

Considerations for the Development of Multijurisdictional TMDLs

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1 PURPOSE

Multijurisdictional Total Maximum Daily Loads (TMDLs) are generally large-scale analytical efforts that cross State and other jurisdictional borders and often encompass the entire drainage area of a major regional waterbody (e.g., Chesapeake Bay, Ohio River, Klamath River). These types of TMDLs can involve jurisdictions and waterbodies in more than one EPA Region.

Multijurisdictional TMDLs affect multiple States and/or authorized Tribes and can present a unique set of practical challenges. Such challenges include making assumptions about pollutant loadings at jurisdictional boundaries, addressing multiple and perhaps inconsistent water quality standards, determining the geographical limits for the assignment of Wasteload Allocations (WLAs), defining the expectations for incorporating reasonable assurance into the final TMDL, and coordinating TMDL schedules and implementation goals across multiple jurisdictions.

While the fundamentals for planning and completing a multijurisdictional watershed TMDL are generally the same as for any other TMDL, their development should include increased attention to, and coordination with, all affected States, Tribes, watershed associations, regulated entities, and other stakeholders. These entities (as well as EPA) should be included in significant communications and decision points so they have a thorough understanding of each others' expectations, legal requirements and limitations, priorities, and analytic and policy needs. EPA

encourages all States/Tribes within a multijurisdictional watershed to collaborate in the development of the multijurisdictional TMDL.

As appropriate and depending on the circumstances and the jurisdictions' desires, EPA should be involved in the TMDL's development, and could serve as participant, facilitator, or lead.

This memorandum is intended to provide recommendations for TMDL practitioners to consider concerning development of multijurisdictional TMDLs and is neither a regulation nor does it impose legally binding requirements on EPA or the States or authorized Tribes. As appropriate under the circumstances, the States, Tribes, and EPA have the discretion to develop TMDLs in a manner and form that might differ from the recommendations contained herein.

2 LEGAL CONSIDERATIONS

The development of a multijurisdictional TMDL is consistent with the Clean Water Act (CWA) and EPA's "generic" definition of a TMDL as stated in 40 C.F.R. 130.2(i): A TMDL is "...[t]he sum of the individual WLAs for point sources and LAs [load allocations] for nonpoint sources and natural background." A multijurisdictional TMDL simply expands the TMDL equation to a larger scale that encompasses all pollutant sources throughout the entire multijurisdictional watershed that are causing or contributing to the impairment for which the TMDL is being developed. The TMDL definition goes on to say that, "[i]f a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments." Although specifically referring only to situations in which there is a single point source, this statement clearly intends that, when developing any TMDL, the TMDL writer should consider loadings of the pollutant of concern into the impaired segments from tributaries and adjacent segments. These boundary loads can originate within a single jurisdiction or within more than one jurisdiction.

In non-TMDL contexts, the CWA and its regulations address the need for consideration of boundary and multijurisdictional effects on water quality, as follows:

- 40 CFR 122.4(d) provides that no National Pollutant Discharge Elimination System (NPDES) permit may be issued "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." The U.S. Supreme Court upheld EPA's interpretation of this regulation to mean that an upstream State's point source permit limits cannot cause or contribute to a violation of a downstream State's water quality standards. [*Arkansas v. Oklahoma*, 503 U.S. 91 (1992)].
- Section 319(g) of the CWA allows States to petition EPA to convene a conference between States to develop an agreement to reduce their levels of nonpoint source pollution to meet a downstream State's water quality standards. If States reach

agreement at such a conference, the States are expected to amend their nonpoint source management plans to reflect the agreement.¹

- 40 CFR131.10 (b) provides that “In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.” Under CWA section 303(c), EPA has the authority to review and approve a State’s water quality standards.
- Clean Water Act section 518 (e) provides that the Administrator shall “provide a mechanism for the resolution of any unreasonable consequences that may arise as a result of these differing water quality standards that may be set by States and Indian Tribes located on common bodies of water. Such mechanism shall provide for explicit consideration of relevant factors including, but not limited to, the effects of differing water quality permit requirements on upstream and downstream dischargers, economic impacts, and present and historical uses and quality of the waters subject to such standards. Such mechanism should provide for the avoidance of such unreasonable consequences in a manner consistent with the objective of the CWA].”

