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Virginia's Waters: Still at Risk - A Critique of the Commonwealth's Water Quality Assessment Reports

Chesapeake Bay Foundation

VIRGINIA'S WATERS:

STILL AT RISK – A CRITIQUE OF THE COMMONWEALTH'S WATER QUALITY ASSESSMENT REPORTS

The Chesapeake Bay Foundation*

EXECUTIVE SUMMARY

Federal law requires all states to periodically report to the Environmental Protection Agency (EPA) on the water quality of their rivers, lakes and streams and provide EPA with a listing of polluted waters. Virginia has recently prepared two reports for 1996 and boasts that only 5 percent of the Commonwealth's rivers are polluted. Under closer inspection, this information is found to be extremely misleading due to a number of serious gaps and flaws within Virginia's water quality monitoring program and its methods of data reporting and evaluation.

When Virginia states that only 5 percent of the waters it monitors fail to meet water quality standards, it is misleading the public by concluding that Virginia's waters are in great shape. Such a conclusion ignores the fact that compliance with a water quality standard is but one of may indices of the health of a waterbody. The absence of underwater grasses; the level of polluting nutrients; the presence of toxics in fish tissue or sediments B each of these is also an indicator of water quality conditions.

When we consider all the evidence available, the Chesapeake Bay Foundation (CBF) concludes that many of Virginia's waters are still at risk. In fact, according to Virginia's own evidence, 65 percent of the river miles monitored fail to fully support the Clean Water Act's goals of Afishable@ and Aswimmable@ waters. These waters display exceedences of water quality standards; biological impairment; metal or organic contamination in fish tissue or sediment; and/or fish consumption bans or advisories. (See illustration)

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* The Chesapeake Bay Foundation (CBF) is the largest nonprofit conversation organization working to Save the Bay. Founded in 1967, CBF is supported by contributions from philanthropic foundations, corporations, and more than 80,000 members nationwide. CBF's Virginia Office is located in Richmond, with regional offices in Norfolk and Tappahannock. For a complete copy of this report, contact CBF's Virginia Office:
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This critique by CBF shows that Virginia's waters are not nearly as clean as the state would lead us to believe and offers specific recommendations for ways the Commonwealth can ensure the health of our waters through aggressive protection mechanisms.

Background

The Clean Water Act requires each state to do the following:

- Prepare a biennial report, called the 305(b) report, containing an assessment of the water quality of all navigable waters in the state. Virginia uses **monitoring data** (derived from water sampling, fish tissue and sediment analyses, and biological surveys) and **evaluative findings** (drawn from agency staff's visual observation of water segments) to determine whether its waters *fully support, partially support, do not support*, or *threaten* achievement of the Clean Water Act's fishable and swimmable goals.

- Analyze the extent to which the state has achieved pollution control and water quality goals. If the goals are not met, the state must develop recommendations for achieving those goals, estimating the environmental impact, economic and social costs, and anticipated dates of achievement.

- Prioritize the state's most polluted waters in a list called the 303(d) list. All waters identified in the 305(b) report as not meeting the fishable and swimmable goals of the Clean Water Act should be included (i.e., those described as *partially supporting, not supporting,* or *threatened*).

Virginia's draft 1996 305(b) report states that Virginia has monitored or evaluated over 31,958 river miles in Virginia. The report concludes that 28, 122 miles are fully supporting, 2,016 are either *partially supporting* or *not supporting* and 1,820 are *threatened.* In its 1996 draft 303(d) list, Virginia cites only 5 percent of monitored Virginia river miles as polluted.

The conclusions drawn from these documents as well as the publicity surrounding them are misleading. Virginia's water quality monitoring program contains vast holes and fails to account for the following facts:

- Virginia has very little in-stream data on toxics.

- Virginia's 305(b) reported data reflects consistent monitoring for only four very basic pollution parameters (and this occurs for only 40 percent of the state's river miles).

- Virginia does not include in the 303(d) list of Aimpaired@ waters those rivers polluted by substances for which there are no water quality standards; this includes many toxics.

- Actual monitoring occurs on only 60 percent of Virginia's river miles.

Waters at Risk: Problems with Pollution

Specific examples of instances where Virginia's own data indicate that many of the state's waters remain polluted include:

- 65 percent of the river waterbodies monitored by Virginia contain at least one wtaer segment that is classified as *not supporting, partially supporting* or *threatened.*

- Between 1994 and 1996, the number of river miles identified by the Department of Environmental Quality (DEQ) as Aimpaired@ increased by 669 miles, or 85 percent.

- Over half of the Elizabeth River monitoring stations sampled by Old Dominion University exceeded the Virginia Water Quality Standard for tributyltin (TBT), an extremely toxic anti-fouling marine paint used to prevent growth on boat hulls.

- The Virginia Department of Health has condemned 95,768 acres of productive shellfishing areas, and seasonally condemned an additional 1,194 acres.

- 53 percent of the acres of lakes monitored for toxics were found to be impacted by metals, pesticides, or organics.

- Toxic residues in fish tissue exceeded certain EPA human health risk values at every one of Virginia's twelve fish tissue monitoring stations.

