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MURKY WATERS

Official Water Quality Reports
Are All Wet

**An Inside Look at EPA's
Implementation of
the Clean Water Act**

May 1999

About PEER

Public Employees for Environmental Responsibility (PEER) is an association of resource managers, scientists, biologists, law enforcement officials and other government professionals committed to upholding the public trust through responsible management of the nation's environment and natural resources.

PEER advocates sustainable management of public resources, promotes enforcement of environmental protection laws, and seeks to be a catalyst for supporting professional integrity and promoting environmental ethics in government agencies.

PEER provides public employees committed to ecologically responsible management with a credible voice for expressing their concerns.

PEER's objectives are to:

1. **Organize** a strong base of support among employees with local, state and federal resource management agencies;
2. **Monitor** land management and environmental protection agencies;
3. **Inform** policymakers and the public about substantive issues of concern to PEER members; and
4. **Defend** and strengthen the legal rights of public employees who speak out about issues of environmental management.

PEER recognizes the invaluable role that government employees play as defenders of the environment and stewards of our natural resources. PEER supports resource professionals who advocate environmental protection in a responsible, professional manner.

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About This Report

This white paper has been written by employees within the U.S. Environmental Protection Agency (EPA) as well as by current and former employees within selected State environmental agencies. The authors provide an insider account of how the nation's system for monitoring and assessing the quality of its waters has completely broken down and why both the State and federal agencies perpetuate the fiction that the officially reported numbers have validity.

The lack of reliable, verifiable information regarding the condition of our nation's rivers and streams means that the claims of cleaner waters during the past two decades cannot be supported. As detailed by this report, improvements in water quality contained within State or national water quality inventories are far more likely the result of data manipulation than actual pollution reductions.

Guided by the employee authors, PEER conducted extensive record requests of the U.S. EPA Headquarters as well as all of its Regional Offices. PEER also obtained State water quality reports and supporting data and methodologies. Documents cited in this report are available for inspection in full by contacting the PEER office.

The authors of this report choose to stay anonymous not only to avoid the prospect of future retaliation but also because of their firm belief that this document — and the public record upon which it is based — speaks for itself. It is their conviction that, if dispassionately examined, the evidence of conflicting, erroneous and manipulated sets of water quality data, scientifically unacceptable methods and outright false reporting is overwhelming. They believe that their identities would only be used to distract the public from the fundamental truth of the message.

Documenting the many and serious problems within the EPA and State water monitoring and assessment programs is meant only to foster a renewed framework for change. The scope of this report and its recommendations are limited to the fundamentally flawed water monitoring and assessment programs for rivers and streams. The authors believe that these programs could be transformed from wasteful fonts of misinformation into environmental tools of immense value if they are based upon honest and accurate reporting.

PEER is proud to serve conscientious public employees who have dedicated their careers to the faithful execution of the law. We stand ready to assist these individuals in promoting environmental ethics within their agency and accountability by public officials for their actions.

Jeffrey Ruch
PEER Executive Director

I. Executive Summary

According to their own experts, neither the EPA nor its State regulatory partners can produce reliable data that accurately measure water quality trends to support claims that our waters are getting cleaner. Despite the Clean Water Act's 1972 mandate to create a water quality inventory to measure progress in improving the nation's waters, today, more than 25 years later, the data simply does not exist to indicate whether, in fact, the nation's rivers and streams are getting cleaner or more polluted, and why.

As detailed in this report, the nation's water quality monitoring and assessment system is badly broken and is not taken seriously by the governmental agencies charged with carrying it out. Indeed, a water quality reporting "game" is played by EPA and its State partners, whereby an unfortunate mix of politics, bureaucratic inertia and bad science means that conflicting, erroneous and manipulated sets of water quality data containing little accurate information on the actual condition of the nation's rivers and streams are routinely reported by States and dutifully compiled by EPA for presentation to Congress and the public.

States have no incentive to deliver accurate reports or to achieve comparability, whereby the water quality records of States can be meaningfully compared with each other or even tracked consistently within a State from year to year. As a result, inconsistencies in the amounts of waters monitored or evaluated as well as variations in how impairment and designated use attainment are measured, produce a hodgepodge of information that is of little value in determining national water quality trends or comparing water quality among individual States.

States are also free to manipulate numbers in order to falsely portray continuing progress in water quality when, in fact, what fragmentary reliable information that exists often suggests the exact opposite. In addition, States are reporting one set of rosy data on water quality conditions for national inventory purposes and, in the same year, issuing different, more pessimistic numbers in applications for federal watershed restoration funds.

Problematic State data are accepted as a matter of course by EPA, which has yet to reject a State water quality report no matter how incomplete or apocryphal. Although requirements for accurately reporting the quality of the nation's waters are quite clear in the legislative and regulatory framework, EPA simply does not enforce these requirements. EPA allows States to falsely report, incompletely report or not report at all the miles of rivers and streams meeting water quality goals, in all cases without financial, administrative or regulatory consequences.

Despite these overlapping sets of fundamentally unreliable and unsound water quality numbers, EPA's 1999 annual plan suggests that the agency has developed a strategy for water monitoring to measure progress toward an objective of "75 percent" of the nation's waters fully supporting intended uses, such as fishing and swimming. In reality, no such water monitoring strategy exists. The agency has not even produced guidance for an "adequate monitoring and assessment program," although such guidance is referred to in the 1999 annual plan as though it is a fact of life.

Compounding matters is EPA's creation of a new and separate water quality assessment system, called the Index of Watershed Indicators (IWI). While promising to be expensive, the new IWI system is even more unreliable than traditional reports based upon vast extrapolations supported by little actual water monitoring and encouraging double counting of numbers in order to give the appearance of a "comprehensive" monitoring and assessment effort.

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The absence of systematic peer review for both IWI and the State reports has allowed the current woeful state of the data to continue unchecked. What little, partial peer review critiques that are received from its own regional offices, State agencies, and EPA's own Science Advisory Board are ignored. Scathing reviews from the EPA Office of Inspector General and from sister agencies, such as the U.S. Geological Survey, also appear to have little effect.

A confused public and Congress cannot hold EPA accountable for making progress towards the Clean Water Act objective. If EPA does not accurately and truthfully report the information available, and routinely changes results, guidance, policies and programs to avoid reporting on trends, there is little the public and Congress can do but guess what EPA is really doing.

This report contains a set of recommendations to remedy the deficiencies in the water quality assessment for our nation's river and streams. The PEER recommendations do not call for more money to support water monitoring efforts but instead suggest a re-direction of, and quality control system for, the hundreds of millions of dollars spent each year to support the current dubious reporting regime.

II. The Wacky World of Water Quality Reporting

Why Water Quality Reporting is Important

The noble yet still-elusive goal of the 1972 federal Clean Water Act, enunciated in Section 101(a) of the Act, is to “maintain and restore the chemical, physical, and biological integrity of the Nation’s waters.” In order to accomplish and measure progress toward this important national goal, Section 305 mandates an inventory of the nation’s waters to establish a baseline, and to update this inventory each year (the 1977 amendments changed this to every other year):

“The State water quality inventory reports serve an important function of requiring the States to assess at regular intervals the quality of their waters. In this way, information can be developed which will give the State, EPA, and Congress a measure of the effectiveness of the entire Federal water pollution control program. This report should be an important planning tool for the States.” (Senate Report 95-370 on the 1977 amendments to the Clean Water Act)

Designed as a feedback loop to determine not only progress, but also to set priorities for EPA and State water pollution control programs, accurate assessments are key to ensuring that the governmental Clean Water programs, carrying price tags of billions of dollars, are effective and worth the cost.

What We Don’t Know Won’t Hurt Us

Twenty-seven years after passage of the Clean Water Act, are our nation’s waters actually getting cleaner? Considering that nearly 1 billion pounds of toxic chemicals were discharged into U.S. waterways from 1992 through 1996 (*Troubled Waters*, U.S.PIRG, September 1998), the rising tide of concern over water pollution caused by animal feedlot operations, the recent devastating outbreaks of toxic *paratuberculosis* in eastern rivers, and the bulldozing of the hundreds of thousands of the nation’s few remaining precious wetland acres to make room for rapidly expanding suburban development, one has to wonder. Nevertheless, state and federal officials – from Vice President Al Gore on down – are increasingly, boldly claiming credit for major water quality improvements. Gore and his EPA Administrator, Carol Browner, have repeatedly made the claim in recent years, for example, that two thirds of the nation’s waters are now safe for swimming and fishing, when only one third were safe 25 years ago. Environmental officials around the country are also proclaiming the good news, often using such claims to justify “streamlining” or de-emphasizing environmental regulatory enforcement.

However, to support claims that our waters are getting cleaner, neither the Clinton Administration, the EPA, nor its State regulatory partners can produce reliable data that accurately measure water quality trends, because such data do not exist. Indeed, if State or national water quality inventory reports show improvements in water quality, those improvements are far more likely the result of data manipulation than actual pollution reductions, as this report will show. In other words, despite the 1972 Clean Water Act mandate to create a water quality inventory to measure progress in cleaning up the nation’s waters, in 1999, we simply do not know if the nation’s rivers and streams are getting cleaner or more polluted, and why.

The reason for this sorry state of affairs is that the nation’s water quality monitoring and assessment system is, at best, badly broken, and at worst, not even taken seriously by the governmental agencies charged with carrying it out. Indeed, as the product of a water

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quality reporting “game” engaged in by EPA and its State partners that is a volatile and unfortunate mix of politics, bureaucratic inertia and bad science, conflicting, erroneous and manipulated sets of water quality data are generated by States and compiled by EPA for Congress and the general public containing little actual and accurate information on the condition of the nation’s rivers and streams. Although requirements for reporting the quality of the nation’s waters are quite clear in the legislative and regulatory framework, EPA simply does not enforce these requirements. EPA allows States to falsely report, incompletely report or not report at all the amount of rivers and streams meeting water quality goals, in all cases without financial, regulatory or other consequences.

Although obviously significant, these State water quality reports themselves and their underlying methodology can be quite complex and arcane. Therefore, it has been relatively easy for EPA to avoid accurately and truthfully reporting the available information. The agency routinely changes results, guidance, and policies – sometimes from year-to-year or program-to-program within the same year – to avoid having to provide consistent reporting or to identify trends. As a result, with a confused public and distracted Congress faced with a torrent of conflicting technical data, EPA is able to avoid accountability for its progress or lack thereof in realizing the goals of the Clean Water Act.

EPA officials are not only aware of State failures, but continue to aggressively paper them over because the resultant absence of a meaningful assessment of the state of the nation’s rivers and streams helps EPA maintain control of a multi-billion dollar pollution control program without having to demonstrate its effectiveness or success. This posture has the added advantage of not interfering with State and local programs, since such regulatory interventions can cause political backlash.

As a consequence of EPA dereliction of its duty to accurately characterize the health of the nation’s waters, let alone track conditions over time, 27 years after the Clean Water Act’s landmark goal became the law of the land, EPA remains unable to document, with any known degree of accuracy or confidence, the progress — if any — we have made in restoring and maintaining the chemical, physical, and biological integrity of the Nation’s waters.

Key Questions EPA and States Do Not Want to Answer

Because EPA officials know that existing water quality data generated by States and compiled by EPA is scientifically unsound, the agency is afraid of the public asking difficult questions about the condition of the nation’s rivers and streams, such as:

Are water quality conditions getting better or worse, and why?

What do terms like “**assessed**” and “**surveyed**” really mean, and how does EPA compile the information from the states to generate these reports?

How do some states “monitor” 100% of their waters, while most report less than 30% monitored, and others less than 10%?

What does “**evaluated assessments**” mean, and why does EPA encourage these assessments?

How many rivers and streams are assessed based on a presumption of cleanliness with no actual data ever collected?

Why do some States report the same number of stream miles assessed and monitored year after year after year?

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This report provides answers to each of these questions by looking beneath the surface of EPA's reporting games.

What EPA Wants You to Believe

EPA's 1999 Annual Plan (<http://www.epa.gov/ocfo/toc/htm>) explains how the agency's budget is formulated so as to achieve ten key environmental goals. Goal Number 2 is called "Clean and Safe Water" and specifies as an objective the conservation and enhancement of the nation's waters. This particular objective contains a measurable endpoint:

" By 2005, conserve and enhance the ecological health of the nation's (state, interstate, and tribal) waters and aquatic ecosystems –rivers and streams, lakes, wetlands, estuaries, coastal areas, oceans, and groundwater –so that 75 percent of waters will support healthy aquatic communities."

Achieving this lofty objective implies that EPA actually has the ability to accurately estimate progress towards meeting this objective.

The 1999 plan explains how EPA is supporting "comprehensive water quality assessments that will establish baselines against which to gauge progress towards objectives and goals and support decision-making necessary to implement watershed enhancements on a priority basis. The Agency will continue to work with our state and tribal partners to establish water monitoring and assessment programs appropriate to their identified goals and needs, including addressing the elements outlined in EPA's monitoring guidance. EPA will assemble and report state water quality assessments under Section 305(b)."

Does this bureaucratic promise match reality? How much of what EPA claims to do does it in fact do? Does EPA have a meaningful "monitoring strategy"? Do States really have water monitoring and assessment programs that provide known and accurate information to report under Section 305(b)?

Separating the Wheat from the Chaff

According to EPA's most recent inventory submitted to Congress under CWA 305(b), the *National Water Quality Inventory: 1996 Report to Congress*, (NWQI) "States and Tribes reported that **64% of 693,905 surveyed river miles fully support** all of their uses" (emphasis added). "The surveyed rivers and streams represented 53% of the 1.3 million miles of perennial rivers and streams in the lower 48 States, or 19% of the estimated 3.6 million miles of all rivers and streams in the country, including non-perennial streams that flow only during wet periods."

In other words, the EPA inventory claims that States surveyed over half of the streams that flow year-round and found that almost two-thirds support state water quality goals.

Another assessment which draws from individual stream segments and extrapolates those results to entire watersheds is called the EPA's Index of Watershed Indicators (IWI, EPA-841-R-97-010). This EPA study (first released in October 1997 and updated in October 1998 - <http://www.epa.gov/surf2/iwi>) concluded that:

16% of the watersheds in the country have "better" water quality (i.e. fully meet intended uses) and of these, one in eight have high vulnerability (15% in 1998);
36% have some water quality problems and of these, about one in ten have high vulnerability (36%);
21% have more serious water quality problems with one in ten of these exhibiting high vulnerability (22%); and,

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27% of the watersheds in the continental United States do not have enough information on the component indicators to make an overall assessment (27%).

