

1. Preface

The federal Clean Water Act requires that States assess the quality of their waters every two years and publish a list of those waters not meeting the water quality standards set for them. This List of Impaired Waters is also known as the “303(d) List” for the section of the Act that requires it. Waterbodies listed as impaired may require the development of Total Maximum Daily Loads (TMDLs).

Due to various U.S Environmental Protection Agency (EPA) regulatory changes and delays there has been a four-year period between 303(d) Lists; Maryland’s (and other States’) last List was published in 1998. In the interim, EPA has explored significant changes to the Clean Water Act section 303 regulations in the proposed draft Final Rule submitted to Congress July 13, 2000. These revisions are not yet final and the existing regulations are still operative. However, EPA’s regulatory proposals have recognized that a broader perspective and greater flexibility could result in more effective and appropriate 303(d) Lists. On Nov. 19, 2001, EPA issued the *2002 Integrated Water Quality Monitoring and Assessment Report Guidance* recommending that States submit an “Integrated Report” effectively combining the substance of the 305(b) Report (also known as the Water Quality Inventory) and the 303(d) List of Impaired Waters. The Guidance made many positive recommendations, but came relatively late in the development process for Maryland’s 303(d) List. However, Maryland has implemented as many of those recommendations as possible. The 2002 List is a transition list, in terms of approach, content, and format, between prior lists of only impaired waters [e.g., 1996 and 1998 303(d) Lists] and future lists that will be more integrated with the 305(b) report.

Some of the significant changes that have been made include:

- Public review and agency adoption of listing methodologies for several polluting substances. The public comments on the methodologies and the Maryland Department of Environment (MDE) responses are also included (Appendix D);
- The application of biological assessment data to the 303(d) List;
- A summary of changes from the previous list;
- The use of a multi-part list (see section 3). EPA recommendations included the flexibility to provide a five-part integrated list, with Part-5 actually being the list of impaired waters. In this transition period, MDE has not used Parts 1 and 2. Maryland has used Parts 3, 4 and 5 from the recommendations, and added a Part-6 in order to track watersheds that have been removed from Part-5 of the list and to provide an explanation for the changes; and,
- The List itself is far more detailed and contained in a database so various searches, queries and sorts can be more readily accomplished. Watersheds continue to be listed at the 8-digit Maryland basin resolution (average watershed size 90 square miles; 139 watersheds) and MDE is now also providing supporting information for smaller 12-digit sub-watersheds (approximately 11 square miles). Additional fields in the database provide specific information including the data sources and results supporting listing decisions.

The Department believes that these changes contribute to an improved public understanding of the assessment of Maryland’s waters. This process also provides a better basis for participation

in the TMDLs that will be developed for impaired waters as well as for other environmental issues and decisions facing communities across the State.

Lastly, the Department of the Environment received many insightful and constructive comments on the 2002 303(d) List throughout the course of the public review period. A comment-response document has been attached to the final list (see appendix H) so that interested stakeholders can review the whole range of comments the Department received as well, as their individual responses. A summary of changes made to the final List as per public comments and the receipt of additional data has been included in Appendix I. MDE is very appreciative of the time and effort interested stakeholders have spent in critically reviewing and commenting on the State's Draft 303(d) document. The Department feels that such public involvement brings added credibility to the 303(d) process and will help to further improve the State's water quality monitoring and assessment programs.

2. Overview

Section 303(d) of the Federal Clean Water Act (CWA) requires states, territories and authorized tribes to develop lists of impaired surface waters for their respective jurisdictions. In Maryland, responsibility for compiling the 303(d) List of Water Quality Limited Segments (WQLS) rests with the Maryland Department of the Environment (MDE). Where feasible, MDE also addresses the cause and source of the water quality impairments. Listed waterbodies may require the development of Total Maximum Daily Loads (TMDLs). The methodology used to identify these impaired waterbodies on Maryland's 2002 Integrated 303(d) List is described in this document.

The decision process for including new WQLS on the 2002 Integrated 303(d) List is generally consistent with current EPA regulations defined in section §130.23. It is also consistent with some aspects of the proposed Final Rules submitted to Congress, dated July 13, 2000, that have not yet been approved by Congress but provide for a more open and objective listing process as well as a more complete assessment of the State's water quality. This document fulfills the requirements of the Clean Water Act under §303(d)(1)(A) and Title 40 of the Code of Federal Regulations (CFR) part 130, section 130.7. The state of Maryland feels that these federal regulations set forth an effective methodology for incorporating all readily available data in order to better identify impaired waterbodies, assign management priorities and schedule TMDL development.

