TMDL Alternatives Guidance SWRO

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Introduction

TMDLs in SWRO are becoming ever more complex, controversial, and resource intensive resulting in significant development delays and bottlenecks. In addition, our TMDL program is currently facing legal challenges which threaten to stall TMDL development further. In light of this difficult future, TMDL alternatives are becoming an increasingly important water quality improvement tool. However, there appears to be considerable uncertainty regarding TMDL alternatives – when they're appropriate, what type of TMDL alternative to pursue, project development procedures, and even disagreement over naming conventions. This document attempts to address these problems by providing basic guidance to staff and management on currently available alternative options and factors to consider when evaluating what type of project to pursue.

The Clean Water Act (CWA) was designed to address a fairly narrow problem - pollution associated with industrial activities in heavily urbanized watersheds (e.g. the Cuyahoga River in Ohio). The TMDL process was originally conceived as a regulatory back stop to be utilized when the Clean Water Act's primary pollution control tool, the NPDES permit program, failed to maintain water quality standards. Since the CWA was established our understanding of water pollution has grown considerably. We now know that sources of water pollution are often more diverse and complex than originally thought and technology based effluent limits alone are often not enough to ensure water quality standards are met. Hence, the TMDL program expanded to fill the growing need, often becoming the primary water cleanup tool in many watersheds.

TMDLs work well to address urban watersheds dominated by point sources, primarily industrial dischargers and WWTPs. However, TMDLs struggle to adequately address nonpoint sources, primarily because nonpoint sources aren't subject to the enforcement controls of the NPDES program. The TMDL process of determining the pollution loading capacity and the assignment of load and wasteload allocations is useful in limiting discharges from multiple point sources. It has limited value, however, when controlling diffuse nonpoint sources managed via the application of BMPs.

Goal

This document provides guidance on TMDL Alternatives available to TMDL leads in order to improve water quality and meet standards in an efficient and timely manner resulting in waterbodies of the state being delisted from the 303d list.

Objectives

1. Provide clear and concise definitions for Traditional TMDLs, TMDL Alternatives, and Straight to Implementation Projects.
2. Provide guidance to TMDL leads on which type of project is most appropriate for the waterbody they are working in.
3. Provide guidance on writing and implementing TMDL Alternatives.
4. Describe a process for getting internal approval to move forward with developing a TMDL Alternative or Straight to Implementation Project.
5. Identify potential areas of confusion from different stakeholders and provide leads guidance on ways to minimize confusion.
6. Reiterate existing policy for delisting waterbodies when standards are met.

Definitions

Both TMDLs and TMDL-Alternatives are planned, organized efforts. The object of both is to improve water quality and meet state water quality standards.

TMDL: A total maximum daily load is a CWA-defined allocation of pollutant loads that will meet water quality standards. TMDLs establish the loading capacity of a waterbody and set wasteload allocations for point sources and load allocations for nonpoint sources. TMDLs are sent to EPA for their approval. WLAs set in TMDLs are legally required to be included in NPDES permits. Ecology must ultimately conduct a TMDL for all waterbodies that do not meet water quality standards.

TMDL-Alternative: Any effort focused on implementing corrective actions directly, rather than relying on modelling or the assignment of load allocations and wasteload allocations, is a TMDL alternative. These projects do not meet the definition of a TMDL. When waters are clean enough to meet water quality standards, they are delisted.

STI: Straight to Implementation (STI) is a type of TMDL Alternative. It is an Ecology led process and relies on Ecology staff actively investigating and identifying problem sites, and working with landowners to improve conditions through the implementation of BMPs.

4B: The term '4b' refers to a 303(d) list category intended for water bodies with a pollution control program in place other than a TMDL that is expected to solve the pollution problems.