Consider the discrepancies: According to the 1996 National Water Quality Inventory (NWQI), 64% of surveyed rivers nationally are meeting their water quality goals, yet, according to IWI, only 16% of watersheds in the country fully meet their intended uses. Similarly, while the 1996 NWQI reports that 47% of the nation's streams were not surveyed, IWI reports that only 27% of watersheds do not have enough information for an overall assessment under IWI.

To add to the confusion, a third nationwide assessment, called the Unified Watershed Assessment, is now being conducted by State agencies under EPA guidance for the Clean Water Action Plan (EPA-840-R-90-001).

Despite these overlapping sets of fundamentally unreliable and unsound water quality "data", the EPA 1999 annual plan suggests that the agency has developed a strategy for water monitoring to measure progress toward the "75 percent" objective. In reality, no such water monitoring strategy exists. The agency also has no guidance for an "adequate monitoring and assessment program," although such guidance is referred to the 1999 annual plan as though it is a fact of life.

So, what is the real baseline of information from which EPA is supposed to track performance in cleaning up our nation's waters? Unfortunately, there is no baseline at all, except whatever set of numbers EPA chooses to rely upon for its momentary convenience.

In its 1999 annual plan, EPA claims that "by moving from 69% attainment in assessed waters to our goal of 75% attainment, EPA will continue to move aggressively towards its goal of clean and safe water" (<http://www.epa.gov/ocfopage/cj/g02all.htm> page 31). Where did the baseline of 69% come from? In fact, the 69% baseline is based upon the State 305(b) reports, which, as explained below, is not the answer anyone wants to hear.

What the CWA Requires EPA and the States To Do

Section 305(b) of the CWA reads as follows:

Section 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 which 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 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 allow recreational activities in and on the water, **have been or will be achieved by the**

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requirements of this Act, together with recommendations as to additional action necessary to achieve such objectives and for what waters such additional action is necessary;

(D) an estimate of (i) 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) and 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." (emphasis added)

Section 305(b)(1)(a) requires States to report on the quality of their waters with respect to meeting their water quality standards. If a State does not have rigorous water quality standards, this report can be perfunctory. Some States have reported water quality standards attainment solely upon measurements of either dissolved oxygen or suspended solids while ignoring dozens of other important physical and chemical parameters needing measurement, as well as the biological criteria EPA has been asking the State programs to implement for almost 10 years (see Chapter IV).

Section 305(b) also makes it clear that these State reports are to be submitted to the EPA, who in turn should provide an analysis and transmit the reports to Congress. Yet, **EPA has never rejected a poor report**. In fact, EPA has refused to critically review the State 305(b) reports or to reject those not meeting basic guidelines, claiming that they are State reports to Congress and EPA does not have the authority to not accept poor reports – an interpretation of the Clean Water Act of questionable legality, at best. For example, when states will “extrapolate” information (which really means they are making it up), these extrapolations are never subjected to scientific and technical peer review. Thanks to “re-invention” and “streamlining,” there is no longer even an internal EPA review of these reports to Congress.

In addition, Section 106(e) requires that States meet the strict reporting requirements of 305(b) before EPA is authorized to release the hundreds of millions of federal EPA dollars States receive each year to carry out clean water programs. Section 106(e) reads:

Section 106. Grants for Pollution Control Programs

(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 monitoring, and to compile and analyze data on (including classification according to eutrophic condition), the quality of navigable waters and, to the extent practicable, groundwaters including biological monitoring; and provision for annually updating such data and including it in the report required under Section 305 of this Act.

Unfortunately EPA has ignored Section 106(e) and provided hundreds of millions of dollars in grants to operate deficient State water programs that were not meeting the basic requirements under Section 305 of the CWA, including basic submission of required reports. In fiscal year 1999, EPA gave over \$130 million in state and tribal assistance grants to

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implement Clean Water Act programs, and has requested almost \$150 in fiscal year 2000 to do the same. As the money continues to flow, many of the States routinely fail to submit useable water quality information needed to measure performance, yet pay no consequences. Indeed, some states have simply declined to turn in a 305(b) report at all. Nevertheless, EPA has never withheld 106 grant funding for failure to submit a report, despite the statutory mandate to do so under 106(e).

Not surprisingly, many States do not regard preparation of the Section 305 report to Congress as a high priority and have expended scant effort at assembling documentation on its progress toward meeting CWA goals, and even less effort in determining just how much further the State needs to go.

What EPA Asks the States to Do

EPA prepares guidance for the States to use prior to each report cycle. Each report is due April 1 of even numbered years. The guidance was originally adopted from the methods used by the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) to prepare "America's Clean Water - The State's Evaluation of Progress 1972-1982," a rival of the National Water Quality Inventory. The guidance later had input from a joint State-EPA work group called the National 305(b) Consistency Workgroup. Although the workgroup apparently had some influence in drafting the guidelines, few practical changes were made in the State programs. The workgroup was disbanded in 1997 after the release of the most recent guidelines.

Regardless of EPA's guidance, each State is practically on its own to interpret and implement guidelines as they see fit, with little or no EPA involvement. In fact, most contact with the State is through an EPA contractor, who is put in the role of "advisor" to EPA.

Below are explanations of several key elements of EPA's guidelines for State water quality monitoring and assessment pursuant to Section 305(b):

Water Quality "Assessment." The guidelines evolve around "assessments" (page 1-1, EPA-941-B-97-002B): In setting their water quality standards, States assign one or more designated uses to each individual waterbody. Designated uses are beneficial uses the States want their waters to support. Examples are aquatic life support, fish consumption, swimming, and drinking water supply. Under Section 305(b), assessment of an individual waterbody (e.g., a stream segment or lake) means analyzing "biological, habitat, physical/chemical, and/or toxicity data and other information..." pertinent to that waterbody to determine the extent to which its designated uses are supported.

Types of assessment information. One element in the EPA guidelines to which many State programs have had particular trouble adhering to is the admonition, presented in the EPA guidelines (EPA-841-B-97-002B, page 1-5) in bold print, that ***"It is not appropriate...to claim that waterbodies are fully supporting uses by default in the absence of sufficient information to make an assessment."***

Presumed Assessments. The EPA guidelines reiterate the requirement that assessments be based on sufficient information in Section 1.5, entitled "Presumed Assessments" (page 1-9). The guidelines provide that presumed assessments are "unacceptable" and include the following:

Assuming that waterbodies are fully supporting by default unless there is information to the contrary

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Extrapolating assessments from one waterbody or watershed to others unless they have very similar characteristics

Extrapolating the “percentage of assessed stream miles that are fully supporting” to all streams in the State without adequate scientific basis such as probability-based monitoring design.

EPA’s guidance also recommends that “a single monitoring station not be used to generate a monitored assessment of an entire watershed.”

Monitored and Evaluated Waters. One of the most interesting and controversial portions of the guidelines encourages States to report on more streams and rivers. As a further incentive, EPA allows States the option to include in 305(b) reports not only those waters that have been visited and monitored by the actual collection and analysis of physical, chemical, and/or biological samples, but also those waters that can be “evaluated” by “best professional judgement” – which does not even require a trip out of the office. According to EPA (pages 1-8 and 1-9 of EPA-841-B-97-002B):

“Monitored waters” are those waterbodies for which the use support decision is principally based on current, site-specific, ambient monitoring data believed to accurately portray water quality conditions. [Examples from the guidelines include physical/chemical monitoring, biological monitoring, habitat assessment, pathogen mentioning, toxicity testing and/or modeling. Each of these types of monitoring are equally weighted for being considered an assessment.]

“Evaluated waters” are those waterbodies for which the assessment is based on information other than current site-specific ambient data, such as data on land use, location of sources, predictive modelling [sic] using estimated input variables, surveys of fisheries personnel, and citizen complaints. *As a general guide*, if an assessment is based on ambient data that is older than five years, the State should consider it “evaluated.” [Examples from the guidelines include complaints from local residents, monitoring data more than 5 years old, land use information and locations of pollution sources, uncalibrated and unverified models, data extrapolated from nearby waterbodies, or even just “unspecified”].

Impaired Waters. Impaired waters are generally considered those waters not fully meeting one or more of its designated uses. To fully support uses, the 1988 guidelines required that “for all pollutants, criteria exceeded in less than 10% of measurements and mean of measurements is less than criteria.” Biological monitoring included “no evidence of modification of community (within natural range of control/ecoregion).” For the 1992 guidelines, this was modified slightly for chemistry to have more stringent requirements for toxic chemicals (no violations of acute toxicity within a 3 year period), but the same “less than 10%” requirement appeared for conventional parameters (dissolved oxygen [DO], acidity [pH] and temperature). The biological methods remained the same.

The 1994 guidelines significantly improved the biological requirements for use support assessments by including information from EPA’s Biological Criteria Program. However, the chemical guidelines remained the same, except to give an “out” for some acute toxicity violations by stating that “the once-in-3-years is not intended to include spurious violations resulting from the lack of precision in analytical tests.” This allowed for tests which violated acute toxicity chemical criteria to be ignored. These guidelines are basically in-place today, with the exception of guidance for using other water quality indicators such as sediment

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toxicity, whole-effluent toxicity and more examples for using biological and chemical assessments. (EPA-841-B-97-002B)

The Games Begin

The result of this interaction resembles a game played between EPA and States. First, EPA issues appropriate guidelines to the States, but then does not require the States to follow them. As a result, EPA appears on paper to have fulfilled its statutory responsibilities with tough monitoring and assessment guidance, while at the same time sending a clear signal that State programs can continue doing business as usual. Second, when EPA is forced from time to time to undertake more intensive scrutiny of how its guidance is actually being implemented, this usually leads to the creation of a wholly new EPA initiative rather than any effort to address the ongoing, underlying problems of the previous regulatory regime. Each new initiative extends a shroud over developments for another few years while the "wait-and-see" game plays out. The end result: under the guise of "improving" water quality monitoring and assessment efforts, EPA consistently sends conflicting, and erroneous, sets of data to Congress and the general public containing little actual and accurate information on the condition of the nation's rivers and streams.

EPA used this "new initiative" gambit by claiming that the Intergovernmental Task Force for Monitoring Water Quality (ITFM) would help solve all the problems. After three years of meetings and reports the ITFM disbanded and was replaced by a National Water Monitoring Council. No matter which new committee or task force is formed, we are still no closer to answering the questions of the current quality of the nation's rivers and streams.

III. The Assessment Shell Game

The assessment shell game takes many forms. It can be as simple as a State agency's "misunderstanding" of what EPA's guidance requires in order to rationalize why results of a State report have been deliberately altered to show water quality improvement when no such improvement in fact occurred. Or it could be EPA itself choosing to use different assessment reporting methods depending upon its audience and the source of funding.

State agencies can manipulate the official report of total waters in their State as well as the assessed waters by making up results (e.g., using "presumed" assessments). States can also pick and choose what data it will recognize, ignoring strong, relevant data in favor of weak data if the latter reflects cleaner waters.

This shell game is well known by EPA and State staff. What is surprising to the uninitiated is that the shell game includes the most basic, and seemingly difficult to fudge, of facts - the number of rivers and streams in each State.

How Many Rivers And Streams Are There?

EPA and States must determine how many rivers and streams there are before being able to report on their condition. The amount of rivers and streams are measured in miles. Prior to 1992, EPA used information from State reports to arrive at the estimate of 1.8 million miles of streams in the country (ASIWPCA 1984, EPA 1986). In 1992, EPA revised this estimate substantially to 3.6 million miles of streams in the U.S. including Alaska and Hawaii. Of this amount, about 1.3 million miles are perennial, or flow year-round. These newer estimates are contained in the EPA Reach File 3 (RF3), first introduced in 1992, and are based on digital line graphs (or DLG) represented on a scale of 1:100,000 miles in U.S. Geological Survey (USGS) scale maps. DLG is the digital representation of the USGS paper mapping program. DLG provides digitized (electronic file) lines corresponding to the major topographic features on paper maps that can be used in computer systems.

The accuracy of these RF3 estimates is dependent upon many factors, such as the diligence of the individual who traced the streams on the maps or the accuracy of the original maps, which can be 10-20 years old. Regardless of these problems, the DLG and RF3 estimates provide the only consistent methods for States to determine the total amount of surface waters in their States.

A January 23, 1992 memo from the Deputy Director of Office of Water's Oceans, Wetlands and Watersheds office (known as OWOW, it oversees 305(b) reporting) to Regional office division directors entitled "Estimating total state Waters for the 1992 Section 305(b) Reports" made clear the expectation for using the new digital line graph estimates for total waters. The memo even highlighted in bold the following statement by the Deputy Director:

"Therefore, with some exceptions, the estimates provided in this document should be considered final numbers and should be used by the States as their total waters estimates."

Table 1 shows the total stream miles reported for the nation, and a few specific states. The effect of changing the total mile estimates is noted in bold and shaded boxes, and shows up for each State, and the national estimates. The effects of moving to Reach File 3 estimates in 1992 is clear, as seen by the comparison with the 1990 numbers. Large states such as California show gains of greater than 176,000 miles.

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Table 1. Total Stream Miles Used for Water Quality Assessment Reporting in States (1986-1996). Boldface indicates major change from year before.

State	1986	1988	1990	1992	1994	1996
Arizona	17,537	6,671	17,537	150,000	104,200	90,370
California	26,959	26,970	26,970	203,313	211,513	211,513
Connecticut	8,400	8,400	8,400	6757	5,830	5,830
Maryland	9,300	9,300	17,000	17,000	17,000	17,000
Michigan	36,350	36,350	36,350	56,094	51,438	51,438
Montana	20,532	20,532	51,212	178,896	176,750	176,750
Rhode Island	724	724	724	777	1,106	1,089
Tennessee	19,124	19,124	19,124	19,124	19,124	61,103
Utah	No Report	No Report	11,779	11,779	85,916	85,916
Nationwide	1,800,000	1,800,000	1,800,000	3,551,247	3,548,738	3,634,355

Similarly, Montana (+ 127,000 miles) and Arizona (+ 132,000 miles) contributed to the significant gain in miles of rivers and streams in the 1992 report. Add to that figure another 365,000 miles for Alaska (which was not included in the total miles estimates for 1990), and another 111,000 miles in Texas, to reach a total nationwide increase of 811,000 miles.

Smaller States, such as Connecticut and Rhode Island, that adopted the RF3 estimates in 1994 were also affected. Michigan adopted the RF3 estimates in 1992 (+ 20,000 miles) and Tennessee in 1996 (+ 41,000 miles). Conversely, Maryland ignored the RF3 estimates of 14,608 miles (1994) in favor of its own 17,000 miles estimate.

Another State with a total waters issue is South Dakota. South Dakota has been using the same total stream miles for the State of 9,937 miles since at least 1980. However, the Office of Water required the State to use the new estimate total of 103,876 miles of rivers and streams, including 92,617 miles of intermittent streams, which are considered waters of the State under the Clean Water Act. South Dakota, like other States, was reluctant to change its ways and risk being accountable for 10 times as many waters. Although all of its neighboring States use updated values, averaging almost 100,000 miles, the 1998 South Dakota 305(b) report still has 9,937 miles of rivers and streams as the state total.