- 80 percent of watersheds monitored for nonpoint source pollution reported total nitrogen or total phosphorus levels that were classified as fair, poor or severe.

Problems with Virginia's Water Quality Monitoring Program

- **Despite the Clean Water Act's command for states to report on the quality of all its navigable waters, between 1993 and 1995 Virginia only monitored 60 percent of its river miles; it evaluated an additional 5 percent.** (In contrast, North Carolina reports monitoring and evaluating 92 percent of its river miles while New York reports 100 percent.

- The inadequacies of Virginia's monitoring program prevent Virginia from addressing one of Congress' most critical instructions to states: to estimate the date of expected achievement of water quality objectives, the corrective actions necessary, and the associated costs, benefits, and environmental impacts of achieving Clean Water Act goals.

- Virginia claims to have monitored over 29,000 river miles primarily for four basic parameters: pH, temperature, dissolved oxygen, and fecal coliform bacteria. **In fact, Virginia's 305(b) reported data indicates only approximately 40 percent of Virginia's rivers were actually monitored for all four of these *very basic* parameters; the 305(b) data indicates 20 percent are monitored for fewer than the four parameters; and 40 percent go entirely unmonitored.**

Specific Problems Relating to Toxics

The 305(b) report acknowledges that Virginia has Avery little water column data on toxics@; the report adds that Virginia has no current metals data from in-stream monitoring stations. The ramifications of this toxics data gap are significant. For a river to be classified as impaired due to toxic contamination under Virginia's existing system, there must be actual in-stream toxics data and a violation of an existing water quality standard. **When Virginia claims that only 5 percent of its monitored river miles violate water quality standards, it ignores the fact that there are often no violations because there is no in-stream data.**

To make matters worse, Virginia recently rescinded the existing Toxics Management Regulation and has announced that the Department of Environmental Quality (DEQ) will no longer prepare an annual Toxics Release Inventory report. The state also has proposed to make the standard for the highly toxic chemical tributyltin (TBT) less restrictive and to eliminate the ban on halogen disinfection in waters containing endangered species. Finally, the continued absence of a state-owned mobile lab prevents Virginia from independently evaluating the toxicity of discharger effluents.

Problems with Virginia's Data Reporting and Evaluation

In addition to the inadequacies and incompleteness of Virginia's water quality monitoring program, problems exist with the ways Virginia evaluates the data it collects. Some examples include:

- Virginia's 1996 report uses a different, more complex statistical analysis to classify its waters than it has used in previous years. The result is that some waters previously classified as not supporting are now classified as fully supporting. **These changes in classification in no way reflect an improvement**

in water quality; the report simply changes the criteria for designating a body of water as polluted.

- **An unknown number of river miles, represented by 72 individual monitoring stations, meet Virginia's criteria for *not supporting* or *partially supporting*, but are inexplicably not classified as impaired.** In addition, Virginia recently added several river segments to its impaired waters list, correcting an error which arose from a Acomputer glitch.@

- **Virginia considers many waters that are condemned for shellfishing to be fully supporting of the Clean Water Act's fishable goal because the shellfish can be harvested and then relayed to another location for cleansing before being sold.**

- Although Section 303(d) of the Clean Water Act clearly requires all states to determine the maximum pollutant loads that a waterbody can handle, **Virginia has yet to adopt total maximum daily loads (TMDLs) for any impaired waters in the state.**

- **Virginia redetermines the location and length of impaired water segments each reporting period; it does not consistently define the water segments as specific locations from one year to the next.** Therefore, it is impossible to get a clear reading on the long term health of these rivers.

Conclusions and Recommendations for Improving Virginia's Waters

CBF's analysis of the 305(b) report and the 303(d) list, as presented in this critique, establishes the need for new, aggressive measures to insure the protection of Virginia's waters. In order to address many of the problems noted in this critique, CBF submits the following recommendations:

- **Comprehensively revamp Virginia's monitoring, evaluation and toxics programs: a) increase the budgetary commitment to monitoring, evaluation and toxics programs; b) develop and implement consistent site and monitoring techniques to insure reliability and to determine trends; c) expand the number of river miles monitored; d) insure the monitoring of all four conventional pollutants at all stations; e) begin metal and other toxic chemical water quality monitoring; f) reinstate the toxics mobile lab, with a commitment to one at each regional office within three years; g) increase DEQ staffing for monitoring, evaluation, and toxics programs, including one person per region with responsibility for the**

305(b) reporting requirements. Virginia should establish a three year plan to substantially improve and expand its monitoring, evaluation, and toxics programs.

- **Develop and incorporate in the 305(b) report a long term strategy for achieving the Clean Water Act Afishable and swimmable@ goals for all Virginia waters.** This is a DEQ responsibility under the mandate of the Clean Water Act. The strategy should include specific time frames, measurable goals, and estimated funding needs.