It is clear that a central goal of the CWA and EPA’s implementing regulations is to ensure that downstream States/Tribes are not subjected to pollutant loads from upstream or adjacent jurisdictions that cause or contribute to the impairment of downstream waters. This document focuses on TMDL development scenarios where downstream impaired waterbodies are impacted by an upstream or adjacent jurisdiction’s pollutant sources.

3 WATER QUALITY STANDARDS CONSIDERATIONS

As described above, section 131.10(b) directs States to ensure that their water quality standards provide for the “attainment and maintenance of the water quality standards of downstream waters.” Thus, when developing water quality standards, States are to consider the implications of their standards for downstream (and upstream) waters and eventual TMDL development. Where differences between State standards exist, those differences should be addressed when developing TMDLs for multijurisdictional waters.

A number of multijurisdictional situations involving differences in State/Tribal standards are possible. These include situations in which there are different State numeric standards, differences between narrative and numeric standards, and differences between endpoints calculated by translating narrative standards.

Specifically, there may be differences in the magnitude of the affected jurisdictions’ numeric criterion. For example, an upstream State may have a sulfate criterion of 90 mg/l, and the downstream State criterion may be 45 mg/l. In addition, there may be differences in the designated

¹ A CWA Section 319(g) Conference was held on June 22-23, 2010, in response to a petition from the Northeast States regarding mercury deposition to the Northeast from upwind States. See <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/mercury/319g.cfm>

uses of the two States, (e.g., the upstream jurisdiction may have designated the waterbody for aquatic life use, while the downstream jurisdiction protects it as an outstanding national resource water).

Section 303(d)(1)(C) and EPA's regulations at 130.7(c)(1) require the TMDL to be established at a level necessary to attain and maintain the applicable narrative and numeric water quality standards. EPA interprets these provisions to include protection of downstream and adjacent water quality standards. This interpretation is consistent with the requirement that permit limits in upstream States also protect downstream and adjacent State water quality standards. This is usually accomplished by developing the TMDL to protect the most stringent standard. Additionally, if one jurisdiction has a narrative criterion and the other has a numeric criterion, TMDL developers should make sure the TMDL target protects both uses.

Moreover, jurisdictions that share a waterbody or watershed can make the Section 303(d)-listing and TMDL development processes more effective by cooperating to develop consistent water quality standards for those shared waterbodies. This will make impaired waterbody identifications and TMDLs more effective tools for protecting water quality.

4 ALLOCATION ANALYSIS CONSIDERATIONS

As with the development of any TMDL (e.g., single segment, one State watershed, multijurisdictional watershed), the allocation process distributes or assigns pollutant loads to entities or sources, such that the sum of the loads does not exceed the maximum allowable load to the waterbody or waterbodies for which the TMDL is being developed. Allocations are a required component of a TMDL and are composed of WLAs and LAs. WLAs are portions of the TMDL assigned to existing and future point sources, and LAs are portions of the TMDL assigned to existing and future nonpoint sources, including background loads. The sum of the WLA, LA, and the margin of safety (MOS) equals the loading capacity of the receiving waterbody. In defining Total Maximum Daily Load, 40 CFR 130.2 (i) "states that the TMDL is the sum of the point sources and the nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments." TMDL practitioners should consider in their analyses all sources of the pollutant causing or contributing to the impairment of the waters for which the TMDL is being developed, independent of jurisdictional boundaries. The TMDL analysis should ensure that the pollutant loadings are set at levels necessary to attain and maintain all applicable water quality standards in all of the jurisdictions included in the TMDL analysis.

Generally, the goal of the allocation process is the same for multijurisdictional TMDLs as for single jurisdictional TMDLs: assure that the proposed loading capacity and the allocations to point sources, nonpoint sources, background sources, and MOS will attain and maintain all applicable water quality standards for the targeted waterbody. While the "bottom line" objective of all TMDLs is the same, there are special considerations associated with developing allocations for multijurisdictional TMDLs where the watershed extends beyond one State. Such considerations include a determination of the appropriate scope and scale of the TMDL, an analysis of appropriate geographical limits on the assignment of WLAs, the equitability and feasibility of the various WLAs, and assumptions about pollutant loadings at jurisdictional boundaries. Regardless of how the allocations are established within the multijurisdictional TMDL, they should be consistent with

current TMDL regulations and policies, including their expression as a load or “other appropriate measure.” Allocations should be expressed in terms of a “daily” load even if also expressed in non-daily terms.