The 2002 Integrated 303(d) list was developed using all readily available data (see Appendices A and B). In Maryland, responsibility for collection and compilation of this information is shared between the Maryland Department of Natural Resources (DNR) and MDE. DNR compiles *Maryland's Inventory of Water Quality* [the "305(b) Report"] every two years pursuant to Section 305(b) of the CWA. The 305(b) Report utilizes water quality monitoring information collected by the State and other sources, including direct requests to federal agencies, local environmental agencies, colleges and universities, citizen monitoring groups, and private firms (see Appendix A).

A waterbody or "water quality limited segment" (WQLS) is considered "impaired" when it does not attain the designated use assigned to it in Maryland regulation [Code of Maryland Regulations (COMAR) §26.08.02]. Use attainment is determined by comparison of field measured or projected values (e.g., modeling runs) of various water quality parameters to the numeric or narrative water quality criteria cited in COMAR.

The process of determining impairments for the Integrated List begins with Maryland's 305(b) Report. As part of 305(b) Report development, DNR identifies those waterbodies that currently do not meet the narrative or numeric water quality criteria established in the State's Water Quality Standards (WQS). Narrative water quality criteria (WQC) [COMAR §26.08.02.01(B)(2)] state that all waterbodies in the State shall "provide water quality for the designated uses of: water contact recreation; fishing; propagation of fish, other aquatic life, and wildlife; and, agricultural and industrial water supply". The 305(b) Report indicates a water quality impairment whenever there is technically a loss of designated use, regardless of the duration of the loss or knowledge of its cause. Many of the biological impairments placed on the 2002 Integrated 303(d) List and which were identified on the 305(b) Report through the Maryland Biological Stream Survey (MBSS) fall into this category. Numeric WQC [COMAR §26.08.02.03(2)(A) through §26.08.02.03(3)(G)] set numerical thresholds which apply to

conventional pollutants that can be identified and quantified such as bacterial levels, concentrations of toxic substances, dissolved oxygen concentrations, and pH. The 305(b) Report determines the existence of water body impairment based on exceedence of the thresholds established in COMAR, as well as EPA guidance which requires that 10% of the samples must exceed the numeric criteria in order to determine an impairment for the 305(b) Report. The details of this process are documented in Maryland's 305(b) Report and described in the listing methodologies (see Sections 3 and 4).

Not all of the impairments identified in the 305(b) report constitute a WQLS requiring the development of a TMDL under section 303(d) of the CWA. For example, impairments for which certain water pollution controls are sufficient to attain water quality standards before the next listing cycle need not be listed. Thus, it is necessary to identify the subset of the waterbodies in the 305(b) Report that, based on available data, may require a TMDL. These waters are placed on Part-5 of Maryland's 303(d) list under the guidance of the listing methodologies. (Note: for segments that are listed, further study may determine that the impairment is due to a short-term fixable problem, such as a fractured wastewater line that can be corrected without the establishment of a TMDL. Where documentation supports this finding, the waterbody will be placed on Part-4b designating that other pollution control requirements are reasonably expected to result in the attainment of WQS in the near future.)

For impairments due to toxic substances, fecal bacteria in shellfish harvesting areas or due to combined or sanitary sewer overflows, MDE collects the data, performs the assessments and reports them to DNR for inclusion in the 305(b) Report. The specific methods used in these assessments are described in the listing methodologies section (§4.0) of this report.

2.1 Special Situations

2.1.1 Individual Control Strategies

Section 304(l) of the CWA requires States to list waters that cannot attain water quality standards for toxics discharges even after the application of best available technology. States are then required to develop an "individual control strategy" (ICS) for each of those discharges to bring them into compliance with water quality standards. In the 1996 303(d) list, MDE noted several specific ICS's in Baltimore Harbor for which completion of the ICS was a high priority (an ICS was considered at that time to be closely related to a TMDL for toxic contaminants). While the ICS's have been completed, full implementation of all the ICS requirements will not occur until 2004. The Department's position is that since the ICSs are currently in effect or in the process of implementation, this serves as an effective remedy to the water quality impairment. As such, the ICS impairments are being appropriately listed on Part-4b of the list (i.e., other pollution control requirements are reasonably expected to result in the attainment of water quality standards in the near future). The Department will actively monitor to confirm the effectiveness of full ICS implementation. If water quality standards for the ICS substances are not met within a reasonable period after full implementation, these waters will be moved to Part-5 of the List.