- **Establish a Citizens Right to Know program which: a) creates a Citizen's Liaison Office within DEQ which provides citizen access to information on toxics, toxic discharges, polluted waters, etc., in Virginia; b) requires DEQ to prepare summaries of all industrial toxics use reduction plans and annual toxics use reports; c) establishes an A800" number for the Citizen's Liaison Office; d) requires industry to report any spill of a toxic substance not only to DEQ but also to local newspapers and adjacent landowners; e) requires the posting of all waters that contain shellfish bed contamination, fishing bands or advisories; g) reinstates funds for creation and publication of Virginia's Toxic Release Inventory Report.** Virginia's Citizen's Right to Know program should be established in 1997 through legislation, regulation, or executive order as necessary.

- **Alter the current preparation process for the 305(b) report and 303(d) list so that these documents are either prepared by or reviewed by independent academic scientists at Virginia universities.** Virginia should insure thorough and objective preparation of or peer review of any conclusions on the quality of its waters. Budget amendments to provide for this should be adopted in parallel with the due dates of the reports.

- **Reconcile inconsistencies within and between the 305(b) report and the 303(d) list so that all waters with pollution problems are recognized and properly identified.** Virginia should insure that fish tissue test results, nutrient enrichment problems, and all other data are incorporated in determining the quality of its waters. This includes reinstituting use of information such as losses of underwater grasses and zero exceedences of the fecal coliform water quality standard for a Afully supporting@ designation. This is a DEQ responsibility that it should correct immediately.

- **All industries located on toxic impacted waters should develop and implement a toxics use reduction plan for their facilities as a condition of issuance or reissuance of a state discharge permit.** This should occur prior to the next listing of impaired waters. The Department of Environmental Quality should identify the facilities contributing to toxic contamination in impaired waters and target those facilities as a high priority for development of TUR plans. Virginia should immediately institute this recommendation through legislation, regulations, or administrative directive as necessary.

- **Require all industries to submit to the Department of Environmental Quality (DEQ) an annual report disclosing the amount of toxics used, produced, and/ or released as a condition of issuance or reissuance of a discharge permit.** Virginia should establish this reporting requirement beginning in 1997.

- **Adopt Total Maximum Daily Loads (TMDLs) for impacted rivers and reopen permits for dischargers on the impacted rivers for review and development of new permit limits consistent with the TMDL.** This is long overdue. Virginia should accelerate any actions currently being taken on the adoption of TMDLs and begin the reopening and reviewing of discharge permits in 1997.

INTRODUCTION

As required by the federal Clean Water Act, all states must periodically report to the Environmental Protection Agency (EPA) on the quality of their rivers, lakes and streams and provide EPA with a listing of polluted waters. Since the passage of the Clean Water Act more than 20 years ago, Virginia has experienced important improvements in the quality of its waters. There is far less untreated sewage in our streams and discharge pipes less often spew foul smelling effluent. But there is more sewage and more pipes as population growth continues to exert pressures on Virginia's natural resources.

Virginia has recently prepared two reports for 1996 and boasts that only 5 percent of the Commonwealth's rivers are polluted. Upon closer inspection, this information is found to be extremely misleading due to a number of serious gaps and flaws within Virginia's water quality monitoring program and its methods of data reporting and evaluation.

When Virginia states that only 5 percent of the waters it monitors fail to meet water quality standards, it is misleading the public by concluding that Virginia's waters are in great shape. Such a conclusion ignores the fact that compliance with a water quality standard is but one of many indices of the health of a waterbody. The absence of underwater grasses; the level of polluting nutrients; the presence of toxics in fish tissue or sediments - each of these is an indicator of water quality conditions.

When we consider all of the evidence available, the Chesapeake Bay Foundation (CBF) concludes that Virginia's waters remain at a risk from pollution. In fact, according to Virginia's own evidence, 65 percent of the river miles monitored fail to fully support the Clean Water Act's goals of "fishable" and "swimmable" waters. These waters display exceedences of water quality standards; biological impairment; metal or organic contamination in fish tissue or sediment; and/or fish consumption bans or advisories (see illustration on facing page).

This critique by CBF shows that Virginia's waters are not nearly as clean as the state would lead us to believe and offers specific recommendations for ways the Commonwealth can ensure the health of our waters through aggressive protection mechanisms. The critique is based on extensive analysis conducted by CBF staff using Virginia's own data and information.

Background

In 1972, Congress passed one of the most important pieces of legislation ever to address the nation's environmental problems when it enacted the Federal Water Pollution Control Act (commonly referred to as the "Clean Water Act"). The Act's stated goal was "to restore and maintain the chemical, physical and biological integrity of the Nation's waters." The Act placed "primary" responsibility for attaining this objective on the individual states.[1]

To measure the progress made toward the nation's clean water goals, Congress required each state to prepare a biennial report containing an assessment of the water quality of all navigable waters within the state (the "305(b) report").[2] One way the states fulfill this charge is by determining how well their waters meet the Clean Water Act's goal of

[1] See 33 U.S.C. 1251(a) and (b).

[2] *Virginia Water Quality Assessment 1996: 305(b) Report to the EPA Administrator and Congress for the Period 1 July 1993 to 30 June 1995 and Nonpoint Source Pollution Watershed Assessment Report* (Draft), Virginia Department of Environmental Quality and Virginia Department of Conservation and Recreation, April, 1996 (hereinafter "305(b) report"). This draft was released April1, 1996. As of October 15, 1996, a final version was not available.

achieving and maintaining water quality that is both "fishable" and "swimmable".[3]

- Monitoring data is primarily drawn from:
  - laboratory analyses of in-stream water samples;
  - fish tissue analyses;
  - sediment analyses; and
  - biological surveys.
- Evaluative findings come primarily from visual observation of water segments by state agency personnel.