4.1 Defining the Scope of the Multijurisdictional Watershed

Developing TMDLs on a multijurisdictional watershed scale should begin with the delineation of an appropriate drainage area that encompasses any potential pollutant source that could cause or contribute to the target waterbody(s) impairments. In many cases, the entire drainage area potentially impacting the target waterbody(s) will be included in the TMDL analysis. For especially large drainage areas, there may be a need to evaluate whether certain sub-basins should be excluded from the allocation analysis due, perhaps, to physical boundaries that separate them from the target waterbody. Additionally, there may be sub-basins where the existing pollutant load will be treated as a background load in the target waterbody’s TMDL analysis.

Once the appropriate watershed area containing the potential pollutant sources is delineated, the States and stakeholders should identify all impaired waterbodies within the delineated watershed, determine the applicable water quality standards in each jurisdiction, determine the appropriate TMDL target, and conduct a source assessment of both point and nonpoint sources that have a potential to cause or contribute to the target waterbody’s impairment(s).

4.2 Scale or Resolution of Source Allocations

The scale at which a TMDL analysis considers pollutant loading from a variety of sources can affect the specificity with which allocations are identified. The spatial scale of a loading analysis can range from an entire watershed to certain delineated subwatersheds. A multijurisdictional approach allows for the broadest possible spatial evaluation of sources and their impacts, all of which should, as appropriate, be captured in the allocations. Establishing allocations at a more source-specific scale will likely be more informative and effective at the implementation stage, even if this specificity is limited to the jurisdiction developing the TMDL. Where there is sufficient cooperation between jurisdictions to make it possible, providing WLAs and LAs in each of the basins’ subwatersheds can be very beneficial. Cooperation and collaboration between all involved jurisdictions is encouraged in order to foster partnerships and dialogue that increases the likelihood that allocations will be equitable, achievable, and more quickly implemented.

The allocation analysis should establish pollutant loads and reductions at a scale and level of specificity that maximizes the TMDL’s usefulness as a planning tool, especially when addressing multiple impaired segments and multiple pollutants. Evaluating the upstream-to-downstream effects of pollutant loading is a primary benefit of developing TMDLs on a watershed scale, particularly when using a watershed model. For a more thorough discussion of watershed scale TMDLs refer to the Draft Handbook for Developing Watershed TMDLs at http://www.epa.gov/owow/tmdl/pdf/draft_handbook.pdf. Such an analysis is most effectively accomplished when the affected parties collaborate on conducting the pollutant source assessment and assessing the near field and far field water quality impacts.

4.3 Development of Wasteload Allocations

As discussed in the previous section, a more effective TMDL can be established when allocations to all sources are made at an appropriate scale and level of specificity.

In some multijurisdictional TMDLs, downstream States have included assumptions about upstream and/or adjacent State loadings in the modeling analysis in order to evaluate a range of potential boundary loading scenarios. By considering a range of hypothetical loading reductions from upstream or adjacent point source facilities, in conjunction with modeled nonpoint source reductions, the downstream jurisdiction can develop a range of boundary assumptions that will assist in developing its own WLAs and LAs necessary to meet applicable water quality standards.

EPA believes that a highly informative and effective multijurisdictional TMDL can be produced when it is developed in a collaborative manner by all impacted States and/or Tribes. For example, the modeling analyses might indicate that the upstream or adjacent jurisdictions contain point sources that cause and/or contribute to violations of the downstream State's water quality standards. This information, if confirmed and accepted by the upstream or adjacent State, can then be translated collaboratively into WLAs in the multijurisdictional TMDL. Such watershed wide allocations can help inform the upstream State's permit writers when they revise their water quality based effluent limit (WQBELs) within the next permit cycle. By working with the downstream or adjacent State, the upstream State can also ensure that their point sources are accurately characterized, and equity issues can be discussed before the TMDL is finalized. Such multijurisdictional collaboration is more likely to result in allocations agreeable to all jurisdictions and eliminate the possibility they will develop individual and potentially inconsistent TMDLs.

Where EPA is establishing a multijurisdictional TMDL, EPA can work with all affected jurisdictions to coordinate development of WLAs throughout the entire watershed.