4bs are not in and of themselves pollution control actions, but represent a way to formally recognize cleanup efforts and associated water quality improvements. To be included in category 4b, TMDL Alternatives must have legal or financial guarantees that they will be implemented. To be placed in the 'Has a Pollution Control Project' category, the pollution control project must meet all of the following criteria:

- Be problem-specific and waterbody-specific.
- Have reasonable time limits established for correcting the specific problem, including load reduction or interim targets when appropriate.
- Have a monitoring component to evaluate effectiveness.
- Have adaptive management built into the plan to allow for course corrections if necessary.
- Have enforceable pollution controls or actions stringent enough to attain the water quality standard or standards.
- Be feasible, with enforceable legal or financial guarantees that implementation will occur.
- Be actively and successfully implemented and show progress on water quality improvements in accordance with the plan.

Not all TMDL Alternatives are eligible for inclusion in 4b. While the criteria for 4b exclude some TMDL Alternative efforts, those projects are still important pieces to our efforts to achieve clean water. Ecology proposes water body segments for category 4b and they are reviewed by EPA during the 303(d) listing process.

Checklist: When to use TMDLs and when to use alternatives

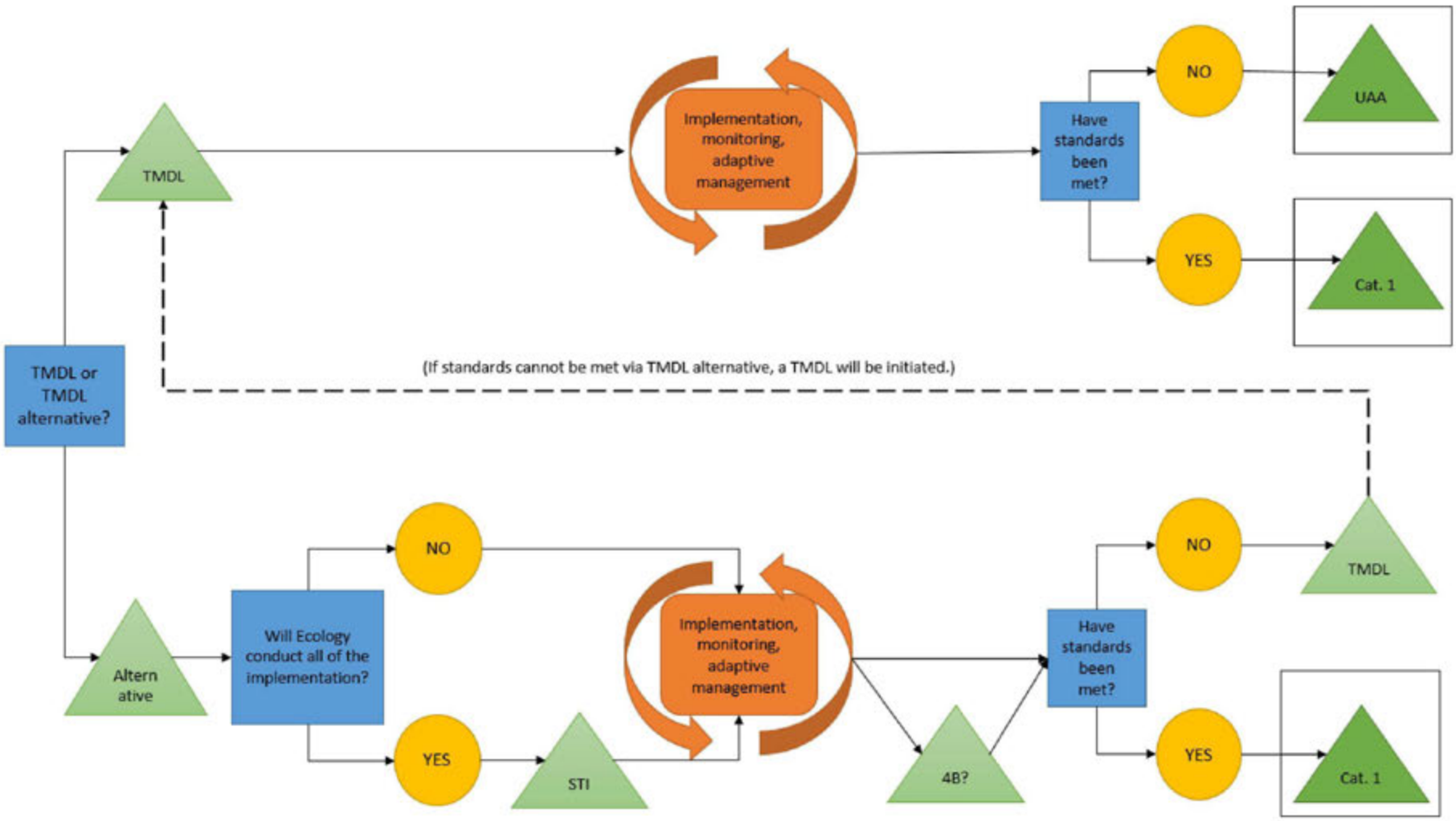
As discussed above, TMDLs are best suited for watersheds and parameters where NPDES permitted point sources are the primary source of pollution. SWRO's general TMDL development approach is described here: [HYPERLINK "http://teams/sites/WQ/swwcta/TMDLs/SWRO%20TMDL%20Future.docx"] .There are additional factors a TMDL lead should consider when deciding whether a TMDL alternative is a more appropriate course of action. Watersheds where NPDES-permitted point sources are a significant source of pollution (and their contributions can be solved through new NPDES permit effluent limitations) a traditional TMDL is likely the best approach. The checklist below highlights watershed and pollution characteristics that may be well suited for TMDL Alternative projects. This list is not comprehensive and other site specific details should be included in your decision.