Virginia uses its monitoring data and evaluative findings to conclude whether its waters fully support, partially support, do not support, or threaten[4] achievement of the Clean Water Act's fishable and swimmable goals.[5]

Congress also required each state, as part of its 305(b) reporting process, to analyze the extent to which it has achieved pollution control and water quality goals. When goals have not been met, the state must develop recommendations for achieving those goals, estimating the environmental impact, economic and social costs, and anticipated dates of achievement. The states must also describe the amount of nonpoint source pollution present in the state and recommend controls for such pollution.

Virginia's draft 1996 305(b) report contains extensive data and concludes that Virginia has monitored or evaluated over 31, 958 river miles in Virginia; this constitutes 65 percent of all river miles in Virginia (the total is 49,220 miles). Of this 65 percent, the report concludes that 28,122 miles are fully supporting, 2,016 are either partially supporting or not supporting, and 1,820 are threatened.[6]

In a corollary section of the Clean Water Act, Section 303(d), Congress required each state to list and prioritize the state's most polluted waters (the "303(d) list").[7] To identify these degraded waters, each state must evaluate all readily available data about waters with water quality

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[3] Section 101(a) of the Clean water Act states, among other things, that an "interim" goal of the Act is to have "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" (the so-called "fishable and swimmable" standard).

[4] "Fully supporting," "partially supporting," "not supporting" or "threatened" are descriptive qualifiers applied to Virginia's waters when evaluating if they meet the Clean Water Act "fishable" and "swimmable" goals. A variety of criteria provide the parameters for determining which qualifier applies.

[5] Virginia also incorporates in its determination information from fish or shellfish advisories and restrictions.

[6] 305(b) report, p. 3.1-10.

[7] *Virginia 303(d) TMDL Priority List* (Draft), Virginia Department of Environmental Quality in cooperation with the Department of Conservation and Recreation, April 1, 1996 (hereinafter "303(d) list").

problems. This includes those waters identified in the 305(b) report that are not meeting the "fishable" and "swimmable goals of the Clean Water Act (i.e., those described as partially supporting, not supporting, or threatened).[8]

Virginia , when preparing its 303(d) list, relies only on its monitoring data; it does not rely on evaluative findings when identifying degraded waters.[9] In doing so, the 1996 303(d) list cites only 5 percent of monitored Virginia river miles as polluted.[10] Of the 5 percent, the "leading cause" of the pollution was nonpoint sources, an April 12, 1996 press concluded.[11]

This conclusion, as well as others contained in both the 305(b) report and 303(d) list, and the publicity surrounding these documents are misleading. The state's water quality monitoring program contains vast holes and fails, for example, to account for the following facts:

- Virginia has very little in-stream data on toxics.
- Virginia's 305(b) reported data reflects consistent monitoring for only four very basic pollution parameters (and this occurs for only 40 percent of the state's river miles).
- Virginia does not include in the 303(d) list of "impaired" waters rivers polluted by substances for which there are no water quality standards; this includes many toxics.
- Actual monitoring occurs on only 60 percent of Virginia's river miles.[12]

Virginia's own data and findings, as analyzed by CBF, clearly show that the waters of the Commonwealth continue to face serious water pollution problems. In reality, Virginia's waters are not nearly as clean as they appear in its water quality reports and lists.

WATERS AT RISK - PROBLEMS WITH POLLUTION

Contrary to the state's own conclusion, a thorough review of Virginia's data reveals that many of its waters remain polluted. Serious problems with fish and shellfish contamination, excessive tributyltin (TBT) levels,

[8] See 33 U.S.C. § 1313(d) and 40 C.F.R. § 130.7(b).

[9] Note: Virginia also includes fishing restriction (but not fishing advisories) as a criterion for the 303(d) list. See footnote 21.

[10] The report also concludes that only two percent of monitored Virginia estuaries are polluted. 303(d) list, p. 2.

[11] "95 Percent of Virginia Streams Meet Water Quality Standards," Commonwealth of Virginia, Department of Environmental Quality, Press Release of April 12, 1996.

[12] Although the percentage of river miles monitored by Virginia is higher than that of its Chesapeake Bay partner states of Maryland and Pennsylvania, states like neighboring North Carolina report monitoring and evaluating nearly 100 percent of their river miles (as do Maine and New York). *National Water Quality Inventory, 1994 Report to Congress,* Appendix A.

and nutrient enrichment, plague Virginia's waters. Specific examples include:

- 65 percent of the river waterbodies monitored by Virginia contain at least one water segment that is classified as not supporting, partially supporting, or threatened.[13] These waters exceed water quality standards for pollutants,[14] register moderate to severe impairment in biomonitoring tests,[15] exhibit metal or organic contamination in sediment or fish samples,[16] are banned for shellfishing by the Virginia Department of Health, or are under fish consumption restrictions or advisories due to contamination; many display several of these problems.