How Many Rivers and Streams are Assessed?

Notwithstanding the significant jumps in total river and stream miles in recent years under new EPA methodology, the more important measure of the validity — or lack thereof — of a State's water quality inventory is the number and percentage of river miles "assessed." While common sense would dictate that "assessment" of the water quality of a given waterbody would involve actual sampling of numerous important indicators in a sufficient number of locations along the particular stream, a look underneath the numbers presented in State 305(b) reports during the past decade and a half indicates troubling contradictions and manipulations of "assessment" data.

The 1984 National Water Quality Inventory was the first EPA report to attempt to record the actual number of miles States claimed to have assessed and, in that report, 38 States reported **323,390** river and stream miles assessed. Interestingly, during the same year, these same State programs reported a total **758,000** assessed river and stream miles to the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) - a substantial discrepancy foreboding problems to come.

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In 1988, EPA issued a guidance document suggesting that States could count hundreds of miles of rivers and streams as a single waterbody with a single assessment based on as little as one sample (and, in some cases, even none). States responded to this suggestion. For example, EPA's National Assessment Database for 1996 (NAD -1996), which is used to track designated use attainment from the State 305(b) reports, shows the States reported over 720 individual water bodies to be over 100 miles long. That means that a single sample along a several hundred mile river can be used to represent a complete "assessment" of the water quality conditions of that "waterbody." The State of Washington wins the prize for the largest waterbody, reporting a river more than 3,900 miles long (with no monitoring data whatsoever associated with it) and 30 water bodies each more than 1,000 miles long. Louisiana was second with two waterbodies each almost 3,100 miles long. California had a waterbody more than 1,300 miles long.

The intended effect of EPA's guidance was to increase the miles of "assessed" rivers and streams reported to Congress, even if no more information was available about the actual conditions for specific waters. This little methodological sleight of hand helped raise the mileage assessed from about 370,000 miles in EPA's 1986 305(b) report to almost 520,000 miles for the 1988 report (see Figure 1 and Table 2).

Table 2. Assessed and Total Waters Reported to Congress (1982-1996)

	1982*	1984	1986	1988	1990	1992	1994	1996
Total Miles	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	3,551,247	3,548,738	3,634,355
Assessed Miles	758,000	325,619	370,544	519,413	647,066	642,881	615,806	693,905
Percent Assessed	42%	18%	21%	29%	36%	18%	17%	19%

*1982 information taken from ASIWPCA

Changes in total river and stream miles within a State sometimes also result in similar changes in assessed miles. Table 3 shows some odd consistency in the assessed waters for the past decade or more within each State (Tennessee being the exception). This is somewhat unusual considering the claims by EPA and States that more waters are being assessed each year.

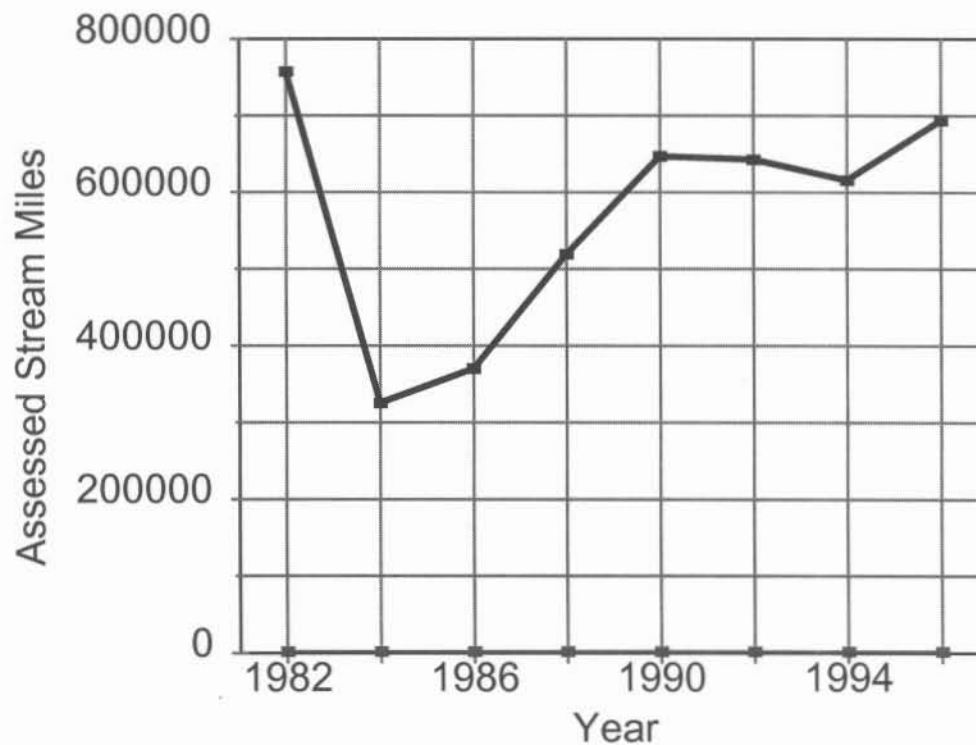
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Strikingly, Maryland claims to have assessed 100% of the state's rivers and streams, which seems remarkably diligent but, in truth, is fictional. In the text of its 1996 Maryland Water Quality Inventory (page 21), they say that of 17,000 miles of streams, "the remaining 9,917 miles of rivers and streams are smaller tributaries for which no water quality data is available. These waters are assumed to meet state designated uses." Despite EPA's prohibition against presuming an assessment based on no data, EPA approved Maryland's 1996 report. Interestingly, Robert Perciaseppe, EPA's Assistant Administrator for the Office of Water in 1996, the federal official ultimately responsible for guarding against such irregularities, was the Director of Maryland's Department of the Environment until 1992.

In 1996, Tennessee claimed to have assessed **46,000 miles more** than the previous cycle, something that could only be accomplished by changing the reporting methods used. Although EPA says the State used statistical sampling methods to arrive at such high figures, there is no evidence or documentation of these methods.

Curiously, Michigan reported 100% of its waters assessed from 1986-1990 but only 40% of its waters since then, even when the reporting of total waters changed slightly from 1992 to 1994. The Michigan Department of Environmental Quality (DEQ) says it assessed exactly 20,575 miles of rivers and streams from 1994 through the 1998 reporting cycle. Such hyper-consistency suggests that the true picture is somewhat murkier.

Figure 1 Assessed Stream Miles (1982-1996)



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The States highlighted in Table 3 illustrate the use of "boiler plate" reporting as well as dramatic changes in values from one year to the next, showing little regard for outside review of the accuracy of this type of reporting.

Table 3. Assessed Stream Miles Used for Water Quality Assessment Reporting in 5 States (1982-1996). Numbers in bold indicate a large change from the previous report.

State	1982*	1986	1988	1990	1992	1994	1996	1998
Maryland	7,440	7,440	9,300	17,000	17,000	6,000	17,000	N/A
% of assessed	80%	80%	100%	100%	100%	35%	100%	
Michigan	1,309	36,350	36,350	36,350	22,590	20,575	20,575	20,575
% of assessed	3%	100%	100%	100%	40%	40%	40%	40%
Montana	17,251	19,505	19,505	51,212	64,677	17,680	18,822	N/A
% of assessed	100%	95%	95%	100%	36%	10%	11%	
South Carolina	1,417	2,442	3,795	3,493	3,954	26,313	19,487	N/R
% of assessed	51%	25%	38%	35%	40%	74%	65%	
Tennessee	19,236	5,748	9,428	10,247	10,825	10,909	57,436	N/R
% of assessed	100%	30%	49%	54%	57%	57%	94%	

% of assessed is the percent of the total river and stream miles claimed to be assessed.

N/A = not available at time of printing

N/R = not reported.

New York and Maine are two States that also rely upon presumed assessments to inflate the number of waters reported. Both of these States claim to assess 100% of their rivers and streams (Maine reported that they have monitored all waters since 1986, while New York did not differentiate between monitored or evaluated methods in its reported data). A June 6, 1995 letter from the New York 305(b) coordinator to the National 305(b) Coordinator stated that "it is correct that we assume that rivers for which we have no information are fully supporting their designated uses."

An added problem with this presumptive reporting is that it skews the numbers for the entire nation. Maine and New York report 31,672 and 52,337 miles assessed, respectively, representing about 12% of the waters reported nationwide and 18% of the waters reported to be fully supporting all State water quality goals in the National Water Quality Inventory. Meanwhile, the NAD-1996 listed only 10,725 assessed rivers and miles for New York, a total of almost 42,000 miles less than reported to Congress in New York's own 305(b) report.

Information for Maine did not even appear in the NAD, perhaps because in this instance even EPA could not pretend to believe that the State had produced credible data.

It is not expected that all or nearly all of the streams within a State could be surveyed, since the cost of such universal monitoring would be prohibitive. Nonetheless, in the National Water Quality Inventory: 1996 Report to Congress, 4 States assess 100% of their stream miles (Maine, Maryland, New Hampshire, New York), down from 11 States reporting all their rivers and streams assessed in the 1990 Report to Congress. Fifteen States assessed 40% or more of all their rivers and streams with an average of 71% of their miles assessed, while 32 States assessed less than 40% of their rivers and streams with an average of 15%.

What's in a Name - Monitored or Evaluated?

In 1988, a significant change in State 305(b) reports came as a result of EPA guidance establishing two categories of "assessed" waters (now called "surveyed" waters to lessen the implication that an actual assessment occurred): "monitored" and "evaluated." The "monitored" category is simple: actual monitored data within the past 5 years that could be

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used for an assessment. EPA's desire to include more assessed river miles in the report to Congress resulted in this new, creative assessment category: "evaluated" waters.

EPA's goal for the 1990 reporting cycle was explicit - "it is expected that the States will strive to increase the number of waters they assess by tapping new data sources, including 'evaluated' waters in their assessments..."

According to several National Water Quality Inventories prior to 1988, some States were already abusing the concept of "evaluated" waters to either dramatically increase their total assessed waters or their miles of clean waters. The new guidance, however, exacerbated these practices. New York, for example, reported an increase of 66,588 assessed miles (66,489 of which were "evaluated") in 1988 compared with 1986 in which they only assessed a total of 3,400 miles.

Also jumping on the band-wagon was Montana. In 1990 the Big Sky state increased its assessed waters by 31,707 miles, almost all added under the "evaluated" assessment that year. In the same year, Colorado tripled its assessed waters by adding 16,619 miles of rivers and streams as "evaluated."

Not surprisingly, States also use these evaluated assessments to report better conditions. An examination of the relative amounts of "fully supporting" and "non-supporting" waters using these categories shows sharp water quality gains that had their origins in changed methodologies but not changed conditions. In 1992, the first year the reports contain such records by support category, 32% of fully supporting waters were monitored versus 65% of not-supporting waters that were monitored.

Monitoring for What?

State and EPA water quality reporting offers little consistency in the type of monitoring data needed for an accurate and scientifically valid water quality assessment. EPA guidance allows States a variety of methods that can be considered "monitoring" such as:

- 12 categories of Physical/Chemical Monitoring, including fish tissue
- 9 categories of Biological Monitoring
- 4 categories of Habitat Assessment (Monitoring)
- 5 categories of Pathogen Monitoring
- 5 categories of Toxicity Testing
- 3 categories of Integrated Intensive Surveys
- 3 categories of Volunteer Monitoring
- Modeling (calibrated data)

With all of these categories of monitoring, and flexible requirements, it is difficult to tell just what type of monitoring is done for the 305(b) reports. Under the EPA guidelines, almost any type of monitoring is considered equivalent to another. For example, a grab sample of dissolved oxygen taken daily is considered as scientifically valid an assessment tool as a suite of 200 parameters sampled daily along with a suite of toxicity testing and bioassessments. So, even though a State may claim to "monitor" a waterbody, it is unclear whether the State program is measuring the biological health of the streams or merely the chemical health.

How the Game is Played - A Look at State Reports

The 1998 National Water Quality Inventory Report to Congress was due October 1, 1998, but is, as of this writing, more than six months overdue. The "late as usual" status reflects State failure or refusal to complete and submit the reports. Reports already on file give a clue as to why neither the States nor EPA are anxious to put current information into circulation.

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Michigan's Boiler Plate Special

Table 4 shows an incredible tale of "boiler-plate" water quality reporting in Michigan for more than a decade. The only numbers that really change are the impaired waters which have increased, but that is because the one thing Michigan monitors is the waters that are already identified as impaired. But what about those waters that are not impaired? How do we know the State is monitoring to detect other waters that either are, or may become, impaired?

Table 4. Summary of Michigan's Stream Assessments (1982-1998)

Description	1982	1984	1986	1988	1990	1992	1994	1996	1998
Total Miles	46,350	N/A	36,350	36,350	36,350	56,094	51,438	51,438	51,438
Assessed Miles	1,309	N/A	36,350	36,350	36,350	22,590	20,575	20,575	20,575
% assessed	2.8%	N/A	100.0%	100.0%	100.0%	40%	40%	40%	40%
Monitored	13	N/A	N/R	N/R	22,900	22,438	20,575	20,575	20,575
Evaluated	0	N/A	N/R	N/R	13,450	152	0	0	0
Impaired	463	N/A	497	783	1,361	1,291	1,416	1,428	1,704
% impaired	35.4%	N/A	1.4%	2.2%	3.7%	5.7%	6.9%	6.9%	8.3%

*percent impaired miles based on assessed miles; **bold** indicates large change from previous report*

1982 from ASIWPCA; 1984 total miles and impaired waters estimated from percentages provided in the 1984 National Water Quality Inventory

N/A = not available, N/R = not reported

Michigan's 1998 305(b) report "Water Quality and Pollution Control in Michigan" was one of the few 305(b) reports EPA received on time by the end of last summer. The State uses a five-year monitoring strategy with a goal of assessing more of its rivers and streams. Even with Michigan continuing to report at the fixed 40% level, its 1997 sampling effort yielded key insights into its programmatic "progress."

