**	**7**	**N**	0	/	7	S		/						0	S												**WQ-P; SS975101-GM 2/2**
W-L05R	**4AGLA005.75**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**3**	**/**	**7**	**N**	0	/	7	S		/						0	S												**WQ-P; SS975101-GM 2/2**
W-L05R	**4AGLA008.10**	SS	**3**	**/**	**7**	**N**	0	/	7	S	0	/	7	S	1	/	6	S	0	/	7	S		/						0	S												**WQ-P; SS975101 *GM 1/2 °C Nat.**
W-L05R	4AGLA-SOS	CMON	0	/	1	W		/				/				/				/				/																	MP		WQ-P
W-L05R	**4ALAY000.37**	SS	0	/	7	S	0	/	7	S	0	/	7	S	0	/	7	S	0	/	7	S		/						0	S												**WQ-P; SS975101-GM 2/2**
W-L05R	**4ALCK000.38**	A	0	/	26	S	0	/	26	S	0	/	26	S	**9**	**/**	**26**	**N**	0	/	21	S		/						0	S												WQ-P
W-L05R	**4ALCK000.38**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**6**	**/**	**7**	**N**	0	/	7	S		/						0	S												**WQ-P; SS975101-GM 2/2**

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																		SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																								Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status						#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal			Total																								Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform			Phosphorus				Chlorophyll A				Metals			Organics			Metals			Organics	Metals			Organics	Mon	Type	Comments
W-L05R	**4ATKR000.69**	A,C,SS	**7 / 59 P**				0 / 59	S	0	/ 59	S				**18 / 59 N**			0 / 60	S		/								0	S	1	T	9	T	0	S	0	S			WQ-P; 99 FT/Sed PCB,C-Dane, PAHs, Pb detected
W-L05R	**4ATKR000.69**	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					**3 / 7 N**			0 / 7	S		/																				**WQ-P; SS975101-GM 2/2**
W-L05R	**4ATKR001.80**	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					**2 / 7 N**			0 / 7	S		/								0	S											**WQ-P; SS975101-GM 2/2**
W-L05R	4ATKR002.96	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					/			/			/																				WQ-P; SS975101
W-L05R	4ATKR004.04	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					/			/			/																				WQ-P; SS975101
W-L05R	**4ATKR005.68**	SS	**2 / 7 N**		0	/ 7	S	0	/ 7	S					1 / 7	S		0 / 7	S		/								0	S											**WQ-P; SS975101-GM 2/2; °C Nat.**
W-L05R	**4ATKR009.30**	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					**2 / 6 N**			0 / 7	S		/								0	S											**WQ-P; SS975101-GM 2/2**
W-L05R	**4ATKR012.28**	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					**2 / 6 N**			0 / 7	S		/								0	S											**WQ-P; SS975101-GM 2/2**
W-L05R	**4ATKR015.88**	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					**5 / 6 N**			0 / 7	S		/								0	S											**WQ-P; SS975101-GM 2/2**
W-L05R	**4ATKR016.64**	SS	0 / 7	S	0	/ 7	S	0	/ 7	S					**5 / 6 N**			4 / 7	T		/								0	S											**PWS; WQ-P; SS975101-GM 2/2**
W-L06R	4ABAA000.03	SS	/			/			/						/			/			/												0	S							PWS; NEW-1; WQ-P; 99 Sed only
W-L06R	4ABAA002.61	A	0 / 23	S	0	/ 22	S	0	/ 23	S					1 / 23	S		0 / 17	S		/								0	S	0	S	0	S							PWS; NEW-1; WQ-P
W-L06R	4ABAA019.50	B	0 / 2	S	0	/ 2	S	0	/ 2	S					/			/			/																		SI		NEW-1; WQ-P; 1 benthic survey
W-L07R	4ABDA002.57	SS	/			/			/						/			/			/												0	S							PWS; NEW-1; WQ-P; 99 Sed
W-L07R	**4ABDA003.63**	A	0 / 22	S	0	/ 22	S	0	/ 21	S					**3 / 23 P**			1 / 17	S		/								0	S	0	S	0	S							PWS; NEW-1; WQ-P
W-L07R	4ABDA-T16-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1; WQ-P
W-L07R	4AIND-T20-FC	CMON	/			/			/						/			1 / 12	S		/																				PWS; NEW-1; WQ-P
W-L07R	4AJUM-T15-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1; WQ-P
W-L07R	4ALVL-T18-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1; WQ-P
W-L07R	4ASAB-T13-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1; WQ-P
W-L07R	4ASWC-T14-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1; WQ-P
W-L08R	**4ABNR000.40**	A,B	0 / 25	S	0	/ 25	S	0	/ 25	S					**8 / 14 N**			1 / 14	S		/								0	S									**VI**	TM	NEW-1; TMDL FC Study approved; 1 Bio surv.
W-L08R	**4ABNR001.53**	B,TM	0 / 1	W	0	/ 1	W	0	/ 1	W					/			/			/																		**MI**	TM	NEW-1; TMDL FC Study approved; 1 Bio surv.
W-L08R	4ABNR003.21	B,TM	0 / 1	W	0	/ 1	W	0	/ 1	W					/			/			/																		SI	TM	NEW-1; TMDL FC Study approved; '98 FC listed
W-L08R	4ABNR004.56	SS	0 / 2	S	0	/ 2	S	0	/ 2	S					0 / 2	S		0 / 2	S		/																				NEW-1; TMDL FC Study approved; '98 FC listed
W-L08R	4ABNR009.36	SS	0 / 2	S	0	/ 2	S	0	/ 2	S					0 / 2	S		0 / 2	S		/																				NEW-1; TMDL FC Study approved; '98 FC listed
W-L08R	**4ABSF001.15**	A	**2 / 14 P**		0	/ 14	S	0	/ 14	S					**9 / 14 N**			1 / 14	S		/								0	S											NEW-1; TMDL FC Study approved; '98 FC listed
W-L08R	4ABSF002.34	B,TM	1 / 1	W	0	/ 1	W	0	/ 1	W					/			/			/																		NI	TM	NEW-1; TMDL FC Study approved; 1 Bio surv; 98 FC
W-L08R	**4ABWR032.32**	A	0 / 14	S	0	/ 14	S	0	/ 14	S					**5 / 14 N**			1 / 14	S		/								0	S											NEW-1; TMDL FC Middle Study complete; '98 FC
W-L08R	**4ABWR045.80**	A,B	0 / 40	S	0	/ 40	S	0	/ 40	S					**14 / 30 N**			5 / 25	T		/								0	S	0	S	0	S					NI	TM	PWS; NEW-1; TMDL FC Study apprvd; 1 Bio surv.; 98 FC
W-L08R	4ABWR049.73	B,TM	0 / 1	W	0	/ 1	W	0	/ 1	W					/			/			/																		NI	TM	NEW-1; TMDL FC Study approved; 1 Bio surv.; 98 FC
W-L08R	**4ABWR054.81**	A	0 / 14	S	0	/ 14	S	0	/ 14	S					**8 / 14 N**			3 / 14	T		/								0	S											NEW-1; TMDL FC Study approved; '98 FC listed
W-L08R	**4ABWR061.20**	A	0 / 40	S	0	/ 40	S	0	/ 40	S					**20 / 30 N**			0 / 24	S		/								0	S	0	S	0	S							NEW-1; TMDL FC Study approved; '98 FC listed
W-L08R	**4AGCR000.01**	A	**2 / 12 P**		0	/ 12	S	0	/ 12	S					0 / 2	S		0 / 2	S		/								0	S											NEW-1; TMDL FC Study approved; '98 FC listed
W-L08R	**4ALLE005.22**	B,TM	0 / 15	S	0	/ 15	S	1	/ 15	S					**10 / 14 N**			5 / 14	T		/								0	S									**MI**	TM	NEW-1; TMDL FC Study approved; 1 Bio surv
W-L08R	**4ATEL001.02**	A	0 / 17	S	0	/ 17	S	0	/ 17	S					**10 / 14 N**			1 / 14	S		/								0	S											NEW-1; TMDL FC Study approved
W-L09R	4AMEE000.63	SS	/			/			/						/			/			/										0	S	0	S							NEW-1; 99 Sed; TMDL FC Study approved; 98 FC
W-L09R	**4AMEE000.70**	B	0 / 1	W	0	/ 1	W	0	/ 1	W					/			/			/																		**MI**	NET	NEW-1; TMDL FC Study approved; '98 FC listed
W-L09R	**4AMEE002.38**	A,B	0 / 16	S	0	/ 16	S	0	/ 15	S					**2 / 14 P**			0 / 8	S		/								0	S	0	S	0	S					**MI**	NET	NEW-1; TMDL FC Study comp; Bio moved '99 to 4AMEE000.70
W-L09R	**4AMEE004.90**	A	0 / 15	S	0	/ 15	S	0	/ 15	S					**8 / 15 N**			3 / 15	T		/								0	S	0	S	0	S							NEW-1; TMDL FC Study approved; '98 FC listed
W-L09R	**4AMEE007.85**	A	0 / 13	S	0	/ 13	S	0	/ 13	S					**5 / 13 N**			2 / 13	T		/								0	S											NEW-1; TMDL FC Study approved; '98 FC listed
W-L09R	**4AMEE009.86**	A	0 / 14	S	0	/ 14	S	0	/ 14	S					**7 / 14 N**			2 / 14	T		/								0	S	0	S	0	S							NEW-1; TMDL FC Study approved; '98 FC listed
W-L09R	4AMEE021.13	SS	0 / 2	S	0	/ 2	S	0	/ 2	S					0 / 2	S		0 / 2	S		/																				NEW-1; TMDL FC Study approved; '98 FC listed
W-L09R	4AMEE-T1-FC	CMON	/			/			/						/			0 / 12	W		/																				Sta location inaccurate.
W-L09R	**4AMHA000.01**	A	0 / 12	S	0	/ 12	S	0	/ 12	S					**10 / 12 N**			2 / 12	T		/								0	S											NEW-1; TMDL FC Study approved
W-L09R	4AMHA001.59	SS	0 / 1	W	0	/ 1	W	0	/ 1	W					0 / 1	W		0 / 1	W		/								0	S											NEW-1; TMDL FC Study approved
W-L09R	4AMHA001.79	SS	0 / 1	W	0	/ 1	W	0	/ 1	W					1 / 1	W		1 / 1	W		/								0	S											NEW-1; TMDL FC Study approved
W-L10R	4ACOA-T7-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1
W-L10R	4AFGC002.52	A	0 / 9	S	0	/ 9	S	0	/ 8	S					1 / 9	S		1 / 8	S		/								0	S	0	S	0	S							PWS; NEW-1; FC TMDL Study complete; 98 FC
W-L10R	4APCP-T4-FC	CMON	/			/			/						/			0 / 11	S		/																				PWS; NEW-1
W-L10R	4ASFD-T5-FC	CMON	/			/			/						/			0 / 11	S		/																				PWS; NEW-1
W-L10R	4ASML-T8-FC	CMON	/			/			/						/			0 / 3	S		/																				PWS; NEW-1
W-L11R	02057060	USGS	0 / 4	S	0	/ 4	S	1	/ 4	S					0 / 4	S		0 / 4	S		/					0	S		0	S											PWS; NEW-1; WQ-P
W-L11R	0205706010	USGS	0 / 4	S	1	/ 4	S	0	/ 4	S					0 / 4	S		0 / 4	S		/					0	S		0	S											PWS; NEW-1; WQ-P
W-L11R	0205706020	USGS	0 / 4	S	0	/ 4	S	0	/ 4	S					0 / 4	S		0 / 4	S		/					0	S		0	S											PWS; NEW-1; WQ-P
W-L11R	0205706030	USGS	0 / 4	S	0	/ 4	S	1	/ 4	S					0 / 4	S		1 / 4	S		/					0	S		0	S											PWS; NEW-1; WQ-P
W-L11R	4AGIL005.06	SS	/			/			/						/			/			/												0	S							PWS; NEW-1; WQ-P; 99 Sed
W-L11R	**4AGIL008.30**	A	0 / 13	S	0	/ 13	S	0	/ 13	S					**4 / 13 N**			2 / 13	T		/								0	S											PWS; NEW-1; WQ-P; FC TMDL Study begun
W-L11R	4AGIL009.21	B	0 / 1	W	0	/ 1	W	0	/ 1	W					/			/			/																		T	NET,TM	PWS; NEW-1; WQ-P; 1 Bio Survey
W-L11R	**4AGIL023.22**	A	0 / 22	S	0	/ 22	S	0	/ 22	S					**6 / 22 N**			1 / 16	S		/								0	S	0	S	0	S							NEW-1; WQ-P; FC TMDL Study begun
W-L11R	4AGIL-1-SOS	CMON	0 / 2	S		/			/						/			/			/																		LP		NEW-1; WQ-P; CMON superceded 4AGIL009.21
W-L11R	4AGIL-T0-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1
W-L11R	4AGIL-T2-FC	CMON	/			/			/						/			0 / 12	S		/																				PWS; NEW-1
W-L11R	4AJOL000.24	B	0 / 1	W	0	/ 1	W	0	/ 1	W					/			/			/																		NI	REF	PWS; NEW-1; WQ-P
W-L11R	4AJOL-1-SOS	CMON	0 / 6	S		/			/						/			/			/																		LP		PWS; NEW-1; WQ-P
W-L12L	4ABDA-2A-FC	CMON	/			/			/						0 / 9	S		/			/																				
W-L12L	4ABDA-2B-FC	CMON	/			/			/						0 / 9	S		/			/																				2 FC replicates analyzed with no Excds
W-L12L	4ABKY-5A-FC	CMON	/			/			/						0 / 9	S		/			/																				
W-L12L	4ABKY-5B-FC	CMON	/			/			/						0 / 9	S		/			/																				2 FC replicates analyzed with no Excds
W-L12L	**4ABSA000.62-BL**	A	0 / 37	S	**13 / 37 N**			0	/ 37	S					/			0 / 37	S		/								0	S											
W-L12L	4ABSA000.62-TL	A	0 / 19	S	0	/ 19	S	0	/ 18	S					0 / 19	S		0 / 19	S	0	/ 9	S							0	S											
W-L12L	4ABSA-T6-FC	CMON	/			/			/						/			11 / 12	W		/																				Sta location unknown

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal			Total																						Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform			Phosphorus				Chlorophyll A			Metals			Organics			Metals			Organics	Metals			Organics	Mon	Type	Comments
W-L12L	4ABWR002.50-TL	A	0	/	20	S	0	/	20	S	0	/	19	S	0	/	20	S	0	/	19	S	0	/	9	S				0	S												
W-L12L	**4ABWR002.50-BL**	A	0	/	37	S	**16**	/	**37**	**N**	0	/	37	S		/			1	/	37	S		/						0	S	1	T	0	S								Ni Sed
W-L12L	4ABWR003.65	C,SS		/				/				/				/				/				/													0	S	0	S				PWS; NEW-1; WQ-P, 94 FT
W-L12L	4ABWR010.55-TL	A	0	/	20	S	0	/	20	S	2	/	20	S	0	/	19	S	0	/	19	S	0	/	9	S				0	S												
W-L12L	**4ABWR010.55-BL**	A	0	/	36	S	**14**	/	**36**	**N**	0	/	37	S		/			2	/	37	S		/						0	S	0	S	0	S								
W-L12L	**4ABWR010.92**	C,SS		/				/				/				/				/				/															**1**	**P**			PWS; NEW-1; WQ-P; 99 FT; 98 FT PCB 1sp-3 fish (adjacent to BWR 19.75)
W-L12L	**4ABWR017.42-TL**	A	0	/	19	S	0	/	19	S	**2**	/	**19**	**P**	**2**	/	**19**	**P**	2	/	17	T	0	/	7	S				0	S												PWS,NEW-1,WQ-P
W-L12L	4ABWR017.42-BL	A		/				/				/				/				/				/						0	S	0	S	0	S								
W-L12L	**4ABWR019.75**	A,C,SS	0	/	58	S	0	/	58	S	0	/	57	S	**8**	/	**58**	**P**	3	/	59	S		/						0	S	0	S	0	S				**1**	**P**			PWS;NEW-1;WQ-P;93 FT PCB 2 sp;FC compl;98 FC (adjacent to BWR 10.92)
W-L12L	4ABWR-12A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4ABWR-12B-FC	CMON		/				/				/			0	/	9	S		/				/																			2 FC replicates analyzed with no Excds
W-L12L	4ABWR-14A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4ABWR-14B-FC	CMON		/				/				/			0	/	8	S		/				/																			2 FC replicates analyzed with no Excds
W-L12L	4ABWR-B10-FC	CMON		/				/				/				/			0	/	11	S	0	/	10	S																	
W-L12L	4ABWR-B12-FC	CMON		/				/				/				/			0	/	24	S	0	/	24	S																	
W-L12L	4ABWR-B14-FC	CMON		/				/				/				/			1	/	18	S	0	/	22	S																	
W-L12L	4ABWR-B16-FC	CMON		/				/				/				/			1	/	19	S	0	/	22	S																	
W-L12L	4ABWR-B18-FC	CMON		/				/				/				/			8	/	19	T	0	/	19	S																	
W-L12L	4ABWR-B20-FC	CMON		/				/				/				/			7	/	18	T	0	/	19	S																	
W-L12L	4ABWR-B22-FC	CMON		/				/				/				/			22	/	23	T	0	/	23	S																	
W-L12L	4ABWR-B8-FC	CMON		/				/				/				/			0	/	11	W	0	/	11	W																	Sta location unknown
W-L12L	4ABWR-CB11-FC	CMON		/				/				/				/			2	/	24	S	0	/	24	S																	
W-L12L	4ABWR-CB16-FC	CMON		/				/				/				/			1	/	21	S	0	/	21	S																	
W-L12L	4ABWR-CB20-FC	CMON		/				/				/				/			2	/	22	S	0	/	23	S																	
W-L12L	4ABWR-T3-FC	CMON		/				/				/				/			12	/	12	T		/																			
W-L12L	4ACCK001.80-TL	A	0	/	22	S	0	/	22	S	0	/	22	S	0	/	22	S	0	/	22	S	0	/	12	S						0	S										
W-L12L	**4ACCK001.80-BL**	A	0	/	43	S	**16**	/	**43**	**N**	0	/	43	S		/			1	/	43	S		/								0	S	0	S								
W-L12L	4ACCK-C4-FC	CMON		/				/				/				/			0	/	22	S	0	/	24	S																	
W-L12L	4ACCK-C5-FC	CMON		/				/				/				/			0	/	23		0	/	23	S																	
W-L12L	4ACCK-C6-FC	CMON		/				/				/				/			0	/	24	S	0	/	23	S																	
W-L12L	4ACOA000.60-TL	A	0	/	20	S	0	/	20	S	1	/	20	S	0	/	20	S	0	/	19	S	0	/	9	S						0	S										
W-L12L	**4ACOA000.60-BL**	A	0	/	37	S	**11**	/	**37**	**N**	0	/	37	S		/			0	/	37	S		/								0	S	0	S								
W-L12L	4AGIL002.39-TL	A	0	/	20	S	0	/	20	S	2	/	20	S	0	/	20	S	1	/	19	S	0	/	9	S						0	S										
W-L12L	**4AGIL002.39-BL**	A	0	/	12	S	**8**	/	**12**	**N**	1	/	11	S		/			2	/	12	T		/								0	S	0	S								
W-L12L	4AGIL-13A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4AGIL-13B-FC	CMON		/				/				/			0	/	9	S		/				/																			2 FC replicates analyzed with no Excds
W-L12L	4AGIL-G12-FC	CMON		/				/				/				/			3	/	24	T	1	/	23	S																	
W-L12L	4AGIL-G13-FC	CMON		/				/				/				/			1	/	18	S	0	/	17	S																	
W-L12L	4AGIL-G14-FC	CMON		/				/				/				/			1	/	22	S	1	/	22	S																	
W-L12L	4AGIL-G15-FC	CMON		/				/				/				/			0	/	6	W	0	/	6	W																	Sta location unknown
W-L12L	4AGIL-G16-FC	CMON		/				/				/				/			1	/	22	S	0	/	22	S																	
W-L12L	4AGIL-G18-FC	CMON		/				/				/				/			2	/	21	S	0	/	22	S																	
W-L12L	4AGRM-T19-FC	CMON		/				/				/				/			8	/	8	W		/																			Sta location unknown
W-L12L	4AIND-3A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4AIND-3B-FC	CMON		/				/				/			0	/	9	S		/				/																			2 FC replicates analyzed with no Excds
W-L12L	4ALUL-11A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4ALUL-11B-FC	CMON		/				/				/			0	/	9	S		/				/																			2 FC replicates analyzed with no Excds
W-L12L	4AROA-10A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4AROA-10B-FC	CMON		/				/				/			0	/	9	S		/				/																			2 FC replicates analyzed with no Excds
W-L12L	4AROA158.22-TL	A	0	/	22	S	0	/	22	S	0	/	22	S	0	/	21	S	1	/	22	S	0	/	12	S						0	S										PWS; NEW-1; WQ-P;
W-L12L	**4AROA158.22-BL**	A	0	/	43	S	**13**	/	**43**	**N**	0	/	42	S		/			2	/	43	S		/								0	S	0	S								PWS; NEW-1; WQ-P;
W-L12L	4AROA163.54	C,SS		/				/				/				/				/				/								0							0	S			PWS; NEW-1, WQ-P; 93 T2 FT Study
W-L12L	4AROA163.76-TL	A	0	/	22	S	0	/	22	S	1	/	22	S	0	/	23	S	0	/	23	S	0	/	13	S				0	S												
W-L12L	**4AROA163.76-BL**	A	0	/	45	S	**22**	/	**45**	**N**	0	/	45	S		/			1	/	45	S		/						0	S	0	S	0	S								
W-L12L	**4AROA167.34-TL**	A	0	/	23	S	0	/	23	S	**3**	/	**23**	**P**	0	/	23	S	0	/	23	S	0	/	13	S				0	S												
W-L12L	**4AROA167.34-BL**	A	0	/	45	S	**22**	/	**45**	**N**	0	/	45	S		/			2	/	45	S		/						0	S	0	S	0	S								
W-L12L	**4AROA175.63-TL**	A,C	0	/	23	S	0	/	23	S	**6**	/	**23**	**N**	0	/	23	S	0	/	23	S	0	/	12	S				0	S					0	S	**1**	**P**				PWS; NEW-1; WQ-P; 93 T2 FT; 99 FT; 98 FT PCB 1sp (4 fish)
W-L12L	**4AROA175.63-BL**	A,SS	0	/	45	S	**24**	/	**45**	**N**	0	/	45	S		/			3	/	45	S		/						0	S	0	S	0	S								PWS; NEW-1; WQ-P; 99 Sed
W-L12L	**4AROA180.21-TL**	A	0	/	23	S	2	/	23	S	**7**	/	**23**	**N**	0	/	23	S	0	/	22	S	0	/	12	S				0	S												
W-L12L	**4AROA180.21-BL**	A	0	/	43	S	**27**	/	**43**	**N**	0	/	43	S		/			6	/	43	T		/						0	S	0	S	0	S								
W-L12L	**4AROA183.64-TL**	A	0	/	23	S	0	/	23	S	**6**	/	**23**	**N**	0	/	23	S	0	/	23	S	0	/	12	S				0	S												
W-L12L	**4AROA183.64-BL**	A	0	/	44	S	**25**	/	**44**	**N**	0	/	44	S		/			9	/	45	T		/						0	S	4	T	0	S								PWS; WQ-P; Ag, Be, Ni, Pb in Sed
W-L12L	**4AROA192.55-TL**	A	0	/	59	S	0	/	59	S	0	/	58	S	**11**	/	**56**	**P**	31	/	60	T		/						0	S												PWS; WQ-P
W-L12L	**4AROA192.94-TL**	A	0	/	23	S	0	/	23	S	1	/	23	S	**3**	/	**23**	**P**	11	/	23	T	0	/	12	S				0	S												
W-L12L	4AROA192.94-BL	A		/				/				/				/				/				/								0	S	0	S								
W-L12L	4AROA193.50	SS		/				/				/				/				/				/								0	S	0	S								PWS; NEW-1; WQ-P; 96 Sed
W-L12L	**4AROA196.05-TL**	A,C	0	/	23	S	0	/	23	S	0	/	23	S	**5**	/	**23**	**P**	10	/	23	T	0	/	12	S				0	S					0	S	**1**	**P**				PWS; NEW-1; WQ-P; 99 FT PCB 4sp; Pb detect 1 sp
W-L12L	4AROA196.05-BL	A,SS		/				/				/				/				/				/								0	S	1	T								PWS; NEW-1; WQ-P; 99 Sed C'Dane
W-L12L	4AROA-1A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4AROA-1B-FC	CMON		/				/				/			0	/	9	S		/				/																			2 FC replicates analyzed with no Excds
W-L12L	4AROA-4A-FC	CMON		/				/				/			0	/	9	S		/				/																			
W-L12L	4AROA-4B-FC	CMON		/				/				/			0	/	9	S		/				/																			2 FC replicates analyzed with no Excds