- 42 percent of the watersheds monitored by Izaak Walton League of America volunteers displayed impaired biological communities.[17]

- 55 percent of Virginia's biological monitoring stations register slight, moderate, or severe impairment of bethic macroinvertebrate communities (i.e., certain aquatic organisms that live in the river bottom).[18]

- 47 fish kills were reported between April 1993 and March 1995.[19]

- Between 1994 and 1996, the number of river miles identified by the state as "impaired" increased by 669 miles, or 85 percent.[20]

- Virginia currently has four health advisories and one fishing restriction in effect for fish consumption on 369 "mainstem" river miles.[21]

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[13] 305(b) report, Appendix B; 303(d) list, Part 1.

[14] These waters exceed limits for at least one of the four conventional pollutants identified by Virginia (pH, temperature, dissolved oxygen, and fecal coliform) greater than 10 percent of the time, the measure the state uses to identify waters that do not fully support all designated uses and that are not threatened. 305(b) report, p. 3. 1-3, and Appendix B.

[15] Biomonitoring tests or biological monitoring involves examining the health of aquatic organisms.

[16] Virginia criteria for determining that a waterbody is *partially supporting* due to metals or organic contamination require there to be at least two exceedances in either sediment or fish tissue samples. For a waterbody to be classified as *not supporting* there must be at least two exceedances in *both* sediment and fish tissue samples. 305(b) report, p. 3.1-5, and Appendix B.

[17] 305(b) report, p. 5.2-26.

[18] 305(b) report, Appendix B.

[19] 305(b) report, pp. 3.2-23 to 3.2-28.

[20] 1994 and 1996 303(d) lists. Note that the list states there was a minimal increase (10 percent) in river miles monitored.

- Over half of the Elizabeth River monitoring stations sampled by Old Dominion University exceeded the Virginia Water Quality Standard for tributyltin (TBT),[22] an extremely toxic antifoulant contained in marine plants.

- The Virginia Department of Health has condemned 95,768 acres of productive shellfishing areas, and seasonally condemned an additional 1,194 acres.[23]

- 53 percent of the acres of lakes monitored for toxics were impacted by metals, pesticides, or organics.[24]

- Toxic residues in fish tissue exceeded EPA calculated human health risk based screening values at every one of Virginia's twelve fish tissue monitoring stations.[25] Samples from the Pamunkey River, Eastland Creek/ Kerr Reservoir, Mattaponi River, Chickahominy River, Beaver Dam Swamp Reservoir, James River, Coles Run Reservoir, Rivanna Reservoir, Claytor Lake, Gatewood Reservoir, Lovills Creek Reservoir, and Smith Mountain Lake exceeded human health screening values for lead;[26] from the Pamunkey River, Mattaponi River, and James River for PCBs; from the Mattaponi River for mercury; and from the James River for chlordane.[27]

- Excessive nutrient loadings[28] plague Virginia's waters. 80 percetn of watersheds monitored for nonpoint source pollution reported total nitrogen or total phosphorous levels that were classified as fair, poor, or severe by the Virginia Department of

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[21] 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 the dangerous levels of contamination found in fish tissues in an affected area, but does not prohibit consumption. 305(b) report, p. 3.2-2. "Mainstem" river miles do not include the miles of hte many smaller tributaries.

[22] 305(b) report, p.3.2-5.

[23] Condemnation occurs in certain water surrounding certain point source discharges as well as areas with elevated fecal coliform bacteria concentrations or other problems. Shellfish may be harvested from most condemned areas; however, they must first be relayed to approved waters for depuration for 15 days before marketing. Harvesting is prohibited between April 1 and October 31 in seasonally condemned waters. 305(b) report, p. 3.2-6.

[24] Lake evaluations include analysis for regulatory numerical standards as well as sediment toxicity thresholds based on National Oceanic and Atmospheric Administration recommendations. 305(b) report, pp. 3.1-11, 3.3-10.

[25] 305(b) report, p.3.2-6.

[26] In fact, the 305(b) report states "further investigation is warranted" as a result of this lead problem. 305(b) report, p.3.2-6.

[27] 305(b) report, pp.3.2-7, 3.2-22.

[28] Excessive nutrients deplete oxygen levels by fueling algae growth, which shades dn inhibits the growth of oxygen-producing submerged aquatic vegetation, and which decomposes in bottom waters, consuming oxygen vital to shellfish and other species. 305(b) report, p. 3.4-4.