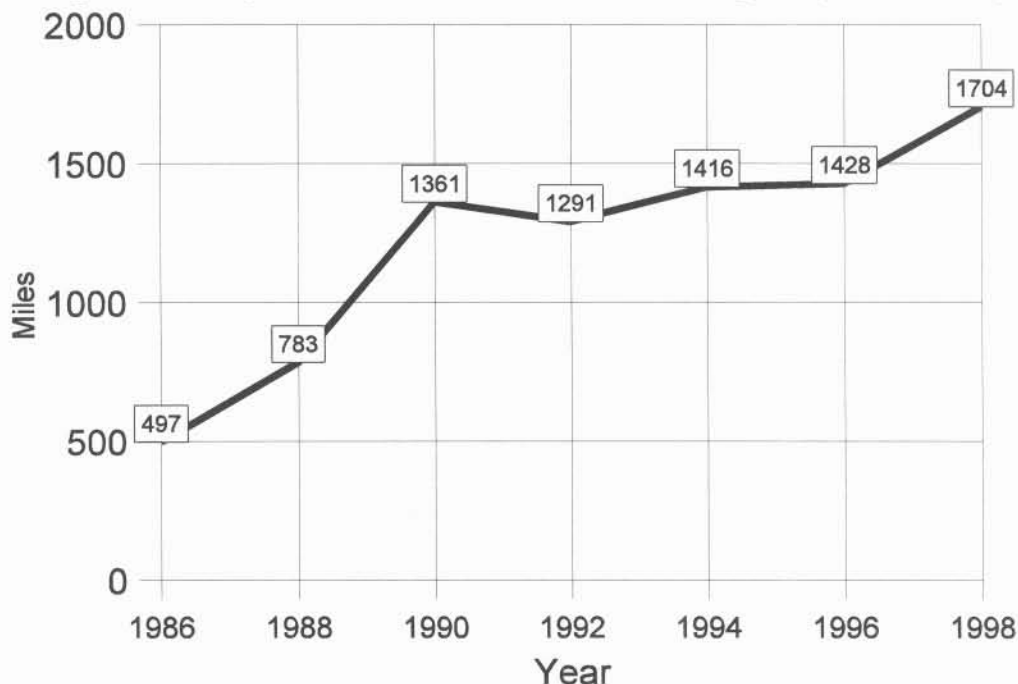
In 1997, according to the sampling, the State assessed a total of 2,695 miles of rivers and streams. In other words, **only 13% of the state's 20,575 river and stream miles were actually assessed** (versus the 40% reported by the State to have been assessed). Of the 2,695 miles assessed in 1997, 566 miles, or **slightly more than 34% were impaired**. This greatly differs from the 8% impaired figure reported over the 5 year period. The difference may be due to a better accounting of the number of waters assessed than the fabricated 20,575 miles that appears in each report.

According to Appendix II of its 1998 report, Michigan's 20,575 mile monitoring figure was derived as follows:

"The number of river miles monitored for the five-year period ending in 1997 was **estimated** to be 20,575 miles, which is 40% of Michigan's 51,438 total river miles. This estimate focuses on wadeable streams and was **extrapolated** from determinations of the number of miles monitored in **three** river watersheds where biological surveys were conducted in 1991."*[emphases added]*

These "estimated" and "extrapolated" numbers certainly do not sound like "monitored" river miles. In fact, they sound like the "presumed" assessments that plague water quality reporting to Congress and EPA warned against using. EPA's National Assessment Database for 1996 confirms that the State has wildly over-reported its values. The NAD shows that **only 2,774 miles were actually assessed**, with 2,707 miles (98%) impaired and 67 miles not impaired. Are 98% of Michigan's waters impaired or is the reality closer to the 8% impaired value the State reported?

Figure 2. Impaired Stream Miles in Michigan (1986-1998)



In 1992, EPA (EPA905/R-92/001) published a study of how surface water quality programs in the Midwest use environmental indicators. Even then, Michigan had “no data system for information on streams that fully support uses.” That seems to be the case today. Without a catalog, database, or other means to assemble the information on all of the State’s rivers and streams, the true water quality of Michigan cannot be known. The only certainty is that Michigan’s reporting is deeply flawed.

The Tennessee Data Waltz

Tennessee’s reports reflect an incredible jump in both total miles and total assessed miles from 1994 to 1996, as well as a “too-good-to-be-true” increase in water monitoring. The State boasts that “the number of stream miles assessed in 1996 increased by 38,247 miles over the 1994 assessment, giving us our best evaluation to date of statewide water quality.” (*Tennessee State of the Environment: Water*). Tennessee also claims that the “percentage of clean streams” rose from 42% in 1972 to 74% in 1996.

Unfortunately, this seemingly impressive water quality improvement is far more the result of data manipulation than actual pollution reduction. The EPA National Assessment Database (NAD) revealed that, in 1994, Tennessee assessed 10,903 river and stream miles, with an average water body length of about 16 miles, but none greater than 84 miles. In the 1996 NAD, the State assessed 57,761 miles of river and streams, with an average water body length of about 81 miles. **The State also reported 194 water bodies more than 100 miles in length (48 which were more than 200 miles long), when in 1994 there were none more than 84 miles long.** This supposed “improvement” reflects the State program’s ability to dance around the data, rather than any actual improvement in water quality. Tennessee has still not produced a 1998 305(b) report, so it is not yet known whether the trend has been extended (pun intended) into 1998.

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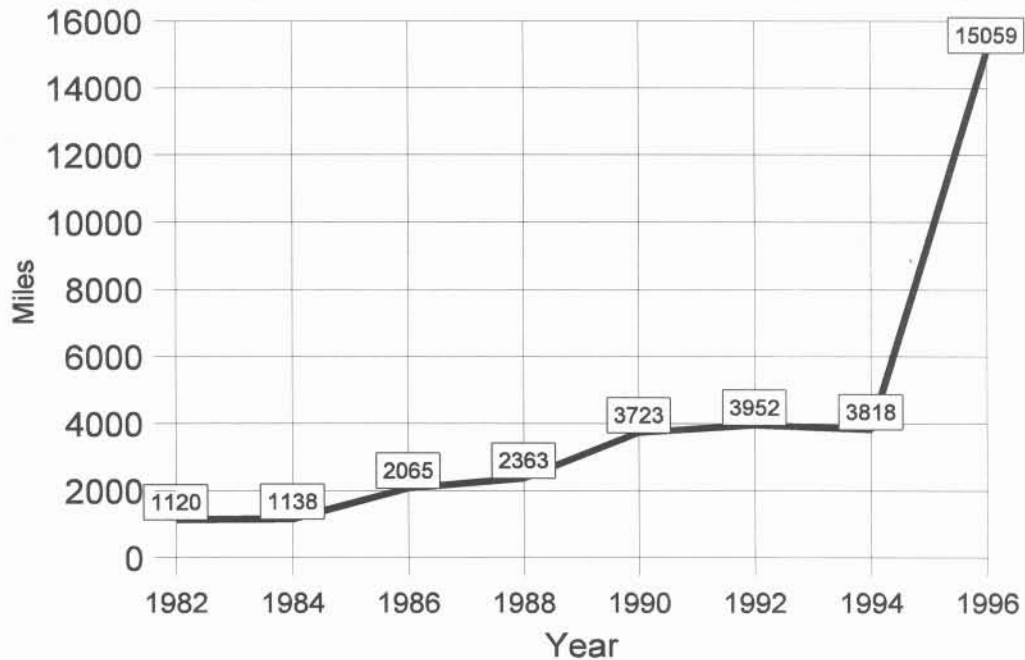
Table 5. Summary of Tennessee's Stream Assessments (1982-1996)

Description	1982	1984	1986	1988	1990	1992	1994	1996
Total Miles	19,236	19,124	19,124	19,124	19,124	19,124	19,124	61,103
Assessed Miles	19,236	5,990	5,748	9,428	10,247	10,825	10,909	57,436
% assessed	100%	31%	30%	49%	54%	57%	57%	94%
Monitored	9,220	N/A	N/R	N/R	3,894	4,722	6,417	43,512
Evaluated	10,016	N/A	N/R	N/R	6,353	6,103	4,492	13,924
Impaired	1,120	1,138	2,065	2,363	3,723	3,952	3,818	15,059
% impaired	6%	19%	36%	25%	36%	37%	35%	26%

percent impaired miles based on assessed miles; **bold** indicates large change from previous report 1982 from ASIWPCA; 1984 total miles and impaired waters estimated from percentages provided in the 1984 National Water Quality Inventory
 N/A = not available, N/R = not reported
 1990 monitored and evaluated miles estimated from percentages provided in the 1990

Despite its shell game, Tennessee still could not make a convincing case that its waters were improving. Although its percentage of unimpaired waters increased, the real number of

Figure 3. Impaired Stream Miles in Tennessee (1982-1996)



miles showing impairment also increased by a factor of three (see figure 3). Thus, while the number of "dirty" stream miles tripled, Tennessee still claims dramatic water quality improvements. Like most of the other States, the true water quality picture in Tennessee is hopelessly obscured by the lack of a credible, consistent water quality monitoring and assessment program.

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Maryland — A Tale of Two Agencies

Maryland 305(b) reports have archaic water quality standards that favor coldwater trout over warmwater bass streams, and depend upon a few chemical water quality standards to determine designated use attainment. The Maryland Department of Natural Resources (DNR) inherited the 305(b) program from the Maryland Department of Environment (DE) for the 1996 305(b) report cycle. Maryland DE transferred the staff that prepared the 305(b) report, which maintains its poor quality, and there is little management support to improve it. Ironically, the Maryland DNR had independently developed its own credible, scientifically valid assessment program that has not yet found its way into the 305(b) report (See Chapter IV).

The following table illustrates more classic “boiler plate” data reporting. In 1994, Maryland assessed slightly more than one third of its streams and reported that 31% were impaired. Two years later, Maryland reports 100% assessment with the impairment percentage falling by half to 16%. It remains unknown what policies or practices changed—other than data manipulation—to cause these dramatic variations.

Table 6. Summary of Maryland's Stream Assessments (1982-1996)

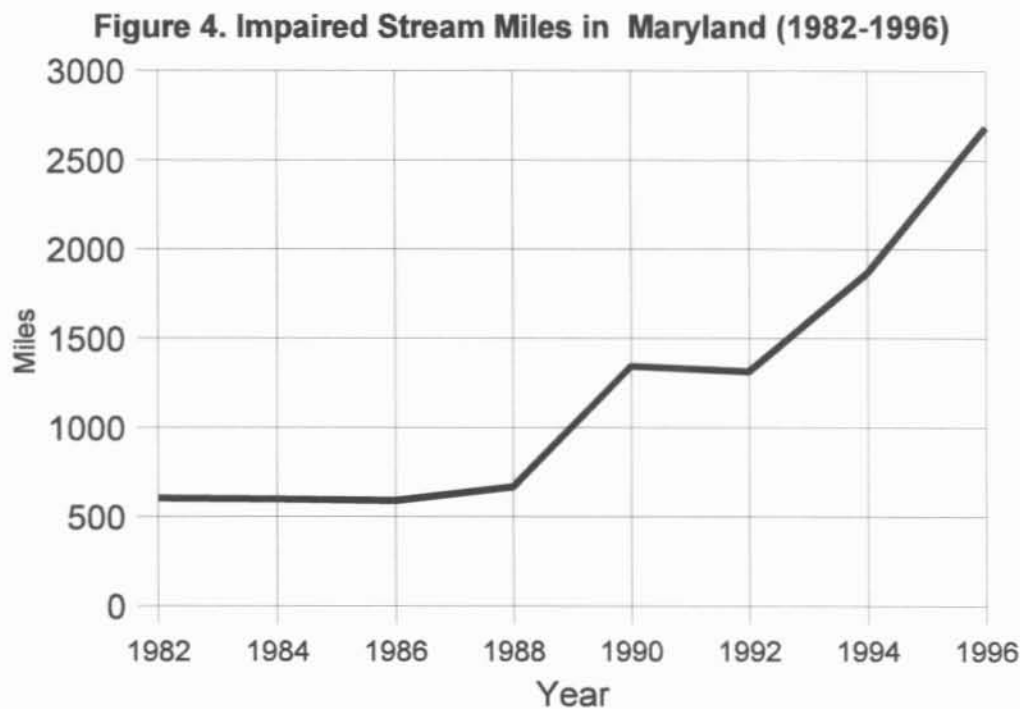
Description	1982	1984	1986	1988	1990	1992	1994	1996
Total Miles	9,300	9,300	9,300	9,300	17,000	17,000	17,000	17,000
Assessed Miles	7,440	7,440	7,440	9,300	17,000	17,000	6,000	17,000
% assessed	80%	80%	80%	100%	100%	100%	35%	100%
Monitored	2,566	N/A	N/R	1,488	2,550	2,259	3,688	5,692
Evaluated	4,874	N/A	N/R	7,812	14,450	14,741	2,312	11,308
Impaired	602	597	588	665	1,343	1,312	1,866	2,684
% impaired	8%	8%	8%	7%	8%	8%	31%	16%

*percent impaired miles based on assessed miles; **bold** indicates large change from previous report 1982 from ASIWPCA; 1984 total miles and impaired waters estimated from percentages provided in the 1984 National Water Quality Inventory N/A = not available, N/R = not reported*
1988 and 1990 monitored and evaluated miles estimated from percentages provided in the 1988 and 1990 National Water Quality Inventories, respectively.
from 1990-1996, Maryland assumes that although 13,000 miles are “smaller tributaries for which no water quality data is available”, they fully meet designated uses.

EPA does not challenge any aspect of Maryland reporting. Not only does EPA accept the assertion that Maryland assesses all of its waters but they also accept flatly contradictory data without raising an eyebrow. EPA's own National Assessment Database shows that for 1996, Maryland had a total of 6,657 miles assessed, averaging about 48 miles per water body segment. Of that amount, 93% is claimed to be “monitored” (nearly three times the 305(b) monitoring rate) and 33% is impaired, double the reported impairment rate of 16% from the State 305(b) report of the same year.

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Even with its poor reporting program, the state report indicates that water quality problems appear to be getting worse. Again, as with Tennessee, the absolute number of impaired



stream miles is skyrocketing even as the state reports a higher percentage of clean waters. As to whether conditions are really getting worse in Maryland, the data is too murky to say, but it is highly likely that the picture is darker than the current "16% impaired" rate being reported as proof of the state's dramatic clean water progress.

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“Money Changes Everything”—(C. Lauper)

It would not be cynical to conclude that assessment reporting on the condition of waters is influenced by the budgetary or political interests of EPA and its State regulatory partners. EPA’s water quality double standards can be most clearly seen when contrasting Agency claims for how much success its programs have brought against Agency pitches to Congress on the need for more funding.

For example, to celebrate the 25th Anniversary of the Clean Water Act (The Clean Water Act: A Snapshot of Progress in Protecting America’s Waters), EPA wrote that:

“Twenty-five years ago, only a third of the nation’s waters were safe for fishing and swimming...Over the last 25 years, the quality of rivers, lakes and bays has improved dramatically as a result of the cooperative efforts by federal, state, tribal and local governments and communities....Today, two-thirds of the nation’s surveyed waters are safe for fishing and swimming.”