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																		SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																								Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status																#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																						Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
W-L12L	4AROA-6A-FC	CMON		/				/				/			0	/	9	S		/				/																				
W-L12L	4AROA-6B-FC	CMON		/				/				/			0	/	9	S		/				/																				2 FC replicates analyzed with no Excds
W-L12L	4AROA-7A-FC	CMON		/				/				/			0	/	9	S		/				/																				
W-L12L	4AROA-7B-FC	CMON		/				/				/			0	/	9	S		/				/																				2 FC replicates analyzed with no Excds
W-L12L	4AROA-8A-FC	CMON		/				/				/			0	/	9	S		/				/																				
W-L12L	4AROA-8B-FC	CMON		/				/				/			0	/	9	S		/				/																				2 FC replicates analyzed with no Excds
W-L12L	4AROA-9A-FC	CMON		/				/				/			0	/	9	S		/				/																				
W-L12L	4AROA-9B-FC	CMON		/				/				/			0	/	9	W		/				/																				Sta location unknown
W-L12L	4AROA-CM1A-FC	CMON		/				/				/				/			1	/	24	S	0	/	23	S																		
W-L12L	4AROA-CM1-FC	CMON		/				/				/				/			2	/	22	S	0	/	23	S																		
W-L12L	4AROA-CM5-FC	CMON		/				/				/				/			2	/	24	S	0	/	23	S																		
W-L12L	4AROA-CR13-FC	CMON		/				/				/				/			0	/	19	S	0	/	21	S																		
W-L12L	4AROA-CR14.2-FC	CMON		/				/				/				/			1	/	23	S	0	/	22	S																		
W-L12L	4AROA-CR16-FC	CMON		/				/				/				/			3	/	23	T	1	/	23	S																		
W-L12L	4AROA-CR17-FC	CMON		/				/				/				/			13	/	24	T	1	/	24	S																		
W-L12L	4AROA-CR19-FC	CMON		/				/				/				/			9	/	24	T	0	/	23	S																		
W-L12L	4AROA-CR21.2-FC	CMON		/				/				/				/			13	/	22	T	0	/	24	S																		
W-L12L	4AROA-CR21-FC	CMON		/				/				/				/			10	/	20	T	0	/	23	S																		
W-L12L	4AROA-CR22-FC	CMON		/				/				/				/			3	/	23	T	2	/	23	S																		
W-L12L	4AROA-CR24-FC	CMON		/				/				/				/			1	/	12	W	2	/	12	W																		Sta location unknown
W-L12L	4AROA-CR25-FC	CMON		/				/				/				/			3	/	12	W	1	/	12	W																		Sta location unknown
W-L12L	4AROA-CR26-FC	CMON		/				/				/				/			2	/	9	W	3	/	10	W																		Sta location unknown
W-L12L	4AROA-CR5-FC	CMON		/				/				/				/				/			0	/	1	W																		Sta location unknown
W-L12L	4AROA-CR8-FC	CMON		/				/				/				/			0	/	16	S	0	/	20	S																		
W-L12L	4AROA-CR9.2-FC	CMON		/				/				/				/			1	/	15	W	0	/	20	S																		
W-L12L	4AROA-CR9-FC	CMON		/				/				/				/			0	/	16	S	0	/	21	S																		
W-L12L	4AROA-M0-FC	CMON		/				/				/				/			2	/	23	S	0	/	23	S																		
W-L12L	4AROA-M1-FC	CMON		/				/				/				/			0	/	21	S	0	/	21	S																		
W-L12L	4AROA-M3-FC	CMON		/				/				/				/			0	/	20	S	0	/	21	S																		
W-L12L	4AROA-M5-FC	CMON		/				/				/				/			1	/	21	S	0	/	21	S																		
W-L12L	4AROA-R11-FC	CMON		/				/				/				/			1	/	20	S	0	/	21	S																		
W-L12L	4AROA-R13-FC	CMON		/				/				/				/			1	/	22	S	0	/	22	S																		
W-L12L	4AROA-R14-FC	CMON		/				/				/				/			1	/	22	S	0	/	23	S																		
W-L12L	4AROA-R15-FC	CMON		/				/				/				/			0	/	24	S	0	/	24	S																		
W-L12L	4AROA-R17-FC	CMON		/				/				/				/			4	/	22	T	0	/	20	S																		
W-L12L	4AROA-R19-FC	CMON		/				/				/				/			15	/	21	T	0	/	21	S																		
W-L12L	4AROA-R21-FC	CMON		/				/				/				/			6	/	21	T	0	/	24	S																		
W-L12L	4AROA-R23-FC	CMON		/				/				/				/			4	/	21	T	3	/	23	T																		
W-L12L	4AROA-R25-FC	CMON		/				/				/				/			2	/	12	W	3	/	12	W																		Sta location unknown
W-L12L	4AROA-R26-FC	CMON		/				/				/				/			0	/	1	W	0	/	1	W																		Sta location unknown
W-L12L	4AROA-R27-FC	CMON		/				/				/				/			1	/	12	W	0	/	11	W																		Sta location unknown
W-L12L	4AROA-R29-FC	CMON		/				/				/				/			2	/	12	T	2	/	12	T																		
W-L12L	4AROA-R30-FC	CMON		/				/				/				/			4	/	5	W	0	/	5	W																		Sta location unknown
W-L12L	4AROA-R31-FC	CMON		/				/				/				/			2	/	5	T	0	/	5	S																		
W-L12L	4AROA-R7-FC	CMON		/				/				/				/			1	/	22	S	0	/	21	S																		
W-L12L	4AROA-R9-FC	CMON		/				/				/				/			4	/	22	T	0	/	20	S																		
W-L12L	4AROA-SCR10.1-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR10.2-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR10.3-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR11.1-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR11.2-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR11.3-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR14.1-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR14.2-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR14.3-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR14-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR15.1-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR15.2-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR15-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR17.1-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR17-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR18-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-SCR19-FC	CMON		/				/				/				/				/				/																				Sta location unknown. Secchi depth data only.
W-L12L	4AROA-SCR20-FC	CMON		/				/				/				/				/				/																				Secchi depth data only.
W-L12L	4AROA-T17-FC	CMON		/				/				/				/			11	/	12	T		/																				
W-L12L	4AROA-T21-FC	CMON		/				/				/				/			11	/	12	T		/																				
W-L12L	4AWTH000.40-TL	A	0	/	22	S	0	/	22	S	0	/	22	S	0	/	22	S	0	/	21	S	0	/	12	S							0		S									
W-L12L	**4AWTH000.40-BL**	A	0	/	43	S	**13**	/	**43**	**N**	0	/	43	S		/			0	/	43	S		/									0	S	0	S								
W-L12R	4AROA-T12-FC	CMON		/				/				/				/			4	/	13	T		/																				PWS; NEW-1
W-L13L	4AROA-T9-FC	CMON		/				/				/				/			1	/	12	S		/																				
W-L13L	4AOWC001.00	C,SS		/				/				/				/				/				/															0	S				98 & 99 FT
W-L13L	4APGG-T11-FC	CMON		/				/				/				/			4	/	12	T		/																				

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status														#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																						Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Metals				Organics		Mon	Type	Comments
W-L13L	**4AROA140.66-TL**	A,C	0	/	18	S	0	/	18	S	**3**	**/**	**18**	**P**	0	/	19	S	0	/	19	S	0	/	11	S					0	S							0	S	0	S			PWS; NEW-1; WQ-P; 99 & 98 FT
W-L13L	**4AROA140.66-BL**	A,C	0	/	36	S	**19**	**/**	**34**	**N**	0	/	36	S		/			1	/	38	S		/							0	S	0	S	0	S							PWS; NEW-1; WQ-P; 99 Sed
W-L13L	4AROA145.34-TL	A	0	/	17	S	0	/	17	S	0	/	17	S	0	/	18	S	0	/	18	S	0	/	10	S					0	S												
W-L13L	**4AROA145.34-BL**	A	0	/	27	S	**9**	**/**	**26**	**N**	0	/	27	S		/			1	/	29	S		/							0	S	0	S	0	S							
W-L13L	4AROA153.59-TL	A	0	/	17	S	1	/	17	S	0	/	17	S	0	/	17	S	0	/	18	S	0	/	10	S					0	S												
W-L13L	4AROA153.59-BL	A		/				/				/				/				/				/									0	S	0	S							
W-L13R	**4AOWC005.36**	A	0	/	23	S	0	/	23	S	0	/	22	S	**3**	**/**	**22**	**P**	0	/	16	S		/							0	S	0	S	0	S							
W-L14R	4APGG048.81	C		/				/				/				/				/				/									0	S	0	S	0	S						99 FT/Sed
W-L14R	**4APGG052.73**	A	0	/	59	S	0	/	59	S	0	/	58	S	**11**	**/**	**59**	**P**	4	/	60	S		/							0	S	0	S	0	S							
W-L14R	4APGG073.68	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	NI	REF	
W-L14R	**4ASDA009.77**	A	0	/	56	S	0	/	56	S	0	/	55	S	**16**	**/**	**56**	**N**	22	/	57	T		/							0	S	0	S	0	S							
W-L14R	**4ASDA009.79**	A	0	/	22	S	0	/	22	S	0	/	22	S	**6**	**/**	**23**	**N**	0	/	17	S		/							0	S	0	S	0	S							
W-L15R	4ACNT001.20	SS		/				/				/				/				/				/											0	S							99 Sed only
W-L15R	4ACNT001.32	A,B	0	/	21	S	0	/	21	S	0	/	20	S	1	/	20	S	0	/	17	S		/							0	S	0	S	0	S					NI	REF	
W-L16R	**4APGG030.62**	A	0	/	23	S	0	/	23	S	0	/	23	S	**4**	**/**	**23**	**P**	2	/	17	T		/							0	S	0	S	0	S							
W-L16R	4APGG032.21	SS		/				/				/				/				/				/									0	S	0	S							97 Sed
W-L17R	**4ASNW000.60**	A,SS	0	/	22	S	0	/	22	S	0	/	22	S	**5**	**/**	**22**	**P**	1	/	17	S		/							0	S	0	S	0	S							99 Sed only
W-L17R	4ASNW010.08	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	NI	REF	
W-L18R	**4APGG003.29**	A,C,SS	0	/	22	S	0	/	22	S	0	/	22	S	**6**	**/**	**23**	**N**	1	/	16	S		/							0	S	0	S	0	S	0	S	1	T			99 FT/Sed; 93 FT T2 PCB 1 sp
W-L18R	4APGG-T10-FC	CMON		/				/				/				/			0	/	12	S		/																			
C-L19R	4AFRZ000.20	A	0	/	13	S	0	/	13	S	0	/	13	S	0	/	13	S	0	/	7	S		/									0	S	0	S							PWS
C-L19R	4ALYH000.02	SS		/				/				/				/				/				/											2	T							PWS; 99 Sed only PCB, C-Dane
C-L19R	4ALYH000.22	SS		/				/				/				/				/				/											1	T							2000 PCB Altavista/Hurt Soil & Sediment SS
C-L19R	4ALYH000.26	SS		/				/				/				/				/				/											1	T							2000 PCB Altavista/Hurt Soil & Sediment SS
C-L19R	4ALYH000.33	SS		/				/				/				/				/				/											1	T							2000 PCB Altavista/Hurt Soil & Sediment SS
C-L19R	4ALYH000.37	SS		/				/				/				/				/				/											1	T							2000 PCB Altavista/Hurt Soil & Sediment SS
C-L19R	4ARAB000.05	SS		/				/				/				/				/				/											0	S							PWS; 99 Sed only
C-L19R	4AROA128.27	B,SS	0	/	2	S	0	/	1	W	0	/	2	S		/				/				/																	NI	SS	PWS; Staunton River Low Fow
C-L19R	4AROA128.97	B,SS	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/																	NI	SS	PWS; Staunton River Low Fow
C-L19R	4AROA128.98	SS		/				/				/				/				/				/											0	S							PWS; VDH Fish Adv.; 99 Sed only
C-L19R	4AROA129.55	A	0	/	23	S	0	/	23	S	0	/	23	S	2	/	23	S	0	/	16	S		/							0	S	0	S	0	S							PWS; VDH Fish Adv.
C-L19R	**4AROA137.00**	C,SS		/				/				/				/				/				/											0	S			**1**	**P**			PWS; VDH Fish Adv.; 98 FT/Sed PCB 4 sp;
C-L19R	4ASCE000.24	SS		/				/				/				/				/				/											0	S							PWS; 99 Sed only
C-L19R	4ASCE000.26	A	0	/	24	S	0	/	24	S	0	/	24	S	2	/	24	S	0	/	17	S		/							0	S	0	S	0	S							PWS
C-L19R	4AXCN000.20	SS		/				/				/				/				/				/											0	S							PWS; 99 Sed only
C-L19R	4AXLN000.05	SS		/				/				/				/				/				/											5	T							PWS; 99 Sed only PCB, C-Dane, DDTs
C-L19R	4AXLN000.25	SS		/				/				/				/				/				/											1	T							2000 PCB Altavista/Hurt Soil & Sediment SS
W-L20R	4AGNE000.16	SS		/				/				/				/				/				/											0	S							PWS; 99 Sed only
W-L20R	4AGSE037.78	A	0	/	23	S	0	/	23	S	0	/	23	S	0	/	23	S	1	/	16	S		/							0	S	0	S	0	S							PWS
W-L21R	4AGSE022.55	A	0	/	23	S	0	/	23	S	0	/	23	S	2	/	23	S	0	/	16	S		/							0	S	0	S	0	S							PWS
W-L22R	**4AGSE000.20**	A,SS	0	/	22	S	0	/	22	S	0	/	22	S	**4**	**/**	**23**	**P**	1	/	16	S		/							0	S	0	S	0	S							PWS; 98 Sed
W-L22R	4AGSE013.78	C,SS		/				/				/				/				/				/									0	S	0	S	0	S	0	S			PWS; 99 FT/Sed
W-L23L	4ASCB004.58-TL	A	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/							0	S											PWS
W-L23L	4ASCB004.58-BL	A	0	/	1	W	1	/	1	W	0	/	1	W		/			1	/	1	W		/							0	S	1	T	1	T							PWS; Cu, DDD & DDE in Sed
W-L23R	4ABOR033.41 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			PWS; TMDL Sur obs
W-L23R	4ABOR033.41 BL	TM		/				/				/			0	/	1	W		/				/																			PWS; TMDL Bot obs
W-L23R	4ABOR041.27 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W		/			0	/	1	W		/																			PWS; TMDL Sur obs
W-L23R	4ABOR041.27 BL	TM		/				/				/			1	/	1	W	0	/	1	W		/																			PWS; TMDL Bot obs
W-L23R	4ACMP000.88 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			PWS; TMDL Sur obs
W-L23R	4ACMP000.88 BL	TM		/				/				/			0	/	1	W		/				/																			PWS; TMDL Bot obs
W-L23R	4ASCB000.16 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/							0	S											PWS; TMDL Sur obs
W-L23R	4ASCB000.16 BL	TM		/				/				/			1	/	1	W		/				/																			PWS; TMDL Bot obs
W-L23R	4ASCB000.18	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	NI	NET	PWS
W-L23R	**4ASEE003.16 TL**	A	0	/	23	S	0	/	23	S	0	/	23	S	**8**	**/**	**23**	**N**	0	/	16	S		/							0	S	1	T	0	S							PWS; Incl 1 TMDL Sur obs; Ag in Sed; FC TMDL apprvd
W-L23R	4ASEE003.16 BL	TM		/				/				/			0	/	1	W		/				/																			PWS; TMDL Bot obs; FC TMDL Study approved
W-L23R	4AXMB000.18 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/							0	S											PWS; TMDL Sur obs
W-L23R	4AXMB000.18 BL	TM		/				/				/			0	/	1	W		/				/																			PWS; TMDL Bot obs
W-L24R	4ANOT001.06 TL	A,TM	0	/	24	S	0	/	24	S	0	/	24	S	1	/	24	S	0	/	18	S		/							0	S	0	S	0	S							PWS; Includes 1 TMDL Sur obs
W-L24R	4ANOT001.06 BL	TM		/				/				/			1	/	1	W		/				/																			PWS; TMDL Bot obs
W-L24R	4ANOT004.22	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	NI	SS	PWS
W-L24R	4AOSL000.18 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/							0	S											PWS; TMDL Sur obs
W-L24R	4AOSL000.18 BL	TM		/				/				/			0	/	1	W		/				/																			PWS; TMDL Bot obs
W-L24R	5575	USFS		/				/				/				/				/				/																	NI		PWS
W-L25R	4ABOR024.46 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S											PWS; TMDL Sur obs
W-L25R	4ABOR024.46 BL	TM		/				/				/			1	/	1	W		/				/																			PWS; TMDL Bot obs
W-L25R	4ABOR024.91	SS		/				/				/				/				/				/											0	S							PWS; 99 Sed only
W-L25R	4ABOR029.74 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S											PWS; TMDL Sur obs
W-L25R	4ABOR029.74 BL	TM		/				/				/			1	/	1	W		/				/																			PWS; TMDL Bot obs
W-L25R	**4AECR003.02 TL**	A,TM	0	/	24	S	0	/	24	S	0	/	24	S	**6**	**/**	**25**	**P**	2	/	18	T		/							0	S	0	S	0	S							PWS; Includes 2 TMDL Sur obs
W-L25R	4AECR003.02 BL	TM		/				/				/			2	/	2	W		/				/																			PWS; Includes 2 TMDL Bot obs

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
W-L25R	4AECR007.62 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W		/			1	/	1	W		/							0	S													PWS; TMDL Sur obs
W-L25R	4AECR007.62 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs
W-L25R	4AECR016.99 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S													PWS; TMDL Sur obs
W-L25R	4AECR016.99 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs
W-L26R	**4AJHN000.01 TL**	B,TM	0	/	3	S	0	/	3	S	0	/	3	S	1	/	2	S	0	/	2	S		/							0	S									**MI**	NET	PWS; Incl 2 TMDL Sur obs; FC TMDL approved
W-L26R	4AJHN000.01 BL	TM		/				/				/			2	/	2	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	**4ALOR007.94**	C,SS		/				/				/				/				/				/									0	S	0	S	0	S	**1**	**P**				PWS; 99 FT/Sed PCB 2 sp; Pb detected 1 sp
W-L26R	**4ALOR008.64 TL**	A,TM	0	/	54	S	0	/	54	S	0	/	54	S	**15**	**/**	**55**	**N**	29	/	56	T		/							0	S	1	T	0	S								PWS; Incl 2 TMDL Sur obs; Ag in Sed; FC apprvd
W-L26R	4ALOR008.64 BL	TM		/				/				/			2	/	2	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	**4ALOR010.78 TL**	A,TM	0	/	7	S	0	/	7	S	0	/	7	S	**5**	**/**	**8**	**N**	2	/	8	T		/							0	S													PWS; AQ Discont'd 6/96- Incl. 2 TMDL Sur obs
W-L26R	4ALOR010.78 BL	TM		/				/				/			2	/	2	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	**4ALOR014.33 TL**	B,TM	0	/	5	S	0	/	5	S	0	/	4	S	**2**	**/**	**2**	**N**	0	/	2	S		/							0	S									**MI**	NET	PWS; Incl 2 TMDL Sur obs; FC TMDL approved
W-L26R	4ALOR014.33 BL	TM		/				/				/			1	/	2	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	**4ALOR014.75 TL**	A,B,TM	0	/	63	S	0	/	63	S	0	/	62	S	**13**	**/**	**60**	**P**	4	/	61	S		/							0	S	1	T	0	S					NI	NET	PWS; Incl 1 TMDL Sur obs; Ag in Sed-Bio OK
W-L26R	4ALOR014.75 BL	TM		/				/				/			0	/	1	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	4ALOR018.96 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S													PWS; TMDL Sur obs; FC TMDL Study approved
W-L26R	4ALOR018.96 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	4ALOR021.92 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S													PWS; TMDL Sur obs; FC TMDL Study approved
W-L26R	4ALOR021.92 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	**4AMCR004.60 TL**	A,TM	0	/	6	S	0	/	6	S	0	/	6	S	**4**	**/**	**6**	**N**	1	/	5	S		/							0	S													PWS; AQ Disct'd 6/96; 1 TMDL Sur obs; FC apprvd
W-L26R	4AMCR004.60 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs; FC TMDL Study approved
W-L26R	4AWEL001.14	TM	0	/	1	W	0	/	1	W	0	/	1	W		/			0	/	1	W		/							0	S													PWS; TMDL Sur obs; FC TMDL Study approved
W-L27R	**4ABOR016.26 TL**	A,TM	0	/	21	S	0	/	21	S	0	/	18	S	**4**	**/**	**21**	**P**	1	/	18	S		/							0	S	0	S	0	S								PWS; Includes 1 TMDL Sur obs
W-L27R	4ABOR016.26 BL	TM		/				/				/			1	/	2	S		/				/																					PWS; TMDL Bot obs
W-L27R	4ABWA002.00	B		/				/				/				/				/				/																		NI	REF	PWS
W-L27R	4AFNG001.06 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S													PWS; TMDL Sur obs
W-L27R	4AFNG001.06 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs
C-L28R	4ABOR000.20	SS		/				/				/				/				/				/									0	S	0	S								PWS; Fall 98 Sed
C-L28R	**4ABOR000.62 TL**	A,TM	0	/	60	S	0	/	60	S	0	/	60	S	**14**	**/**	**61**	**P**	4	/	62	S		/							0	S	1	T	0	S								PWS; Includes 1 TMDL Sur obs; Ag in Sed
C-L28R	4ABOR000.62 BL	TM		/				/				/			0	/	1	W		/				/																					PWS; TMDL Bot obs
C-L28R	4ABOR003.18	TM		/				/				/				/				/				/									0	S	0	S								PWS; 97 Sed
C-L28R	4ABOR008.32 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/							0	S													PWS; TMDL Sur obs
C-L28R	4ABOR008.32 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs
C-L28R	4ABOR011.27	SS		/				/				/				/				/				/									0	S	0	S								PWS; 96 Sed
C-L28R	4ABOR012.18	C,SS		/				/				/				/				/				/									0	S	0	S	0	S	1	T				PWS; 99 FT/Sed PCB 1 sp; Pb detected 1 sp
C-L28R	4AJNS000.64 TL	TM		/				/				/			1	/	1	W	0	/	1	W		/																					PWS; TMDL Sur obs
C-L28R	4AJNS000.64 BL	TM		/				/				/			0	/	1	W		/				/																					PWS; TMDL Bot obs
C-L28R	4ATBL000.40 TL	TM	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/							0	S													PWS; TMDL Sur obs
C-L28R	4ATBL000.40 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs
C-L28R	4ATDY000.28 TL	TM		/				/				/			1	/	1	W	0	/	1	W		/																					PWS; TMDL Sur obs
C-L28R	4ATDY000.28 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs
C-L28R	4AXMA000.85 TL	TM		/				/				/			1	/	1	W	0	/	1	W		/																					PWS; TMDL Sur obs
C-L28R	4AXMA000.85 BL	TM		/				/				/			1	/	1	W		/				/																					PWS; TMDL Bot obs
C-L29R	4AFCA001.40	A,B,TM	0	/	24	S	0	/	24	S	0	/	22	S	2	/	24	S	0	/	18	S		/							0	S									NI	REF	PWS; Includes 1 TMDL Sur obs
C-L29R	4AFCA001.40	TM		/				/				/			0	/	1	W		/				/																					PWS; TMDL Bot obs
C-L30R	4ABHA000.33	SS		/				/				/				/				/				/											0	S								PWS; 99 Sed only
C-L30R	4ABHE001.01	SS		/				/				/				/				/				/											0	S								PWS; 99 Sed only
C-L30R	4ACRE002.52	A	0	/	26	S	0	/	26	S	0	/	26	S	2	/	27	S	1	/	26	S		/							0	S	0	S	0	S								PWS
C-L30R	4ACRE002.60	SS		/				/				/				/				/				/											0	S								PWS; 99 Sed only
C-L30R	4AHIL000.60	SS		/				/				/				/				/				/											0	S								PWS; 99 Sed only
C-L30R	4ALNA001.00	SS		/				/				/				/				/				/											0	S								PWS; 99 Sed only
C-L30R	4AMRC000.39	SS		/				/				/				/				/				/											0	S								PWS; 99 Sed only
C-L30R	4AROA094.54	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA094.67	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA094.68	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA095.90	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA095.95	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA096.05	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA096.10	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA096.34	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA096.35	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	**4AROA096.62**	C		/				/				/				/				/				/															**1**	**P**				PWS; VDH Fish Adv.; 00 FT only PCB 1 sp
C-L30R	4AROA096.65	SS		/				/				/				/				/				/											4	T								PWS; VDH Fish Adv.; 99 Sed only PCB, C-Dane, Tot. DDT & DDE
C-L30R	4AROA096.66	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA097.06N	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	**4AROA097.07**	C,SS		/				/				/				/				/				/											1	T			**1**	**P**				PWS; VDH Fish Adv.; 93 T2 FT 5sp DDE 1 sp & 98 FT/Sed PCB 8sp; 99 Sed
C-L30R	4AROA097.07S	SS		/				/				/				/				/				/											0	S								PWS; VDH Fish Adv.; 99 Sed only
C-L30R	4AROA097.21	SS		/				/				/				/				/				/									0	S	0	S								PWS; VDH Fish Adv.; 96 Sed PCB
C-L30R	**4AROA097.46**	A,B,SS	0	/	61	S	0	/	61	S	0	/	61	S	**9**	**/**	**60**	**P**	3	/	60	S		/							0	S	0	S	0	S					NI	SS	PWS; VDH Fish Adv.; Staunton River Low Flow
C-L30R	4AROA099.22	SS		/				/				/				/				/				/									0	S	0	S								PWS; VDH Fish Adv.; 97 Sed
C-L30R	4AROA107.43	B,SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	NI	SS	PWS; VDH Fish Adv.; Staunton River Low Flow