Conservation and Recreation.[29] The entire Chesapeake Bay is classified as fully supporting but threatened for aquatic life because it is "nutrient enriched."[30] In addition, 52 percent of Virginia's lakes show high nutrient levels.[31]

- 172,000 gallons of petroleum product wre released to the environment from a tank farm, contaminating surface water and ground water, including residential water supply wells. In another spill, a Colonial Pipeline discharge of 67,000 gallons of marine diesel fuel caused extensive damage to marsh vegetation, aquatic life, and wildlife.[32]

PROBLEMS WITH VIRGINIA'S WATER QUALITY MONITORING PROGRAM

In the clean Water Act, congress clearly directed the states to report ton the quality of all navigable waters within the state.[33] Despite this command, between 1993 and 1995, Virginia monitored only 60 percent of its river miles;[34] it evaluated an additional 5 percent. Similarly, Virginia based its conclusion that all 120 of its Atlantic Ocean coastal miles are fully supporting on evaluative findings alone; it used no monitoring data.[35]

Not only do the inadequacies for Virginia's monitoring program preclude the commonwealth from meeting the 305(b) requirement of determining the quality of all navigable waters, buth they also prevent Virginia from addressing one of Congress's most critical instructions to the states: to estimate the date of expected achievement of water quality objectives, the corrective actions necessary, and the associated costs, benefits, and environmental impacts of achieving Clean Water Act goals. The draft 1996 305(b) report merely discusses in general terms the costs and benefits of what has been spent on water pollution control activity. It is silent on the issue of what needs to be done to achieve the "fishable" and "swimmable" goals of the Clean Water Act for all of Virginia's waters.

The adequacy of Virginia's water quality monitoring program is further undermined by a number of other factors. Virginia claims to have monitored over 29,000 river miles for the following four conventional

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[29] 305(b) report, pp. 5.2-23 to 5.2-95.
[30] 305(b) report, p. 3.1-15.
[31] 305(b) report, p. 3.3-7.
[32] 305(b) report, p. 5.1-9.
[33] "Each state shall prepare and submit... a report which shall include-(A) a description of the water quality of all navigable waters in such state...". 33 U.S.C. 1315(b)(1)
[34] Virginia assessed 31,958 of its 49,220 river miles, of which 29,243 it reports were actually monitored. 305(b) report, pp. 1-1. 3.1-10.
[35] 305(b) report, p.1-2.

pollutants: pH, temperature, dissolved oxygen, and fecal coliform bacteria.[36] In fact, Virginia's 305(b) reported data indicates only approximately 40 percent of Virginia's rivers were actually monitored for all four of these very basic pollution parameters; the 305(b) data indicates 20 percent are monitored for fewer than the four conventional pollutants and 40 percent go entirely unmonitored.[37]

SPECIFIC PROBLEMS RELATING TO TOXICS

Virginia's understanding of the quality of its waters, already incomplete because of the aforementioned monitoring inadequacies, is compounded by the lack of knowledge on toxic contamination. The 305(b) report acknowledges that Virginia has "[v]ery little water column data on toxics";[38] the report adds that Virginia has no current metals data from in-stream monitoring stations.[39]

The ramifications of this toxics data gap are significant. Without comprehensive water quality monitoring for toxics, including metals, it is impossible to properly identify and characterize the level of toxic contamination under Virginia's waters. For a river to be classified as impaired due to toxic contamination under Virginia's existing system, there must be actual in-stream toxics data and a violation of an existing water quality standard. Thus, when Virignia claims that only 5 percent of its monitored river miles violate water quality standards, it ignores that fact that there are no violations for metals because there is no in-stream data. Despite the presence of other toxics data, including contamination in fish tissue and sediment, Virginia often does not classify waters with these problems as impaired because there is no water quality standard violation.[40]

Virginia's lack of metals monitoring is linked to national debates over appropriate and verfiable monitoring methods. And while Virginia is, in fact, taking steps to address this problem, it has "thrown the baby out with

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[36] 305(b) report, p. 3.1-3. Some of the monitoring stations providing Virginia with data are not operated by Virginia.

[37] 305(b) report, Appendix B.

[38] 305(b) report, p. 3.1-4.

[39] 305(b) report, p. 3.1-6.

[40] Although biological monitoring of benthic communities may indicate the presence of toxic substances, the data in the 305(b) report indicates that Virginia performs such monitoring at only 22 percent of its monitoring stations. Such a small data set is inadequate to properly characterize toxics contamination. Furthermore, biological monitoring indicates only the presence of toxics in general; it does not identify specific chemicals or sources. Thus, even with this monitoring, Virginia's program cannot determine which toxic substances are present and/or are causing water quality problems. Virginia does use the results of biological monitoring sometimes to classify a water as impaired under 303(d) when it concludes that the "general standard" (a qualitative, versus numerical, water quality standard) is violated.

the bath water" by completely halting all metals monitoring. Moreover, insufficient staffing and inadequate funding in the toxics program have prevented Virginia from moving forward on proposed metals monitoring initiatives. To make matters worse, Virginia recently rescinded the existing Toxics Management Regulation and has announced that the Department of Environmental Quality will no longer prepare a Toxics Release Inventory report. In addition, the state has proposed to make the standard for the highly toxic chemical tributylin (TBT) less restrictive and to eliminate the ban on halogen disinfection in waters containing endangered species. Finally, the continued absence of a state-owned mobile lab prevents Virginia from independently evaluating the toxicity of discharger effluents.

In sum, Virginia's toxic monitoring program is woefully inadequate, underfunded and understaffed, and progressively worsening.