2.1.2 The Patuxent River Oil Spill

On April 7, 2000 a major oil spill occurred in Swanson Creek, a tidal tributary to the Patuxent River. Much of the oil has been recovered, but some areas are still being assessed. Where there is a water quality impairment, but another program is required to address that impairment (i.e., Part-4b of the List), a TMDL is not necessary. The most commonly used example is the Superfund program. If a waterbody is identified as impaired on the National Priority List as a superfund site, that program is allowed to follow its course and after the clean up of the site, the water quality can be re-evaluated.

In the case of the oil spill, the relevant program is the Natural Resources Damage Assessment (NRDA), which is a multi-agency effort to restore areas impacted by the oil spill. In the NRDA process there are various stages to the clean up. Those areas of the Patuxent River that have been “signed off” for Phase II as being appropriately restored are not listed at all. Those areas that have not been approved as achieving Phase II, are currently listed as impaired on Part-4b of the list, but do not need a TMDL since the NRDA process should restore the waters.

2.1.3 Biological assessments

Maryland has the most complete and uniform water quality and geographic information at the resolution of the 8-digit watershed (approximately 90 square miles). With the assistance of the Biocriteria Advisory Committee, MDE has determined that rather than listing as impaired only the segment(s) containing the biological sampling station, we would list at the 12-digit subwatershed scale (approximately 11 square mile watersheds).

Biological assessments are a very good measurement of the ability of the water to support aquatic life. This is the basis of making a decision on whether a waterbody is attaining its designated use. However, while the biological assessment indicates that the biological community is degraded, it does not indicate what substance is causing the degradation or even if there is an impairing substance (i.e., it may be a habitat degradation). This is an important distinction because a TMDL is appropriate and required if there is an impairing substance (a pollutant), but is neither appropriate nor required if there is not. The State is still required to address the conditions causing the degraded biological community, but a TMDL may not be the appropriate tool.

Maryland has tried to reflect these issues in its listing approach. Since the Department lists watersheds at the 8-digit level, and the biological data is at the smaller subwatershed 12-digit level, the biological impairments are necessarily included in the 8-digit watershed and support water quality impairments for other parameters that may have been identified in past or current 303(d) Lists. It is important to understand that MDE recognizes the water as being impaired. However, it is unclear whether other recognized impairments are causing, contributing to, or unrelated to, the information obtained by the biological assessment. If reducing the load of the other impairing substances, as per TMDL requirements, does not address the biological impairments, the next step will be to perform a stressor identification survey to determine what is causing the biological degradation and whether a TMDL is appropriate.

There are 177 biological impairments listed in the 2002 Integrated 303(d) List. One hundred and sixty-five (165) of these biological impairments occur in watersheds that may require a TMDL

because they are already impaired for one or more chemical/physical substances. In these cases, the Department is assuming that these 165 biological impairments support previously identified chemical or physical impairments in these watersheds and that the development of TMDLs for the other impairments will also restore the biological community. As such, all 165 of these biological impairments will be listed on Part 5 of the current list but with a low priority for biological TMDL development. The remaining 12 of the 177 total biological impairments have never been listed before for any impairing substance. These 12 new biologically impaired waterbodies that have never had a stressor identified in the past will also be listed on Part-5 of the List, but at a medium priority for TMDL development. Since no other stressor has been identified as the probable cause of the biological impairment, these waters have been given a medium priority for stressor identification and possible TMDL development.

Based on reviewers' comments and the Department's subsequent review of available biological data, the Department recognizes a need to further analyze the biocriteria data prior to its next scheduled publication of the 303(d) List. It is anticipated that this re-analysis will result in more effective implementation of the listing methodology for biocriteria included in this publication and may result in some stream segments qualifying for different attainment status categorization in the list. This recalculation will result in a more accurate presentation of water quality status for biologically assessed waters. This reanalysis is not of such a nature or magnitude as to require a full water quality assessment for the effected water bodies.