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

Bold/Shaded = Impaired Waters
Pink = Threatened Waters

WBID	Monitoring Station	Type	CONVENTIONAL WATER COLUMN MONITORING DATA (#Violations/# Samples/Status) Temperature	Dissolved Oxygen	pH	OTHER WATER COLUMN DATA (#Violations/# Samples/Status) Fecal Coliform	Total Phosphorus	Chlorophyll A	#Violations/Status Metals	Organics	SEDIMENT (#Violations/Status) Metals	Organics	FISH TISSUE (#Violations/Status) Metals	Organics	BENTHIC Bio Mon	Station Type	Comments
C-L30R	**4AROA108.09**	A,C,SS	0 / 2 S	0 / 2 S	0 / 2 S	0 / 2 S	0 / 2 S	/		0 S		0 S		**3 P**			PWS; 93 T2 FT 7sp & 98 FT/Sed PCB 6 sp / C'Dane 1sp / H epoxide 5 sp
C-L30R	4AROA112.72	SS	/	/	/	/	/	/			0 S	0 S					PWS; VDH Fish Adv.; 97 Sed
C-L30R	4AROA116.76	B,SS	0 / 1 W	0 / 1 W	0 / 1 W	/	/	/							NI	SS	PWS; Staunton River Low Flow- 1 RBP II Survey
C-L30R	**4AROA117.09**	C,SS	/	/	/	/	/	/			0 S	0 S	0 S	**2 P**			PWS; 98 FT PCB 4sp & 99 FT/Sed PCB 3sp; H epoxide 2 sp
C-L30R	4AROA117.49	SS	/	/	/	/	/	/			0 S	0 S					PWS; VDH Fish Adv.; 97 Sed
C-L30R	4AROA122.31	SS	/	/	/	/	/	/			0 S	0 S					PWS; VDH Fish Adv.; 96 Sed
C-L30R	4AROA123.85	B,SS	0 / 2 S	0 / 2 S	0 / 2 S	/	/	/							SI	SS	PWS; Staunton River Low Flow
C-L30R	4AROA124.59	A	0 / 9 S	0 / 9 S	0 / 9 S	0 / 9 S	0 / 8 S	/		0 S	0 S	0 S					PWS; VDH Fish Adv.
C-L30R	**4AROA125.59**	C,SS	/	/	/	/	/	/				0 S		**1 P**			PWS; VDH Fish Adv.; 98 FT/Sed PCB 6 sp; 99 Sed
C-L30R	4ASSC002.85	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4ATAB000.05	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4AWPP000.60	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4AXMH001.30	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4AZZZ095.38	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4AZZZ096.27	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4AZZZ096.71	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4AZZZ097.07	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4AZZZ097.08	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4ASEN000.18	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L30R	4ASEN000.40	A	0 / 22 S	0 / 22 S	0 / 21 S	1 / 22 S	0 / 17 S	/		0 S	0 S	0 S					PWS
C-L34L	4APLP000.40-TL	A	0 / 1 W	0 / 1 W	0 / 1 W	0 / 1 W	0 / 1 W	/		0 S							
C-L34L	4APLP000.40-BL	A	0 / 1 W	1 / 1 W	0 / 1 W	/	1 / 1 W	/		0 S	0 S	0 S					
C-L34R	**4AFRV002.78**	A	0 / 22 S	0 / 22 S	0 / 21 S	**3 / 22 P**	1 / 17 S	/		0 S	0 S	0 S					PWS
C-L34R	4AFRV003.12	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
C-L34R	4AFRV010.99	C,SS	/	/	/	/	/	/			0 S	0 S	0 S	0 S			99 FT/Sed
C-L34R	**4AFRV017.71**	A	0 / 22 S	0 / 22 S	0 / 21 S	**3 / 22 P**	1 / 17 S	/		0 S	0 S	0 S					
C-L35R	4AMEY016.00	A	0 / 22 S	0 / 22 S	0 / 20 S	2 / 21 S	0 / 16 S	/		0 S	0 S	0 S					
C-L36R	4AROA086.22	SS	/	/	/	/	/	/			0 S	0 S					97 sed
C-L36R	**4ATIP002.55**	A	0 / 26 S	0 / 26 S	0 / 26 S	**4 / 27 P**	0 / 27 S	/		0 S	0 S	0 S					
C-L37R	**4ACUB010.96**	A	0 / 27 S	0 / 27 S	0 / 27 S	**7 / 44 P**	1 / 27 S	/		0 S	0 S	0 S					
C-L38R	**4AROA067.91**	A,SS	0 / 27 S	0 / 27 S	0 / 27 S	**4 / 27 P**	0 / 27 S	/		0 S	0 S	0 S		**1 P**			1999 PCB 3 species
C-L38R	4AROA068.79	SS	/	/	/	/	/	/			0 S	0 S					96 sed
C-L38R	4AROA073.98	SS	/	/	/	/	/	/			0 S	0 S					97 sed
C-L39R	**4AACC002.60**	B	0 / 3 S	0 / 3 S	0 / 3 S	/	/	/							**MI**	NET	
C-L39R	**4AHEN002.16**	A	0 / 25 S	0 / 25 S	0 / 25 S	**4 / 25 P**	0 / 25 S	/		0 S	0 S	0 S					
C-L39R	4ALRO003.34	A	0 / 26 S	1 / 26 S	0 / 26 S	2 / 26 S	0 / 26 S	/		0 S	0 S	0 S					
C-L39R	**4ATWT003.36**	B	0 / 3 S	0 / 3 S	0 / 3 S	/	/	/							**MI**	NET	Beaver dams, leaf deposition
C-L39R	4ATWT006.40	B	0 / 3 S	0 / 3 S	0 / 3 S	/	/	/							SI	NET	NPS Town of Drakes Branch
C-L39R	4ATWT007.24	B	0 / 3 S	0 / 3 S	0 / 3 S	/	/	/							NI	REF	Reference Station
C-L39R	**4AWFC002.12**	A	0 / 26 S	0 / 26 S	0 / 26 S	**5 / 27 P**	1 / 26 S	/		0 S	0 S	0 S					
C-L40R	**4ABLE001.21**	SS	0 / 11 S	0 / 11 S	1 / 11 S	**2 / 11 P**	0 / 11 S	/		0 S							
C-L40R	4ABNN001.85	SS	0 / 11 S	0 / 11 S	1 / 11 S	1 / 11 S	0 / 11 S	/		0 S							
C-L40R	4AROA049.40	SS	/	/	/	/	/	/			0 S	0 S					97 sed
C-L40R	4AROA057.51	SS	/	/	/	/	/	/			0 S	0 S					96 sed
C-L40R	**4AROA059.12**	A,SS	0 / 57 S	0 / 57 S	0 / 57 S	**12 / 57 P**	5 / 58 S	/		0 S	0 S	0 S		**1 P**			1993 PCB 5 species & Fall 98 PCB 4 species
C-L40R	**4ASLA002.69**	SS	0 / 11 S	0 / 11 S	1 / 11 S	**2 / 11 P**	1 / 11 S	/		0 S							
C-L40R	**4AXMC000.54**	SS	0 / 11 S	0 / 11 S	1 / 11 S	**3 / 11 N**	0 / 11 S	/		0 S							
C-L41R	**4ADFF002.02**	A	0 / 27 S	0 / 27 S	0 / 27 S	**3 / 27 P**	1 / 27 S	/		0 S	0 S	0 S					
C-L41R	4ADFF004.90	SS	0 / 11 S	0 / 11 S	1 / 11 S	1 / 11 S	1 / 11 S	/		0 S							
C-L41R	4ADFF009.01	SS	0 / 11 S	0 / 11 S	1 / 11 S	1 / 11 S	0 / 11 S	/		0 S							
C-L41R	4ADIF002.02	SS	/	/	/	/	/	/				0 S					PWS; 99 Sed only
W-L42L	4ADAN196.09-TL	A	0 / 1 W	0 / 1 W	0 / 1 W	0 / 1 W	0 / 1 W	/		0 S							
W-L42L	4ADAN196.09-BL	A	0 / 1 W	1 / 1 W	0 / 1 W	/	/	/		0 S	0 S	0 S					
W-L42R	**4ADAN169.57**	A	**3 / 19 P**	0 / 19 S	0 / 18 S	0 / 19 S	0 / 13 S	/			0 S	0 S					°C Class V; All exceeds occur in July
W-L42R	4ADAN183.83	C,SS	/	/	/	/	/	/			0 S	0 S	0 S	0 S			99 FT/Sed; Pb detected 1 sp
W-L42R	4ADAN-SOS	CMON	0 / 1 W	/	/	/	/	/							LP		
W-L42R	4ALDR001.00	SS	/	/	/	/	/	/				1 T					99 Sed only; DDT
W-L42R	4APRS008.76	SS	/	/	/	/	/	/				0 S					99 Sed only
W-L43R	**4ASMR016.09**	A	0 / 22 S	0 / 22 S	0 / 21 S	**3 / 22 P**	0 / 16 S	/			0 S	0 S					
W-L43R	4ASMR033.98	A	2 / 20 S	0 / 20 S	0 / 19 S	0 / 19 S	0 / 13 S	/	0 S		0 S	0 S					PWS
W-L43R	4ASMR-SOS	CMON	0 / 1 W	/	/	/	/	/							LP		
W-L44R	4ASOO003.12	A	0 / 18 S	0 / 18 S	0 / 17 S	0 / 18 S	0 / 15 S	/		0 S	0 S	0 S					
W-L45R	4ASMR004.14	A	0 / 19 S	0 / 19 S	0 / 19 S	1 / 18 S	0 / 16 S	/		0 S	0 S	0 S					PWS
W-L45R	4ASMR004.17	C,SS	/	/	/	/	/	/			0 S	1 T	0 S	0 S			PWS; 99 FT/Sed PAH 1 sp; Pb detected 1 sp
W-L46R	4ANMR002.60	A,C	0 / 22 S	0 / 22 S	0 / 22 S	1 / 21 S	0 / 16 S	/		0 S	0 S	0 S	1 T	0 S			PWS; 99 FT/Sed; As 1 sp
W-L47R	4AHRN004.93	A	0 / 19 S	0 / 19 S	0 / 19 S	1 / 19 S	0 / 16 S	/		0 S	0 S	0 S					
W-L49R	4AMTR010.33	A	0 / 9 S	0 / 9 S	0 / 9 S	0 / 9 S	0 / 9 S	/			0 S	0 S					
W-L50R	**4ASRE075.69**	A	**3 / 20 P**	0 / 20 S	0 / 20 S	0 / 20 S	1 / 14 S	/		0 S	0 S	0 S					°C Natural
W-L51L	4ASRE046.90-TL	A	0 / 16 S	0 / 15 S	0 / 16 S	0 / 17 S	1 / 18 S	0 / 11 S		0 S			0 S	0 S			99 FT
W-L51L	**4ASRE046.90-BL**	A	0 / 29 S	**10 / 27 N**	0 / 30 S	/	0 / 36 S	/		0 S	0 S	0 S					99 Sed
W-L51L	4ASRE048.98-TL	A	0 / 16 S	0 / 16 S	0 / 16 S	0 / 18 S	0 / 18 S	0 / 11 S		0 S							

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																		SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																								Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status						#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																						Bio	Station	
WBID	Station	Type	Temperature				Oxygen						pH		Coliform				Phosphorus				Chlorophyll A				Metals				Organics		Metals				Organics		Metals				Organics		Mon	Type	Comments
W-L51L	**4ASRE048.98-BL**	A	0	/	30	S	**11**	**/**	**30**	**N**	0	/	30	S		/			0	/	36	S		/							0	S	0	S	0	S									
W-L51L	4ASRE052.31-TL	A	0	/	16	S	0	/	16	S	0	/	16	S	0	/	17	S	0	/	17	S	0	/	9	S					0	S													
W-L51L	**4ASRE052.31-BL**	A	0	/	30	S	**13**	**/**	**30**	**N**	1	/	30	S		/			1	/	34	S		/							0	S	1	T	0	S									Ni in Sed
W-L51L	4ASRE055.62	C,SS		/				/				/				/				/				/									0	S	0	S	0	S	0	S					99 FT/Sed
W-L51L	4ASRE056.06-TL	A	0	/	35	S	0	/	35	S	0	/	35	S	0	/	34	S	4	/	28	T	0	/	10	S					0	S													
W-L51L	**4ASRE056.06-BL**	A	0	/	17	S	**7**	**/**	**17**	**N**	0	/	17	S		/			2	/	19	T		/							0	S	1	T	0	S									Ni in Sed
W-L51R	**4ARBC005.44**	A	**2**	**/**	**6**	**N**	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S		/									0	S	0	S									°C Natural
W-L52R	**2000W0034B**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**2**	**/**	**16**	**P**		/				/																					**B'Berry Study; GM1/2-N**
W-L52R	**2000W0034C**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**4**	**/**	**16**	**P**		/				/																					**B'Berry Study; GM 2/2-N**
W-L52R	2000W0034D	SS	0	/	7	S	0	/	7	S	0	/	7	S	1	/	16	S		/				/																					B'Berry Study; GM 0/2-S
W-L52R	**2000W0034E**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**4**	**/**	**16**	**P**		/				/																					**B'Berry Study; GM 2/2-N**
W-L52R	**2000W0034F**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**7**	**/**	**16**	**N**		/				/																					**B'Berry Study; GM 2/2-N**
W-L52R	**2000W0034G**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**2**	**/**	**16**	**P**		/				/																					**B'Berry Study; GM 1/2-N**
W-L52R	2000W0034H	SS	0	/	7	S	0	/	7	S	0	/	7	S	0	/	16	S		/				/																					B'Berry Study; GM 0/2-S
W-L52R	**2000W0034I**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**4**	**/**	**16**	**P**		/				/																					**B'Berry Study; GM 2/2-N**
W-L52R	**2000W0034J**	SS	0	/	1	W	0	/	1	W	0	/	1	W	**4**	**/**	**16**	**P**		/				/																					**B'Berry Study; GM 2/2-N**
W-L52R	**2000W0034L**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**4**	**/**	**16**	**P**		/				/																					**B'Berry Study; GM 1/2-N**
W-L52R	2000W0034M	SS	0	/	6	S	0	/	6	S	1	/	6	S	0	/	14	S		/				/																					B'Berry Study; GM 0/1-S
W-L52R	2000W0034N	SS		/				/				/			0	/	1	W		/				/																					B'Berry Study
W-L52R	**2000W0034O**	SS	0	/	6	S	0	/	6	S	1	/	2	S	**10**	**/**	**14**	**N**		/				/																					**B'Berry Study; GM 1/1-N**
W-L52R	**2000W0034P**	SS	0	/	3	S	0	/	3	S	0	/	3	S	**7**	**/**	**15**	**N**		/				/																					**B'Berry Study; GM 1/1-N**
W-L52R	2000W0034Q	SS		/				/				/			0	/	1	W		/				/																					B'Berry Study
W-L52R	**2000W0034R**	SS	0	/	7	S	0	/	7	S	0	/	7	S	**4**	**/**	**14**	**N**		/				/																					**B'Berry Study; GM 1/1-N**
W-L52R	**2000W0034S**	SS		/				/				/			**4**	**/**	**11**	**N**		/				/																					**B'Berry Study; GM 1/1-N**
W-L52R	**2000W0034T**	SS	0	/	7	S	0	/	7	S	1	/	7	S	**5**	**/**	**14**	**N**		/				/																					B'Berry Study; GM 0/1-S
W-L52R	**2000W0034U**	SS	0	/	5	S	0	/	5	S	1	/	2	S	**6**	**/**	**9**	**N**		/				/																					B'Berry Study
W-L52R	**2000W0034V**	SS	0	/	5	S	0	/	5	S	1	/	2	S	**4**	**/**	**9**	**N**		/				/																					B'Berry Study
W-L52R	**4ABRY000.05**	A	0	/	20	S	0	/	20	S	0	/	20	S	**3**	**/**	**20**	**P**	0	/	14	S		/							0	S	0	S	0	S									PWS
W-L52R	4ASRE043.35	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			NI	SS	PWS
W-L52R	4ASRE043.54	A	0	/	58	S	0	/	58	S	0	/	58	S	0	/	59	S	0	/	58	S		/							0	S	0	S	0	S									PWS
W-L52R	4ASRE043.65	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			NI	SS	PWS; Single benthic survey
W-L53R	**2000W0034A**	SS	0	/	8	S	0	/	8	S	0	/	7	S	**2**	**/**	**16**	**P**		/				/																					**PWS; B'Berry Study; GM 2/2-N**
W-L53R	4AREE000.80	A	0	/	22	S	0	/	22	S	0	/	22	S	1	/	22	S	0	/	16	S		/									0	S	0	S									PWS
W-L53R	4ASRE029.50	SS		/				/				/				/				/				/									0	S	3	T									PWS; 96 Sed DDE Total DDT & C-Dane -Bio ok
W-L53R	4ASRE031.00	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/																			SI	NET	PWS
W-L53R	4ASRE033.19	A,B	2	/	68	S	0	/	68	S	0	/	68	S	4	/	59	S	1	/	58	S		/							0	S	0	S	0	S							NI	REF	PWS
W-L54R	4ASRE007.09	SS		/				/				/				/				/				/									0	S	0	S									PWS; 97 Sed
W-L54R	4ASRE007.90	A	0	/	58	S	0	/	58	S	0	/	58	S	2	/	59	S	2	/	58	S		/							0	S	0	S	0	S									PWS
W-L54R	4ASRE011.08	SS		/				/				/				/				/				/									0	S	0	S									97 Sed
W-L54R	**4ASRE015.43**	A,B	0	/	36	S	0	/	36	S	0	/	36	S	**3**	**/**	**29**	**P**	2	/	28	S		/							0	S	0	S	0	S							SI	NET	
W-L54R	**4ASRE019.00**	B,C,SS	0	/	7	S	0	/	7	S	0	/	7	S		/				/				/									0	S	0	S	0	S	0	S			**MI**	NET	99 FT/Sed
W-L54R	**4ASRE019.10**	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			**MI**	SS	
W-L54R	**4ASRE021.58**	A	0	/	29	S	0	/	29	S	0	/	29	S	**4**	**/**	**29**	**P**	2	/	28	S		/							0	S													
W-L54R	**4ASRE022.30**	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/																			**MI**	NET	
W-L54R	4ASRE022.71	A	0	/	58	S	0	/	58	S	0	/	58	S	4	/	59	S	2	/	58	S		/							0	S	0	S	0	S									
W-L54R	4ASRE026.27	A,B,C,SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/									0	S	0	S	0	S	0	S			SI	NET	99 FT/Sed; Pb detected 1 sp; Bio Relocated to 4ASRE026.38
W-L54R	4ASRE026.38	B	0	/	6	S	0	/	6	S	1	/	6	S		/				/				/																			SI	NET	
W-L55R	**4AMRR000.02**	A	0	/	23	S	0	/	23	S	0	/	23	S	**5**	**/**	**23**	**P**	0	/	17	S		/							0	S	0	S	0	S									
W-L56R	**4ALWD002.54**	A	0	/	22	S	0	/	22	S	0	/	22	S	**3**	**/**	**23**	**P**	0	/	17	S		/							0	S	0	S	0	S									PWS
C-L57R	4ACAS000.77	SS		/				/				/				/				/				/											0	S									PWS; 99 Sed only
C-L57R	4ADAN059.11	SS		/				/				/				/				/				/									0	S	0	S									96 Sed
C-L57R	4ADAN060.16	C,SS		/				/				/				/				/				/									0	S	0	S	0	S	0	S					PWS; 99 FT/Sed; Pb detected 1 sp
C-L57R	**4ADAN075.22**	C,SS	0	/	58	S	0	/	58	S	0	/	58	S	**6**	**/**	**59**	**P**	2	/	58	S		/							0	S	0	S	0	S			0	S					99 FT/Sed
C-L58R	**4ASRV000.20**	A,SS	0	/	20	S	0	/	19	S	0	/	20	S	**5**	**/**	**21**	**P**	1	/	15	S		/							0	S	0	S	0	S									99 Sed only
C-L58R	4ASRV005.66	SS		/				/				/				/				/				/									0	S	0	S									96 Sed
C-L59R	4ASCR000.16-A	SS		/				/				/				/				/				/											1	T									99 Sed only; chlorodane
C-L59R	4ASCR000.16-B	SS		/				/				/				/				/				/											0	S									99 Sed only
C-L59R	4ASCR007.06	A	0	/	21	S	0	/	21	S	0	/	21	S	2	/	21	S	1	/	15	S		/							0	S	0	S	0	S									
C-L60R	4ACAN000.80	SS		/				/				/				/				/				/											0	S									99 Sed only
C-L60R	4ACLC000.38	SS		/				/				/				/				/				/											0	S									99 Sed only
C-L60R	**4ADAN042.80**	A	0	/	56	S	0	/	56	S	0	/	56	S	**20**	**/**	**58**	**N**	7	/	58	T		/							0	S	0	S	0	S									VDH Fish Adv.
C-L60R	4ADAN053.12	SS		/				/				/				/				/				/									0	S	0	S									97 Sed
C-L60R	4ADAN053.35	A	0	/	20	S	0	/	19	S	0	/	20	S	2	/	20	S	0	/	15	S		/							0	S	0	S	0	S									
C-L60R	4ADAN054.03	C,SS		/				/				/				/				/				/											0	S	0	S	1	T					99 FT/Sed; PCB 1 sp
C-L61R	4AFAL000.10	SS		/				/				/				/				/				/											0	S									99 Sed only
C-L61R	4AFAL001.58	A	0	/	20	S	0	/	19	S	0	/	20	S	1	/	21	S	0	/	15	S		/							0	S	0	S	0	S									Candidate for 1998 FC 303(d) Removal
C-L62R	4ADAN029.85	SS		/				/				/				/				/				/									0	S	0	S									96 sed
C-L62R	4ADAN039.40	SS		/				/				/				/				/				/									0	S	0	S									97 sed
C-L62R	**4ADAN042.80**	A	0	/	56	S	0	/	56	S	0	/	56	S	**20**	**/**	**58**	**N**	5	/	58	S		/							0	S	0	S	0	S									
C-L62R	**4ADBC002.19**	A	0	/	26	S	0	/	26	S	0	/	26	S	**3**	**/**	**26**	**P**	0	/	27	S		/							0	S	0	S	0	S									
C-L62R	4A-PL-11A	SS	0	/	10	S	0	/	10	S	1	/	10	S	1	/	10	S	0	/	10	S		/							0	S													