4.4 Priority and Feasibility of Source Allocations

Another consideration for the development of effective allocations is the relative feasibility of potential allocations scenarios. Whether or not the TMDL is developed on a multijurisdictional watershed basis, the TMDL analysis typically involves multiple sources. When establishing allocations among various sources, the issues of equitability and feasibility often arise. As with any TMDL, the allocation analysis can be used to evaluate a variety of possible allocation schemes to prioritize source reductions. For example, a goal might be to strike a balance among allocations and distribute necessary load reductions equally among sources. Alternatively, the allocations might target those sources that represent the majority of the load input or those that are more feasible to reduce, technically or economically. For example, some sources that already contribute a small portion of the overall load might not be able to reduce the load any further. Other sources that represent a larger percentage of the total load and have a greater opportunity for reductions (e.g., more land area and delivery pathways to apply BMPs) might be targeted with larger reductions.

4.5 Boundary Loads

One of the most important and challenging issues in the development of multijurisdictional TMDLs is how to consider the boundary pollutant loads from upstream, downstream, and adjacent States. The selected approach can have significant consequences for the assignment of pollutant reduction responsibilities, both for sources within the jurisdiction developing the TMDL as well as for sources in neighboring jurisdictions.

The most informative and comprehensive approach would be to conduct the modeling and analysis at the watershed scale, incorporating loads from all contributing jurisdictions. Under this approach, all of the upstream and adjacent States would participate in the modeling and analysis that assesses

pollutant loadings, pollutant transport, and water quality responses throughout the entire watershed. These analyses would assign individual WLAs to all point sources in the watershed that cause or contribute to the water quality impairments. The nonpoint source loads could be characterized by subwatershed and source type to the extent data is available to delineate such sources. This approach is possible if the jurisdictions work cooperatively and agree to take advantage of the wide scale analyses in targeting point and nonpoint source controls. Where this is not possible, the pollutant loads at State boundaries can be analyzed using various loading assumptions.

In selecting an analytical approach, one thing to consider is the difference between upstream-downstream boundaries and adjacent boundaries. Boundary loads that flow in one direction can be determined by measuring flow and chemical concentrations; however adjacent loads are generally mixed in the waterbody and are difficult to be measured. Adjacent loads are the loads contributed by adjacent States where the boundary line is within the waterbody. Since the water is mixed, there may be no clear way to measure the load from each jurisdiction. Therefore, distinguishing loadings from adjacent jurisdictions usually necessitates the use of mechanistic models that contain some capability of tracing advective and diffusive mixing of pollutant loads.

Four typical scenarios for considering boundary loadings in developing multijurisdictional TMDLs are presented in the remainder of this section. The first two scenarios address TMDL development by the downstream State and whether or not the boundary load from the upstream state causes or contributes to the impairment downstream. The last two scenarios address the development of TMDLs by the upstream or adjacent State and whether or not their boundary load causes or contributes to an impairment in the neighboring jurisdiction(s). The hypothetical multijurisdictional watershed provided in Figure 1 is referred to in the text below to further illustrate and distinguish the four scenarios.