Note that the descriptions that follow in parenthesis are meant solely to help guide the decision making process and should not be strictly applied.

☐ The watershed is primarily rural (<50% of the watershed area is covered with impervious surfaces).

☐ The watershed is 'small' (< 100 square miles or mainstem < 20 miles in length).
☐ The watershed is dominated by nonpoint sources (> 75% of pollution load).
☐ The point sources are dominated by municipal stormwater permittees (> 50% of the point source pollution load),
☐ There are many local implementing resources available (e.g. grants, watersheds councils, volunteer groups, 'stream teams', and sophisticated local governments and conservation districts).
☐ There is local community and governmental support for water cleanup efforts.
☐ Many opportunities remain for nonpoint improvement.
☐ There are monitoring data available to inform implementation and/or data have been analyzed and modeled.
☐ Ecology TMDL resources are limited (EAP project backlogs, bottlenecks, no monitoring funds).
☐ The WQ pollution problem is simple and well understood (conventional parameters, no suspected hidden or unknown sources, no complex relationships between multiple parameters).

Flowchart for determining next steps and decision points for TMDLs and TMDL alternatives.



How to write a TMDL Alternative plan

Some form of planning is necessary to structure recovery efforts in lieu of a TMDL. There's value to at least some planning even in the simplest situations (if for no other reason than to check assumptions and avoid oversights). Plans are also helpful in tracking project progress and can be convenient reference tools when discussing implementation priorities with staff. However, planning should not be an exhaustive, time consuming exercise. It should provide the minimum amount of information needed to inform implementation. In 'simple' watersheds rudimentary plans of a few pages may be sufficient, but in more complex watersheds a more thorough planning exercise may be necessary. It's up the TMDL lead to decide the level of detail needed to get the job done, but the focus should be on direct actions that improve water quality in a streamlined and effective manner. The TMDL lead will need to use their judgement in assessing the tradeoffs between the time spent developing the plan and the head start gained by beginning implementation actions sooner. TMDL leads may be able to take excerpts from other existing plans which can help to expedite process and ensure consistency with other restoration efforts.