Roanoke River Basin
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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																				SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																										Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status																#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																								Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
C-L62R	**4A-PL-11B**	SS	0	/	10	S	0	/	10	S	0	/	10	S	**2**	**/**	**10**	**P**	2	/	10	T		/							0	S														
C-L62R	4ASLC002.75	SS	0	/	7	S	0	/	6	S	0	/	7	S	0	/	7	S	0	/	7	S		/							0	S	0	S	0	S										
C-L62R	4AWNS000.27	SS		/				/				/				/				/				/											0	S										99 sed only
C-L63R	4ABIR000.40	SS		/				/				/				/				/				/											0	S										99 sed only
C-L63R	**4ABIR001.00**	A	0	/	25	S	0	/	25	S	0	/	25	S	**7**	**/**	**26**	**N**	0	/	27	S		/							0	S	0	S	0	S										
C-L64R	4ADAN009.53	SS		/				/				/				/				/				/									0	S	0	S										97 sed
C-L64R	**4ADAN012.82**	C,SS																																	0	S			**1**	**P**						VDH Fish Adv.-PCB, 00 FT/SED, PCB 3 sp.
C-L64R	**4ADAN013.34**	C,SS		/				/				/				/				/				/									0	S	0	S	0	S	**4**	**P**						99 FT/SED,PCB 7sp.,chordane 1sp.,'DDE 1sp.,Total DDT 1sp.& H epoxide 1sp.
C-L64R	**4ADAN015.30**	A,C,SS	0	/	57	S	0	/	57	S	0	/	57	S	**23**	**/**	**58**	**N**	8	/	58	T		/							0	S	0	S	0	S			**1**	**P**						99 FT/SED, PCB 2 sp. & 93 FT PCB 5 sp.
C-L64R	**4ADAN017.44**	C,SS		/				/				/				/				/				/									0	S	0	S	0	S	**1**	**P**						VDH Fish Adv.-PCB, 99 FT/SED, PCB 2 sp.
C-L64R	4ADAN025.29	SS		/				/				/				/				/				/									0	S	0	S										97 sed
C-L64R	4ALSN001.04	SS		/				/				/				/				/				/											0	S			0	S						97 sed & 99 fish
C-L64R	4ALSN001.04	C		/				/				/				/				/				/									0	S	0	S	0	S	2	T						99 FT/SED, sum PAH & benzo(a)pyrene 1 sp.
C-L64R	4ARAC001.20	SS																													0	S			0	S			0	S						99 fish
C-L64R	4ARAC001.20	C																													0	S	0	S	0	S	0	S	0	S						99 FT/SED, Pb 1 sp.
C-L64R	4ARAC002.13	SS																													0	S			0	S										South Boston Landfill PCB study
C-L64R	4ARAC002.30	SS																													0	S			0	S										South Boston Landfill PCB study
C-L64R	4ARAC002.45	SS																													0	S			0	S										South Boston Landfill PCB study
C-L64R	4ARAC002.68	SS																													0	S			0	S										South Boston Landfill PCB study
C-L64R	4AMRY000.70	SS		/				/				/				/				/				/									0	S	0	S										99 sed only
C-L64R	4AXMD000.07	SS																													0	S			0	S										South Boston Landfill PCB study
C-L64R	4AXMD000.08	SS																													0	S			0	S										South Boston Landfill PCB study
C-L64R	4AXMD000.21	SS																													0	S			0	S										South Boston Landfill PCB study
C-L64R	4AXMD000.38	SS																													0	S			0	S										South Boston Landfill PCB study
C-L65R	4ABAN070.20	A	0	/	22	S	0	/	22	S	0	/	22	S	1	/	22	S	0	/	15	S		/							0	S	0	S	0	S										PWS
C-L66L	4ACRR008.32-TL	A	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/							0	S														
C-L66L	4ACRR008.32-BL	A		/				/				/				/				/				/									0	S	0	S										
C-L66R	4ACRR000.80	A,C,SS	0	/	22	S	0	/	22	S	0	/	21	S	2	/	22	S	1	/	15	S		/							0	S	0	S	0	S	1	S	0	S						99 FT/Sed; Hg 1 sp
C-L66R	4ACRR002.74	A	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/			0	S	0	S																
C-L66R	**4ACRR003.56**	A	0	/	22	S	0	/	22	S	0	/	21	S	**3**	**/**	**22**	**P**	0	/	15	S		/							0	S	0	S	0	S										
C-L67R	**4ABAN023.28**	A	0	/	25	S	0	/	25	S	1	/	25	S	**8**	**/**	**27**	**N**	2	/	27	S		/							0	S	0	S	0	S										
C-L67R	4ABAN039.76	SS	0	/	8	S	0	/	8	S	0	/	8	S	1	/	8	S	0	/	7	S		/							0	S	0	S	0	S										
C-L67R	4ABAN040.14	SS		/				/				/				/				/				/									0	S	0	S										96 sed
C-L67R	4ABAN041.88	SS		/				/				/				/				/				/									0	S	0	S										97 sed
C-L68R	**4AWRN005.50**	A	0	/	22	S	0	/	22	S	0	/	22	S	**4**	**/**	**22**	**P**	0	/	15	S		/							0	S	0	S	0	S										PWS
C-L69R	4ASNE005.30	A	0	/	22	S	0	/	22	S	0	/	22	S	2	/	22	S	0	/	15	S		/									0	S	0	S										
C-L70R	**4ASNA000.20**	A	0	/	25	S	0	/	25	S	1	/	25	S	**6**	**/**	**27**	**P**	2	/	27	S		/							0	S	0	S	0	S										
C-L71R	**4ABAN000.50**	C,SS		/																															0	S			**1**	**P**						00 FT/SED, PCB 2 sp.
C-L71R	4ABAN001.98	SS		/				/				/				/				/				/											2	T										99 sed DDD & Total DDT
C-L71R	4ABAN004.32	SS		/				/				/				/				/				/									0	S	0	S										96 sed
C-L71R	**4ABAN005.58**	A	0	/	53	S	0	/	53	S	1	/	53	S	**9**	**/**	**54**	**P**	3	/	55	S		/							0	S	0	S	0	S										
C-L71R	4ABAN008.30	C		/				/				/				/				/				/									0	S	0	S	1	T	0	S						99 FT/SED, As 2 sp.
C-L71R	4ABAN012.46	SS		/				/				/				/				/				/											0	S			0	S						
C-L72R	4ATRR001.92	A	0	/	25	S	0	/	25	S	0	/	25	S	2	/	27	S	0	/	27	S		/							0	S	0	S	0	S										
C-L73R	4AAAR001.52	C,SS		/				/				/				/				/				/											0	S			0	S						
C-L73R	4AAAR001.55	SS		/				/				/				/				/				/											0	S										99 sed only
C-L73R	**4AAAR004.72**	A	0	/	27	S	1	/	27	S	0	/	27	S	**5**	**/**	**27**	**P**	0	/	27	S		/							0	S	0	S	0	S										
C-L73R	4ABMA002.00	SS		/				/				/				/				/				/											0	S										Fall 98 sed
C-L73R	**4ADAN001.18**	C,SS		/				/				/				/				/				/											0	S			**1**	**P**						VDH Fish Adv.-PCB, 00 FT/SED, PCB 2 sp.
C-L73R	4ADAN006.29	SS		/				/				/				/				/				/											0	S										Fall 98 sed
C-L73R	4ADAN007.11	SS		/				/				/				/				/				/											0	S										Fall 98 sed
C-L73R	4ADAN008.04	SS		/				/				/				/				/				/											0	S										Fall 98 sed
C-L74R	**4ACLB005.17**	SS	0	/	11	S	0	/	11	S	1	/	11	S	**2**	**/**	**11**	**P**	0	/	11	S		/							0	S														
C-L74R	4ACLB007.78	SS	0	/	11	S	0	/	11	S	1	/	11	S	1	/	11	S	0	/	11	S		/							0	S														
C-L74R	**4AHYC002.70**	A,C,SS	0	/	57	S	1	/	57	S	0	/	57	S	**6**	**/**	**57**	**P**	2	/	58	S		/							0	S	0	S	0	S	0	S	1	T						00 & 99 FT/SED, 00 PCB 1 sp.
C-L74R	4AHYC004.70	SS		/				/				/				/				/				/									0	S	0	S										1996 & 2000 sed
C-L74R	4AHYC010.76	C,SS																																	0	S			0	S						00 FT/SED
C-L74R	4AHYC021.14	C,SS																																	0	S			0	S						00 FT/SED
C-L74R	4AIND001.39	SS		/				/				/				/				/				/											0	S										Fall 98 sed
C-L74R	**4ALOL000.62**	SS	0	/	11	S	0	/	11	S	0	/	11	S	**3**	**/**	**11**	**N**	0	/	11	S		/							0	S														
C-L74R	4AMYO001.59	C																																	0	S			0	S						00 FT/SED
C-L75L	4ABHB000.00	SS		/				/				/				/				/				/											0	S										Fall 98 sed
C-L75L	4ABHB004.40	L	0	/	6	S	0	/	6	S	0	/	5	S	0	/	6	S	0	/	6	S	0	/	6	S					0	S														Kerr Reservoir
C-L75L	4AEAS000.00	SS						/				/				/				/				/											0	S										Fall 98 sed
C-L75L	**4AEAS001.20**	SS																		/				/															**1**	**P**						93 PCB 5 species
C-L75L	4AEAS002.40	L,C	0	/	1	S	0	/	1	S	0	/	1	S		/				/				/													0	S	0	S						Kerr Reservoir, Fish tissue 1994
C-L75L	4AEAS002.40	SS																		/				/											0	S										Fall 98 sed
C-L75L	4AGRA000.00	SS																						/											0	S										Fall 98 sed
C-L75L	4AGRA002.80	SS																						/											0	S										Fall 98 sed
C-L75L	4AGRA003.22	L	0	/	6	S	0	/	6	S	0	/	5	S	0	/	6	S	0	/	6	S	0	/	6	S					0	S														Kerr Reservoir
C-L75L	4AGRA007.20	SS																																	0	S										Fall 98 sed
C-L75L	4AKAS001.00	SS																																	0	S										Fall 98 sed

Roanoke River Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
C-L75L	4ALNE000.90	SS																																	0	S							Fall 98 sed
C-L75L	4AMES007.54	L	0	/	1	S	0	/	1	S	0	/	1	S		/				/				/																			Kerr Reservoir
C-L75L	**4ANUT001.50**	SS																																	0	S			**1**	**P**			93 PCB 4 species; Fall 98 sed
C-L75L	4AROA018.36	L,SS	0	/	6	S	0	/	6	S	0	/	5	S	0	/	7	S	0	/	7	S	0	/	7	S				0	S				0	S							Kerr Reservoir, Fall 98 sed
C-L75L	4AROA019.95	SS																																	0	S							Fall 98 sed
C-L75L	4AROA022.52	L,SS	0	/	6	S	0	/	6	S	0	/	5	S	0	/	7	S	0	/	7	S	0	/	7	S				0	S				0	S							Kerr Reservoir, Fall 98 sed
C-L75L	4AROA024.83	SS																																	0	S							Fall 98 sed
C-L75L	4AROA027.02	SS																																	0	S							Fall 98 sed
C-L75L	4AROA028.04	L,SS	0	/	6	S	0	/	6	S	0	/	5	S	0	/	7	S	0	/	7	S	0	/	7	S				0	S				0	S							Kerr Reservoir, Fall 98 sed
C-L75L	**4AROA028.44**	C,SS		/				/				/				/				/				/											0	S			**2**	**P**			99 FT/SED; Fall 98 PCB 6 sp & H epoxide 1 sp.
C-L75L	4AROA030.43	SS																																	0	S							Fall 98 sed
C-L75L	4AROA032.42	L	0	/	7	S	1	/	7	S	0	/	6	S	0	/	7	S	0	/	7	S	0	/	7	S				0	S	0	S		0	S							Kerr Reservoir, low DO in bottom-1 sample
C-L75L	4AROA034.41	SS																																	0	S							Fall 98 sed
C-L75L	4AROA035.78	SS																																	0	S							Fall 98 sed
C-L75L	**4AROA036.59**	SS																																	0	S			**1**	**P**			93 PCB 4 species, Fall 98 sed
C-L75L	4AROA038.49	L,SS	0	/	7	S	1	/	7	S	0	/	6	S	0	/	6	S	0	/	7	S	0	/	7	S				0	S	0	S		0	S							Kerr Res., Fall 98 sed, low DO in bottom-1sample
C-L75L	4AROA041.13	SS																																	0	S							Fall 98 sed
C-L75L	4AROA043.14	L,SS	0	/	6	S	0	/	6	S	0	/	5	S	0	/	7	S	0	/	7	S	0	/	7	S				0	S	0	S		0	S							Kerr Reservoir, Fall 98 sed
C-L75L	4AROA045.12	SS																																	0	S							Fall 98 sed
C-L75L	4AROA045.75	SS																																	0	S							Fall 98 sed
C-L75R	4ABHB008.63	A	0	/	22	S	0	/	22	S	0	/	22	S	1	/	23	S	0	/	23	S		/						0	S	0	S		0	S							
C-L76R	4ABLE000.00	SS																																	0	S							Fall 98 sed
C-L76R	**4ALFF001.85**	A	0	/	27	S	0	/	27	S	0	/	27	S	**9**	**/**	**27**	**N**	6	/	26	T		/						0	S	0	S		0	S							
C-L77L	4ABST001.13	L,SS	0	/	5	S	0	/	5	S	0	/	5	S	0	/	7	S	0	/	7	S	0	/	7	S				0	S				0	S							Kerr Reservoir, Fall 98 sed
C-L77R	4ABST009.35	A	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S	0	/	6	S		/						0	S												
C-L77R	4AGOO000.50	SS																																	0	S							Fall 98 sed
C-L77R	4ALNE006.56	A	0	/	24	S	0	/	24	S	0	/	24	S	1	/	24	S	0	/	24	S		/						0	S	0	S		0	S							
C-L78R	4AALN009.12	A	0	/	23	S	1	/	23	S	0	/	23	S	2	/	24	S	0	/	24	S		/						0	S	0	S		0	S							
C-L78R	4AROA012.07	SS		/				/				/				/				/				/								0	S		0	S							96 sed
C-L78R	**4AROA012.08**	A,C,SS	0	/	38	S	**13**	**/**	**38**	**N**	0	/	33	S	1	/	31	S	0	/	31	S		/						0	S	0	S		0	S	0	S	0	S			99 FT/SED
C-L78R	**4AROA018.04**	A,SS	0	/	65	S	**19**	**/**	**65**	**N**	0	/	64	S	1	/	64	S	0	/	64	S		/								0	S		0	S			1	T			1999 1 species
C-L78R	ST AA	SS	0	/	3	S	1	/	3	S	0	/	2	S	0	/	5	S	0	/	6	S		/						0	S												
C-L78R	**ST AB**	SS	0	/	3	S	0	/	3	S	0	/	2	S	**2**	**/**	**4**	**N**	5	/	6	T		/						0	S												
C-L79L	**4AROA008.66**	L	0	/	13	S	**8**	**/**	**13**	**N**	0	/	7	S	0	/	8	S	0	/	8	S	0	/	7	S				0	S	0	S	0	S								Lake Gaston
C-L79R	**4AFLT008.79**	A,B	0	/	61	S	0	/	61	S	0	/	61	S	**12**	**/**	**57**	**N**	22	/	58	T		/						0	S										**MI**	NET	Solids Deposits South Hill
C-L79R	4AFLT009.17	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																	NI	REF	Reference Station
C-L79R	**4AMES004.78**	A	0	/	24	S	0	/	24	S	0	/	24	S	**3**	**/**	**24**	**P**	0	/	25	S		/						0	S	0	S	0	S								
C-L80L	**4AROA004.54**	L,C,SS	0	/	14	S	**6**	**/**	**14**	**N**	0	/	7	S	0	/	8	S	0	/	8	S	0	/	8	S				0	S	0	S	0	S	0	S	**1**	**P**			99 FT/SED; 93 FT PCB 4 sp., low DO in bottom
C-L80R	**4AGRT003.82**	A	0	/	24	S	0	/	24	S	1	/	24	S	**6**	**/**	**20**	**N**	0	/	25	S		/						0	S												
C-L81R	**4APOB006.35**	A	0	/	25	S	1	/	25	S	1	/	25	S	**3**	**/**	**26**	**P**	0	/	26	S		/																			
C-L82R	**4APHC006.38**	A	0	/	25	S	1	/	25	S	2	/	25	S	**4**	**/**	**26**	**P**	0	/	26	S		/																			
W-M02R	**4BLOV007.92**	A,C	**4**	**/**	**11**	**N**	0	/	11	S	0	/	11	S	0	/	11	S	0	/	12	S		/													0	S	0	S			PWS; °C Natural; 93 FT DDE 1 sp (whole fish)
W-M02R	4BLOV009.24	C,SS		/				/				/				/				/				/								0	S	0	S	0	S	0	S			PWS; 97 FT/Sed
W-M03R	4BARA035.13	C,SS		/				/				/				/				/				/								0	S	0	S	1	T	0	S			PWS; 97 FT/Sed; As 1 sp
	Total Stations = 629																																										

Tennessee - Big Sandy Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status								#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
S-O01R	9027	USFS		/				/				/				/				/				/																	NI		USFS-St Clair Creek
S-O01R	9030	USFS		/				/				/				/				/				/																	NI		USFS-Rowland Creek
S-O01R	**6CSFH097.42**	A,B	0	/	46	S	0	/	48	S	0	/	48	S	**5**	**/**	**42**	**P**	2	/	41	S	0	/	0	W							0	S					**MI**	net	
S-O02R	9026	USFS		/				/				/				/				/				/															NI		USFS-Little Laurel Creek
S-O02R	9034	USFS		/				/				/				/				/				/															NI		USFS-Straight Branch
S-O02R	9035	USFS		/				/				/				/				/				/															NI		USFS-Henry Widener
S-O02R	9036	USFS		/				/				/				/				/				/															NI		USFS-Rush Creek
S-O02R	9038	USFS		/				/				/				/				/				/															NI		USFS-Green Cove Creek
S-O02R	9050	USFS		/				/				/				/				/				/															NI		USFS-Big Branch
S-O02R	9076	USFS		/				/				/				/				/				/															NI		USFS-Buzzard Den Branch-lat/lon error
S-O02R	9077	USFS		/				/				/				/				/				/															NI		USFS-Brush Creek-lat/lon error
S-O02R	03472150	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																	USGS-South Fork Holston River
S-O02R	03472700	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																	USGS-Laurel Creek
S-O02R	6CBVD000.07	A	0	/	20	S	0	/	24	S	0	/	24	S	0	/	23	S	0	/	25	S	0	/	0	W							0	S							
S-O02R	6CBVD-1-SOS	CMON		/				/				/				/				/				/															NI		
S-O02R	6CSFH074.54	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															NI	net	
S-O02R	6CSFH075.61	A	0	/	57	S	0	/	57	S	0	/	58	S	5	/	56	S	2	/	56	S	0	/	0	W							0	S							
S-O02R	6CSFH088.88	C		/				/				/				/				/				/							0	S	0	S	2	T	1	T			97 FT/SED, PCB 1 sp., Pb detected 1 sp., As 1 sp.
S-O02R	6CWLC010.20	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	net	
S-O03R	7030	USFS		/				/			0	/	1	W		/				/				/															NI		USFS-Overbay Hollow
S-O03R	7031	USFS		/				/			0	/	1	W		/				/				/															NI		USFS-Waddle Hollow
S-O03R	6CMFH042.21	SS	0	/	1	W	0	/	1	S	0	/	1	W	0	/	0	W	0	/	1	W		/																	
S-O03R	**6CMFH045.72**	A	0	/	31	S	0	/	43	S	0	/	43	S	**5**	**/**	**41**	**P**	1	/	41	S	0	/	0	W							0	S							
S-O03R	**6CMFH053.36**	A	0	/	31	S	0	/	43	S	0	/	43	S	**8**	**/**	**43**	**P**	2	/	40	S	0	/	0	W					0	S	0	S							
S-O04L	**6CHUN004.76-BL**	L	0	/	6	S	**6**	**/**	**6**	**N**	0	/	1	W		/				/				/			0	S	0	S											Hungry Mother Lake
S-O04L	6CHUN004.76-TL	L	0	/	4	S	0	/	4	S	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	S													Hungry Mother Lake
S-O04L	6CHUN005.24	L,C	0	/	3	S	0	/	3	S	0	/	2	S	0	/	1	W	0	/	1	W	0	/	1	W					0	S	0	S	0	S	0	S			97 FT/SED, Hungry Mother Lake
S-O04L	**6CHUN006.13**	L	0	/	2	S	0	/	2	S	**2**	**/**	**2**	**N**	0	/	1	W	0	/	1	W	0	/	1	W															Hungry Mother Lake
S-O04R	03474000	USGS	0	/	24	S	0	/	25	S	0	/	27	S	2	/	22	S	0	/	27	S		/																	MFH @ Seven Mile Ford
S-O04R	6CMFH032.39	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	net	
S-O04R	**6CMFH033.40**	A,C	0	/	57	S	0	/	58	S	0	/	58	S	**10**	**/**	**55**	**P**	3	/	56	S	0	/	0	W					0	S	0	S	0	S	2	T			97 FT/SED, PCB & aldrin 1 sp.
S-O05R	6CBYS000.23	TM	0	/	3	S	0	/	3	S	0	/	3	S	1	/	3	W	0	/	3	S		/																	TMDL sweep
S-O05R	**6CCED000.04**	TM	0	/	1	W	0	/	1	W	0	/	1	W	**2**	**/**	**3**	**N**	0	/	2	S		/																	TMDL sweep
S-O05R	**6CCED000.14**	TM	0	/	3	S	0	/	3	S	0	/	3	S	**3**	**/**	**3**	**N**	0	/	3	S		/																	TMDL sweep
S-O05R	6CCED000.94	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	6CCED002.47	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	6CCED002.94	TM		/				/				/			1	/	2	W	0	/	1	W		/																	TMDL sweep
S-O05R	6CCED003.18	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	6CCED003.45	TM		/				/				/			0	/	1	W	0	/	1	W		/																	TMDL sweep
S-O05R	6CCED003.50	TM		/				/				/			0	/	1	W	0	/	1	W		/																	TMDL sweep
S-O05R	6CCED003.65	TM		/				/				/			1	/	2	W	1	/	1	W		/																	TMDL sweep
S-O05R	6CCED003.70	TM		/				/				/			1	/	1	W	1	/	1	W		/																	TMDL sweep
S-O05R	6CCED004.49	TM		/				/				/			1	/	2	W	0	/	1	W		/																	TMDL sweep
S-O05R	**6CCWF004.68**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																	TMDL sweep
S-O05R	**6CECE000.05**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																	TMDL sweep
S-O05R	6CHAL000.75	TM		/				/				/			0	/	2	S	1	/	1	W		/																	TMDL sweep
S-O05R	6CHAL000.82	TM		/				/				/			0	/	1	W	1	/	1	W		/																	TMDL sweep
S-O05R	6CHAL002.60	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	6CHAL004.57	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	**6CHAL005.23**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																	TMDL sweep
S-O05R	**6CHTO000.24**	TM	0	/	4	S	0	/	4	S	0	/	4	S	**3**	**/**	**4**	**N**	0	/	4	S		/																	TMDL sweep
S-O05R	6CHTO001.02	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	**6CHTO001.42**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																	TMDL sweep
S-O05R	**6CHTO002.24**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																	TMDL sweep
S-O05R	6CIDR001.97	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	6CIDR002.19	TM		/				/				/			1	/	2	W	1	/	1	W		/																	TMDL sweep
S-O05R	**6CMFH011.31**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**		
S-O05R	**6CMFH013.21**	A	0	/	58	S	0	/	58	S	0	/	59	S	**6**	**/**	**56**	**P**	2	/	56	S	0	/	0	W					0	S	0	S							
S-O05R	**6CMFH026.00**	A,C	0	/	32	S	0	/	45	S	0	/	45	S	**12**	**/**	**43**	**N**	4	/	41	S	0	/	0	W					0	S	0	S	0	S	0	S			97 FT/SED
S-O05R	**6CPLU000.02**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																	TMDL sweep
S-O05R	6CPLU001.11	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	6CTAT000.08	TM		/				/				/			0	/	2	S	0	/	1	W		/																	TMDL sweep
S-O05R	**6CTAT001.35**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																	TMDL sweep