That rosy scenario was followed by more than 20 examples of good news, all without asking for a penny more. But, when the need for more money is discussed, the tune changes. In its 1996 report to Congress (Report Brochure: National Water Quality Inventory: 1996 Report to Congress EPA841-F-97-003), EPA says:

“As of 1996, about 40% of the nation’s surveyed rivers, lakes, and estuaries are too polluted for basic uses, such as fishing and swimming. This information from the states indicates that serious water pollution problems persist nationwide and emphasizes the importance of implementing recently released Clean Water Action Plan: Restoring and Protecting America’s Waters”

This irreconcilable set of claims can only be explained in context. The gloomier assessment accompanied EPA’s pitch for an increase of more than half a billion dollars in funding for restoration than the previous year.

These sort of situational water quality summaries are by no means unique to EPA. States can also reap sizeable gains in federal dollars if they slant the numbers one way or another. The President’s Clean Water Action Plan (CWAP) provides substantial rewards to States reporting high amounts of impaired waters. Of the \$568 million in new CWAP resources in Fiscal Year 1999 (a 35% increase and a total increase of \$2.3 billion over five years) at least \$115 million of these funds will go to watershed restoration. States like Michigan have claimed that all of its watersheds are in the highest ranking group for restoration needs, despite its claim that only 8% of its waters are impaired. This is a case of saying one thing for Section 305(b), which reports the quality of waters to the public and Congress, and another to EPA when additional funding is at stake.

This new built-in tension may be another reason why EPA is so reluctant to improve its water monitoring and assessment programs under Section 305(b) — the Agency needs a flexible program that can take credit for environmental progress when it is under political attack and, at the same time, cry for help to solve the massive environmental problems when more money is available.

The conflicting sets of claims coming from both EPA and the States leave attentive observers unsure as to which should be believed. With the data so limited and the assumptions so questionable, the answer is neither.

EPA's Index of Watershed Indicators

— The Ultimate Shell Game

Unless forced to by outside pressure or the threat of litigation, EPA has repeatedly shown its disinclination to abide by legal mandates governing the 305(b) program. When even these seldom enforced legal requirements are removed, however, water quality reporting can veer into the realm of pure fantasy. Such is the case with the development of the Index of Watershed Indicators (IWI), a public relations effort — not required by the Clean Water Act, but spurred by a political imperative that EPA make water quality data accessible to the public — which sets up a wholly disconnected array of water quality reports with no effort to reconcile it to its legally mandated counterparts.

The funding and attention to the IWI is impressive, but does nothing to fix the real problem - poor water quality reporting under Section 305(b) of the Clean Water Act. EPA came up with the IWI, originally called the National Watershed Assessment Program, in 1996 to leave a legacy for the EPA Assistant Administrator for Water, Robert Perciasepe, who had shown great concern for the lack of good water quality data and public access to what was available. However, the IWI resulted in an effort that took existing information and extrapolated it well beyond reason to show an increase in waters assessed, and then claimed that the IWI can be used to measure the "health" of the waters.

Even EPA's own offices are critical of the IWI. As one of EPA's Regional offices recently wrote, "the current national data bases do not provide enough data to present an accurate picture of New England watershed health." One State agency wrote "with a few exceptions, the information sources used by...[IWI]...in Phase 1 lack the accuracy and detail that will be required to be useful in developing or prioritizing water quality management programs at the state or watershed level." Another State agency wrote "...we remain concerned over the accuracy of the assessment information for our state. Due primarily to some of the assumptions uses for data reduction, and also the tendency in some cases to paint a very broad picture with relatively little data which may not be representative of the area assessed."

Michigan's Department of Environmental Quality sent a long rebuttal to EPA's IWI (letter of February 28, 1997) with statements such as: "Data are simply not available to adequately accomplish the Program concept", and they were concerned "that the release include strong repeated disclaimers with regard to the accuracy of the underlying information and especially the validity of the overall conclusions." They felt that the IWI would "result in a significant credibility problem for both the EPA and the states..."

Very little real data is needed in any watershed, or cataloging unit, to be considered in the IWI assessment. Under IWI, it is not possible to tell how many streams have really been looked at along their entire lengths, rather than a single sample that a State may say represents 50, or 1,000 miles, of streams. For example, the State of Washington IWI shows only 14 of its 73 watersheds not meeting the data sufficiency threshold, when the National Assessment Database, upon which the State IWI is largely based, reveals that Washington used **no monitoring data to base findings** of more than 28,000 miles being unimpaired and more than 41,000 miles being impaired.

Another very important issue raised by some States early in the IWI process was that of double-counting assessment information. As EPA's Region 1 (New England) Office commented, "there was some concern that this effort was not an outgrowth of existing efforts under 305(b) to better assess watersheds, but a separate effort with possible conflicting results or double counting of 305(b) data." Comments from the State of Michigan added "we are concerned with double counting the concerns that place a waterbody on the NonAttainment list" since they have placed waters on its 305(b) non-attainment list just for

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fish consumption advisories, but now need to double count that in the IWI by ranking another indicator as a problem when it was already covered under a previous indicator. No one knows the real effect of double-counting since the Office of Water never consented to a sensitivity analysis, validation effort, or any other typical review process to see if the IWI reflects what it was intended to - watershed health. In short, the IWI was never peer reviewed.

These concerns did not even dent EPA's public relations campaign. According to the EPA [<http://www.epa.gov/surf2/iwi/>],

"The Index of Watershed Indicators (the IWI or Index) is a compilation of information on the 'health' of aquatic resources in the United States. Just as a physician might take your temperature & your blood pressure, check your pulse, listen to your heart beat and respiration, evaluate your weight compared to your height, etc., the Index looks at a variety of indicators that point to whether rivers, lakes, streams, wetlands and coastal areas are 'well' or 'ailing' and whether activities on the surrounding lands that affect our waters are placing them at risk."

The actual information used in the IWI has little to do with aquatic "health" and more to do with the type of data the Agency could find to fill in the holes. While EPA claims that the "Index is based on the June 1996 Indicators of Water Quality in the United States," it creates a wholly new "condition" and "vulnerability" approach contrary to that presented in the 1996 Indicators document. Michigan's Department of Environmental Quality commented that "the total lack of consideration of biological health indicators...is a matter of significant concern." Significantly, the IWI actually excludes the only measure even remotely linked to watershed health: biological integrity.

Within EPA's "Surf Your Watershed" Map Library, accessible from the IWI home page, is a page called "Wadeable Streams and Rivers-Biological Assessment" which contains some information about State biological assessment programs and presents some results for about 30 States [http://www.epa.gov/surf2/maplibrary/bioas_1.html]. It is curious that this information is not part of the IWI, since it is related to the biological integrity indicator promoted in the 1996 Office of Water Indicators report.

The likely reason this data is not used as a more accurate measure of watershed health is revealed by a look at the report called the Summary of State Biological Assessment Programs for Streams and Rivers (U.S.EPA. 1996. EPA 230-R-96-007). This report contains assessments of biological indicators for approximately 30 states and these assessments carry very bad water quality news. The report found that when using biological integrity indicators, the results of water quality problems were dramatically higher than reported without these indicators. Therefore, the type of indicator used can greatly affect the results of the assessment provided.

This 1996 Biological Assessment report showed that using the more specific water quality indicator of "aquatic life designated use support" (a component of the overall designated use support reported in the IWI and National Water Quality Inventory) results in better water quality conditions when compared with those using biological integrity indicators. This is exactly what some other States have found in their own 305(b) report process (e.g., Delaware and Ohio). When these States started reporting their aquatic life use attainment based primarily on biological criteria, their attainment rates plummeted.

The fact that using biological criteria will reveal more water quality problems than previously reported explains why biological integrity indicators were not used in the IWI. This omission also raises questions about the sincerity of EPA's support for State efforts to develop and implement biological integrity indicators. EPA's reticence to deliver bad water quality

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news forces the agency to accept poor quality and incomplete reporting from the States. Conversely, if EPA wants more accurate and honest reporting from State agencies, biological criteria and integrity indicators should be implemented nation-wide.

Despite all of the doubts and negative comments, IWI has taken on a bureaucratic life of its own. An April 10, 1996 memo from the Director of the Assessment and Watershed Protection Division to the National 305(b) Consistency Workgroup members indicated a plan to move State reports to a 5 year cycle and reduce EPA's National Water Quality Inventory to a "simplified" report. The obstacle to the plan is that the Clean Water Act requires a report every two years. To surmount that obstacle, a recent internal EPA discussion paper describes the "current thinking - until CWA is changed, EPA will prepare much simplified 2-year reports based on State annual data for waters monitored that year...these EPA-prepared 'off year' Reports to Congress would be much leaner, with focus on: ...national maps showing use support, causes, and sources; fish consumption advisories; new indicators, etc. - data aggregated to the CU [cataloging unit] level." This means that the IWI could become a national reporting method to replace the State 305(b) reporting.

A further indication that EPA is serious about using the IWI for national reporting to Congress, can be found in proposed spending figures. EPA planning documents show IWI displacing the National Assessment Database for Office of Water and their Waterbody System, used to store segment-specific information on the condition of state waters. Official "OW Information Technology Projects Estimated Spending Through Fiscal 2003" project funding for the Index of Watershed Indicators at \$12.7 million.

Thus, the trend of events at EPA suggests a greater public investment in a reporting system that is even less accurate or reflective of reality than the current system.

IV. Impairment Is in the Eye of the Beholder

A Bit of Perspective

Section 305(b)(1)(b) of the Clean Water Act contains the infamous “fishable-swimmable” requirement which often gets interpreted as “are there any fish living in the water?” and “can I swim in it?” This common interpretation is not, in point of fact, what the law is asking. The Section calls for “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,” which is an inquiry about the health of the biota — a question that can only be answered by direct measurement and assessment of the aquatic communities.

In the Guidelines for the Preparation of the 1990 State Water Quality Assessment (305(b) Report), EPA states that:

“Section 305 of the CWA requires the assessment of the degree to which the goals of the CWA have been attained. The goals are found in Section 101 and include the achievement of fishable and swimmable waters. Support of CWA goals is considered to be a separate and independent criterion from the degree of designated use support in that it addresses only a portion of the potential uses of a water and applies to all classified waters of the State. States should report on each goal independently.”(page B-3, emphasis added)

Reporting on the degree of meeting the CWA objective of biological integrity (i.e., fishable) has been proposed by the National 305(b) Consistency Workgroup since it was recognized that aquatic life designated use attainment can bear little resemblance to meeting the objective of the biological integrity objective of the Clean Water Act; but this dichotomy has been ignored.

Although separate assessments of goal attainment had been reported in the State 305(b) reports through 1990, this legally mandated requirement was dropped in favor of reporting on specific designated uses such as fish consumption and aquatic life support beginning with the 1992 National Water Quality Inventory (Guidelines for the Preparation of the 1992 State Water Quality Assessments (305(b) Reports - page 8).

Regardless of whether a State is determining whether the CWA goals are met, or whether designated uses can be supported, the States are given wide latitude in choosing how to make such determinations. A State may take a chemical sample rather than directly measuring and assessing the aquatic life communities.

EPA guidelines have stressed the growing importance of biological monitoring and assessment. In the most recent guidelines, EPA recommended that States report on not only the support status of individual designated uses, but also on biological integrity (Guidelines for the Preparation of the Comprehensive State Water Quality Assessments 305(b) Reports; EPA-841-B-97-002A). Biological assessments of the health of the streams are so important to EPA (or so it says), that the agency had even committed to supporting State implementation of these programs.

EPA’s primary water quality goal is that by the year 2005, 75% of the Nation’s waters will have healthy aquatic communities. EPA even held a special “peer review workshop” in March, 1996 to determine how best to report aquatic life use attainment. A March 30, 1996 letter from the Chair of the peer review panel (also a member of the Science Advisory Board)

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to Geoff Grubbs, Director of the Assessment and Watershed Protection Division, concluded that “we are recommending parallel reporting of [designated] use assessment and resource assessment [biological criteria] in 305(b).”

Since that recommendation was made, EPA asked States to report on the biological integrity goals of the Act in their 1998 reports, but to date have provided no incentives to do so.

A Foolish Consistency is the Hobgoblin of Small Minds

A 1992 pilot study by EPA (EPA-905-R-92-001) found that “inconsistencies in the decision-making framework used by each State to assess designated use attainment and major inconsistencies in the amounts of waters monitored or evaluated, from State to State and in given States over time, produce information that can not be used to determine trends in National water quality or to compare water quality among individual States.”

In 1993, EPA’s national 305(b) coordinator wrote a section in the USGS periodic National Water Summary (water supply paper 2400, page 144) of the limitations in the 305(b) reporting process, acknowledging that some States are:

“almost exclusively monitoring water chemistry at fixed sampling stations in their major waterbodies. Other States supplement their water-chemistry data with more integrative biological assessments of the health of aquatic communities and the integrity of aquatic habitats. Toxicological tests and special intensive surveys also are used to varying degrees by States. In addition, many States supplement their monitoring information with citizen-collected data or less rigorous evaluative approaches such as questionnaires sent to fish and game biologists”.

In addition to the varieties of measurement systems, the designated uses themselves vary from State to State, even for the most basic uses such as protection of aquatic life. Not only do the aquatic life uses vary, but the methods used to determine whether the designated use is attained are different. A comparison of two States — Ohio and Maryland — illustrate these differences.

Ohio has designated uses for aquatic life protection in their water quality standards, as well as biological criteria for each one. These aquatic life uses include warmwater habitat protection, exceptional warmwater habitat protection, and coldwater habitat protection, among others. Each of these uses have their own biological criteria to ensure they are met.