Planning efforts can range from joint local/public processes to strictly internal work plan development. TMDL leads and/or nonpoint staff should assess the project needs before deciding the preferred approach. Joint, public planning efforts are usually preferable because, though they may be slower, the outcomes are more likely to be implemented, as there is consensus on the problems and solutions at the end of the process. However, where there's local resistance to water quality improvement actions on principle, public processes will likely stall and an internal process may be more productive at least initially.

Without the TMDL template to follow, leads are free to design a plan to meet their project needs. This flexibility can be useful, but some may find it daunting. There's also a danger that some items may be accidentally omitted. For these reason it's advisable to consider using an established alternate template. EPA's watershed planning guidance is a good place to start: [HYPERLINK "https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=2868"]. Using this template increases the likelihood that outcomes will be consistent with EPA's requirements. Hence, regulatory actions (e.g. re-categorization of Category 5 listings) are more likely to be accepted and federal funding may be easier to obtain. Several other tools are available to suit TMDL leads' needs for various levels of planning detail. Whatever structure TMDL leads choose to follow, plans should at a minimum address the following key items (from EPA's 'Steps in the Watershed Planning Process')

Step 1. Build partnerships
Step 2. Characterize your watersheds
Step 3. Finalize goals and identify solutions
Step 4. Design an implementation program
Step 5. Implement the watersheds plan
Step 6. Measure progress and make adjustments

These concepts are expanded a little further in EPA's '9 Minimum Elements of Successful Watershed Plans' tool:

Step 1. Identify causes and sources of pollution
Step 2. Estimate load reductions expected
Step 3. Describe management measures and targeted critical areas
Step 4. Estimate technical and financial assistance needed
Step 5. Develop an information and education component
Step 6. Develop a project schedule
Step 7. Describe interim, measurable milestones
Step 8. Identify indicators to measure progress
Step 9. Develop a monitoring component

TMDL leads are encouraged to consult EPA's 'Handbook for Developing Watershed Plans to Restore and Protect Our Waters': [HYPERLINK "https://www.epa.gov/sites/production/files/2015-09/documents/2008_04_18_nps_watershed_handbook_handbook-2.pdf"].

TMDL leads should feel free to use the whole document or only those sections that they find useful or applicable. In the case of the latter however, TMDL leads are referred back to the guidance above to ensure they retain at least the minimum elements of a good plan.

Internal Outreach

Internal outreach on TMDL Alternatives should include all individuals who will participate in the project over its lifespan. Participation may be minor (e.g. review a completed draft plan) for internal partners with minor roles or those who are familiar with the project. Internal partners who have large roles or are unfamiliar with the project should have a larger role in developing the plan. People will be more likely to support projects if they helped to create them.

Internal partners are project dependent, but will often include:

- nonpoint staff
- permit staff
- EAP (water quality monitoring)
- SEA (wetlands, shorelines)
- WR (water rights).

Management and HQ:

- The unit supervisor should be briefed periodically throughout the process
- The section manager should be briefed at key points.
- Unless the specifics of the project dictate more involvement, only final plans need to be sent to HQ staff.

Outreach during the implementation phase is project-specific. Periodic big-picture status updates for all participants is recommended to keep everyone engaged.

Internal review process

The internal review process for a TMDL alternative plan depends on the complexity of the plan, the policy challenges it addresses, and whether it will be used externally. The following steps should be followed during the review process:

1. Unit supervisor, regional TMDL leads, and nonpoint staff review draft
2. Plain talk review (optional)
3. TMDL lead revises draft
4. Unit supervisor, TMDL leads, nonpoint staff, and plain talk reviewer confirm revisions (as needed)
5. Technical review (optional)
6. Policy review (optional)
7. Section supervisor review
8. TMDL lead revises draft
9. Policy reviewer (and technical reviewer if necessary) and Section supervisor *confirm revisions*
10. Administrative Assistant checks for formatting, spelling, and grammatical errors (optional).
11. (Optional) Draft distributed to local stakeholders/partners – 30 days to review (in lieu of formal public comment process)
12. TMDL lead makes revisions
13. Plan finalized and (if publishing) sent to HQ publications coordinator
14. Published and link to project webpage (optional)