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status								#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
S-O05R	**6CXCB000.84**	TM		/				/				/			0	/	2	S	0	/	1	W		/																			TMDL sweep
S-O05R	**6CXCC000.18**	TM		/				/				/			0	/	2	S	0	/	1	W		/																			TMDL sweep
S-O05R	**6CXCD000.99**	TM		/				/				/			1	/	2	W	0	/	1	W		/																			TMDL sweep
S-O05R	**6CXCD001.80**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																			TMDL sweep
S-O05R	**6CXCG000.75**	TM		/				/				/			**2**	**/**	**2**	**N**	0	/	1	W		/																			TMDL sweep
S-O06L	**6CSFH062.93-BL**	L	0	/	22	S	**22**	**/**	**22**	**N**	0	/	1	W		/				/				/			0	S	0	S													South Holston Lake
S-O06L	6CSFH062.93-TL	L	0	/	8	S	1	/	8	S	0	/	1	W		/			0	/	1	W	0	/	1	W	0	S	0	S													South Holston Lake
S-O06L	**6CSFH066.16-BL**	L	0	/	24	S	**18**	**/**	**18**	**N**	0	/	1	W		/				/				/																			South Holston Lake
S-O06L	6CSFH066.16-TL	L	0	/	6	S	0	/	6	S	0	/	1	W		/			0	/	1	W	1	/	1	W																	South Holston Lake
S-O06L	6CSFH070.80	L,C	0	/	11	S	1	/	11	S	0	/	2	S		/			0	/	1	W	1	/	1	W									0	S	1	T	0	S	1	T			97 FT/SED, PCB 1 sp. & sed DDT, Reservoir
S-O06L	6CWLF001.18	A	0	/	19	S	0	/	19	S	0	/	19	S	2	/	20	S	1	/	19	S													0	S	0	S							
S-O06R	6CWLF001.46	A	0	/	4	S	0	/	4	S	0	/	4	S	0	/	2	S	1	/	4	S													0	S	0	S							station moved to 6CWLF001.18
S-O06R	**6CWLF004.10**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																			**MI**		
S-O06R	6CWLF006.55	C		/				/				/				/				/				/											0	S	0	S	0	S	1	T			97 FT/SED, PCB 1 sp.
S-O07L	6CCLE002.89	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																					Clear Creek Lake
S-O07R	03478400	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																					
S-O07R	**6CBEV015.27**	A	0	/	20	S	0	/	24	S	0	/	24	S	**13**	**/**	**21**	**N**	1	/	22	S	0	/	0	W									1	T	0	S							Pb
S-O07R	**6CBEV021.07**	A	0	/	21	S	0	/	25	S	0	/	25	S	**10**	**/**	**23**	**N**	0	/	24	S	0	/	0	W											0	S							
S-O09R	**6CLIB003.65**	B	0	/	1	S	0	/	1	S	0	/	1	S		/				/				/																			**MI**	net	
S-O09R	6CNFH097.67	C		/				/				/				/				/				/											0	S	1	T	0	S	0	S			97 FT/SED, sed DDT
S-O09R	6CNFH098.47	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																			NI		
S-O09R	6CNFH098.96	A	0	/	12	S	0	/	11	S	0	/	12	S	1	/	12	S	0	/	12	S		/											0	S	0	S							
S-O10R	03488000	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																					
S-O10R	6CLAE001.68	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																			T	net	additional monitoring needed
S-O10R	**6CLAE018.29**	B	0	/	1	S	0	/	1	S	0	/	1	S		/				/				/																			**MI**	net	
S-O10R	6CNFH089.25	A	0	/	55	S	0	/	55	S	0	/	56	S	3	/	55	S	0	/	55	S	0	/	0	W	0	S							0	S	0	S							
S-O11L	6CBRU010.86	C		/				/				/				/				/				/											0	S	0	S	0	S	0	S			97 FT/SED
S-O11L	**6CBRU010.91**	L	0	/	8	S	**4**	**/**	**8**	**N**	0	/	2	S	0	/	1	W	0	/	1	W	0	/	1	W	0	S	0	S													Hidden Valley Lake
S-O11L	6CLAU001.84	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																					Laurel Bed Lake
S-O11L	6CLAU003.05	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																					Laurel Bed Lake
S-O11R	6CNFH080.43	A	0	/	23	S	0	/	37	S	0	/	39	S	2	/	35	S	0	/	36	S	0	/	0	W									3	T	0	S							Hg
S-O11R	6CTOO000.35	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			T	net	additional monitoring needed
S-O12R	6CGRN000.06	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			T	net	additional monitoring needed
S-O12R	**6CNFH039.18**	C		/				/				/				/				/				/											1	T	0	S	**1**	**N**	0	S			VDH fish restriction, 97 Hg 3 sp. & sed
S-O12R	6CNFH059.65	A	0	/	53	S	0	/	54	S	0	/	54	S	3	/	51	S	0	/	56	S	0	/	0	W	0	S							1	T	1	T							Hg,PCP
S-O12R	6CNFH060.93	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/																			NI		
S-O13R	**6CNFH007.78**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																			**MI**	net	
S-O13R	6CNFH008.78	A	0	/	55	S	0	/	57	S	0	/	57	S	5	/	52	S	1	/	56	S	0	/	0	W	0	S							1	T	0	S							Hg
S-O14R	03489870	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																					
S-O14R	**6CBMC002.90**	A	0	/	28	S	0	/	28	S	0	/	28	S	**3**	**/**	**25**	**P**	0	/	27	S	0	/	0	W											0	S							
S-O14R	6CBMC004.36	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/																			NI	net	
S-P01L	6BCAV002.88	C		/				/				/				/				/				/											0	S	0	S	0	S	0	S			97 FT/SED
S-P01R	**6BCLN346.80**	B	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																			**MI**	net	
S-P02R	6BCLN339.53	A	0	/	43	S	0	/	43	S	0	/	43	S	4	/	41	S	0	/	40	S	0	/	0	W											1	T							PCB
S-P02R	6BIDI000.55	B	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																			NI		
S-P02R	6BIDI003.67	B	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S		/				/																			T		additional monitoring needed
S-P02R	6BIDI010.25	B	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																			T		additional monitoring needed
S-P03R	**6BCLN315.11**	A	0	/	39	S	0	/	39	S	0	/	38	S	**4**	**/**	**38**	**P**	0	/	35	S	0	/	0	W											1	T							PCP
S-P03R	**6BMID000.20**	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			**VI**	net	
S-P04R	6BCLN298.35	SS		/				/				/				/				/				/											0	S	0	S							97 sed
S-P04R	**6BLWS000.90**	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/																			**MI**	net	
S-P04R	**6BSWO000.11**	B	0	/	6	S	0	/	6	S	0	/	6	S		/				/				/																			**MI**	net	
S-P05R	03522000	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																					
S-P05R	6BLTR000.05	B	0	/	3	S	0	/	4	S	0	/	4	S		/				/				/																			NI		
S-P05R	6BLTR000.75	A	0	/	21	S	0	/	24	S	0	/	23	S	0	/	22	S	0	/	23	S	0	/	0	W											0	S							
S-P06R	03523080	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																					
S-P06R	6BBCD001.84	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/																			NI	ref	
S-P06R	**6BBCD004.18**	A,B	0	/	30	S	0	/	30	S	0	/	29	S	0	/	26	S	0	/	28	S	0	/	0	W											0	S						**MI**		
S-P07R	6BCLN269.57	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																			NI	ref	
S-P07R	6BCLN271.50	A	0	/	57	S	0	/	57	S	0	/	56	S	4	/	54	S	0	/	54	S	0	/	0	W											0	S							
S-P08R	**6BDUM001.09**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																			**MI**	net	
S-P08R	6BDUM003.37	C		/				/				/				/				/				/											0	S	0	S	0	S	0	S			97 FT/SED
S-P09R	9138	USFS		/				/				/				/				/				/																			NI		USFS-McGhee Creek
S-P09R	9139	USFS		/				/				/				/				/				/																			NI		USFS-Staunton Creek tributary

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status								#Violations/Status						
	Monitoring						Dissolved								Fecal				Total				Chlorophyll A																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus								Metals				Organics				Metals		Organics		Metals		Organics		Mon	Type	Comments
S-P09R	9142	USFS		/				/				/				/				/				/																	NI		USFS-Joel Branch
S-P09R	9143	USFS		/				/				/				/				/				/																	NI		USFS-Little Stony Creek
S-P09R	9144	USFS		/				/				/				/				/				/																	NI		USFS-Little Stony Creek
S-P09R	9147	USFS		/				/				/				/				/				/																	NI		USFS-Glady Fork (Davy Land Branch)
S-P09R	9149	USFS		/				/				/				/				/				/																	NI		USFS-Robinson Fork
S-P09R	9154	USFS		/				/				/				/				/				/																	NI		USFS-Little Stony Creek
S-P09R	9157	USFS		/				/				/				/				/				/																	NI		USFS-Staunton Creek
S-P09R	9158	USFS		/				/				/				/				/				/																	NI		USFS-Hagan Spring Branch
S-P09R	9159	USFS		/				/				/				/				/				/																	NI		USFS-Staunton Creek tributary
S-P09R	9160	USFS		/				/				/				/				/				/																	NI		USFS-Staunton Creek tributary
S-P09R	6BCLN229.70	SS		/				/				/				/				/				/								0	S	0	S								96 sed
S-P09R	6BCLN236.00	C		/				/				/				/				/				/								0	S	0	S	1	T	1	T				97 FT/SED, Pb detected 1 sp. & PCB 1 sp.
S-P09R	6BCLN237.09	A	0	/	57	S	0	/	57	S	0	/	56	S	3	/	56	S	0	/	55	S	0	/	0	W									1	T						PCP
S-P09R	6BCLN245.38	SS		/				/				/				/				/				/								0	S	0	S								96 sed
S-P09R	6BCLN264.96	B,C	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/								0	S	0	S	1	T	0	S	T	net	97 FT/SED, As 1 sp. (additional monitoring needed)
S-P09R	6BCLN266.08	SS		/				/				/				/				/				/								0	S	0	S								97 sed
S-P10R	**6BLCC000.09**	A,B	0	/	14	S	0	/	25	S	1	/	26	S	**8**	/	**26**	**N**	0	/	25	S	0	/	0	W						0	S	0	S					**MI**	net	
S-P10R	**6BLCC000.65**	B	0	/	2	S	0	/	2	W	0	/	3	S		/				/				/																**VI**	net	
S-P10R	6BLCC004.49	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	NI	net	
S-P10R	**6BLCC005.99**	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																**VI**	net	
S-P11L	**6BXAR000.69-BL**	L	0	/	6	S	**2**	/	**6**	**N**	0	/	1	W		/				/				/			0	S	0	S	0	S	0	S								Wise Lake
S-P11L	6BXAR000.69-TL	L	0	/	4	S	0	/	4	S	0	/	1	W	0	/	0	W	0	/	1	W	0	/	1	W	0	S	0	S	0	S	0	S								Wise Lake
S-P11R	9100	USFS		/				/				/				/				/				/																	NI		USFS-Clear Creek
S-P11R	9104	USFS		/				/				/				/				/				/																	NI		USFS-Burns Creek
S-P11R	9116	USFS		/				/				/				/				/				/																	T		USFS-Machine Creek (additional monitoring needed)
S-P11R	9118	USFS		/				/				/				/				/				/																	NI		USFS-Jaybird Branch
S-P11R	03524330	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			
S-P11R	03524500	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			
S-P11R	**03524550**	USGS	0	/	28	S	0	/	28	S	0	/	28	S	**4**	/	**26**	**P**	3	/	27	T		/																			
S-P11R	6BCRC-SOS	CMON		/				/				/				/				/				/																	NI		
S-P11R	6BGUE000.05	A	0	/	7	S	0	/	10	S	0	/	9	S	0	/	9	S	0	/	9	S	0	/	0	W									0	S						
S-P11R	**6BGUE006.45**	C		/				/				/				/				/				/								0	S	0	S	2	T	**1**	**P**				97 FT/SED, PCB 2 sp., As & Hg detected 1 sp.
S-P11R	6BGUE006.50	A	0	/	13	S	0	/	13	S	0	/	13	S	0	/	13	S	1	/	13	S	0	/	0	W									0	S						
S-P12R	9115	USFS		/				/				/				/				/				/																	NI		USFS-Stony Creek (Mtn Fork)
S-P12R	9131	USFS		/				/				/				/				/				/																	NI		USFS-Devil Fork
S-P12R	9132	USFS		/				/				/				/				/				/																	NI		USFS-Straight Fork
S-P12R	9135	USFS		/				/				/				/				/				/																	NI		USFS-Stony Creek
S-P12R	9136	USFS		/				/				/				/				/				/																	NI		USFS-Stony Creek
S-P12R	9137	USFS		/				/				/				/				/				/																	NI		USFS-Mahogany Spring Branch
S-P12R	9145	USFS		/				/				/				/				/				/																	NI		USFS-Mahogany Spring Branch
S-P12R	9148	USFS		/				/				/				/				/				/																	NI		USFS-Bark Camp Branch
S-P12R	9152	USFS		/				/				/				/				/				/																	NI		USFS-Stony Creek
S-P12R	6BSNY000.23	B	0	/	3	S	0	/	3	S	0	/	3	S	0	/	0	W		/				/																	T		additional monitoring needed
S-P12R	6BSNY001.98	A	0	/	12	S	0	/	12	S	0	/	12	S	0	/	10	S	0	/	12	S		/																			
S-P13R	9103	USFS		/				/				/				/				/				/																	NI		USFS-Cove Creek
S-P13R	9124	USFS		/				/				/				/				/				/																	NI		USFS-Laurel Fork
S-P13R	9125	USFS		/				/				/				/				/				/																	NI		USFS-Wolf Creek
S-P13R	9128	USFS		/				/				/				/				/				/																	NI		USFS-Stock Creek (Upper)
S-P13R	9129	USFS		/				/				/				/				/				/																	NI		USFS-Stinking Creek
S-P13R	9130	USFS		/				/				/				/				/				/																	NI		USFS-Dry Creek
S-P13R	9141	USFS		/				/				/				/				/				/																	NI		USFS-Cove Creek
S-P13R	6BCLN203.38	SS		/				/				/				/				/				/								0	S	1	T								96 sed DDT
S-P13R	6BCLN203.54	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/																	NI		
S-P13R	6BCLN206.70	A	0	/	60	S	0	/	60	S	0	/	60	S	0	/	51	S	0	/	57	S	0	/	0	W						0	S	0	S								
S-P13R	6BCLN211.00	C	0	/	13	S	0	/	13	S	0	/	13	S	0	/	4	S	0	/	13	S	0	/	0	W						0	S	0	S	2	T	0	S				97 FT/SED, As detected 2 sp. & Hg 1 sp.
S-P13R	6BCLN224.20	SS		/				/				/				/				/				/								0	S	0	S								97 sed
S-P13R	6BSTO004.56	A	0	/	20	S	0	/	25	S	0	/	25	S	0	/	23	S	0	/	24	S	0	/	0	W						0	S	1	T								PCP
S-P13R	**6BSTO004.73**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																**MI**	net	
S-P13R	**6BSTO005.26**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/																**MI**	ref	
S-P14R	03526000	USGS	0	/	51	S	0	/	53	S	0	/	53	S	3	/	39	S	0	/	46	S		/																			Copper Creek
S-P14R	6BCOP002.00	A,C	0	/	30	S	0	/	30	S	0	/	30	S	0	/	26	S	0	/	29	S	0	/	0	W						0	S	0	S	1	T	0	S				97 FT/SED, As detected 1 sp.
S-P14R	6BCOP002.68	B	0	/	8	S	0	/	8	S	0	/	8	S		/				/				/																T	net	additional monitoring needed
S-P15R	9122	USFS		/				/				/				/				/				/																	NI		USFS-Lovelady Creek
S-P15R	9126	USFS		/				/				/				/				/				/																	NI		USFS-Collier Hollow Creek

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals				Organics				Mon	Type	Comments
S-P15R	**6BNFC003.80**	A	0	/	21	S	0	/	25	S	0	/	25	S	**3**	**/**	**21**	**P**	1	/	24	S	0	/	0	W					0	S	1	T									PCP
S-P16R	03527639	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			
S-P16R	**6BBCE001.05**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**	net		
S-P16R	6BBKW005.82	A	0	/	12	S	0	/	12	S	0	/	12	S	1	/	10	S	0	/	12	S		/																			
S-P17R	9106	USFS		/				/				/				/				/				/															T			USFS-Roaring Branch (additional monitoring needed)
S-P17R	9113	USFS		/				/				/				/				/				/															T			USFS-Dark Hollow (additional monitoring needed)
S-P17R	03529050	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			Powell River
S-P17R	03529075	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			Powell River
S-P17R	03529295	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			Powell River
S-P17R	**6BPOW180.72**	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/															**MI**			
S-P17R	**6BPOW180.78**	A	0	/	23	S	0	/	39	S	0	/	39	S	**4**	**/**	**36**	**P**	0	/	37	S	0	/	0	W					0	S	0	S									
S-P18L	**6BPLL012.79-BL**	L	0	/	102	S	**54**	**/**	**96**	**N**	**6**	**/**	**14**	**N**		/				/				/							0	S	0	S									Big Cherry Reservoir-Dam, bottom layer
S-P18L	**6BPLL012.79-TL**	L	0	/	42	S	0	/	42	S	0	/	14	S	0	/	7	S	1	/	7	S		/																			Big Cherry Reservoir-Dam, top layer
S-P18L	**6BPLL012.99-BL**	L	0	/	29	S	**11**	**/**	**29**	**N**	**8**	**/**	**11**	**N**		/				/				/							0	S			0	S							Big Cherry Reservoir-East Arm, bottom layer
S-P18L	**6BPLL012.99-TL**	L	0	/	43	S	0	/	43	S	**6**	**/**	**17**	**N**	0	/	7	S	0	/	1	W		/																			Big Cherry Reservoir-East Arm, top layer
S-P18L	**6BPLL013.59**	L	0	/	56	S	0	/	56	S	**16**	**/**	**28**	**N**	0	/	7	S		/				/																			Big Cherry Reservoir-North Arm
S-P18R	6BPLL002.55	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/															T	net		additional monitoring needed
S-P18R	6BPLL004.40	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI			
S-P18R	6BPLL006.38	A	0	/	15	S	0	/	27	S	0	/	27	S	2	/	26	S	0	/	26	S	0	/	0	W					0	S	0	S									
S-P18R	6BPLL006.50	B	0	/	2	S	0	/	1	S	0	/	1	S		/				/				/															NI	ref		
S-P19R	9120	USFS		/				/				/				/				/				/															T			USFS-Powell River trib (Clear Spring Branch)
S-P19R	9155	USFS		/				/				/				/				/				/															NI			USFS-McGhee Creek (lower)
S-P19R	6BPOW165.78	A	0	/	59	S	0	/	61	S	0	/	61	S	3	/	54	S	0	/	58	S	0	/	0	W					0	S	1	T									PCP
S-P19R	6BPOW166.92	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															T			additional monitoring needed
S-P20L	**6BPWL024.64-BL**	L	0	/	8	S	**6**	**/**	**8**	**N**	1	/	1	W		/				/				/							0	S	0	S									Lake Keokee
S-P20L	6BPWL024.64-TL	L	0	/	4	S	0	/	4	S	1	/	1	W	0	/	1	W	0	/	1	W		/																			Lake Keokee
S-P20L	**6BPWL025.20**	L	0	/	4	S	0	/	4	S	**2**	**/**	**2**	**N**	0	/	1	W	0	/	1	W		/																			Lake Keokee
S-P20L	**6BPWL025.32**	L,C	0	/	5	S	**2**	**/**	**5**	**P**	**2**	**/**	**2**	**N**	0	/	1	W	0	/	1	W		/							0	S	0	S	2	T	0	S				97 FT/SED, Hg 2 sp.,Lake Keokee
S-P20R	9121	USFS		/				/				/				/				/				/															NI			USFS-Payne Branch
S-P20R	03530150	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			North Fork Powell River
S-P20R	03530225	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			unsure of location lat/lon error
S-P20R	03530550	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			North Fork Powell River
S-P20R	6BBAI000.26	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI			
S-P20R	6BELC000.56	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
S-P20R	6BELC001.57	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
S-P20R	6BPCK000.20	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
S-P20R	6BPCK001.37	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
S-P20R	6BPWL001.49	A	0	/	22	S	0	/	26	S	0	/	26	S	0	/	24	S	0	/	25	S	0	/	0	W							0	S									
S-P20R	6BPWL001.62	C		/				/				/				/				/				/							0	S	0	S	1	T	0	S				97 FT/SED, As detected 1 sp.
S-P20R	6BPWL004.40	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															T			additional monitoring needed
S-P20R	6BPWL005.46	B	0	/		W	0	/	1	W	0	/	1	W		/				/				/															T			additional monitoring needed
S-P20R	6BPWL006.65	B	0	/		W	0	/	1	W	0	/	1	W		/				/				/															T			additional monitoring needed
S-P20R	**6BSRA000.11**	B	0	/	0	W	0	/	0	W	0	/	1	W		/				/				/															**MI**			
S-P20R	**6BSRA000.40**	B	0	/	0	W	0	/	0	W	0	/	0	W		/				/				/															**MI**			
S-P20R	**6BSRA000.54**	B	0	/	0	W	0	/	0	W	0	/	1	W		/				/				/															**MI**			
S-P20R	**6BSRA001.10**	B	0	/	0	W	0	/	0	W	0	/	1	W		/				/				/															**MI**			
S-P20R	**6BSRA001.11**	A	0	/	21	S	0	/	25	S	0	/	25	S	**11**	**/**	**22**	**N**	0	/	24	S	0	/	0	W					1	T	0	S									Ni
S-P20R	6BSRA001.34	C		/				/				/				/				/				/							0	S	0	S	0	S	1	T				97 FT/SED, PCB 1 sp.
S-P20R	**6BSRA002.48**	B	0	/	0	W	0	/	0	W	0	/	0	W		/				/				/															**MI**			
S-P20R	**6BSRA003.62**	B	0	/	0	W	0	/	0	W	0	/	0	W		/				/				/															**MI**			
S-P20R	**6BSTC000.06**	B	0	/	0	W	0	/	1	W	0	/	1	W		/				/				/															**MI**			
S-P20R	**6BSTC000.27**	B	0	/	0	W	0	/	0	W	0	/	0	W		/				/				/															**MI**			
S-P20R	**6BSTC003.27**	B	0	/	0	W	0	/	1	W	0	/	1	W		/				/				/															**MI**			
S-P20R	6BXCN000.20	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
S-P20R	6BXCN000.52	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
S-P20R	6BXDE000.04	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																			
S-P21R	6BBAT000.01	SS	0	/	1	W	0	/	1	W	0	/	1	W	1	/	1	W	0	/	1	W		/																			
S-P21R	6BPOW138.91	A	0	/	61	S	0	/	61	S	0	/	61	S	1	/	55	S	0	/	58	S	0	/	0	W					0	S	0	S									
S-P21R	6BPOW143.81	SS		/				/				/				/				/				/							0	S	0	S								97 sed
S-P22R	03531518	USGS	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/																			Wallen Creek
S-P22R	6BPOW128.37	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S				97 FT/SED, (site at Hall Ford)
S-P22R	**6BWAL001.57**	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															**MI**	net		
S-P23R	6BMTN003.56	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															NI	ref		
S-P23R	**6BPOW120.12**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**	net		

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			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status								#Violations/Status						
	Monitoring						Dissolved								Fecal				Total				Chlorophyll A																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus								Metals				Organics				Metals				Organics				Mon	Type	Comments
S-P23R	6BPOW121.76	SS		/				/				/				/				/				/							0	S	0	S									97 sed
S-P24R	6BIND009.10	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S					97 FT/SED
S-P24R	6BIND010.25	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															NI	net		
S-Q01R	6ADRK034.63	A	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	2	S	0	/	0	W																
S-Q01R	6ADRK035.86	A	0	/	7	S	0	/	7	S	0	/	7	S	1	/	7	S	1	/	7	S	0	/	2	S																
S-Q01R	6ADRK036.38	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															NI	net		
S-Q01R	6AHRP000.63	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															T			additional monitoring needed
S-Q03R	**6AKOX008.11**	A,C	0	/	25	S	0	/	24	S	0	/	25	S	**3**	/	**21**	**P**	0	/	24	S	0	/	0	W					0	S	0	S	0	S	**1**	**P**					97 FT/SED, PCB 3 sp.
S-Q03R	6AKOX-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	**6AGAR000.16**	A,B	0	/	34	S	0	/	34	S	0	/	33	S	**8**	/	**23**	**N**	0	/	28	S	0	/	0	W					0	S	0	S					**MI**	net		
S-Q04R	6AGAR001.78	C		/				/				/				/				/				/											1	T	0	S					97 FT/SED, As 1 sp.
S-Q04R	6AGAR-16-SOS	CMON		/				/				/				/				/				/															T			additional monitoring needed
S-Q04R	6AGAR-2-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	6AGAR-A-LRP	CMON		/				/				/			0	/	8	T		/				/																		Geomean fecal coliform = 311
S-Q04R	6AGAR-B-LRP	CMON		/				/				/			0	/	8	T		/				/																		Geomean fecal coliform = 226
S-Q04R	6AGAR-C-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	6AGAR-D-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	6AGAR-MAC1-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	6AGAR-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	6AGRF-A-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	6AGRF-B-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	6AGRF-C-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	6AGRF-D-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	6AGRF-E-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	6AGRF-F-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q04R	**6ALEV151.26**	C,SS		/				/				/				/				/				/									0	S			**1**	**P**					00 FT/SED, PCB 1 sp. 2 samples
S-Q04R	6ALEV152.46	A	0	/	13	S	0	/	12	S	0	/	13	S	1	/	12	S	1	/	12	S		/			0	S			0	S	0	S								
S-Q04R	6ALEV155.45	C,SS		/				/				/				/				/				/									0	S			0	S					00 FT/SED
S-Q04R	6ALEV-1-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	6ALEV-2-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	6ALEV-3-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	6ALEV-5-SOS	CMON		/				/				/				/				/				/															NI			
S-Q04R	6ALEV-6-SOS	CMON		/				/				/				/				/				/															NI			
S-Q05R	6ADIS001.24	A,B	0	/	27	S	0	/	26	S	0	/	27	S	0	/	22	S	0	/	23	S	0	/	0	W	0	S			0	S	0	S								
S-Q05R	6ADIS010.02	C		/				/				/				/				/				/							0	S	0	S	1	T	1	T					97 FT/SED, As detected 1 sp. & PCB 1 sp.
S-Q05R	6ADIS017.94	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															NI	net		
S-Q06R	6ABIP000.65	B	0	/	1	W	0	/	1	W	0	/	1	W	0	/	0	W	0	/	0	W		/															T	net		additional monitoring needed
S-Q06R	**6ALEV143.80**	B	0	/	3	S	0	/	3	S	0	/	3	S		/				/				/															**MI**	net		
S-Q06R	6ALEV143.86	A	0	/	59	S	0	/	58	S	0	/	58	S	4	/	55	S	0	/	56	S	0	/	0	W					1	T	0	S								Ni
S-Q06R	**6ALEV145.86**	C,SS		/				/				/				/				/				/									0	S			**1**	**P**					00 FT/SED, PCB 3 sp.
S-Q06R	**6ALEV151.26**	C,SS		/				/				/				/				/				/									0	S			**1**	**P**					00 FT/SED, PCB 1 sp., 2 samples
S-Q07R	**6ASAT000.03**	A	0	/	25	S	0	/	24	S	0	/	25	S	**4**	/	**24**	**N**	0	/	23	S	0	/	0	W					0	S	0	S								
S-Q07R	6ASAT000.05	B	0	/	0	W	0	/	0	W	0	/	0	W		/				/				/															T			additional monitoring needed
S-Q07R	6ASAT004.52	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															T			additional monitoring needed
S-Q07R	6ASAT004.56	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S					97 FT/SED
S-Q07R	6ASAT007.71	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															T			additional monitoring needed
S-Q07R	6ASAT-1-SOS	CMON		/				/				/				/				/				/															NI			
S-Q07R	6ASAT-2-SOS	CMON		/				/				/				/				/				/															NI			
S-Q07R	6ASAT-3-SOS	CMON		/				/				/				/				/				/															NI			
S-Q07R	6ASAT-A-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q07R	6ASAT-BCC-SOS	CMON		/				/				/				/				/				/															NI			
S-Q07R	6ASAT-B-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q07R	6ASAT-C-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q07R	6ASAT-D-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q07R	6ASAT-E-LRP	CMON		/				/				/			0	/	8	S		/				/																		Geomean fecal coliform <200
S-Q08R	**6ABLC002.30**	B	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															**VI**	net		
S-Q08R	**6ALEV130.00**	C,SS		/				/				/				/				/				/							0	S	0	S	0	S	**1**	**P**					VDH Fish Adv.-PCB, 00 & 97 FT/SED; 00 & 97
S-Q08R	6ALEV130.25	SS		/				/				/				/				/				/									0	S									00 sed only
S-Q08R	**6ALEV130.29**	B	0	/	5	S	0	/	5	S	0	/	5	S		/				/				/															**MI**	net		
S-Q08R	6ALEV130.52	SS		/				/				/				/				/				/									0	S									00 sed only
S-Q08R	6ALEV130.79	SS		/				/				/				/				/				/									0	S									00 sed only
S-Q08R	6ALEV131.14	SS		/				/				/				/				/				/							0	S	0	S									00 sed only
S-Q08R	6ALEV131.27	SS		/				/				/				/				/				/									1	T									00 sed only, PCB
S-Q08R	6ALEV131.52	A	0	/	60	S	0	/	59	S	0	/	59	S	4	/	55	S	0	/	55	S	0	/	0	W					0	S	0	S								