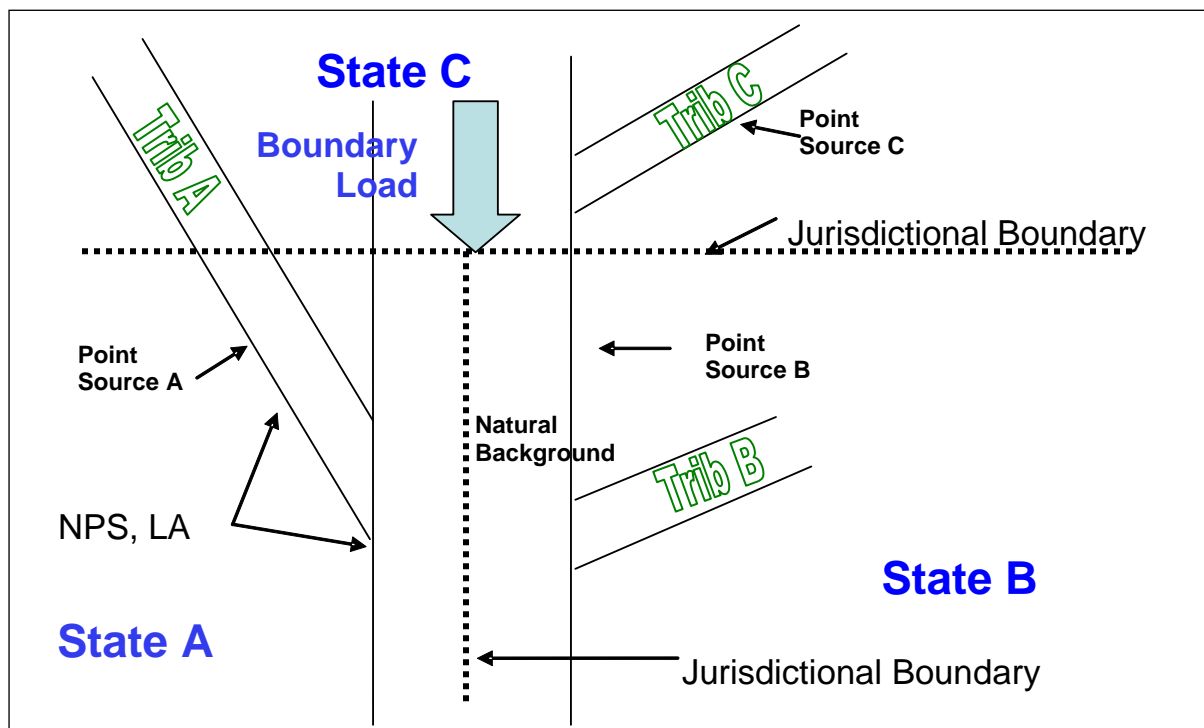


Figure 1: Hypothetical multijurisdictional watershed (State A–downstream State; State B–adjacent State; State C–upstream State).

The Downstream State is developing the TMDL

Some insight on this situation can be obtained by reviewing the language contained within the definition of a Total Maximum Daily load (TMDL) in 40 CFR Section 130.2 (i), where it is stated that:

“If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments.”

$$\text{TMDL} = \text{WLA}_A + \sum \text{LA} (\text{NPS} + \text{NBG} + \text{Trib}_A + \text{ASL}_B + \text{BL}_C)$$

Where the allocations are defined as:

WLA_A = Point source load in State A

LA = Load Allocation for non-point and other sources

NPS = Nonpoint source load in State A

NBG = Natural background load

Trib_A = Tributary load from State A

ASL_B = Adjacent Segment load from State B

BL_C = Boundary (Upstream Segment) load from State C

This TMDL definition gives the TMDL developer flexibility in defining the geographical extent and the level of specificity when making allocations. Generally, specific pollutant allocations would be made to the point source A (a downstream State), and nonpoint sources (LA_A). In addition, the TMDL writer could assign gross LAs to natural background sources, the loadings of the pollutant of concern from Trib_A, and loadings from the adjacent segments ($\text{ASL}_B + \text{BL}_C$) in States B and C.

During TMDL development, it is important that State A provides information about the assumptions it is using in calculating the Boundary Load (BL) and to the Adjacent Segment Load (ASL). These boundary loading assumptions will greatly influence both the WLA_A and LA decisions applicable to State A.

Scenario 1: The upstream boundary load from State C does not cause or contribute to State A's downstream impairment.

In this scenario, we recommend using the existing gross load from State C as a boundary condition for incoming loads to State A. Additionally, there is no expectation that the upstream or adjacent States will reduce their existing contributions. For modeling purposes, existing loads are the simplest boundary condition to use, and in this case, State C's current loads are not impairing any of the downstream jurisdiction's waters.

Generally, in this scenario, State A's TMDL has no information that assures that the upstream and/or adjacent boundary loads will remain at the same levels. Therefore, if loads from State C increase, loading capacity for State A will decrease if the cumulative pollutant load causes State A's water quality standards not to be met. This lack of certainty should be considered when making LA, WLA, and margin of safety decisions in State A.

Scenario 2: The boundary load from State C causes and/or contributes to the impairment in State A.

In the TMDL analysis, it may be assumed that upstream/adjacent States will implement reductions no more significant than to meet State A water quality standards both at the boundary and downstream of the boundary.