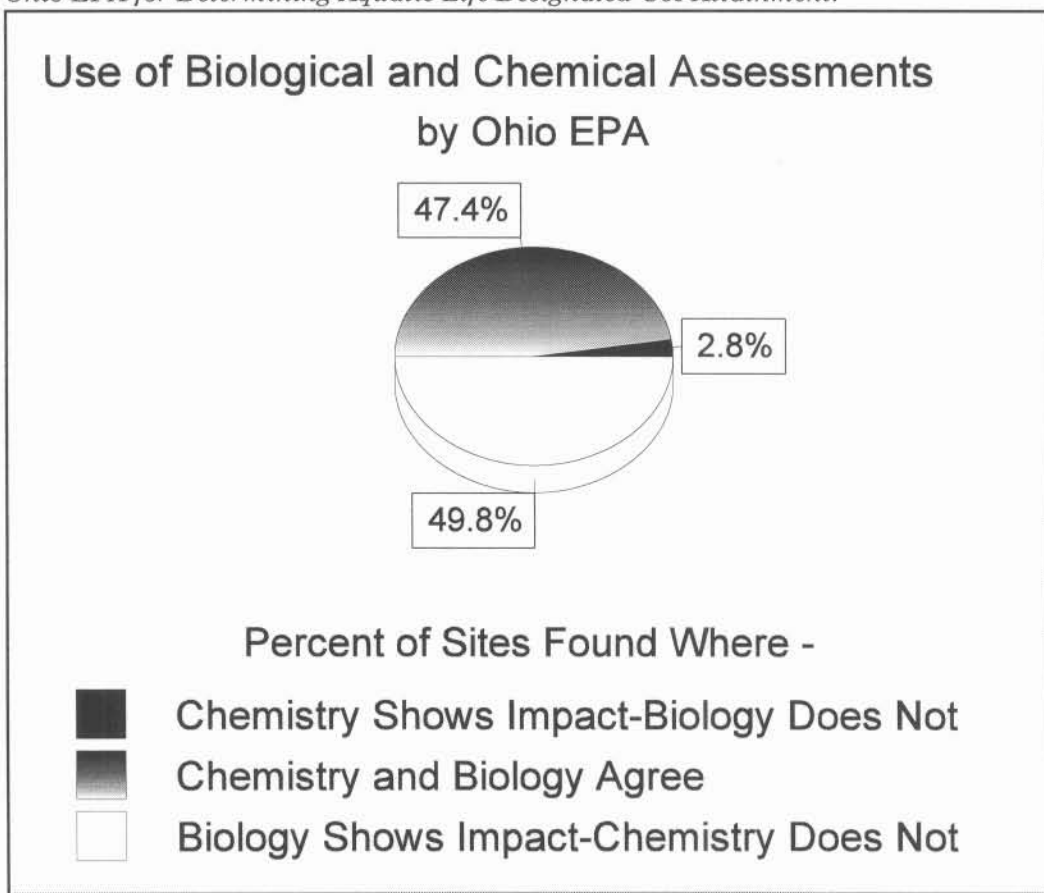
In Maryland, basic aquatic life protection is combined with other uses. Use I in Maryland, is called water contact recreation, aquatic life (p. 18 1996 Maryland Water Quality Inventory). Use II is actually a combination of three distinct uses — water contact recreation, aquatic life and public water supply. Without criteria designed to evaluate aquatic life independent of water contact recreation, the decision-making process gets foggy. Although Maryland does have Use III for natural trout waters, all of the criteria for these uses are chemical, bacteriological, or physical (e.g., temperature, turbidity) but not biological.

The use of chemical criteria instead of a biological criteria can make a very difference in whether a stream is considered to have attained its designated use. Despite its guidance, EPA allows States to choose whatever criteria best suit their purposes with only a rhetorical commitment to consistent and meaningful classification.

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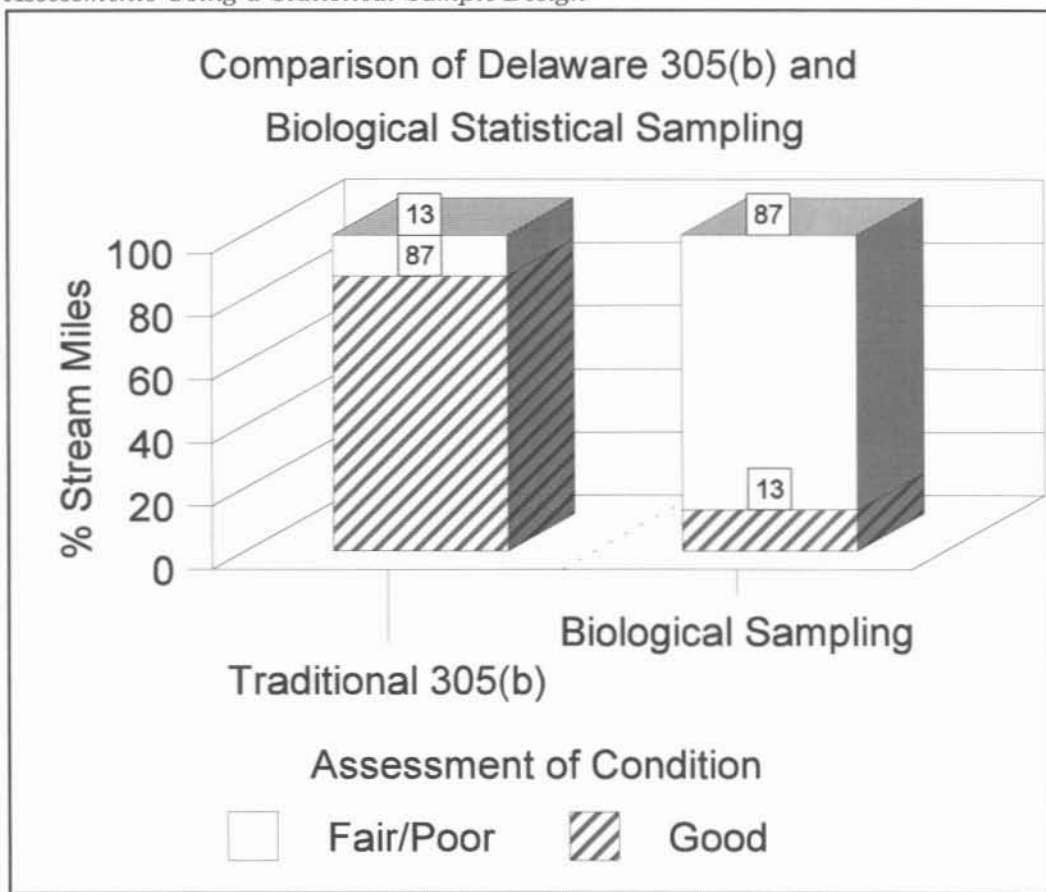
In contrast, Ohio EPA established a robust biological assessment database throughout the state and began using numeric biological criteria in 1987. Switching from a relatively qualitative approach that still used biological assessments, the impaired waters jumped from 39% in 1986 to 64% in 1990. Ohio EPA then studied 645 stream and river segments to see the differences that would have occurred by using chemical criteria or biological criteria to determine aquatic life use attainment (Figure 5). The biological criteria showed impairment in almost 50% those waters, and in the same waters, chemical criteria showed no impairment. Less than 3% of the waters showed attainment based on biological assessments, while also violating chemical criteria. The remaining 47% of the waters had agreement among chemical and biological criteria. This example gives some indication as to how much more sensitive biological assessments are and the real differences in use attainment results when using biological criteria.

Figure 5 Figure 5. Comparing the Use of Biological and Chemical Assessments by Ohio EPA for Determining Aquatic Life Designated Use Attainment.



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Figure 6. Comparison of Delaware 305(b) Reporting and Delaware Biological Assessments Using a Statistical Sample Design



A similar experience in Delaware was even more dramatic. In 1994, Delaware reported that 87% of its assessed waters fully supported aquatic life uses based on dissolved oxygen and a few other chemicals. Although this is what the State's official 305(b) report contained, its appendix cited a special study of the state in which biological assessments were used at randomly sampled sites. Delaware found that instead of 87% of the waters fully supporting, only 13% (+/- 6%) supported aquatic life — almost the complete opposite result as the State's official report (Figure 6). Despite further verification of the biological assessments, Delaware has shown no interest in incorporating these more accurate numbers in their 305(b) reports.

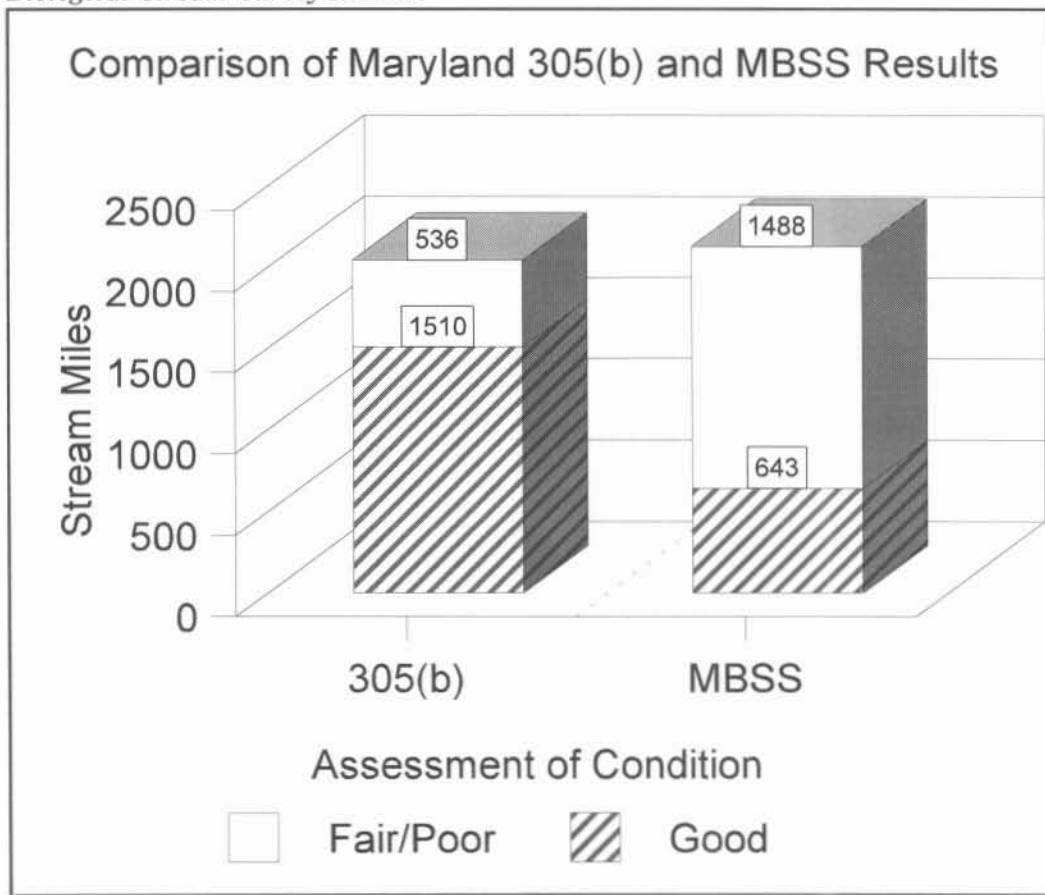
Meanwhile, in the early 1990's, Maryland DNR began a systematic random sampling site design for its biological assessment program. This program, called the Maryland Biological Stream Survey (MBSS) visited over a thousand randomly selected sites by 1998. A random, or probability design, allowed the program to obtain a known confidence that the waters they selected were representative of the State's waters. Table 7 and Figure 7 look at the differences in condition of the waters based on the traditional 305(b) reporting which is based on chemical criteria, compared with the biological assessments of fish communities conducted under Maryland DNR's MBSS. The MBSS has the categories of good, fair, poor and very poor. Figure 7 shows the good conditions (in attainment of the aquatic life use) compared with the conditions that would not meet the aquatic life use requirements (fair, poor or very poor). Not all of the numbers for MBSS add up to 100% because 100% the river and stream miles could not always be assessed, especially for the smallest streams.

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Table 7. Comparison of Chemical versus Biological Criteria Results in Maryland Streams

Basin	Unimpaired Miles - 305(b) ["Good"]	Impaired Miles - 305(b) ["Fair/Poor/VP"]	Good Miles - MBSS	Fair Miles - MBSS	Poor/Very Poor Miles - MBSS	Unknown % miles - MBSS
Choptank	220 (94%)	13.7 (6%)	86 (34%)	136 (52%)	37 (14%)	0
Chester	111 (93%)	8 (7%)	49 (17%)	131 (45%)	93 (32%)	6%
Elk	154 (97%)	4 (3%)	108 (51%)	57 (27%)	23 (11%)	11%
Bush	78 (87%)	12 (13%)	52 (28%)	68 (37%)	22 (12%)	23%
Gunpowder	208 (92%)	17 (8%)	89 (19%)	167 (36%)	61 (13%)	32%
Patapsco	390 (61%)	249 (39%)	189 (31%)	135 (22%)	172 (28%)	19%
N. Branch Potomac	349 (60%)	232 (40%)	70 (12%)	119 (20%)	267 (45%)	23%

Figure 7. A Comparison of Maryland 305(b) Report Results and the Maryland Biological Stream Survey Results.



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As seen from the comparison table above, the chemical methods tend to yield lower percentages of impaired miles, even taking into account the stream courses about which nothing is known. When comparing the unimpaired 305(b) miles with the MBSS "good quality" rating, the differences in outcome between the two methods become even greater.

Speaking in Tongues

Even when a State uses biological criteria there can be wide variations in results. The Virginia 305(b) report, for example, has some unusual methods for determining designated use impairment based on biological methods. According to EPA and most States, the instream biological communities data (i.e., biological criteria) are the most accurate method to determine impairment of the aquatic life use. If these data show an unimpaired condition, then it is considered to be fully supporting the designated use. In Virginia, slight impairment is tantamount to no impairment. Even more liberally, the Commonwealth reserves the seldom used "fully supporting, but threatened" category for moderate impairments, the same classification EPA and others States would call "fair" water quality and classify as "impaired."

Using the Virginia biological measurement standard, the biological community needs to be "severely impaired" before non-attainment is considered. Since moderate impairment is still considered fully supporting, unless the stream is sampled twice during the reporting cycle, the stream can, at worst, still categorized as at least partially supporting the use, no matter how badly conditions have actually deteriorated. Not surprisingly, Virginia seldom samples the same stream twice during the reporting period. For a five year period, the Commonwealth only assessed 35% of its streams. Virginia's approach becomes an argument against using the most accurate criteria.

Virginia is in stark contrast to others States, particularly Ohio, in its use of biological criteria. Ohio's 305(b) program, like the programs in Florida, Wisconsin, Illinois, Maine and others, uses numeric biological criteria, but Ohio is the only State to have the numeric biological criteria written into its state water quality standards to determine aquatic life use attainment. Ohio EPA also monitors both fish and aquatic invertebrates, using three different indices to measure use attainment. Generally speaking, all three indices need to agree in showing full support. If any one shows less than full support, then the finding is partial support, unless one of the indices shows severe impairment. When that occurs, the finding is one of not supporting attainment, or impaired. Based on this consistent approach, Ohio has been able to factually document improving trends over the past decade.

Different Tools for the Same Job

In 1992, EPA adopted a separate and more stringent method for determining impairment due to toxic chemicals. More stringent guidelines were needed for toxic chemicals because of their potential for acute harm, compared with the conventional parameters of nutrients, temperature, and dissolved oxygen, which can have more frequent exceedances of standards without lethal effects.

Many States, however, refuse to follow these more stringent guidelines. Noncompliance with guidelines for determining use attainment is, in fact, quite common. In preparing for the 1994 305(b) guidelines, EPA found 18 states refused to follow the more stringent guidelines for toxic chemicals, and another 13 States did not specify the approach used (See Attachment A; EPA option paper "1994 305(b) guidelines - aquatic life use support attainment" October 18, 1993.)