Problems with Virginia's Data Reporting and Evaluation

In addition to the inadequacies and incompleteness of Virginia's water quality monitoring program, there are problems with the ways Virginia evaluates the data it collects. Virginia's analysis artificially hies water quality problems, failing to enlist as impaired those waters that are clearly polluted. For example, as previously noted, under its current system, Virginia often does not consider rivers to be polluted that contain sediment and fish with detectable and unacceptable levels of toxic pollutants. In spite of multiple chlordane and PCBs exceedences in fish tissue samples, Virginia does not classify a portion of the James River in Newport News as polluted. Similarly, Virginia does not classify rivers that are polluted by substances for which there is no water quality standard, such as nutrients in state waters, it ignores that data in determining the extent of Virginia's impaired waters because the state lacks water quality standards for nutrients.

Another significant problem with Virginia's data analysis is the statistical assessment it utilizes when analyzing the data in the 305(b) report. Unlike Virginia's previous water quality reports that classified waters based on percent of violations, Virginia's 1996 report classifies the state's waters based on a complex statistical analysis.[41] The end result of applying this statistical procedure is that many water segments previously classified as impaired are no longer classified as such. For instance, a monitoring station that reported one violation out of two samples in the 1994 305(b) report would yield a not supporting designation for its waters, while in 1996, it is considered fully supporting.[42] Similarly, a station that reported five violations out of 50 samples in the 1994 report indicated

[41] 305(b) report, p. 3.1-3.

[42] See Scanlan, *The Assessment of Low Frequency Data in Water Quality Management.*

partially supporting waters, but under the new statistical analysis such waters are classified as fully supporting.

These changes in classification due to statistical changes in no way reflect an improvement in water quality; the report simply changes the criteria for designating a body of water as polluted. Even with Virginia's application of the new statistical analysis, the 303(d) list reported an 85 percent increase in reported impaired river miles between 1994 and 1996.[43] But this snapshot of Virginia's "impaired" waters is an incomplete one.

Although federal regulations require the state to do so, Virginia did not include as impaired in the 303(d) list many stream miles that the 305(b) list report identified as partially supporting, not supporting, or threatened. Virginia omitted from its list of impaired waters many segments that were reclassified using Virginia's new statistical assessment and those classified as threatened due to natural causes.[44] In addition, an unknown number of river miles, represented by 72 individual monitoring stations, which meet Virginia's criteria for not supporting or partially supporting, are inexplicably not classified as impaired.[45] These stations represent segments of water that are clearly polluted even according to Virginia's own data, yet do not appear on the state's list of impaired waters. CBF was unable to determine any reason or justification for the failure to incorporate these river segments.[46]

A number of additional problems with Virginia's reporting and analysis of its water quality data make the state's water appear cleaner than it actually is. These problems include:

- Virginia considers many waters that are condemned for shellfishing to be fully supporting of the Clean Water Act's "fishable" goal. Virginia's rationale is because the shellfish can be harvested and then relayed to another location for depuration before being sold, the actual condition of the waters is

[43] 1994 and 1996 3030(d) lists. Note that there was a minimal increase (10 percent) in river miles monitored.

[44] 305(b) report, Appendix B. "Natural" causes may include, for example, fecal coliform exceedences due to duck, deer, or other wildlife populations.

[45] 305(b) report, Appendix B. These 72 stations were inexplicably left off the 303(d) list, even after accounting for Virginia's new statistical analysis and omittance of segments classified as "threatened" due to natural cause.

[46] Virginia, immediately prior to the publication of this critique, announced that it had erroneously failed to list several impaired waters due to a "computer glitch." The unlisted waters included the Pagan River, a river highly polluted with fecal coliform bacteria. See "DEQ glitch hid Pagan River pollution," *Richmond Times Dispatch*, October 16, 1996.

irrelevant.[47] This may be fine for commercial watermen, but not for others who, in many cases, remain unwarned.

- Beginning in 1994, and continuing in 1996, Virginia ceased reporting the absence of submerged aquatic vegetation in its 305(b) report. Loss of submerged aquatic vegetation is indicative of poor water quality and can result in the loss of shelter and nursery areas for small fish and shellfish as well as crucial habitat for crabs and invertebrates. Virginia does fund monitoring and reporting of such vegetation by the Virginia Institute of Marine Science, but virtually ignores this information in determining the quality of its waters.

- The protocol used by Virginia to determine water quality exceedences for fecal coliform bacteria directly violates Virginia's own Water Quality Standards (VR680-21-02.2). The Virginia Water Control Board's Water Quality Standards state that fecal coliform bacteria shall not exceed a level of 1000 fecal coliform bacteria per 100 ml of water at any time. Directly contrary to the "at any time" language of the instantaneous fecal coliform standard, Virginia's 305(b) report considers waters to be fully supporting as long as the standard is not exceeded in more than 10 percent of the measurements taken over the reporting period.[48]

- Although Virginia claims that it is interested in tracking and correcting long-term pollution problems, its own testing protocol undermines any attempt to do so. Virginia redetermines the location and length of impaired water segments each reporting period; it does not consistently define the water segments as specific locations from one year to the next.