Tennessee - Big Sandy Basin
Appendix B for the 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA																SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																						Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status						
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals				Organics				Metals		Organics		Metals		Organics		Mon	Type	Comments
S-Q08R	6ALEV131.88	SS		/				/				/				/				/				/									0	S								00 sed only
S-Q08R	6ALEV132.16	SS		/				/				/				/				/				/									0	S								00 sed only
S-Q08R	6ALEV132.31	SS		/				/				/				/				/				/									0	S								00 sed only
S-Q08R	6ALEV132.62	SS		/				/				/				/				/				/									0	S								00 sed only
S-Q08R	6ALEV132.91	SS		/				/				/				/				/				/									0	S								00 sed only
S-Q08R	**6ALEV134.82**	C		/				/				/				/				/				/									0	S			**1**	**P**				VDH Fish Adv.-PCB, 00 FT/SED, PCB 3 sp.
S-Q08R	**6ALEV141.28**	C,SS		/				/				/				/				/				/									0	S			**1**	**P**				VDH Fish Adv.-PCB, 00 FT/SED, PCB 2 sp.
S-Q09R	6ARSS034.53	A,B	0	/	12	W	0	/	12	W	0	/	12	W	0	/	11	S	0	/	12	S		/															NI	net	
S-Q10R	6AFRY002.25	B	0	/	1	W	0	/	0	W	0	/	1	W		/				/				/															NI	net	
S-Q10R	6ARSS026.98	A	0	/	44	S	0	/	44	S	0	/	43	S	0	/	41	S	0	/	41	S	0	/	0	W					0	S	0	S								
S-Q11R	6AMCR000.20	A,B	0	/	28	S	0	/	28	S	0	/	28	S	1	/	26	S	0	/	26	S	0	/	0	W					0	S	0	S							NI	net	
S-Q11R	6AMCR000.54	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S				97 FT/SED
S-Q11R	6AMCR000.55	B	0	/	2	S	0	/	2	S	0	/	2	S		/				/				/															NI	net	
S-Q11R	**6AMCR007.46**	A	0	/	25	S	0	/	25	S	0	/	25	S	**3**	/	**22**	**P**	0	/	24	S	0	/	0	W					0	S	0	S								
S-Q12R	**6ARPC000.52**	B	0	/	2	S	0	/	1	W	0	/	2	S		/				/				/															**MI**	net	
S-Q12R	6ARSS009.11	SS		/				/				/				/				/				/							0	S	0	S								96 sed
S-Q12R	6ARSS011.54	A	0	/	5	S	0	/	5	S	0	/	4	S	0	/	2	S	1	/	4	S	0	/	0	W																
S-Q12R	6ARSS014.15	A	0	/	53	S	0	/	53	S	0	/	53	S	1	/	50	S	0	/	52	S	0	/	0	W					0	S	0	S								
S-Q12R	6ARSS025.40	A	0	/	3	S	0	/	3	S	0	/	2	S	0	/	0	W	1	/	2	S	0	/	0	W																
S-Q12R	**6ARSS025.55**	C		/				/				/				/				/				/							0	S	0	S	0	S	**1**	**P**				97 FT/SED, PCB 4 sp.
S-Q13L	**6ACNR001.03**	L	0	/	20	S	**12**	**/**	**20**	**N**	0	/	2	S	0	/	1	W	0	/	1	W	0	/	1	W																Flannagan Reservoir
S-Q13L	6APNK001.26	L	0	/	6	S	0	/	6	S	0	/	6	S	0	/	1	W		/				/					0	S	0	S	0	S								North Fork of Pound Reservoir-Dam
S-Q13L	6APNK001.29	C		/				/				/				/				/				/							0	S	0	S	1	T	0	S				97 FT/SED, Hg 1 sp.
S-Q13L	6APNK001.87	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																		North Fork of Pound Reservoir-North Arm
S-Q13L	6APNK002.08	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																		North Fork of Pound Reservoir-South Arm
S-Q13L	6APNR001.82	L,C	0	/	40	S	0	/	40	S	0	/	2	S	0	/	1	W	0	/	1	W	0	/	1	W	0	S	0	S	0	S	0	S	0	S	0	S				Flannagan Reservoir
S-Q13L	6APNR002.15	C		/				/				/				/				/				/											1	T	1	T				97 FT/SED, As detected 2 sp. & Aldrin 1 sp.
S-Q13L	**6APNR007.67**	L,C	0	/	26	S	**20**	**/**	**26**	**N**	0	/	2	S	0	/	1	W	0	/	1	W		/											0	S	0	S				Fish tissue 1997,Flannagan Reservoir
S-Q13R	**6APNK000.08**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**	net	
S-Q13R	6APNR023.86	A	0	/	23	S	0	/	23	S	0	/	23	S	1	/	23	S	0	/	23	S	0	/	0	W					1	T	0	S								Ni
S-Q13R	6APNR028.76	B		/				/				/				/				/				/															T			additional monitoring needed
S-Q13R	**6APNS000.40**	B	0	/	4	S	0	/	4	S	0	/	4	S		/				/				/															**MI**	net	
S-Q13R	6APNS004.98	B	0	/	0	W	0	/	0	W	0	/	0	W		/				/				/															T	net		additional monitoring needed
S-Q13R	**6APNS008.73**	B	0	/	0	W	0	/	0	W	0	/	0	W		/				/				/															**VI**	net	
S-Q14L	6ACNR003.00	C		/				/				/				/				/				/							0	S	0	S	0	S	0	S				97 FT/SED
S-Q14R	6ACNR009.17	A	0	/	23	S	0	/	23	S	0	/	23	S	0	/	21	S	1	/	23	S	0	/	0	W					0	S	0	S								
S-Q14L	6ACNR001.03	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W		/				/																		Lake
S-Q14R	6ACNR009.17	A	0	/	23	S	0	/	23	S	0	/	23	S	0	/	21	S	1	/	23	S	0	/	0	W					0	S	0	S								
	Total Stations = 350																																								

York River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN MONITORING DATA												OTHER WATER COLUMN DATA												SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
																																					Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status										#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
N-F01R	**8-SAR097.82**	A	0	/	23	S	0	/	23	S	2	/	23	S	**9**	**/**	**24**	**N**	13	/	23	T							0	S	0	S	0	S							
N-F01R	8-SAR099.84	C																													0	S	0	S	0	S	0	S			00 FT/SED
N-F01R	8SAR-SR1A-MPRA	CMON	0	/	8	S													4	/	8	T																			Cit Mon
N-F01R	8SAR-SR1B-MPRA	CMON	0	/	8	S													1	/	8	S																			Cit Mon
N-F02R	8-BVR005.57	A	0	/	1	W	0	/	1	W	0	/	1	W													0	S													
N-F02R	8-SAR070.96	A	0	/	22	S	0	/	22	S	0	/	22	S	2	/	23	S	0	/	23	S							0	S	0	S	0	S							
N-F02R	8-TYD000.02	A	0	/	1	W	0	/	1	W	0	/	1	W													0	S													
N-F02R	8SAR-SR2-MPRA	CMON	0	/	8	S													0	/	8	S																			Cit Mon
N-F03R	8-SAR044.05	C																													0	S	0	S	0	S	0	S			00 FT/SED
N-F03R	8-SAR052.03	A	0	/	22	S	0	/	22	S	0	/	22	S	1	/	23	S	0	/	23	S							0	S	0	S	0	S							
N-F03R	**8-TLR002.54**	A	0	/	19	S	0	/	19	S	1	/	19	S	**3**	**/**	**20**	**P**	1	/	20	S							0	S	0	S	0	S							
N-F03R	8-TLR014.44	B																																					SI		
P-F04R	**8-SAR001.11**	A	0	/	58	S	0	/	58	S	0	/	58	S	**11**	**/**	**58**	**P**	4	/	59	S		/						0 S	0	S	0	S							
P-F04R	**8-SAR021.22**	A,C	0	/	25	S	0	/	25	S	1	/	25	S	**7**	**/**	**26**	**N**	1	/	26	S		/						0 S	0	S	0	S	0	S	0	S			FT/SED 96
P-F04R	8SAR-SOS	CMON																																					NI		Citizen benthic monitoring
P-F04R	8SAR-SR3-MPRA	CMON	0	/	8	S		/				/				/			0	/	9	S		/																	Citizen monitoring
P-F04R	8SAR-SR4-MPRA	CMON	0	/	8	S		/				/				/			0	/	11	S		/																	Citizen monitoring
P-F05R	8-NFD002.26	A	0	/	25	S	1	/	25	S	1	/	25	S	2	/	25	S	0	/	25	S		/						0 S	0	S	0	S							
P-F05R	8NFD-SR5-MPRA	CMON	0	/	8	S		/				/				/			0	/	9	S		/																	Citizen monitoring
N-F06R	**8-BRC001.88**	A,B	0	/	29	S	1	/	29	S	0	/	25	S	**6**	**/**	**20**	**N**	0	/	20	S							0	S	0	S	0	S					NI	NET	
N-F06R	**8-GMC002.19**	A	0	/	23	S	0	/	23	S	0	/	21	S	**4**	**/**	**23**	**P**	0	/	23	S					0	S	0	S	0	S	0	S							
N-F06R	8-HCS000.20	A	0	/	22	S	0	/	22	S	0	/	20	S	0	/	23	S	0	/	22	S							0	S	0	S	0	S							
N-F06R	**8-MTN000.96**	A	0	/	21	S	1	/	21	S	0	/	18	S	**4**	**/**	**20**	**P**	1	/	20	S							0	S	0	S	0	S							
N-F06R	3MTR-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Excellent Rating
N-F06R	8NAN-SR6-MPRA	CMON	0	/	8	S													0	/	9	S																			Cit Mon
N-F07L	**8-CON003.84**	C																													3	T	0	S	0	S	**1**	**P**			00 FT/SED, PCB 2 sp & sed Cu, Pb & Zn
N-F07L	**8-GMC001.43**	C																													0	S	0	S	0	S	**1**	**P**			00 FT/SED, PCB 2 sp.
N-F07L	8-PMC010.07	C																													0	S	0	S	0	S	0	S			95 FT/SED; Correct rivermile is ~ 5.1 (in Lake).
N-F07L	8-NAR034.92	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W					0	S	0	S	0	S	0	S							
N-F07L	**8-NAR034.92**	C																													0	S	0	S	0	S	**1**	**P**			00 FT/SED, 00 & 94 PCB 1 sp.
N-F07L	8-NAR043.00	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	S											
N-F07L	8-NAR047.17	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	S											
N-F07L	8-NAR054.17	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	S											Station is in lake, identified as riverine.
N-F07L	8CON-LA1-MPRA	CMON																	0	/	3	S																			Cit Mon
N-F07R	8-ELK006.30	C																													0	S	0	S							00 Sed only
N-F07R	**8-PLT002.82**	A	0	/	20	S	0	/	20	S	0	/	18	S	**4**	**/**	**20**	**P**	0	/	20	S							0	S	0	S	0	S							
N-F07R	**8-PMC009.85**	A	0	/	20	S	0	/	20	S	0	/	18	S	**4**	**/**	**19**	**P**	1	/	20	S							0	S	0	S	0	S							
N-F07R	8-PMC009.85	C																													0	S	0	S	0	S	0	S			00 FT/SED
N-F07R	**8-PMC014.75**	SS	0	/	13	S	0	/	13	S	0	/	9	S	**2**	**/**	**13**	**P**	0	/	12	S																			
N-F07R	8-RCK000.93	C																													0	S	0	S							00 sed only
N-F07R	8-RIG004.52	SS	0	/	12	S	0	/	12	S	0	/	8	S	0	/	12	S	0	/	11	S							0	S											
N-F07R	8-THK000.09	SS	0	/	11	S	0	/	11	S	0	/	8	S	1	/	10	S	0	/	10	S							0	S											
N-F07R	**8-TRY004.98**	A	0	/	20	S	1	/	20	S	0	/	18	S	**4**	**/**	**20**	**P**	0	/	20	S							0	S	0	S	0	S							
N-F07R	**8-TRY006.72**	SS	0	/	11	S	**2**	**/**	**11**	**P**	0	/	8	S	0	/	10	S	0	/	10	S																			
N-F07R	8PMC-SR7A-MPRA	CMON	0	/	6	S													0	/	7	S																			Cit Mon
N-F07R	8TRY-SR78-MPRA	CMON	0	/	6	S													1	/	7	S																			Cit Mon
N-F07R	8THK-5-SOS	CMON																																					LP	CMON	Cit Mon: 1/1 Good Rating
N-F08R	**8-CON005.38**	A	1	/	23	S	0	/	23	S	**23**	**/**	**23**	**N**	0	/	22	S	0	/	23	S					2	T	0	S	1	T	0	S							'98 Zn and Cu in water, '96 Cu in sed
N-F08R	8CON-SR8-MPRA	CMON																	0	/	3	S																			Cit Mon
P-F09R	8-NAR001.07	C																													0	S	0	S	0	S	0	S			00 FT/SED
P-F09R	8-NAR004.83	SS																													0	S	0	S							96 sed
P-F09R	8-NAR005.42	A	0	/	58	S	0	/	58	S	0	/	58	S	5	/	58	S	1	/	59	S		/					0	S	0	S	0	S							
P-F09R	8-NAR029.65	SS																													0	S	0	S							96 sed
P-F09R	**8-NST003.46**	A	0	/	18	S	**2**	**/**	**18**	**P**	1	/	16	S	**2**	**/**	**19**	**P**	1	/	18	S		/					0	S	0	S									Zn sed in '95 - ok in '99; two pH datapts. discarded
N-F10R	8LTL-SR10-MPRA	CMON	0	/	9	S													0	/	9	S																			Cit Mon
P-F11R	8-LTL009.54	A,C	0	/	25	S	0	/	25	S	1	/	25	S	0	/	25	S	0	/	24	S		/					0	S	0	S	0	S	0	S	0	S			00 FT/SED
P-F11R	8LTL-PAM1-ALL	CMON	0	/	17	S	0	/	29	S		/				/				/				/																	Citizen monitoring
P-F11R	8LTL-SR11-MPRA	CMON	0	/	8	S		/				/				/			0	/	8	S		/																	
P-F12R	01673000	USGS	0	/	162	S	0	/	161	S	1	/	164	S		/			0	/	4	S		/																	
P-F12R	8CRU-PAM6-ALL	CMON	0	/	5	S	0	/	5	S		/				/				/				/																	Citizen monitoring
P-F12R	**8-HQT002.12***	A	0	/	4	S	0	/	4	S	**2**	**/**	**4**	**N**	1	/	4	S	0	/	4			/					0	W											95 - '96; Discontinued

York River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals	Organics	Metals		Organics		Metals		Organics		Mon	Type	Comments
P-F12R	8-MCP002.42	A,C	0	/	27	S	0	/	26	S	3	/	26	P	3	/	26	P	0	/	27	S		/					0	S	0	S	0	S	0	S			00 FT/SED
P-F12R	8-PMK082.34	A,CB	0	/	57	S	0	/	57	S	0	/	57	S	6	/	54	P		/				/															TF4.0P
P-F12R	8-PMK082.74	SS		/				/				/				/				/				/							0	S	0	S					97 sed
P-F12R	8-PMK088.11	C																													0	S	0	S	0	S	0	S	00 FT/SED
P-F12R	8-PMK092.20	SS		/				/				/				/				/				/							0	S	0	S					97 sed
P-F12R	8PMK-PAM5-ALL	CMON	0	/	21	S	0	/	33	S		/				/				/				/															Citizen monitoring
P-F12R	8PMK-SR12-MPRA	CMON	0	/	8	S		/				/				/			0	/	9	S		/															Citizen monitoring
P-F13E	8-PMK039.74	SS		/	1		1	/	1	W	0	/	1	W		/				/				/															
P-F13E	8-PMK048.80	A		/	59		1	/	59	S	2	/	59	S	6	/	57	P		/				/					0	S	0	S	0	S					
P-F13E	8-PMK056.87	A		/	40		1	/	40	S	0	/	40	S	0	/	40	S		/				/					0	S	0	S	0	S					
P-F13E	8-PMK-145-ALL	CMON	0	/	11	S	0	/	11	S		/				/				/				/															Citizen monitoring
P-F13E	8PMK-SR13-MPRA	CMON	0	/	8	S		/				/				/			0	/	10	S		/															Citizen monitoring
P-F13R	8-ACQ001.35	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/															
P-F13R	8-ACQ004.43	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															
P-F13R	8-ACQ008.01	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/															
P-F13R	8-BLC001.77	A	0	/	25	S	0	/	25	S	0	/	25	S	3	/	24	P	0	/	24	S		/					0	S	0	S	0	S					
P-F13R	8-JKC004.15	A	0	/	29	S	13	/	29	N	1	/	29	S	0	/	25	S	2	/	25	S		/					0	S	0	S	0	S					
P-F13R	8-JKC005.80	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/															
P-F13R	8-MDQ001.58	A	0	/	24	S	0	/	24	S	5	/	24	P	6	/	24	N	0	/	24	S		/					0	S	0	S	0	S					
P-F13R	8-MLY001.58	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/															
P-F13R	8-MNQ004.19	A	0	/	24	S	0	/	24	S	7	/	24	N	5	/	24	N	0	/	24	S		/					0	S	0	S	0	S					
P-F13R	8-PMK063.55	C		/				/				/				/				/				/											0	S	0	S			Fish tissue 1994
P-F13R	8PMK-141A-ALL	CMON	0	/	8	S	0	/	9	S		/				/				/				/															Citizen monitoring
P-F13R	8PON-PAM3-ALL	CMON	0	/	18	S	0	/	30	S		/				/				/				/															Citizen monitoring
P-F13R	8-TPT004.37	A	0	/	26	S	0	/	26	S	2	/	26	S	5	/	27	P	2	/	19	T		/					0	S									
P-F14E	04Y25	B		/				/				/				/				/				/														VI	B-IBI	Random B-IBI (YRKMH)
P-F14E	04Y26	B		/				/				/				/				/				/														MI	B-IBI	Random B-IBI (YRKMH)
P-F14E	04Y27	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (YRKMH)
P-F14E	04Y29	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (YRKMH)
P-F14E	06Y20	B		/				/				/				/				/				/														SI	B-IBI	Random B-IBI (YRKMH)
P-F14E	07Y18	B		/				/				/				/				/				/														MI	B-IBI	Random B-IBI (YRKMH)
P-F14E	03Y27	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (PMKOH)
P-F14E	06Y27	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (PMKOH)
P-F14E	06Y23	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (PMKOH)
P-F14E	07Y19	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (PMKOH)
P-F14E	07Y20	B		/				/				/				/				/				/														MI	B-IBI	Random B-IBI (PMKOH)
P-F14E	06Y24	B		/				/				/				/				/				/														MI	B-IBI	Random B-IBI (PMKTF)
P-F14E	06Y25	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (PMKTF)
P-F14E	07Y21	B		/				/				/				/				/				/														NI	B-IBI	Random B-IBI (PMKTF)
P-F14E	8-PMK006.36	A,CB,C		/	168		12	/	168	S	0	/	114	S	3	/	59	S		/			0	/	21	S			0	S	0	S	0	S	0	S	1	T			00 FT/SED, PCB 1 sp.
P-F14E	8-PMK019.17	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-F14E	8-PMK029.23	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-F14E	8-PMK032.00	C		/				/				/				/				/				/							1	T	0	S	0	S	1	T			00 FT/SED, sed Zn; 95 PCB 1 sp.
P-F14E	8-PMK034.17	A,CB		/	172		10	/	172	S	0	/	115	S	0	/	56	S		/			0	/	16	S			0	S	0	S							TF4.2
P-F14E	8-PMK-143-ALL	CMON	0	/	6	S	0	/	6	S		/				/				/				/															Citizen monitoring
P-F14E	8PMK-SR14-MPRA	CMON	0	/	9	S		/				/				/			0	/	10	S		/															Citizen monitoring
P-F14E	MA97/98-0171	MAIA		/	4		0	/	4	S	0	/	4	S		/				/			0	/	4	S			0	S	0	S							
P-F14E	MA97-0166	MAIA		/				/				/				/				/				/															
P-F14E	MA97-0167	MAIA		/				/				/				/				/				/															
P-F14E	MA97-0168	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0169	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0170	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0172	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0173	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0174	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0175	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0176	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0177	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0178	MAIA		/	2		0	/	2	S	0	/	2	S		/				/			0	/	2	S			0	S	0	S							
P-F14E	MA97-0693/RET4.1	MAIA		/	5		0	/	3	S	0	/	4	S		/				/			0	/	2	S													
P-F14E	MA97-0831	MAIA		/	6		0	/	6	S	0	/	6	S		/				/			0	/	2	S													
P-F14E	MA97-0929	MAIA		/	1		0	/	1	W		/				/				/				/															
P-F14E	MA97-0930	MAIA		/	1		1	/	1	W		/				/				/				/															
P-F14E	MA97-0931	MAIA		/	1		0	/	1	W		/				/				/				/															
P-F14E	MA97-0946	MAIA		/	1		0	/	1	W		/				/				/				/															