External outreach on developing a TMDL Alternative

All TMDL projects require some degree of outreach to communities and stakeholders. TMDL Alternatives may require additional communication since many stakeholders may be unfamiliar with the concept and may have concerns regarding how they are different (or similar) to a traditional TMDL. Conservation groups may be concerned that the outcome of a TMDL alternative will be different than a TMDL and it will be important to explain that the intended outcome – to meet water quality standards – is the same. Highlighting successful projects (such as [HYPERLINK "https://fortress.wa.gov/ecy/publications/documents/1710011.pdf"] and Asotin Creek) will help ensure stakeholders that this type of work is a good option with a proven track record.

When beginning a project, first identify all entities who will be involved in the process.

1. City and county personnel
2. Environmental advocates
3. Tribes
4. Other state agencies
5. Watershed group
6. External Permittees (if applicable)

Make sure you understand the role of each stakeholder involved. If this is an Ecology-led process you'll need to communicate your needs to municipalities and other stakeholders that you wish to partner

with. If Ecology is not leading the process, you'll need to provide support to those who are. You may also need to solicit project sponsors.

Plans will likely have a better chance of being implemented if TMDL leads collaborate on plan development with stakeholders and partners. Creating ownership should be a key step in TMDL Alternative development, especially so if Ecology isn't leading implementation.

You should also discuss the intended project outcomes with stakeholders. This will help in the development of the implementation plan and ensure that community needs are met. Stakeholders may have different visions of what restoration looks like and clearly identifying these goals in the beginning will be helpful to the process. What goals do stakeholders have and how do they align with meeting water quality standards?

Finally, it may helpful to discuss methods to monitor water quality improvements. This may help those who have relied on the traditional TMDL methods trust that our intention is indeed to improve water quality. Discuss what monitoring needs to occurs and when. You may also need to develop a plan of action if the anticipated improvements do not occur within a designated timeframe.

Other States

TMDL leads thought it would be useful to compare our TMDL Alternative approach and definitions with those of other Region 10 states. The purpose was to:

a) find out whether other states had similar TMDL development problems and TMDL Alternative needs,
b) see if we were largely consistent in our respective approaches, and
c) provide new insights and ideas for additional TMDL Alternative tools.

Ecology staff conducted an informal survey of TMDL staff in Alaska, Idaho, Oregon and California. Responses were mixed, but largely consistent with Washington's approach. Alaska stated that they generally looked to Washington as an example regarding TMDL Alternatives and didn't have substantive contributions. California didn't respond. Idaho stated that they had successfully pursued TMDL Alternatives and 4b designation in the past, the 'Bear Valley' project being a good example. Most recently they were attempting something similar in the Lower Boise Watershed. Idaho staff stated that seeking 4b designation often required considerable work, it was more effective and efficient than attempting to develop TMDLs in nonpoint dominant watersheds.

Of all those states consulted, Oregon has perhaps investigated the TMDL Alternative approach most fully. Oregon was successful in getting EPA support for claiming 4b designation in watersheds enrolled in their Pesticide Stewardship Program (PSP). The Program works by:

- Identifying local, pesticide-related water quality issues

- Sharing water quality monitoring results early and often with local communities and all those who have a direct interested in the state's waters
- Explaining data in relation to effects and water quality criteria or benchmarks
- Engaging pesticide users and technical assistance providers to identify and implement solutions
- Using long-term monitoring to measure success and provide feedback to support water quality management

The program uses both water quality and crop quality as measures of success. Pest management and water quality management must both be effective for long-term stewardship of natural resources.