- Assuming upstream jurisdiction permits are written to meet downstream or adjacent State standards [*Arkansas v. Oklahoma*, 503 U.S. 91 (1992)], it may be reasonable for State A to assume that the upstream/adjacent States would deliver pollutant loads to State A that meet State A water quality standards. Any lack of certainty in documenting how boundary or adjacent load reductions will be achieved in States B and C should be considered when making LA and WLA decisions in State A. Ideally, multiple jurisdictions would collaborate on developing the TMDL, and the scope of the TMDL would include the upstream jurisdiction. In this case, State A would compute the boundary load necessary to assure that standards are being met in both the near field and far field. These boundary load calculations would be shared with States B and C. Using this information, and possibly supported by the modeling and analysis undertaken by State A, States B and C would provide documentation that would describe how they would implement point and non-point source controls that result in loads at the shared boundary that meet State A's standards.
- If the TMDL does not include sufficient documentation that State C can reduce their boundary load to meet State A's water quality standards, there may be less loading capacity for State A. Depending on the level of uncertainty for reducing loading in State C, it may be necessary for State A to further reduce its own pollutant sources.

Note that for some scenarios, a lack of collaboration could prompt a request for a CWA Section 319(g) conference request with EPA and the upstream or adjacent State/Tribe. Section 319(g) allows States to petition EPA to convene an interstate management conference if a state is not meeting water quality standards in whole or in part as a result of nonpoint source pollution from another state. There has been limited use of this provision, but with growing attention on nutrient TMDLs, this provision could be one means for bringing all parties to the table to resolve interstate questions about how to achieve nonpoint and point source load reductions necessary to achieve water quality standards.

The Upstream Jurisdiction or Adjacent Jurisdiction is developing the TMDL

In some cases, the TMDL in a multijurisdictional watershed is developed by either the upstream State/Tribe (State C) or the adjacent State/Tribe (State B). As these jurisdictions proceed with their TMDLs, they too must make certain assumptions regarding the boundary loads at the downstream or adjacent State (State A). A discussion of these boundary assumptions is presented below.

Scenario 3: The upstream or adjacent State/Tribe's pollutant load at the boundary does not cause or contribute to near field or far field impairment of any other jurisdiction's waters.

As States B or C develop their TMDL, the TMDL should consider the impact of loads on the downstream jurisdiction, particularly if downstream State water quality is already impaired. WLAs and LAs in the TMDL should be set at a level that will neither cause nor contribute to any impairment in the downstream State(s). In this circumstance the upstream or adjacent State with the impaired water may be able to develop the TMDL with little collaboration from the other States. However, it is recommended that all States sharing the water collaborate to determine feasible and equitable allocations where there are any questions regarding the effect of pollutant loads.

Scenario 4: The upstream (e.g., State C) or adjacent State's (e.g., State b) pollutant load at the boundary causes or contributes to near field or far field impairment of another State's (e.g., State A) waters. There is potential for a significant issue to emerge as the upstream or adjacent State develops allocations to meet their own standards and those of the downstream State. If there is an impairment in the shared water in the downstream State, and loadings from both the upstream or adjacent State and the downstream State are causing and contributing to the impairment, the TMDL should consider the needed loading reductions in the downstream State. One approach would be to extend the modeling and analysis far enough into the downstream State to determine the reductions necessary to meet standards in the downstream State by both point and non point sources. This approach could be complex. However, this effort could be shared if the affected States work together.

A second approach would be to estimate a gross total loading by the downstream State that, in combination with the proposed TMDL boundary load(s), results in the attainment of standards in the downstream State. Permits for point sources in upstream jurisdictions must contain WQBELs that do not cause and contribute to the impairment of a downstream jurisdiction's waters. Therefore, even if the upstream State develops a TMDL for an impaired water within its jurisdiction, it is important for all States sharing this water to participate in the TMDL process to ensure allocations that are appropriate, equitable, and implementable.

5 REASONABLE ASSURANCE CONSIDERATIONS

Consistent with existing EPA guidance, TMDLs that allocate pollutant loadings to both point sources and nonpoint sources, whether single-segment or a multijurisdictional watershed, should include reasonable assurance that nonpoint source control measures will achieve expected load reductions. Clearly, a downstream State/Tribe should provide documentation that the allocations to point sources in the watershed within its boundaries have been based on an assessment of the probability that proposed nonpoint source allocations will be achieved. A major challenge in developing the multijurisdictional TMDL is how to consider reasonable assurance for the sources originating in the upstream or adjacent jurisdiction. This issue places a premium on effective collaboration between jurisdictions.

NPDES permitted point sources are required by regulation not to cause or contribute to any downstream WQS violations [40 CFR 122.4(d)]. If expected nonpoint source pollution reductions cannot be assured to occur in a reasonable time, then point sources upstream and downstream may be required to meet more stringent limits. This possibility might motivate local efforts to reduce pollutant loads from nonpoint sources.