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			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																					
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio Mon	Station Type	Comments
P-F14E	TF4.2	B		/				/				/				/				/				/															NI	B-IBI	B-IBI - fixed station
P-F14R	8-CMC005.16	A	0	/	27	S	2	/	27	S	1	/	27	S	2	/	27	S	3	/	27	T		/					0	S	0	S	0	S							
P-F14R	8-HSN002.12	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	
P-F14R	8-MCR001.64	A	0	/	27	S	0	/	27	S	1	/	27	S	1	/	26	S	0	/	27	S		/					0	S	0	S	0	S							
N-F15L	8-NIR012.99	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W					1	T	0	S											1 Exceedance of Mn in PWS waters in 8/96.
N-F15L	8-NIR016.09	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	S											
N-F15L	8-PNB000.05	L	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W	0	/	1	W							0	S											
N-F15R	8-NIR003.96	A	0	/	45	S	0	/	45	S	2	/	42	S	1	/	46	S	1	/	47	S							0	S	0	S	0	S							
N-F15R	8-NIR009.61	C																													0	S	0	S	0	S	0	S			00 FT/SED
N-F15R	8NIR-SR15-MPRA	CMON	0	/	8	S													0	/	8	S																			Cit Mon
N-F16R	8-POR008.97	A	0	/	44	S	0	/	44	S	1	/	42	S	1	/	43	S	1	/	44	S					0	S	0	S	0	S	0	S							
N-F16R	**8-POR022.56**	A	0	/	22	S	1	/	22	S	0	/	20	S	**4**	**/**	**22**	**P**	1	/	22	S							0	S	0	S	0	S							
N-F16R	8POR-MAT5-ALL	CMON	0	/	25	S	0	/	38	S																															Cit Mon
N-F16R	8POR-MAT2-ALL	CMON	0	/	15	S	1	/	27	S																															Cit Mon
N-F16R	8POR-SR16-MPRA	CMON	0	/	8	S													0	/	10	S																			Cit Mon
N-F17R	8-MPN094.79	A,B	0	/	54	S	1	/	54	S	1	/	51	S	0	/	46	S	1	/	47	S					0	S	0	S	0	S	0	S					NI	REF	
N-F17R	8-MPN085.62	SS																													0	S	0	S							97 sed
N-F17R	8MPN-SR17-MPRA	CMON	0	/	7	S													0	/	9	S																			Cit Mon
N-F18R	8-MTA001.69	A,B,C	0	/	54	S	1	/	54	S	0	/	51	S	3	/	45	S	0	/	46	S					0	S	0	S	0	S	0	S	0	S	0	S	NI	NET	00 FT/SED
N-F18R	**8-TAR002.40**	A	0	/	22	S	1	/	22	S	1	/	20	S	**3**	**/**	**22**	**P**	2	/	22	S							0	S	0	S	0	S							
N-F18R	8MTA-SR18-MPRA	CMON	0	/	8	S													0	/	8	S																			Cit Mon
N-F19R	8-STH004.37	A, C	0	/	21	S	0	/	21	S	1	/	19	S	0	/	19	S	0	/	20	S							0	S	0	S	0	S	0	S	0	S			00 FT/SED
N-F19R	167414450	USGS	0	/	1	W	0	/	1	W	1	/	1	W					0	/	1	W																			USGS Station
N-F19R	8HBS-MAT4A-ALL	CMON	0	/	2	S	1	/	2	S																															Cit Mon
N-F19R	8STH-SR19-MPRA	CMON	0	/	7	S													0	/	7	S																			Cit Mon
N-F20R	8-PCT002.29	A	0	/	46	S	2	/	46	S	3	/	43	S	2	/	46	S	4	/	47	S							0	S	0	S	0	S							
N-F20R	01674160	USGS	0	/	3	S	0	/	1	W	0	/	1	W																											USGS Station
N-F20R	8PCT-SR20-MPRA	CMON	0	/	8	S													0	/	8	S																			Cit Mon
N-F21R	**8-HER005.12**	A	0	/	26	S	2	/	26	S	**19**	**/**	**26**	**N**	**4**	**/**	**26**	**P**	0	/	27	S							0	S	0	S	0	S							
N-F21R	8-MPN073.75	A	0	/	45	S	0	/	45	S	2	/	42	S	0	/	43	S	0	/	46	S					0	S	0	S	0	S	0	S							
N-F21R	8-MPN063.85	SS																													0	S	0	S							97 sed
N-F21R	**8-MPN054.17**	A,CB	0	/	54	S	0	/	54	S	**10**	**/**	**53**	**P**	0	/	54	S											0	S											TF4.0M
N-F21R	**8-RDY003.43**	A	0	/	22	S	1	/	22	S	**15**	**/**	**20**	**N**	0	/	19	S	0	/	21	S							0	S	0	S	0	S							
N-F21R	167419910	USGS	0	/	1	W	0	/	1	W	1	/	1	W					0	/	1	W																			USGS Station
N-F22R	8-BEV006.78	A	0	/	21	S	0	/	21	S	1	/	19	S	0	/	21	S	1	/	21	S							0	S	0	S	0	S							
N-F22R	**8-MAR004.41**	A,C	0	/	23	S	0	/	23	S	**4**	**/**	**21**	**P**	0	/	21	S	0	/	21	S					0	S	0	S	0	S	0	S	0	S	0	S			00 FT/SED
N-F22R	8-MAR000.76	SS																													0	S	0	S							96 Sed
N-F22R	167428850	USGS	0	/	1	W	0	/	1	W	0	/	1	W					0	/	1	W									0	S	0	S							USGS Station
N-F22R	167437550	USGS	0	/	1	W	0	/	1	W	0	/	1	W					0	/	1	W									0	S	0	S							USGS Station
N-F22R	8MAR-SR22-MPRA	CMON	0	/	8	S													0	/	8	S									0	S	0	S							Cit Mon
P-F23E	05Y25	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNTF)
P-F23E	07Y25	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNTF)
P-F23E	**8-MPN029.08**	A,CB		/	109		0	/	109	S	**16**	**/**	**109**	**P**	1	/	56	S		/			0	/	18	S					0	S	0	S							TF4.4
P-F23E	8-MPN031.15	SS		/				/				/				/				/				/							0	S	0	S							97 sed
P-F23E	8MPN-147-ALL	CMON	0	/	64	S	0	/	88	S		/				/				/				/																	Citizen monitoring
P-F23E	8MPN-SR23-MPRA	CMON	0	/	8	S		/				/				/			0	/	8	S		/																	Citizen monitoring
P-F23E	**MA97-0686/TF4.4**	MAIA		/	6		0	/	5	S	**2**	**/**	**6**	**N**		/				/			0	/	2	S															
P-F23E	MA98-1006	MAIA		/				/				/				/				/				/																	
P-F23E	MA98-1007	MAIA		/				/				/				/				/				/																	
P-F23E	MA98-1008	MAIA		/				/				/				/				/				/																	
P-F23E	MA98-1009	MAIA		/				/				/				/				/				/																	
P-F23R	8-CLK002.77	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F23R	**8-DKW000.12**	A	0	/	27	S	**6**	**/**	**27**	**P**	1	/	27	S	1	/	27	S	0	/	27	S		/					0	S	0	S	0	S							
P-F23R	8-DKW001.12	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F23R	8-DKW004.31	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F23R	8-DKW005.73	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	
P-F23R	8-DWD000.77	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	
P-F23R	8-GNT001.54	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F23R	8-LDN001.19	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F23R	8-MKT001.04	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F23R	8-MKT002.77	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F23E	**8-MPN039.10**	A		/	39		0	/	39	S	**5**	**/**	**39**	**P**	0	/	40	S		/				/					0	S	0	S	0	S							
P-F23R	**8-MPN041.41**	C		/				/				/				/				/				/							0	S	0	S	1	T	**3**	**P**			PCB 1sp. 94, 96 FT- benzo(b)&benzo(k)fluoranthene 1sp/3sp & As 2sp.

York River Basin
Appendix B for 2002 305(b) and 303(d) Reports

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus																				Mon	Type	Comments
P-F23R	8-MPN044.24	SS																													0	S	0	S							96 sed
P-F23R	8MPN-140A-ALL	CMON	0	/	48	S	0	/	90	S		/				/				/				/																	Citizen monitoring
P-F23R	8MPN-140-ALL	CMON	0	/	87	S	0	/	88	S		/				/				/				/																	Citizen monitoring
P-F23R	8MPN-149-ALL	CMON	0	/	35	S	0	/	38	S		/				/				/				/																	Citizen monitoring
P-F23E	8MPN-161-ALL	CMON	0	/	24	S	0	/	24	S		/				/				/				/																	Citizen monitoring
P-F23R	8MPN-SR21-MPRA	CMON	0	/	8	S		/				/				/			0	/	8	S		/																	Citizen monitoring
P-F23R	8-WKN003.16	SS	0	/	1	W	1	/	1	W	1	/	1	W		/				/				/																	
P-F23R	8-XDN000.12	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	
P-F24E	04Y28/MA97-0687	B,MAIA		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNTF)
P-F24E	05Y23	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNTF)
P-F24E	05Y24	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNTF)
P-F24E	03Y28	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNOH)
P-F24E	03Y29	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNOH)
P-F24E	07Y22	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (MPNOH)
P-F24E	07Y23	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNOH)
P-F24E	07Y24	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNOH)
P-F24E	8-MPN014.28	SS		/				/				/				/				/				/							0	S	0	S							96 sed
P-F24E	8-MPN017.46	A		/	57		0	/	57	S	5	/	57	S	2	/	56	S		/				/					0	S	0	S	0	S							
P-F24E	8MPN-159-ALL	CMON	0	/	2	S	0	/	2	S		/				/				/				/																	Citizen monitoring
P-F24E	8MPN-159B-ALL	CMON	0	/	102	S	0	/	130	S		/				/				/				/																	Citizen monitoring
P-F24E	8MPN-SR24-MPRA	CMON	0	/	7	S		/				/				/			0	/	9	S		/																	Citizen monitoring
P-F24E	MA97-0916	MAIA		/	1		0	/	1	W		/				/				/				/																	
P-F24E	MA98-1010	MAIA		/				/				/				/				/				/																	
P-F24R	8-CTH001.96	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/																	
P-F24R	8-GRS001.88	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F24R	8-HTQ003.77	A	0	/	26	S	1	/	26	S	0	/	26	S	1	/	27	S	1	/	27	S		/					0	S	0	S	0	S							
P-F24R	8-MHC001.61	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F24R	8-MIL001.19	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F24R	8-MPK002.15	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F24R	8-PLY002.31	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F24R	8-XAV002.16	SS	0	/	1	W	0	/	1	W	1	/	1	W		/				/				/																	
P-F24R	8-XDL001.85	SS	0	/	1	W	1	/	1	W	1	/	1	W		/				/				/																	
P-F25E	03Y26	B		/				/				/				/				/				/															MI	B-IBI	Random B-IBI (YRKMH)
P-F25E	06Y21	B		/				/				/				/				/				/															VI	B-IBI	Random B-IBI (YRKMH)
P-F25E	05Y26	B		/				/				/				/				/				/															NI	B-IBI	Random B-IBI (MPNOH)
P-F25E	06Y22	B		/				/				/				/				/				/															SI	B-IBI	Random B-IBI (MPNOH)
P-F25E	8-MPN001.34	C		/				/				/				/				/				/											0	S	0	S			95 FT/SED
P-F25E	8-MPN004.39	A,CB		/	278		1	/	278	S	3	/	112	S	0	/	59	S		/			0	/	21	S					0	S	0	S							RET4.2
P-F25E	8YRK-SR25-MPRA	CMON	0	/	7	S		/				/				/				/				/																	Citizen monitoring
P-F25E	MA97-0688/RET4.2	MAIA		/	4		0	/	4	S	0	/	4	S		/				/			0	/	2	S															
P-F25R	8-BMC003.65	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F25R	8-CBN002.69	SS	0	/	1	W	0	/	1	W	0	/	1	W		/				/				/																	
P-F25R	8-LTS001.65	SS	0	/	1	W	1	/	1	W	0	/	1	W		/				/				/																	
P-F25R	**8-TST001.81**	A	0	/	25	S	**4**	**/**	**26**	**P**	1	/	25	S	**3**	**/**	**27**	**P**	1	/	27	S		/					0	S	0	S	0	S							
T-F26E	8-PHB001.40	A		/			0	/	27	S	0	/	27	S	1	/	27	S		/				/					0	S	0	S	0	S							
T-F26E	8-PTK003.62	A		/			1	/	19	S	0	/	18	S	2	/	21	S		/				/					0	S	0	S	0	S							
T-F26R	8-PTK008.92	A		/			2	/	25	S	0	/	24	S	2	/	27	S		/				/					0	S											
T-F26E	**8-QEN002.47**	A		/			**12**	**/**	**57**	**P**	0	/	57	S	**6**	**/**	**57**	**P**		/				/					0	S	0	S	0	S							
T-F26E	8-QEN005.62	SS		/				/				/				/				/				/							0	S	1	T							94 PCB
T-F26E	8-YRK031.39-TL	A		/			1	/	70	S	0	/	62	S	0	/	58	S		/			0	/	56	S			0	S											RET4.3
T-F26E	8-YRK031.39-BL	A/B,CB		/			2	/	145	S	0	/	67	S		/				/				/															T	B-IBI	RET4.3,B-IBI Fixed Sta,Segment YRKMH
T-F26E	8-YRK031.37	C		/				/				/				/				/				/											0	S	1	T			2000 PCB 1 species
T-F26E	8-YRK022.70-TL	A,CB		/			1	/	112	S	0	/	54	S	0	/	60	S		/			1	/	54	S			0	S											LE4.1
T-F26E	**8-YRK022.70-BL**	A/B,CB		/			9	/	184	S	0	/	55	S		/				/				/															**VI**	B-IBI	LE4.1, B-IBI Fixed Sta,Segment YRKMH
T-F26E	8-YRK024.11	A		/			0	/	19	S	0	/	19	S		/				/			0	/	21	S			0	S											
T-F26E	03Y11	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y12	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y13	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y15	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y16	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y17	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y18	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y19	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y20	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment YRKMH

			CONVENTIONAL WATER COLUMN			OTHER WATER COLUMN DATA				SEDIMENT		FISH TISSUE		BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA													Pink = Threatened Waters
			#Violations/# Samples/Status			#Violations/# Samples/Status			#Violations/Status	#Violations/Status		#Violations/Status				
	Monitoring			Dissolved		Fecal	Total							Bio	Station	
WBID	Station	Type	Temperature	Oxygen	pH	Coliform	Phosphorus	Chlorophyll A	Metals	Organics	Metals	Organics	Metals	Organics	Mon	Type	Comments
T-F26E	03Y24	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y25	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	03Y26	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y09	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y10	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y12	B	/	/	/	/	/	/							SI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y13	B	/	/	/	/	/	/							SI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y14	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y15	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y16	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y17	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y19	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y21	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y22	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	04Y23	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y07	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y08	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y09	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y10	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y11	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y12	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y13	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y14	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y15	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y16	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y17	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y18	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y19	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y20	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y21	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	05Y28	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y05	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y06	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y07	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y08	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y09	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y10	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y11	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y12	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y14	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y16	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y17	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y18	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y20	B	/	/	/	/	/	/							SI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y29	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	06Y30	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y03	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y04	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y05	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y06	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y07	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y08	B	/	/	/	/	/	/							SI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y09	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y11	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y13	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y14	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y15	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y16	B	/	/	/	/	/	/							NI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y17	B	/	/	/	/	/	/							VI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y18	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F26E	07Y26	B	/	/	/	/	/	/							MI	B-IBI	B-IBI Random Station,Segment YRKMH
T-F27E	8-FEL000.19	A	/	0 / 57 S	0 / 57 S	1 / 57 S	/	/		0 S	0 S	0 S					
T-F27E	**8-KNG000.18**	C	/	/	/	/	/	/					0 S	**4 P**			2000 PCB 4 species
T-F27E	**8-KNG004.46**	A	/	**10 / 57 P**	0 / 57 S	**9 / 57 P**	/	/		0 S	0 S	0 S					
T-F27E	8-SRH000.00	PFWQ	/	0 / 30 S	0 / 29 S	/	/	0 / 28 S									Pfisteria Monitoring

			CONVENTIONAL WATER COLUMN												OTHER WATER COLUMN DATA														SEDIMENT				FISH TISSUE				BENTHIC		Bold/Shaded = Impaired Waters
			MONITORING DATA																																				Pink = Threatened Waters
			#Violations/# Samples/Status												#Violations/# Samples/Status												#Violations/Status				#Violations/Status				#Violations/Status				
	Monitoring						Dissolved								Fecal				Total																				Bio	Station	
WBID	Station	Type	Temperature				Oxygen				pH				Coliform				Phosphorus				Chlorophyll A				Metals		Organics		Metals		Organics		Metals		Organics		Mon	Type	Comments
T-F27E	8-SRW001.08	A		/			0	/	24	S	0	/	24	S	2	/	25	S		/				/					0	S	0	S	0	S							
T-F27E	8-YRK016.57	C		/				/				/				/				/				/											0	S	1	T			2000 PCB 1 species
T-F27E	8-YRK011.14-TL	A,CB		/			1	/	151	S	0	/	54	S	0	/	57	S		/			2	/	53	S			0	S											LE4.3B
T-F27E	**8-YRK011.14-BL**	A/B,CB		/			**47**	**/**	**312**	**P**	0	/	55	S		/				/				/															**VI**	B-IBI	LE4.3B, B-IBI Fixed Sta,Segment YRKPH
T-F27E	8-YRK002.92	C																						/											0	S	0	S			
T-F27E	8-YRK001.64-TL	A,CB		/			4	/	214	S	0	/	54	S	0	/	57	S		/			2	/	53	S			0	S											LE4.3
T-F27E	**8-YRK001.64-BL**	A/B,CB		/			**40**	**/**	**281**	**P**	0	/	55	S		/				/				/															**MI**	B-IBI	LE4.3, B-IBI Fixed Sta,Segment YRKPH
T-F27E	8-YRK000.40	SS																						/											0	S	0	S			93
T-F27E	**8-WOR000.35**	C		/				/				/				/				/				/											0	S	**2**	**P**			2000 PCB 2 species
T-F27E	03Y01	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y02	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y03	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y04	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y05	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y06	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y07	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y08	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y09	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	03Y10	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y01	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y02	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y03	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y04	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y05	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y07	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	04Y08	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	05Y01	B		/				/				/				/				/				/															SI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	05Y02	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	05Y03	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	05Y05	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	05Y06	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	06R10	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	06R11	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	06Y01	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	06Y02	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	06Y03	B		/				/				/				/				/				/															VI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	06Y28	B		/				/				/				/				/				/															MI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	07Y01	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	07Y02	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	07Y27	B		/				/				/				/				/				/															NI	B-IBI	B-IBI Random Station,Segment YRKPH
T-F27E	8TMB-13-ALL	CMON		/			0	/	107	S		/				/				/				/																	Citizen's Monitoring
T-F27E	8YRK-16-ALL	CMON		/			1	/	167	S		/				/				/				/																	Citizen's Monitoring
T-F26E	8BND-12-ALL	CMON		/			3	/	143	S		/				/				/				/																	Citizen's Monitoring
T-F27E	8YRK-136-ALL	CMON		/			2	/	136	S		/				/				/				/																	Citizen's Monitoring
T-F27E	8CED*-50A-ALL	CMON		/			0	/	32	S		/				/				/				/																	Citizen's Monitoring
T-F26E	8QEN-15-ALL	CMON		/			1	/	216	S		/				/				/				/																	Citizen's Monitoring
T-F26E	8TSK-10-ALL	CMON		/			0	/	5	S		/				/				/				/																	Citizen's Monitoring
T-F26E	8YRK-11-ALL	CMON		/			0	/	94	S		/				/				/				/																	Citizen's Monitoring
T-F27E	8SRW-17A-ALL	CMON		/			1	/	76	S		/				/				/				/																	Citizen's Monitoring
	Total stations = 363																																								

Appendix B

Appendix B contains all of the monitoring stations and the assessment results for each station used in the 2002 305b assessment. The information is divided into stations associated with each of the 9 river basins. The bold/shaded stations represent stations that are considered impaired. Those stations that are shaded in pink are those stations that are considered fully supporting but threatened or "waters of concern". The following Appendix B "key" identifies the codes used in identification of monitoring station information and assessment results.

Appendix B Key

Station Type
A = DEQ AWQM (ambient)
B = DEQ Biological (benthic)
C = DEQ Fish Tissue/Sediment Station
L = DEQ Lake Station
SS = DEQ Special Studies (special regional ambient studies, special sediment characterization study)
TE = DEQ Tidal Embayment (special study)
PWFQ and PFCO = DEQ Pfiesteria Stations
CB = Chesapeake Bay Program Stations (additional parameter coverage and/or increased sampling frequency)
USFS = United States Forest Service Station
USGS = United States Geological Survey Station
MAIA = Mid Atlantic Integrated Assessment (EPA/Mid Atlantic states special study)
CMON = Citizen Monitoring
TOX = Chesapeake Bay Special Toxics Station
TM = DEQ TMDL Station (special study)

Biological Monitoring Codes
NI = Not Impaired
SI = Slightly Impaired
MI = Moderately Impaired
VI = Severely Impaired
J = Reserve Judgment
HP = Citizen Monitoring High Probability for Adverse Conditions (Threatened)
MP = Citizen Monitoring Medium Probability for Adverse Conditions (Threatened)
LP = Citizen Monitoring Low Probability for Adverse Conditions (Fully Supporting)
T = Unconfirmed Moderate Impaired Rating

Ambient Monitoring Codes
S = Supporting
T = Fully Supporting but Threatened
P = Partial Support
N = Not Supporting
W = Not Assessed
J = Reserve Judgement

Biological Monitoring Station Codes
REF = Reference Station
NET = Ambient Network Station
CMON = Citizen Monitoring
B-IBI = Chesapeake Bay Benthic Index of Biotic Integrity
MAIA = Mid Atlantic Integrated Assessment (EPA/Mid Atlantic States Special Study)

Water Segment Identification *
Blocked B-IBI Random Stations = A Single Water Segment
Pink Stations = Threatened Segments
Bolded and Shaded Stations = Impaired Segments
Non-Bolded Stations = Fully Supporting Segments

* Segment Identification in Appendix B is based on actual sampling data collected during the reporting period, as displayed. This may not necessarily include VDH fish and shellfish advisories. All advisories are included in the assessment database along with Appendix B segments.