Oregon thought the 4B listings would provide watershed partners (e.g., agricultural producers) with additional assurances that they're committed to the voluntary approach. The TMDL process remains the regulatory backstop if efforts aren't successful. While EPA is supportive of the program and associated 4b designation, resource constraints have limited its use in Oregon thus far.

Oregon's assessment of their direct implementation efforts in Fifteenmile Creek (eastern Cascades) serves as a useful cautionary tale about the limits of any approach (including TMDL Alternatives) to achieve water quality standards. Since 1994 the creek has been the focus of a multi-agency effort to install agricultural BMPs (no till practices) to reduce soil erosion and sediment sources. However, monitoring data over the period failed to show significant reductions in sediment loading. Other studies found that where BMPs were installed without buffers (as was the case in Fifteenmile) positive impacts were negligible. And there's some evidence to suggest that past land-use activity, particularly agriculture, may result in long-term modifications to and reductions in aquatic diversity, regardless of restoration of riparian zones. While these results are discouraging, it would be likely that Oregon would be no better off had they first attempted a TMDL as that would likely have recommended the same BMPs.

Many other Region 10 states have concluded, as we have, that there's a need for TMDL Alternatives. As in Washington they're also looking to the 4b designation as a way to 'get credit' for those efforts. The EPA is supportive of some other states' TMDL Alternative efforts. While no new tools were discovered through this effort, Oregon's examples illustrate the importance of having adequate resources to support implementation and the limitations of BMPs to address water quality problems associated with larger legacy ecosystem changes.

Delisting

Policy 1-11 addresses delisting (moving waters from Category 5 to 1): [HYPERLINK "https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d/Assessment-policy-updates"]. The policy is currently being revised, and the proposed draft is on the website. SWRO will follow the policy for delisting. We support making interim (formal or informal) delisting calls in conjunction with HQ 303(d) staff when data becomes available. These interim delisting calls can be made in between full updates to the 303(d) list.

Can we meet WQS? If not, what do we do?

Situation 1: Standards can be met.
Implement the TMDL Alternative, improve water quality, meet water quality standards, move the waterbody to Category 1, and declare success.

Situation 2: Standards can't be met, but significant improvements in water quality and/or biological quality can be made.
Implement the TMDL Alternative and make the improvements that are feasible. Work with local stakeholders to develop ambitious-yet-realistic interim targets. If easily done, model the impact of all the feasible improvements. Focus on the benefits of the improvement, despite water quality standards not being met. If that interim target is met at some point in the future, declare partial success and deprioritize future work. Eventually, a TMDL and/or UAA (see top of flow chart) is legally required.

Situation 3: Standards can't be met, and there isn't much anyone can reasonably do to improve water quality.
SWRO will deprioritize these waterbodies and focus our work on Situations 1 and 2. Stakeholders may pursue UAAs if they desire. Eventually, a TMDL and/or UAA (see top of flow chart) is legally required.

Appendix: Prioritizing Workload

There are hundreds of unaddressed 303(d) listings in SWRO. This is a 70-year backlog at our current TMDL production pace. Most 303(d) listed streams do not include significant sources of pollution from NPDES permit holders. Unfortunately, we only have five staff who work on TMDL-related efforts, grants, and monitoring. SWRO has four nonpoint staff for the region. Our current (February 2018) work is split five ways:

Writing TMDLs	1.25 FTEs	Budd Inlet TMDL and Lower White TMDL
Implement Existing TMDLs*	0.5 FTEs	Chehalis, Henderson, Puyallup, and Deschutes
TMDL Alternatives	1.25 FTEs	Burnt Bridge Creek, EF Lewis, North Ocean Beaches, Clover Creek
Grant Administration	1 FTE	
Monitoring	1 FTE	

* SWRO nonpoint staff are also engaged in implementation of existing TMDLs.

While prioritization will fluctuate over time, we expect to continue focusing most of our time on the combination of implementing existing TMDLs and TMDL Alternatives.