Taking a look at State reports reveals a mixed bag of assessment tools. Nevada, for example, uses a fixed station sample design with conventional and toxic pollutants to determine designated use support (Nevada Water Quality Assessment - 305(b) Report April 1998 Division of Environmental Protection, Carson City, NV p. 12, 13). Nevada followed the

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basic methodology for criteria exceedences in the 305(b) guidelines but applied its methods to both conventional and toxic pollutants, despite the EPA guidelines mandating a separate, more stringent approach for toxic pollutants.

The 1998 South Dakota Report to Congress - 305(b) Water Quality Assessment - (South Dakota Department of Environment and Natural Resources, Pierre, SD.- page 28) says that "use support assessment for fishable (fish and aquatic life propagation) use primarily involved monitoring levels of the following major parameters: dissolved oxygen, unionized ammonia, water temperature and pH, and suspended solids." South Dakota uses no biological criteria and uses no standards at all for toxic chemicals.

Alaska is slightly more inclusive, but still uses no bioassessments. Alaska measures "fecal coliform bacteria, dissolved oxygen, pH, turbidity, temperature, dissolved inorganic substances, sediment, toxic substances, color, petroleum hydrocarbons, radioactivity, total residual chlorine, and residues (floating solids, foam, debris, deposits). ...Waterbodies are compared to the criteria for these parameters to determine if water quality violations occur, and if so into which status category waterbodies are listed." (Alaska's 1996 Water Quality Assessment Report - Alaska department of Environmental Conservation, Juneau, Alaska August 1996 Page 17)

In Texas "the aquatic life use is evaluated by five different methods: dissolved oxygen concentrations, metals in water concentrations, organic substances in water concentrations, and ambient water and sediment toxicity" (http://www.tnrcc.state.tx.us/water/quality/data/wqm/305b_ind.htm page 6). As with Alaska, Texas uses no biological criteria.

Each of these States uses different methods to determine the health of their waters through aquatic life use attainment, and it is not easy to tell which method is used when. There has been almost no progress in the past decade toward a consistent water quality reporting regime. In fact, there is no national monitoring strategy at all, a failure whose correction is long overdue.

V. At EPA, Oversight Means Overlook

The evidence is overwhelming that EPA simply does not conduct proper oversight of the State programs to which the agency annually doles out tens of millions of dollars in operating funds. Instead, EPA's water quality monitoring and assessment program in the Assessment and Watershed Protection Division (AWPD) prefers to maintain a posture of conscious ignorance, like an ostrich with its head in the sand.

At AWPD, avoiding accountability for State and national progress in meeting water quality goals is the name of the game. Here's how it's played:

For starters, EPA neither sets nor enforces any minimum standards for State water quality monitoring and assessment programs, generally, or 305(b) submittals, specifically. Federal regulations, (40 C.F.R. Part 130.10 - "State submittals to EPA"), provide that "the following **must** be submitted regularly by the States to EPA:"

- 1) the **section 305(b) report**, in FY84 and every two years thereafter;
- 2) the **annual section 205(j) certification** or update of the 305(b) water quality report;
- 3) the **annual State work program(s)** under Sections 106 and 205(j);
- 4) revisions or additions to **water quality standards**;
- 5) initial reports and revisions to the **continuing planning process** under Section 303(e) ;
- 6) initial report and revisions to the identification of water quality-limited waters still requiring **total maximum daily loads (or TMDLs)** under section 303(d), and the TMDLs themselves;
- 7) initial report and revisions of **water quality management plans** and approved updates under Sections 208 and 303(e).

All of these submittals are required to demonstrate that the States are conducting the work needed to manage their water quality programs in accordance with the conditions of their federal grant, each totaling millions of dollars a year.

In practice, however, EPA pursues a hands off policy, allowing States to submit these items when, and *if*, they feel like it.

Do States Submit 305(b) Reports on Time...or at All?

States have been notorious for not submitting Section 305(b) reports on time, or even at all. In 1992, the situation was so advanced that the Deputy Director of the Office of Wetlands, Oceans and Watersheds (in which the AWPD resides) issued a memo on "Late Submittal of 1992 State Water Assessments -Section 305(b) reports." It states that "we have received only sixteen...State reports as of May 27, 1992," although they were due April 1st of that year. To ensure that the States turn in the reports by August 1, EPA made the following ultimatum: "If States cannot submit a final report by this time, we will publish the National Report without that State."

The 1992 memo exemplifies EPA's unwillingness to impose any direct sanction, such as grant penalties, upon delegated programs that fail to meet their statutory responsibilities. The memo confirms that EPA's primary bureaucratic interest in States submitting their 305(b) reports on a timely basis is so EPA can meet their own National Report deadlines.

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Apart from the issue of sanctions, the memo, in a backhanded way, confirms EPA's disinterest in the role of State reports as necessary tools in the management of water quality programs. Similarly, there is no mention of any review of the State reports by EPA — any report no matter the quality will do.

Either because of, or in spite of, the 1992 memo, EPA actually received 305(b) data (with or without reports) from all the States in 1992 to complete the national report. By 1994, however, things took a turn for the worse. Although the 1994 305(b) reports were due in April of 1994, by late 1995 EPA had not received 305(b) reports from Georgia, Kentucky, Indiana, Minnesota, Ohio, South Dakota, Idaho and Oregon. Of the reports received, only 8 were received on time and 36 were late, some by more than a year. The National Water Quality Inventory was ultimately published with no information at all from Idaho.

In 1996, the situation was much the same. As of June 1997, more than a year after the reports were due, 14 States still had not submitted final reports, and almost all the reports had come in late. Alaska, Idaho, and Oregon never bothered to turn in 1996 reports at all, and were excluded from the 1996 National Water Quality Inventory.

The picture for the most recent reporting cycle, 1998, is similar. As of July 17, 1998, more than 3 months after the reports were due, EPA had not received any data or reports from 24 States (including river commissions and territories) while 38 reports or data were submitted, most of which were either in draft form or otherwise incomplete. A December 3, 1998 memo from the AWPD director, Geoff Grubbs, to PEER, stated that "for the 1998 reporting cycle, all states except Alabama, Iowa and Mississippi have submitted either an electronic or hard copy report as of December 1, 1998. Eleven states - California, Florida, Indiana, Maine, Montana, New Jersey, New Mexico, New York, North Carolina, Rhode Island, and Wisconsin - have submitted only electronic files to date. Many of the hard copy reports submitted by the states are labeled 'Draft' for various reasons."

Despite the guidelines and grant requirements, the fact is that, almost two years after the reports were due, many States still have not submitted final versions.

Waive What You Cannot Enforce

The statutory language of Section 305(b) is explicit about the requirement that each State report on the quality of its waters every two years. Nevertheless, in order to "ease the burden on the states," EPA's AWPD has, for several years, been plotting to relax this requirement and extend the reporting cycle to five years.

The plan was first revealed in President Clinton's Clean Water Initiative in 1994, but the full extent of it was articulated in an attachment to an April 10, 1996 memo from Geoff Grubbs, Director of AWPD, to the members of the 305(b) Consistency Workgroup. Later, in a February 14, 1997 memo, Geoff Grubbs wrote that "states no longer need to prepare biennial paper 305(b) reports...and [this would] increase the quality and usefulness of water quality assessments." EPA went as far as issuance of the final review draft "Guidelines for the Preparation of the Five-Year State Water Quality Assessment (305(b) Reports) and Annual Electronic Updates."

EPA's plans, which were contrary to the Clean Water Act, were widely circulated to States and the public through EPA and USGS Web sites and memos. As a result of this exposure, and charges that the Agency was about to initiate a legal and water quality management fiasco, the plans were shelved.

The five year 305(b) cycle suggested by EPA was, in fact, not designed primarily to benefit the States as much as EPA itself. While EPA claimed that the five year cycle would reduce

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State reporting burden and increase the quality of the assessments, according to EPA's own guidelines, States can already report on five years of data (and many States already do). More importantly, the States would have to include the same data whether the reports were prepared every five years or every two years. The only real effect would be to lengthen the amount of time for reporting to EPA, thus lessening the burden on EPA for fixing, or even recognizing, problems occurring under its own "oversight."

While EPA's effort to amend the 305(b) reporting cycle by fiat has been halted, the agency's intention to link 305(b) electronic reporting to the five year reporting cycle of IWI continues. Until the Clean Water Act is amended to change the reporting, the new version of the plan would require electronic submittals by the States each year, as well as interim reports by EPA. EPA would be required in the "off years" to produce a scaled down version of the National Water Quality Inventory.

As proposed by AWPDP, EPA would produce these "off-year" reports based on maps of designated use attainment by 8 digit hydrological units — the exact format of the designated use layer within the grossly flawed Index of Water of Indicators. The designated use information for the 1994 and 1996 State 305(b) reports have been entered into EPA's National Assessment Database, which is used directly for the IWI, and is organized by 8 digit hydrologic unit codes.

Before the National Assessment Database (NAD), EPA supported (and still does) the Waterbody System (WBS) which contains geographically finer levels of detail than the NAD (of course with the exception of the States of Washington and Louisiana, which have 1,000 mile water bodies in the database). The WBS was supposed to be another information system to help States with their water quality management programs, while at the same time providing the summary information required in the State 305(b) reports. The WBS has the same 8-digit hydrological unit code, so all the waterbodies within a State can be aggregated to the broader geographic scale. However, the WBS is so flawed that it is a subject of ridicule among EPA staff.

A September 1993 memo from the EPA's WBS coordinator to the EPA 305(b) coordinator shows his concern after he discovered double-counting of information in the database:

"The nice thing about this design [referring to the double-counting] is that we will never have to report a decrease in assessed mileage...this makes us look good no matter what the actual situation looks like. The bad news is that we can't tell how many 'real' assessments we had...of course, the inflated assessment figures are also reflected in inflated mileages for use support, causes and sources, and other data, ad nauseam."

The memo reflects a desire to fix the problem but, also, the weary certainty that the serious flaws would continue to be overlooked if Agency managers could look good with inflated claims of the amounts of assessed waters — claims designed to please Congressional appropriators.

EPA's Inspector General Begins to Inspect

Recently, the EPA's Office of Inspector General (OIG) began a large scale audit of State water quality standards, monitoring and assessment reporting (305b) programs, as well as EPA's own Regional and Headquarters programs. The audits are designed to determine how well the state and EPA programs adhered to the water quality standards, monitoring and reporting regulations under the Clean Water Act.

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Not surprisingly, the OIG's first finalized audit report, for the State program in Missouri, identifies problems and reaches conclusions similar to those presented in this report. The OIG audit of Missouri's program, called "Missouri's Water Quality Standards and Monitoring" (Report No. E1HWF7-07-0023-8100080 dated March 31, 1998), asked 4 basic questions, a format which pending and future OIG audits of similar programs will follow and parallel some of the issues raised in this report:

- 1) *Has the State implemented procedures to develop water quality standards that will protect its water quality?*
- 2) *Has the State implemented procedures to test and assess the quality of all appropriate waters in the State?*
- 3) *Are State reports on water quality complete, accurate, and useful for program management?*
- 4) *Has the EPA region implemented effective procedures to approve the State's water quality standards and evaluate the State's water quality standards setting, testing, assessing, and reporting?*

The OIG found several problems in Missouri, many of which are likely to come up in other State program audits. The OIG's criticisms included:

- 1) Several Missouri **water quality standards were less restrictive** than national targets.
- 2) Missouri's process to test and assess water are deficient. The OIG said, "Missouri made water quality **assessments without appropriate test results.**" (page iii). Specifically, "Missouri assessed waters as unimpaired if it had no information to the contrary, even it did not have a basis for evaluation that was consistent with EPA guidelines, such as applicable testing results. As a result, Missouri assessed waters as clean when it did not know the true condition of the water" (Page 16).
- 3) The State **did not have a current water quality monitoring strategy** to comprehensively assess all of its waters, although this was required as part of the State's grant commitment. Missouri also has not updated their water quality management plans since the 1970s, according to the report, even though section 303(e)(3)(A) of the CWA and federal regulations (40 C.F.R. Part 130.5) require a continuing planning process to be established and updated as priorities change.
- 4) Missouri **excluded intermittent streams** from its 1996 water quality assessment reports, while more than half of Missouri's stream are intermittent, and do not always have a flow year-round. In addition, an estimated 60% of Missouri's permit holders discharge to intermittent streams, making them a quite important part of the landscape.
- 5) The State's **data lacked reliability** because Missouri "did not always ensure the accuracy of the information in its water quality data systems." Furthermore, Missouri did not prepare a quality management plan for its quality assurance program, resulting in less assurance that water quality decisions made by the State and EPA are supported by high quality environmental data. As a result, the IG stated that "Missouri's 1996 water quality assessment **report was not verifiable.**" (p. 21).
- 6) As for EPA's Region Seven Office, the OIG found that they should "improve oversight and technical assistance for Missouri's water quality programs." They

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found that EPA did not require as a grant condition that Missouri use available water quality planning tools, and did not fulfill its responsibilities to approve Missouri's water quality standards. "As a result, Region 7 provided funding for Missouri's monitoring program without ensuring Missouri planned to obtain all the water quality information it needed to support its water quality programs." (p. 29). "By not requiring that Missouri include the recommended elements in its monitoring work plans, Region 7 sent the message that continued funding was not dependent on an effective water quality monitoring program." (p. 31).

These failures in State programs and EPA oversight of them identified by OIG audits are not trivial or technical. The OIG critiques go to the core purposes of the water quality programs.

As this report indicates, Missouri is not an isolated example. The more State and EPA programs are examined, the more failures to follow the law and applicable regulations will be found. OIG audits in other States are already revealing some of the same problems identified in the Show Me state.

A draft of OIG's report on Maryland's program, for example, has determined that water quality standards, which are used to classify designated use attainment, have been known to be deficient since 1990. Maryland, like Missouri, has no water quality management plan, no monitoring strategy, no quality assurance management plan, and a continuing planning process that had not been updated since 1986. Maryland also reported on the condition of its waters for which it had absolutely no data.

At EPA, Quality is Not Job 1

The issue of credible science has plagued the Office of Water's AWPD for a long time. The U.S. Geological Survey wrote that "two major difficulties preclude the analysis of use-support data for determining national water-quality conditions and trends. First, State-to-State differences in the standards and criteria used to determine use support make it difficult to interpret regional patterns in water quality; and, second, methodological changes over the history of the 305(b) program preclude any analysis of trends." (National Water Summary 1990-91, Water Supply Paper 2400, 1993, page 112).