6 SUMMARY CONSIDERATIONS FOR DEVELOPING MULTIJURISDICTIONAL TMDLS

While many aspects of planning and completing a multijurisdictional watershed TMDL are similar to other TMDLs, the approaches described in this memo may require States to give special consideration to certain technical and policy challenges. In particular, States/Tribes that follow this

process for developing multijurisdictional TMDLs should give increased attention to, and coordinate with, a diverse array of stakeholders. It may be appropriate for EPA to be involved either as a participant, in the role of facilitator, or as the lead in developing a TMDL depending on the circumstances and the States' desire. While a number of approaches to the development of multijurisdictional TMDLs may prove successful, EPA encourages States/Tribes to make use of the following successful strategies:

- **Coordinating TMDL schedules and implementation goals across multiple jurisdictions.** There are opportunities to initiate cooperative approaches to the development of technically sound and equitable multijurisdictional TMDLs during the development and submission of the biennial CWA Section 303(d) impaired/threatened waters list to EPA. For those impaired waters whose watershed goes beyond a single jurisdiction, States may want to coordinate their prioritization and scheduling of TMDL development in order to facilitate a multijurisdictional process.
- **Determining the spatial extent of the watershed modeling approach.** Multijurisdictional TMDLs are most effectively developed and implemented when they reflect the collective goals and objectives of all of the jurisdictions that are linked hydrologically within the watershed addressed by the TMDL. Therefore, whenever possible, a watershed-wide modeling analysis should be conducted to assess pollutant loadings from all point and nonpoint sources in all jurisdictions throughout the watershed. This holistic analytical approach will have the highest probability of producing equitable and implementable allocations to all point sources (WLAs) and non-point sources (LAs).
- **Determining the geographical limits for the development of individual WLAs and LAs.** Allocating facility specific WLAs and sector-specific LAs throughout the watershed is the preferred approach for the development of multijurisdictional TMDLs. This watershed-wide approach will help assure the attainment of water quality standards and will help inform the issuance of enforceable NPDES permits for all dischargers throughout entire watershed. At a minimum, this comprehensive approach will result in the development of informational WLAs and LAs for consideration during future TMDL development and NPDES permitting actions by any States not formally participating in the development of a multijurisdictional TMDL.
- **Consideration of pollutant loadings at jurisdictional boundaries.** Regardless of which jurisdiction is developing the TMDL, and independent of the spatial scale of the TMDL analysis, the boundary loading assumptions should be established at levels that do not cause or contribute to the impairment of water quality standards at that boundary or anywhere downstream of the boundary.

The most informative approach for considering boundary loads is to conduct the modeling and analysis at the watershed scale, incorporating loads from all contributing jurisdictions. Under this approach, all of the upstream and adjacent States participate in the modeling and analysis that assesses pollutant loadings, pollutant transport, and water quality responses throughout the entire watershed.
- **Targeting multiple water quality standards.** For multijurisdictional waterbodies where both jurisdictions have narrative criteria or differing uses, States/Tribes should jointly develop the TMDL target to protect the most sensitive use. Similarly, where numeric criteria

differ, the TMDL should be developed to meet the most stringent criteria. Also all jurisdictions should communicate to ensure consistency in listing, TMDL development, and permitting to reduce the potential for inconsistency. Where necessary, EPA may serve the role of facilitator in resolving differences between States/Tribes. Where it is not possible to resolve differences in developing the TMDL, or to develop consistent standards in the short term, at the request of the jurisdictions it may be appropriate for EPA to serve as the lead in developing the TMDL.

- **Defining the expectations for incorporating reasonable assurance.** All TMDLs considering pollutant loadings from both point sources and nonpoint sources, including multijurisdictional TMDLs, should include reasonable assurances that nonpoint source control measures will achieve expected load reductions. The State/Tribe developing the TMDL, whether the upstream or downstream State, should provide documentation that the allocations (WLAs) to point sources in the watershed within their boundaries have been determined based on an assessment of the probability that proposed nonpoint source allocations (LA) will be achieved. While there are a number of options for the downstream State/Tribe for considering how reasonable assurance can be provided so that boundary loads will be achieved, the watershed TMDL framework typically provides the greatest information in targeting nonpoint source controls and in facilitating identification of feasible allocation options for both point and nonpoint sources.