Appendix C

SIGNIFICANT LAKES BY REGION

Northern Regional Office – 13 Lakes

Able Lake	Stafford Co.	185 (Acres)	PWS (Public Water Supply)
Lake Anna	Louisa Co.	9,600	
Aquia Reservoir (Smith Lake)	Stafford Co.	219	PWS
Beaverdam Reservoir	Loudoun Co.	350	PWS
Burke Lake	Fairfax Co., VDGIF	218	
Goose Creek Reservoir	Loudoun Co.	140	PWS
Lake Manassas	Pr.William Co.	741	PWS
Motts Run Reservoir	Spotsylvania Co.	160	PWS
Mountain Run Lake	Culpeper Co.	75	PWS
Ni Reservoir	Spotsylvania Co.	400	PWS
Northeast Creek Res.	Louisa Co.	49	PWS
Occoquan Reservoir	Fairfax Co.	1700	PWS
Pelham Lake	Culpeper Co.	253	PWS

Piedmont Regional Office – 12 Lakes

Airfield Pond	Sussex Co., VDGIF	105	
Amelia Lake	Amelia Co., VDGIF	110	
Brunswick Lake	Brunswick Co., VDGIF	150	
Lake Chesdin	Chesterfield Co.	3196	PWS
Chickahominy Lake	Charles City Co.	1500	PWS
Diascund Reservoir	New Kent co.	1700	PWS
Emporia Lake	Greensville Co.	210	PWS
Falling Creek Reservoir	Chesterfield Co.	110	
Lake Gaston	Brunswick Co.	20300	PWS
Great Creek Reservoir (Bannister Lake)	Lawrenceville	305	
Swift Creek Lake	Chesterfield Co.	156	
Swift Creek Reservoir	Chesterfield Co.	1800	PWS

South Central Regional Office – 21 Lakes

Briery Creek Lake	Pr. Edward Co., VDGIF	850	
Brookneal Reservoir	Campbell Co.	25	PWS
Cherrystone Lake	Pittsylvania Co.	105	PWS
Georges Creek Res.	Pittsylvania Co.	1	PWS
Gordon Lake	Mecklenburg Co., VDGIF	157	

Graham Creek Res.	Amherst Co.	50	PWS
Halifax Reservoir	Halifax Co.	410	PWS
Holiday Lake	Appomattox Co.	145	
Kerr Reservoir	Halifax Co., ACOE	48968	PWS
Keysville Lake	Charlotte Co.	42	PWS
Lake Conner	Halifax Co., VDGIF	111	
Lunenburg Beach Lake	Town of Victoria	13	PWS
Modest Creek Reservoir	Town of Victoria	29	PWS
Nottoway Falls Lake	Lunenburg Co.	60	PWS
Nottoway Lake	Nottoway Co.	188	
Nottoway Pond	Nottoway Co.	65	PWS
Pedlar Lake	Amherst Co.	75	PWS
Roaring Fork	Pittsylvania Co.	19	PWS
Stonehouse Creek Res.	Amherst Co.	125	
Thrashers Creek Res.	Amherst Co.	110	
Troublesome Creek Res. (SCS Impoundment #2)	Buckingham Co.	58	PWS

South West Regional Office – 9 Lakes

Appalachia Res.	Wise Co.	17	PWS
Big Cherry Lake	Wise Co.	76	PWS
Byllsby Reservoir	Carroll Co.	335	
J. W. Flannigan Res.	Dickenson Co., ACOE	1143	PWS
Hungry Mother Lake	Smyth Co.	108	PWS
Lake Keokee	Lee Co., VDGIF	100	
Laurel Bed Lake	Russell Co., VDGIF	300	
North Fork Pound Res.	Wise Co., ACOE	154	PWS
South Holston Res.	Washington Co., TVA	7580	PWS

Tidewater Regional Office – 18 Lakes

Lake Cahoon	Suffolk City	508	PWS
Lake Burnt Mills	Isle of Wight Co.	610	PWS
Harwood Mill Pound	York Co.	300	PWS
Lake Kilby	Suffolk City	226	PWS
Lee Hall Reservoir	Newport News	230	PWS
Little Creek Res.	Norfolk City	185	PWS
Little Creek Res.	James City Co.	860	PWS
Lone Star Lake F	Suffolk City	20	PWS
Lone Star Lake G	Suffolk City	50	PWS
Lone Star Lake I	Suffolk City	39	PWS
Lake Meade	Suffolk City	511	PWS
Lake Prince	Suffolk City	775	PWS
Lake Smith	Norfolk City	222	PWS
Speights Run Lake	Suffolk City	94	PWS

Stumpy Lake	Virginia Beach	210	PWS
Waller Mill Res.	York Co.	315	PWS
Lake Whitehurst	Norfolk City	458	PWS
Lake Wright	Norfolk City	35	PWS

Valley Regional Office – 12 Lakes

Beaver Creek Res.	Albemarle Co.	104	PWS
Mount Jackson Res.	Shenandoah Co.	0.7	PWS
Coles Run Res.	Augusta Co., USFS	9	PWS
Elkhorn Lake	Augusta Co. USFS	55	PWS
Lake Frederick	Frederick Co. VDGIF	120	
Ragged Mount Res.	Albemarle Co.	54	PWS
Rivanna Res.	Albemarle Co.	390	PWS
Staunton Dam lake	Augusta Co.	30	PWS
Strasburg Reservoir	Shenandoah Co.	5.3	PWS
Switzer Lake	Rockingham Co.USFS	110	
Sugar Hollow Res.	Albemarle Co.	47	PWS
Totier Creek Res.	Albemarle Co.	66	PWS

West Central Regional Office – 15 Lakes

Beaverdam Creek Res.	Bedford Co.	123	PWS
Bedford Reservoir	Bedford Co.	28	PWS
Carvin Cove Reservoir	Botetourt Co.	630	PWS
Claytor Lake	Pulaski Co.	4483	PWS
Clifton Forge Res.	Alleghany Co., USFS	16	PWS
Fairystone Lake	Henry Co.	168	
Gatewood Res.	Pulaski Co.	162	
Hogan Lake	Pulaski Co.	40	PWS
Leesville Res.	Bedford Co.	3400	PWS
Little River Res.	Montgomery Co.	113	
Martinsville Res.	Henry	220	PWS
Lake Moomaw	Bath Co., USFS	2430	
Philpott Res.	Henry Co., ACOE	2879	
Smith Mountain Lake	Bedford Co.	19992	PWS
Talbott Reservoir	Patrick Co.	165	

Total 100 Lakes statewide

Section 6.7 COASTAL ASSESSMENT

Virginia has 120 miles of Atlantic Ocean coastline and approximately 2,500 square miles of estuary. This resource has a prominent place in Virginia's history and culture. It is valued for its commercial fishing, wildlife, sporting, and recreational opportunities, as well as its commercial values in shipping and industry. In the 1970's adverse trends in

water quality and living resources were noted and prompted creation of the Federal-Interstate Chesapeake Bay Program (CBP). The coastal assessment is conducted in the same manner as the estuarine assessments previously described in Sections 6.4.1.2 and 6.5.3.2.

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
DEQ Chesapeake Bay Program				
Chesapeake Bay Ambient Program Chemical Data	ALUS – DO, pH, Chl	DEQ-CBP Rick Hoffman 804-698-4334	Documented QA/QC Plan Rick Hoffman, Cindy Johnston	Appx 62 mainstem and tributary stations monitored monthly
Chesapeake Bay Biological Monitoring Data	ALUS – Benthic B-IBI	DEQ-CBP Rick Hoffman 804-698-4334	Documented QA/QC Plan Rick Hoffman	Appx 21 mainstem and tributary fixed stations, 100 random stations yearly
Chesapeake Bay Toxics Monitoring (Middle Tidal James River & Upper Tidal York R.)	ALUS – Sediment Organics, Sediment Metals, Toxicity Tests	DEQ-CBP Mark Richards 804-698-4392	Documented QA/QC Plan Mark Richards (Beth McGee Fish & Wildlife Service)	Five stations on each River; not part of annual monitoring program.
Chesapeake Bay Toxics Monitoring (Middle Tidal Rappahannock River)	ALUS – Sediment Organics, H20/Sediment Metals, H20/Sediment Toxicity Tests	DEQ-CBP Mark Richards 804-698-4392	Documented QA/QC Plan Mark Richards (Lenwood Hall, Univ. MD)	Ten stations; not part of annual monitoring program.
EPA MAIA Project Toxics	ALUS – Sediment Organics, , H20/Sediment Metals, Sediment Toxicity Test	DEQ-CBP Mark Richards 804-698-4392	Documented QA/QC Plan Mark Richards	Appx 100 mainstem and tributary stations
EPA MAIA Project Conventional & Biological	ALUS – Benthic B-IBI	DEQ-CBP Rick Hoffman 804-698-4334	Documented QA/QC Plan Rick Hoffman	Appx 100 mainstem and tributary stations
DEQ Ambient Water Quality Monitoring Program				
Ambient Watershed Monitoring Program – Water column	ALUS – DO, pH, T, SWIM – FC	DEQ-WQMA Roger Stewart 804 698-4449	Documented QA/QC Plan Gary Du 804 698-4189 Some data from approximately 150 stations not assessed because of QA concerns.	Approximately 1400 stations monitored monthly or quarterly for entire 305(b) window.

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
Ambient Watershed Monitoring Program – Sediment Sampling, Water Column Toxics, Nutrients	ALUS – Sediment Organics, Sediment Metals, Phosphorus, Chl a Water Column Organics & Metals	DEQ-WQMA Roger Stewart 804 698-4449	Documented QA/QC Plan Gary Du 804 698-4189	Approximately 1400 stations monitored once a year for at least part of the 305(b) window.
DEQ Water Quality Standards Program				
Biological Monitoring Program	ALUS – Benthic (bottom dwelling) macrophytes	DEQ-WQS Jean Gregory 804-698-4113	Protocols and QA/QC Plan Alex Barron 804 689-4119	Approximately 200 stations sampled twice a year (spring & fall) by Regional Biologists
Biological Monitoring Program	ALUS – DO, pH, T	DEQ-WQS Jean Gregory 804-698-4113		Ambient field parameters measured by regional biologists during biological monitoring.
Statewide Fish Tissue Program	FISH – Fish Tissue	DEQ-WQS Jean Cregory 804-698-4113	Protocols and QA/QC Plan Alex Barron 804 689-4119	Approximately 40-80 selected stations sampled each year. Rotation around State every 3-5 years.
Statewide Sediment Contamination Program	ALUS – Sediment Organics, Sediment Metals	DEQ-WQS Jean Gregory 804-698-4113	Protocols and QA/QC Plan Alex Barron 804 689-4119	Approximately 40-80 selected stations sampled each year. Rotation around State every 3-5 years.
Statewide Lake Monitoring	ALUS – DO, pH, T Sediment Organics, Sediment Metals SWIM – FC Recreation – nutrients,chl.	DEQ-WQS Jean Gregory 804-698-4113	Follow ambient watershed QA/QC	Approx. 100 significant lakes Regions sample priority ranked lakes 3 seasons for one year out of 5 on rotation
James River Monitoring of Fish Tissue for Kepone	ALUS – Kepone	DEQ-WQS Alex Barron	Protocols for fish sampling Kepone analysis verified by VIMS Alex Barron 804 698-4119	Four stations in James River sampled every year until 2000; every other year thereafter.

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
DEQ Special Studies				
Hunting Camp Creek-1999	ALUS-TSS, field parms SWIM-fecal coliform	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Twelve stations in mainstem and tributaries-single sweep.
Lick Creek-1999	ALUS-TSS, field parms SWIM-fecal coliform	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Nine stations in mainstem and tributaries-single sweep after STP on line.
Lick Creek-1997	ALUS-TSS, field parms SWIM-fecal coliform	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Nine stations in mainstem and tributaries-single sweep during construction of STP.
Garden Creek-Dissolved metals-1998	ALUS-metals	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Twenty stations in mainstem and tributaries-single sweep.
Guest River-1997	Comparison of data between historic site and new USGS gauge.	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Six months of samples-no significant difference.
Ely, Puckett, Straight and Stone Creeks-Dissolved metals-2000	ALUS-field parms, metals	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Fourteen stations-single sweep.
Straight Creek-1999	ALUS-TSS, field parms SWIM-fecal coliform	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Thirteen stations in mainstem and tributaries-single sweep.
TMDL Sweep-Three Creeks-Dec 1999	ALUS-field parms SWIM-fecal coliform	DEQ-SWRO Fred Kaurish 276-676-4840	DEQ Ambient Program protocols	Thirty-four stations-single sweep.
Tidal Embayment Study	ALUS – DO, pH, chlorophyll a, ammonia	DEQ-PRO Mark Alling (804) 527-5021	Followed ambient watershed QA/QC procedures	Sampled once
James River CSO Study	ALUS –DO, pH, T SWIM - FC	DEQ-PRO Mark Alling (804) 527-5021	Followed ambient watershed QA/QC procedures	30 stations twice a month May through October 1994-2001
Lead Acid Battery Study	ALUS – Metals in sediment	DEQ-PRO Mark Alling (804) 527-5021	Followed ambient watershed QA/QC procedures	10 stations near Rocketts Landing sampled once in Fall/Winter 2000-2001
Pfiesteria Monitoring Study	ALUS – DO, pH, T,	DEQ-PRO	Followed ambient	20 cohort stations and 22

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
	ammonia, chlorophyll a, phosphorus, algae	Mark Alling (804) 527-5021	watershed QA/QC procedures	water quality stations sampled May-October 1998-2001
Bailey Creek PCB/PCT Study	ALUS - Organics in sediment	DEQ-PRO Mark Alling (804) 527-5021	Followed ambient watershed QA/QC procedures	44 stations sampled once during October 1997-September 1995
James River TBT Study	ALUS – TBT in sediment, water column	DEQ-PRO Mark Alling (804) 527-5021	Followed ambient watershed QA/QC procedures	17 stations sampled once during Summer/Fall 2000
Potomac Dinoflagellate Bloom Study	ALUS – DO, pH, T, algae	DEQ-PRO Mark Alling (804) 527-5021	Followed ambient watershed QA/QC procedures	Data set not used. Transient event data considered Level 1 (low confidence) per EPA's 1997 assessment guidance Section 3.2.
Pollution Response Program (PreP) Data	Various	DEQ-PRO Mark Alling (804) 527.5021	Various	Data set not used. Transient event data considered Level 1 (low confidence) per EPA's 1997 assessment guidance Section 3.2.
Livestock Farms Study	ALUS – DO, pH, T, Phos, Ammonia SWIM – FC	DEQ-PRO Mark Alling (804) 527-5021	Followed ambient watershed QA/QC procedures	78 stations total during course of study bimonthly monitoring
Blackberry Creek (Prep to SS)	Swimming, - FC ALUS - DO, Temp, pH	DEQ-WCRO Larry Willis	Follow ambient QA/QC Plan	21 stations
Blackwater River (TMDL Support)	ALUS - DO, Temp, pH, RBP II Surveys	DEQ-WCRO Larry Willis	Follow ambient QA/QC Plan	7 Stations
Big Otter River (TMDL Support)	Swimming - FC ALUS - DO, Temp, pH Flow	DEQ-WCRO, WQMA Roger Stewart / TMDL Coordinator	Follow ambient QA/QC Plan	17 Stations
Dodd Creek (TMDL Support)	Swimming - FC ALUS - DO, Temp, pH, TP, NH3-N, Flow	DEQ-WCRO Larry Willis	Follow ambient QA/QC Plan	11 stations
Jackson River Special Study (1998)	ALUS - DO, Temp, RPB II Surveys	DEQ-WCRO Larry Willis	Follow ambient QA/QC Plan	17 stations
Mill Creek (TMDL Support)	Swimming - FC ALUS – DO, Temp, pH,	DEQ-WCRO Larry Willis	Follow ambient QA/QC Plan	8 stations

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
	TP, NH3-N Flow			
Nonpoint Source Priority Special Study (SS 975101)	Swimming - FC ALUS – DO, Temp, pH, TP, NH3-N Flow	DEQ-WCRO M. J. Scanlan	Documented QA/QC Plan Roger Stewart	29 Stations
Staunton River Low Flow Study	Swimming – FC ALUS – DO, Temp, pH, nutrients, solids, fish	DEQ-WCRO, WQMA Jean Gregory	Biological Project Plan Larry Willis	6 Benthic (5 Chemical)
Altavista & Hurt PCB Soil and Sediment Study (2000)	ALUS – Sediment PCBs	DEQ – WCRO M. J. Scanlan	Documented QA/QC Plan Gary Du	30 soil samples (Includes 5 sediment in Lynch Cr.)
Elizabeth River TBT Monitoring	ALUS – Tributyltin	DEQ Roger Everton 757-518-2150	Protocols and QA/QC Plan Roger Everton 757-518-2150	Fourteen stations in Elizabeth River sampled bi-monthly.
Regional Special Study Water Column Monitoring Program for the Northern Virginia Regional Office	ALUS – DO, pH, T, nutrients SWIM – FC	DEQ, NVRO Charles Williamson 703-583-3876	Documented QA/QC Plan Gary Du 804 698-4189	23 stations were sampled monthly between July 1999 and August 2000 to support TMDL development on selected 303(d) listed stream segments.
Other State Programs				
Federal Programs				
Ambient Chemical Data from Virginia's surface waters.	USGS parameters assessed for Aquatic Life Use • Temp, DO. pH, water column metals & phosphorus USGS parameter assessed for Swimming Use • Fecal coliform	U.S. Department of the Interior, Geological Survey, Water Resources Division Virginia District, Ward W. Staubitz, (804) 261-2639	USGS data accepted with no additional QA review required.	1429 stations, 482 parameters, 101236 observations.
		TVA	Only summary of protocols for level 1 and level III assessments are	

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
			available. No detailed SOP or QA/QC plan or data are available. Alex Barron 804-698-4119 **No data accepted.**	
		US Forestry Service	QA/QC review by DEQ Gary Du 804 698-4189 The Chloride and Sulfate analyses were run outside the acceptable holding times as stipulated in the approved test methods from 40 CFR 136. The pH data was not collected within the holding time requirements of 40 CFR 136 and therefore cannot be used by our Department. **pH data not accepted.**	Reference Alan Pollock letter of 30 January, 2002 to Rick Webb. The other water quality parameter data for Sodium, Calcium, Magnesium, Potassium, and Nitrate were not used by our assessment staff because the state has no water quality standards for comparison. 14 sites 2061 measurements over the five year assessment window.
		National Park Service	QA/QC review by DEQ Gary Du 804 698-4189 Upon review of the sample collection protocols, holding times, and analytical methods for quality assurance/quality control purposes, we have determined that the Chloride data can be used directly for assessment of water quality relative to aquatic life and drinking water designated uses and the drinking water use for Sulfate. The pH data submitted was not collected within the holding time requirements of 40 CFR 136 and therefore, cannot be used	Reference Alan Pollock letter of 30 January, 2002 to Dawn Kirk. The other water quality parameter data for Sodium, Calcium, Magnesium, Potassium, and Nitrate were not used directly by our assessment staff. The state does not have ambient water quality standards for comparison. Currently, the state has a water quality standard for Nitrate relative to human health in public water supplies only. 801 sites 4505 measurements over the five year assessment window.

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
			directly by the Department **Chloride, sulfate & pH data not accepted.**	
Citizen Monitoring Programs				
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T Chlorophyll a, secchi, salinity, nitrate, nitrite, ammonia, orthophosphate, TSS	Alliance for the Chesapeake Bay Stacey Moulds 804-775-0951	QA/QC review by DEQ Gary Du 804-698-4189 **pH and chlorophyll a data not accepted** Reference 10/4/01 letter to Stacey Moulds	Approximately 130 stations monitored weekly for entire data window.
Citizen biological monitoring program using ANS protocols	ALUS – Benthic macroinvertebrates and pH	Audubon Naturalist Society Cliff Fairweather 703-803-8400	QA/QC review of pH by DEQ Gary Du 804-698-4189 **pH data not accepted** Letter to Cliff Fairweather 10/15/01.	Approximately 21 stations monitored 3 times per year for entire data window.
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T SWIM – FC Nitrate, phosphate, turbidity	Clean Virginia Waterways Katie Register (434) 392-2602	QA/QC review by DEQ Gary Du 804-698-4189 **pH and fecal coliform data not accepted** Reference 10/4/01 letter to Katie Register	Approximately 41 stations monitored monthly for 15 months (10/99-12/00).
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T SWIM – FC Nitrate, phosphorus, orthophosphate, TSS	Environmentally Concerned Citizens Organization (ECCO) Sara Bell: 540-279-3068 Gary Robinson: 540- 839-5706	Protocol review (no QA Plan) by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to Sara Bell	4 stations monitored quarterly for one year (1999-2000).
Ambient Chemical Data Set collected for general water	ALUS – DO, pH, T Nitrate, phosphate,	Friends of the North Fork of the Shenandoah River	QA/QC review (same as Friends of Shenandoah)	9 stations monitored monthly for 8 months (9/99-4/00).

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
quality monitoring	ammonia, turbidity	Pat Maier 540-459-8550	by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to Pat Maier	
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T Nitrate, phosphate, ammonia, turbidity	Friends of the Shenandoah River Karen Andersen 540-665-1286	QA/QC review by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to Karen Andersen	130 stations monitored biweekly for entire data window.
Fecal Coliform Data Set collected for general water quality monitoring	SWIM – FC	Izaak Walton League – Staunton/Auguta Chapter Paul Bugas 540-248-9360	Protocol review (no QA Plan) by DEQ Gary Du 804-698-4189 **Fecal coliform data not accepted** Reference 10/4/01 letter to Paul Bugas	6 samples collected at 31 stations for 10 month time period.
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T SWIM – FC Nitrate, phosphate, ammonia, chlorine, sulfate, sodium, calcium, potassium, magnesium, conductivity	Maury River Alliance Dr. David Harbor 540-463-8571	Protocol review (no QA Plan) by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to Dr. Harbor	18 stations monitored biweekly for 5 months.
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T SWIM – FC Nitrate, phosphate	North Fork Goose Creek Watershed Committee Kate Marincic 703-777-2075 ext. 106	QA/QC review by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to Kate Marincic	8 sites monitored quarterly 1996-1998 and monthly in 2000. 1996 and 1997 data not submitted in electronic format.
Citizen biological monitoring program using ANS protocols	ALUS – Benthic macroinvertebrates and pH	Loudoun Wildlife Conservancy Fred Fox	QA/QC review of pH by DEQ Gary Du	Approximately 13 stations monitored 3 times per year for 3 years (1997-2000).

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
		540-554-4844	804-698-4189 **pH data not accepted** Reference 10/15/001 letter to Fred Fox.	
Ambient Chemical Data Set collected for general water quality monitoring	SWIM – FC	Page County Water Quality Advisory Committee Dr. Tom Benzing 540-568-2794	Protocol review (no QA Plan) by DEQ Gary Du 804-698-4189 **Fecal coliform data not accepted** Reference 10/4/01 letter to Dr. Tom Benzing	31 stations monitored monthly for just over 2 years (9/98-12/00).
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO SWIM – FC	Piedmont Region TMDL Initiative James Beckley 804-983-4757	QA/QC review by DEQ Gary Du 804-698-4189 **Fecal coliform data and DO data collected with malfunctioning meter not accepted** Reference 10/4/01 letter to James Beckley	Approximately 25 stations monitored biweekly-monthly for just over a year (9/99-12/00).
Citizen biological monitoring program using ANS protocols	ALUS – Benthic macroinvertebrates	Virginia Save Our Streams Jay Gilliam 540-377-6179	New QA/QC plan for biological monitoring given to Alex Barron 804-698-4119	Approximately 150 stations monitored quarterly for entire data window.
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – pH, T TSS, TP, TN	York Watershed Council/ Mattaponi and Pamunkey Rivers Association Billy Mills 04-769-0841	QA/QC review by DEQ Gary Du 804-698-4189 **pH data not accepted** Reference 10/4/01 letter to Billy Mills	23 stations monitored quarterly for two years (9/97-6/99).
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T SWIM – FC Nitrate, phosphate, turbidity	Hoffler Creek Wildlife Foundation Ashley Orgain 757-398-9151	Protocol review (no QA Plan) by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to	10 stations monitored monthly for 16 months (9/99-12/00).

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
			Ashley Orgain	
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T Total phosphorus, turbidity, conductivity, alkalinity, ammonia	Pedlar River Institute Dr. Priscilla Gannicott 804-544-8291	Protocol review (no QA Plan) by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to Dr. Gannicott	3 samples collected at 3 stations (10/99-1/00).
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T Chlorophyll a, secchi, salinity, nitrate, nitrite, ammonia, orthophosphate, TSS	Tidewater RC&D & Coan River Watershed Project Hoyt Wheeland hoyt@crosslink.net	**No data accepted** **Data submitted past deadline for citizen data submittal**. No QA Plan/ protocols submitted. Reference 10/4/01 letter to Hoyt Wheeland	8 stations monitored weekly for one year (11/99-10/00),
Local Government				
Chemical Data Set collected for stormwater discharge monitoring	SWIM – FC Nitrate, nitrite, TKN, total phosphorus, TSS	Culpeper Soil and Water Conservation District (SWCD) Greg Wichelns 540-825-8591	Protocol review by DEQ Gary Du 804-698-4189 **No data accepted – stormwater discharge data** Reference 10/4/01 letter to Greg Wichelns	4 samples collected at 3 stations (6/00-11/00).
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T SWIM – FC Nitrate, nitrite, total phosphorus, TKN, solids	John Marshall SWCD Catherine Waterhouse 540-347-3120	QA/QC review by DEQ Gary Du 804-698-4189 **pH data not accepted** Reference 10/4/01 letter to Catherine Waterhouse	4 stations monitored monthly for 10 months.
Winterpock Creek Water Quality Sampling Program	ALUS – DO, pH., T, NH3-N, Phosphorus	Richmond Regional PDC John Fisher (804) 358-3684	Documented QA/QC Plan	11 stations monitored weekly for one year (8/1997 – 7/1998).
Upham Brook Water Quality Sampling Program	ALUS – DO, pH, T SWIM – FC	Richmond Regional PDC John Fisher	Documented QA/QC Plan	12 stations monitored weekly (8/1997 - 6/1998)

WATER QUALITY DATA SETS CONSIDERED FOR 2002 305(b) ASSESSMENT updated 4/25/02				
Data Set	**Parameters/Use Goals**	**Organization/Contact**	**QA/QC Review**	**Comments**
		(804) 358-3684		
Tuckahoe Creek Water Quality Sampling Program	ALUS – DO, pH, T, NH3-N, Phosphorus SWIM – FC	Richmond Regional PDC John Fisher (804) 358-3684	Documented QA/QC Plan	4 stations sampled once per week from March 1999 through mid-September 1999
Hopewell Estuary Region Monitoring and Assessment Project	ALUS – DO, pH, T, NH3-N, Phosphorus, ChlA, benthics SWIM - FC	HHWTF/Malcolm Pirnie/Crater PDC Clifton Bell (757) 873-8700	Documented QA/QC Plan	March -September 1998 & 1999
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T SWIM – FC Nitrate, phosphate	Loudoun SWCD Pat McIlvaine 703-777-2075	QA/QC review by DEQ Gary Du 804-698-4189 **No data accepted** Reference 10/4/01 letter to Pat McIlvaine	13 sites monitored for almost 2 years (3/99-12-00).
Ambient Chemical Data Set collected for general water quality monitoring	SWIM – FC	Upper Levisa River Restoration Project (Lonesome Pine SWCD/TVA partnership) Derrick Potter 540-926-6621	QA/QC review by DEQ Gary Du 804-698-4189	15 stations monitored weekly/monthly for 2 month time period.
Academic				
Ambient Chemical Data Set collected for general water quality monitoring	ALUS – DO, pH, T Total phosphorus, nitrate,	Ferrum College Dr. Carolyn Thomas: 540-365-4368 Dr. David Johnson: 540-365-2602	QA/QC review by DEQ Gary Du 804-698-4189	6 samples collected between Memorial Day and Labor Day for approximately 131 stations each year for entire data window.
Other				