EPA admits the validity of the USGS criticisms in the disclaimers EPA has placed on its own National Water Quality Inventory, saying "the data cannot be used to estimate national water-quality trends over time, and they cannot be used to compare the status of waters among States." EPA puts the blame on three factors: 1) "the 305(b) State reports are based on information provided by individual States" and therefore EPA can not control the content of the National Water Quality Inventory, 2) "water quality standards vary among the States" so EPA does not have a consistent yardstick, and 3) "not all States follow EPA's 305(b) guidelines."

Ironically, this third rationale is more an indictment of EPA's AWPD for utterly failing to enforce EPA's 305(b) guidelines. Significantly, EPA offers the self-fulfilling official excuse that "there is no legal requirement" that States follow the guidelines. The only reason that there is no legal requirement is that EPA refuses to exercise its authority to impose or enforce one.

Even EPA's own policy office found the APWD's 305(b) process to be nonsensical. Starting with the environmental indicator efforts in the 1980s, the Office of Policy, Planning and Evaluation (OPPE) noted that:

"It is difficult for EPA to aggregate the diverse state reports into a meaningful national assessment that can adequately address questions about the quality of the nation's

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surface waters. There is no uniform methodology by which states collect, analyze, and report water quality data. Consequently, states compile and interpret data on a variety of chemical, physical and biological measures." (Results - Workshop on Environmental Indicators for the Surface Water Program. March 28-29, 1989. July 1989. OPPE)

"Unfortunately, the current use of the 305(b) reports as a source of environmental indicator data is severely limited. There are very large inconsistencies among States in how water quality data are generated, analyzed, and reported." (Feasibility Report on Environmental Indicators for Surface Water Programs - May 1990, Office of Water Regulations and Standards and OPPE. page 6)

The validity of this critique has only strengthened in the ensuing decade. Records obtained by PEER under the Freedom of Information Act included a December 23, 1993 Red Border Review (concurrence) memo from the Assistant Administrator of EPA's Policy Office to the Assistant Administrator of Water which showed the Policy Office objected so strongly to the assertion that the State 305(b) reports were (a) comparable to one another and (b) even reviewed by EPA, that they required EPA's Office of Water to insert the following language in the 1992 National Water Quality Inventory as a requirement of approval (highlights in bold):

"This report displays and summarizes data provided by the states to EPA. **EPA has not determined the accuracy of these data.** It is important to note that these state-reported data are intended to provide a snapshot of the quality of the waters they assessed and **cannot be used to determine trends in our nation's waters resources.** These limitations are due to major differences from year to year in assessment methods within and between states as well as differences in the waters assessed in each 2-year period."

The policy office memo continued by noting serious irregularities with State reporting on total stream miles with attachments indicating that the Policy Office had long been trying to work with the Office of Water to correct deficiencies in the report. Unfortunately, following this scorching memo, the Policy Office did not get chance to conduct such a review. Meanwhile, the drift at the Agency's Office of Water (OWOW) continues.

What's a Little Peer Review Among Friends?

On paper, EPA is solidly committed to the concept of peer review as a quality assurance mechanism. In 1994, Carol Browner, EPA Administrator, issued a memo (<http://www.epa.gov/ordntrnt/ORD/spc/memo0607.htm>) on the "Peer Review Program" at EPA saying that she was "reaffirming the central role of peer review in our efforts to ensure that EPA policy decisions rest on sound, credible science and data." EPA's Peer Review Handbook (January 1998, EPA 100-B-98-001) reinforces this notion, stating that "Peer review is intended to uncover any technical problems or unresolved issues in a preliminary (or draft) work product through the use of independent experts. This information is then used to revise that draft product so that the final work product will reflect sound technical information and analyses. Peer review is a process for enhancing a scientific or technical work product so that the decision or position taken by the Agency, based on that product, has a sound, credible basis."

Contrary to those strong pronouncements, support for peer review apparently stops at the door of the Agency's own creations. In the water quality field, the boundary for external review is the Agency's own Index of Watershed Indicators (IWI). For reasons that are difficult to fully explain, there has been absolutely no scientific peer review of the IWI. Moreover, EPA OWOW's defensiveness about the flawed assessments underlying IWI and 305(b) reporting seems only to stiffen resistance to peer review of this water quality data.

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The Office of Water also arranged to evade review by EPA's own Science Advisory Board (SAB) (EPA-SAB-EPEC-ADV-97-003). This external academic group is supposed to advise EPA before the Agency embarks on major scientific efforts. The Office of Water waited until it was too late to obtain the SAB's review prior to releasing the IWI. All the SAB could do was put out an after the fact advisory, writing that "The Committee comments take the form of an SAB Advisory, because they are intended to guide improvements to IWI in the future (Phase II) rather than to revise the existing version, **which has already been released to the states**. This approach was agreed to by the SAB because of the schedule for release of Phase I (i.e., late June) that had already been established by the Office of Water." The SAB criticisms, of which there were many, will have to wait.

The States, the recipients of the IWI, were not so encumbered. The Minnesota Pollution Control Agency, for one, felt so strongly about the misleading and poor quality of the IWI, they published "MPCA's Objections to EPA's Index of Watershed Indicators" (http://www.pca.state.mn.us/water/pubs/iwi_fact.pdf) when the IWI was released. The agency stated that "MPCA staff feel the IWI's derivation of an overall numerical 'score' reflecting the health of a watershed is not valid." MPCA also stated:

"The Index of Watershed Indicators method used to 'score' watersheds is regarded as **flawed by many reviewers**, including the Minnesota Pollution Control Agency. The MPCA therefore advises users of the Watershed Index that, in our view, the numerical rankings yielded by the index **misrepresent actual conditions.**"
(<http://www.pca.state.mn.us/water/basins/iwiepa.html>)

In the face of such withering criticism, EPA's Office of Water continuing failure to obtain adequate peer review of the index suggests a desire to avoid accountability. Apparently, the Office of Water's Assessment and Watershed Protection Division, which oversees the national water quality inventory, the state 305(b) process and the IWI, does not feel the need for credible science in this area.

VI. Where Do We Go from Here — A Few Simple Suggestions

Documenting the many and serious problems within the EPA and State water monitoring and assessment programs is meant only to foster a renewed framework for change. These programs could be of immense value if they are based upon honest and accurate reporting.

The scope of this report and the following recommendations are limited to the fundamentally flawed water monitoring and assessment programs for rivers and streams. This report does not discuss the problems with reporting the condition of lakes, groundwater, estuaries, and coastal waters, about which there is much less documentation and information than there is about rivers and streams.

Nor does this report examine the many problems with State and EPA reporting on the sources of impaired waters, and the inconsistencies and inaccuracies with these agencies' attempts to report on the specific problems resulting from particular sources of pollution. For example, the 1996 National Water Quality Inventory lists "natural sources" of pollution as the fifth leading source of impaired waters. Only 24 States listed "habitat modification" as a source contributing to any water quality problems in streams, despite the fact that most every State has documented these concerns when applying for non-point source control and other grants from EPA. Seventeen States did not report any major water quality problems due to wastewater treatment plants, although nutrients, pathogens, and oxygen depleting substances were the 2nd, 3rd, and 4th leading causes of impairment.

The basic problem documented by this report is that EPA and most States simply do not know the condition of their rivers and streams. To cure this problem does not necessarily require an infusion of additional funding. If existing funds are used wisely and are targeted specifically on measuring actual conditions in the environment rather than in support of misinformation systems that take us further from the truth, this would be a giant step toward meeting Clean Water Act objectives.

The argument that "States know best" what their problems are and how to spend Federal grant monies is not borne out by their record of deceptive, incomplete and sometimes illegal reporting practices. EPA must also take the responsibility to ensure that the States receiving funds under the Clean Water Act earn those funds, rather than merely serving as a money laundering operation for noncompliant State agencies. And EPA must ensure that its own use of funds is for the public benefit, rather than for bureaucratic self-aggrandizement.

Recommendation 1

EPA should prepare and publish an update to the 1977 Basic Water Monitoring Program, which was "developed in response to an expressed need to bring some structure and order to the many State monitoring programs." Twenty-two years later this framework has failed to produce the desired results and a new, improved framework is needed. This new strategy should define the elements of an adequate state program, not just minimum requirements. This should define mandatory and appropriate roles for chemical, physical, biological, toxicological, and habitat indicator monitoring and assessment. Biological assessments should become fully integrated into all State monitoring and assessment programs.

Recommendation 2

EPA should require the States to adopt numeric biological criteria for rivers and streams, as defined in the 1990 Biological Criteria: National Program Guidance for

Surface Waters. Development and implementation of numeric biological criteria is the only way to ensure that EPA and the States can accurately measure or progress towards meeting the goal of "healthy of aquatic communities." State aquatic life designated uses must be refined based on the biological criteria.

Recommendation 3

EPA should earmark at least 15-20% of the \$145 million in Clean Water Action Plan funds for those States without the necessary monitoring and assessment infrastructure in order to develop an adequate monitoring and assessment program. Many State programs do not have the "capital" investment of equipment and personnel to develop biological criteria and conduct the documentation necessary for accurate, comprehensive, and honest 305(b) reporting. Monitoring and assessment programs are critical to water quality management efforts in both identifying where the greatest needs are, and in measuring the success of pollution control measures. Monitoring and assessment programs should be funded at 15-20% of each State's water quality management efforts.

Recommendation 4

EPA should work with key States to develop and test guidelines for the development of Section 305(b) reports based on targeted and/or probabilistic monitoring. Probabilistic monitoring will not solve the bulk of the problems, but will allow those States without the monitoring network to confidently assess their waters and make credible statements on their condition, rather than to "presume data" and falsely report conditions. Ultimately, a high intensity, targeted, rotating basin sampling regime is fundamental to providing the information needed to satisfy the many deficiencies identified in this report.

Recommendation 5

EPA should limit the menu of choices for States in the guidelines for the preparation of State water quality assessments under Section 305(b) of the Clean Water Act. States have too many choices in the quality and quantity of assessments to be considered for 305(b) reporting. EPA should clearly state the preferred choices and provide direct incentives for States to comply.

Recommendation 6

EPA should require all States to follow the guidelines for preparation of State water quality assessment reports under Section 305(b) of the Clean Water Act. Failure to follow the guidelines should result in an automatic 10-25% reduction of grant funding in the following year. Failure to submit a report should result in the State forfeiting its full grant allocation under Section 105 of the Clean Water Act.

Recommendation 7

EPA should promote the use of biological indicators of impairment as the primary basis of listing "water quality limited segments" under Section 303(d). Most of the current listings can be accomplished without knowledge of the aquatic life of which Section 303(d) intended to protect. Without using biological indicators, it is uncertain in what priority order waters should be listed.

Recommendation 8

EPA should not allow reporting under Section 303(d) to take precedence over the water quality assessments required under Section 305(b). Reporting under Section 303(d) is intended to present a subset of waters assessed under Section 305(b), and in fact, is a subset of all impaired waters. Some states no longer prepare 305(b) reports in favor of focusing only on 303(d) listing, a focus which does not do justice to the central objective of the Clean Water Act .

Recommendation 9

EPA must modify their quest for “comprehensive” assessments of the nation’s surface waters to ensure the data EPA and States are reporting is credible, scientifically valid, and peer reviewed. EPA and States should honestly report the condition of their waters without elaborate extrapolation and “presumed” data, giving preference to biological condition information to represent “fishable” waters and aquatic life designated use attainment.

Recommendation 10

EPA should address the inaccuracies and misrepresentations of water quality conditions within the Index of Watershed Indicators and address critical missing data layers such as aquatic habitat and biological conditions. The IWI has misled the public who is trying to learn more about the condition of the nation’s waters. The current information in the IWI compounds the mistakes within the 305(b) infrastructure and serves no useful purpose in its current form.

Recommendation 11

Develop an independent oversight group to monitoring EPA and State progress in correcting the problems identified in this report. The public science involved in the determination of water quality conditions should, at the very least, be subject to peer review. Since the methodologies often determine results, it is critical that there be transparency in the manner in which the public agencies collect and analyze the data.

Recommendation 12

The General Accounting Office, EPA’s Office of Inspector General, and the major environmental organizations in the United States should further investigate the problems documented in this report. Each State should be audited to determine their compliance with submitting annual program plans, 305(b) reports, and other required documents to receive full grant funding. In order to ensure that the Agency and States follow the laws and regulations, diligent “watch-dogging” is needed. If outside scrutiny does not improve the situation, law suits will become necessary to force States and EPA to honor their legally binding commitments to accurately monitor, assess, and interpret the conditions, and changes in those conditions, of our nation’s waters.

Recommendation 13

Maintain 305(b) reporting by States and EPA on a biennial basis, to ensure the information is available for evaluating annual State-EPA performance partnerships. Reporting on a five-year cycle would be a disservice for the public right-to-know efforts because the five year cycle would most likely result in State programs providing less focus and more fragmentation as their reporting efforts would be spread out over an even longer period. By contrast, annual electronic reporting, as

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EPA claims to favor, would put additional burden's on States that can not prepare honest reports every two years, let alone providing quality information annually. Reporting on the current two-year cycle best facilitates a realistic national program to track progress in meeting the goals of the Clean Water Act.

Recommendation 14

EPA's critical water databases such as the Waterbody System, the Index of Watershed Indicators, Reach File 3, STORET and the National Assessment Databases should be evaluated by a thorough quality assurance effort for completeness and accuracy, pursuant to EPA's procedures for data quality assurance and metadata standards. These databases should be made publically accessible and subject to stringent and verifiable quality control. Their relationship of these databases to the Office of Water's information infrastructure needs should also be fully documented.

Recommendation 15

EPA's Science Advisory Board, in cooperation with the National Monitoring Council should conduct a comparison of the results presented to the public under the Index of Watershed Indicators, the National Water Quality Inventory, the State Unified Watershed Assessments, and the Environmental Monitoring and Assessment Program efforts by EPA's Office of Research and Development. Detailed explanations of the relationships of these efforts is required, as well as any real or potential redundancies and inconsistencies within these major efforts.

In meeting our nation's current and future environmental needs, EPA and the States must make optimal use of their limited funds. U.S. taxpayers spend hundreds of millions of dollars each year for water pollution control and water quality improvements, yet lack reliable information about the results of those expenditures.

The lack of reliable, verifiable information regarding the condition of the Nation's rivers and streams directly affects the health of our citizens, the strength of our economy, and the burdens placed on interstate commerce through regulation of businesses and individuals that discharge wastes into our waters.

The only way to tell if this public investment in the Clean Water Act is being spent productively is through accurate and honest monitoring programs. As a first step, EPA and the States must be honest with their knowledge, no matter how limited, of the condition of the nation's waters, especially when that honesty requires acknowledgment that current programs fail to meet water quality needs. Knowing the truth about the extent and severity of problems is essential to formulating solutions to meet the environmental challenges in our future.