- Virginia's methodology for determining the cause of water impairment is skewed in favor of finding nonpoint sources to be responsible for pollution rather than point sources. Even if there are multiple point sources discharging into an impaired water segment, by default Virginia attributes the impairment to nonpoint sources if the point sources have not violated their discharge permits within the past two years. This methodology ignores the potential for selective sampling by the discharger as well as the cumulative effects of multiple point source discharges. This methodology is further skewed by the inadequacy of the Virginia Pollutant Discharge Elimination

[47] 305(b) report, p. 3.2-6.
[48] 305(b) report, p. 3.1-7. While this 10% "fudge factor" is consistent w/ EPA guidance, it is not consistent with Virginia's water quality standard.

System (VPDES) enforcement program, which is itself increasingly biased toward not issuing permit violations.

Finally, although Section 303(d) of the Clean Water Act clearly requires states to determine the total maximum daily loads of pollutants (TMDLs) that a waterbody can assimilate, Virginia has yet to adopt TMDLs for any waters in the state. Virginia is not alone in this failure; many states have not yet implemented TMDLs. And although Virginia is pursuing development of TMDLs, it has failed to base their development solely on the severity of pollution in a body of water. Instead, Virginia qualifies the need for a TMDL not only on the severity of pollution but also on the availability of government funds or the presence of a public outcry for clean up. For example, Virginia downgraded to "medium" or "low" priority 54 segments that had been identified by the Department of Conservation and Recreation as being "high priority" for developing TMDLs because there were no plans to clean up the segments in the next biennium.[49]

Conclusion and Recommendations for Improving Virginia's Waters

CBF's analysis of the 305 (b) report and the 303 (d) list, as presented in this critique, establishes the need for new, aggressive measures to insure the protection of Virginia's waters. In order to address many of the problems noted in this critique, CBF submits the following recommendations:

- Comprehensively revamp Virginia's monitoring, evaluation, and toxics programs: a) increase the budgetary commitment to monitoring, evaluation and toxics programs; b) develop and implement consistent site and monitoring techniques to insure reliability and to determine trends; c) expand the number of river miles monitored; d) insure the monitoring of all four conventional pollutants at all stations; e) begin metal and other toxic chemical water quality monitoring; f) reinstate the toxics mobile lab, with a commitment to one at each regional office within three years; g) increase DEQ staffing for monitoring, evaluation, and toxics programs, including one person per region with responsibility for the 305 (b) reporting requirements. Virginia should establish a three year plan to substantially improve and expand its monitoring, evaluation, and toxics programs.

- Develop and incorporate in the 305 (b) report a long term strategy for achieving the Clean Water Act "fishable and swimmable" goals for all Virginia waters. This is a DEQ responsibility under the mandate of the Clean Water Act. The

[49] 303(d) list, Part I, p. 2.

strategy should include specific time frames, measurable goals, and estimated funding needs.

- Establish a Citizen's Right to Know program which: a) creates a Citizen's Liaison Office within DEQ which provides citizen access to information on toxics, toxic discharges, polluted waters, etc., in Virginia; b) requires DEQ to prepare summaries of all industrial toxics use reduction plans and annual toxics use reports; c) establishes an "800" number for the Citizen's Liaison Office; d) requires industry to report any spill of a toxic substance not only to DEQ but also to local newspapers and adjacent landowners; e) requires the posting of all waters that have or indicate toxic impacts; f) reqries the posting of all waters that contain shellfish bed contamination, fishing bans or advisories; g) reinstates funds for creation and publication of Virginia's Toxic Release Inventory report. Virginia's Citizen's Right to Know program should be established in 1997 through legislation, regulation, or executive order as necessary.

- Alter the current preparation process for the 305 (b) report and 303 (d) list so that these documents are either prepared by or reviewed by independent academic scientists at Virginia universities. Virginia should insure thorough and objective preparation of or peer review of any conclusions on the quality of its waters. Budget amendments to provide for this should be adopted in parallel with the due dates of the reports.

- Reconcile inconsistencies within and between the 305 (b) report and the 303 (d) list so that all waters with pollution problems are recognized and properly identified. Virginia should insure that fish tissue test results, nutrient enrichment problems, and all other data are incorporated in determining the quality of its waters. This includes reinstituting use of information such as losses of underwater grasses and zero exceedences of the fecal coliform water quality standard for a "fully supporting" designation. This is a DEQ responsibility that it should correct immediately.

- All industries located on toxic impacted waters should develop and implement a toxics use reduction plan for their facilities as a condition of issuance or reissuance of a state discharge permit. This should occur prior to the next listing of impaired waters. The Department of Environmental Quality should identify the facilities contributing to toxic contamination in impaired waters and target those facilities as a high priority for development of

TUR plans. Virginia should immediately institute this recommendation through legislation, regulations, or administrative directive as necessary.

- Require all industries to submit to the Department of Environmental Quality (DEQ) an annual report disclosing the amount of toxics used, produced, and/or released as a condition of issuance or reissuance of a discharge permit. Virginia should establish this reporting requirement beginning in 1997.

- Adopt Total Maximum Daily Loads (TMDLs) for impacted rivers and reopen permits for dischargers on the impacted rivers for review and development of new permit limits consistent with the TMDL. This is long overdue. Virginia should accelerate any ations currently being taken on the adoption of TMDLs and begin the reopening and reviewing of discharge permits in 1997.