



Draft Total Maximum Daily Load Prioritization Strategy

Implementing EPA's National Long-Term Vision for the Clean Water Act Section 303(d) Program

Introduction

The Colorado Department of Public Health and Environment Water Quality Control Division (division) provides to the Environmental Protection Agency Region 8 (EPA) the following draft strategy that defines an approach for prioritizing Total Maximum Daily Load (TMDL) development. The draft strategy addresses the TMDL aspects of EPA's prioritization goal which is defined in the national long-term vision for assessment, restoration and protection under the Clean Water Act Section 303(d) program (vision). This draft TMDL prioritization strategy will be finalized after EPA and stakeholder feedback and then will be implemented to define prioritized TMDL development targets for federal fiscal years 2016 - 2022.

Background

In 1999, Colorado entered into a settlement agreement which stipulated a schedule for completion of TMDLs from the 1998 303(d) list of impaired waterbodies (1998 list). The annual pace of TMDL development was calculated by assuming 13 years from the time listed to TMDL completion and weighting the listings accordingly. While pace calculations identified the number of TMDLs to be completed each year, several factors determined which listings were prioritized or targeted for TMDL development, including severity of impairment to the use classifications for the segment, age of listing and secondary factors such as endangered species, public interest, administrative needs, pace of stakeholder group development, and Comprehensive Environmental Response, Compensation and Liability Act cleanup action in progress. Many of the impaired waterbodies identified on the 1998 list, as well as on subsequent lists, were tied to legacy mining activities. This, in addition to impairment severity, resulted in the majority of TMDLs developed since 1999 addressing legacy mining-related impairments.

As TMDL settlement agreements for many states, including Colorado, were nearing completion, EPA began collaboration with states and the Association of Clean Water Administrators to develop the national vision for the 303(d) program. The vision was finalized in 2013 and defines six goals: prioritization; engagement; integration; protection; alternative approaches; and assessment (<http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/programvision.cfm>).

The focus of the draft TMDL strategy is the prioritization goal:

For the 2016 integrated reporting cycle and beyond, states review, systematically prioritize and report priority watersheds or waters for restoration and protection in their biennial integrated reports to facilitate state strategic planning for achieving water quality goals.

Defining a prioritization strategy for TMDL development is fundamental to meeting this goal.

Prioritization Strategy Development

The objective of the draft TMDL prioritization strategy is, when implemented, to support the following national program measure:

Extent of priority areas identified by each state that are addressed by EPA-approved TMDLs or alternative approaches for impaired waters that will achieve water quality standards. These areas may also include protection approaches for unimpaired waters to maintain water quality standards.

Specifically, the strategy will be used to identify:

- A list of priority waters slated for near-term TMDL development or alternative approaches (approximate 2-year timeframe).
- A list of priority waters scheduled for likely TMDL development or alternative approaches over the 2016-2022 period.
- The strategic rationale of the state in setting these priorities.

The baseline of information for development of the draft prioritization strategy is the 2012 303(d) list of impaired waterbodies (2012 list). The draft strategy is developed in phases, the first of which has been implemented and is discussed below as phase 1. Phase 2, also discussed below, will be completed over the first three quarters of 2015, resulting in a final, implemented prioritization strategy.

Phase 1: Initial Screen

Phase 1 was an initial screen of the 2012 list. The purpose of the screen was to remove as lower priority for TMDL development the listings known to have data, standards or sources uncertainties. While these listings are identified as lower priority for TMDL development, they are higher priorities for other 303(d) programs (for example, standards or environmental data programs). The data, standards and sources uncertainties screening criteria are shown in Exhibit A-1 (Appendix A) and discussed in more detail below.

Sediment Listings

Sediment listings were identified as low priority during the initial screening. The Water Quality Control Commission (commission) Policy 98-1, Implementation Guidance for Determining Sediment Deposition Impacts to Aquatic Life in Streams and Rivers, was being revised at the time of phase 1 screening and it was anticipated sediment listings on the 2012 list might change as the revised guidance is implemented during the development of the 2016 303(d) list.

Temperature Listings

Temperature listings are relatively new, with the commission adopting revised numeric standards in 2007 and 2010, a series of excursions due to the complexity and potential for natural systems to have temperature exceeding the numeric standards and Policy 06-1 regarding temperature criteria methodology in 2011. Segments currently on the 2012 list for temperature exceedances have not been evaluated for excursions due to air temperature, low flow and winter shoulder season. These listings will remain until there is evidence to support that an excursion applies. Therefore, segments listed as temperature impaired were ranked lower priority for TMDL development until potential standards issues are resolved.

Nutrients-Related Listings

Colorado recently developed interim nutrient values but these values will not be considered for adoption in all segments of basin regulations until 2022. Therefore nutrient-related listings were ranked low priority until potential nutrient standards are more fully examined. Nutrient-related listings include lakes identified on the 2012 list as impaired due to dissolved oxygen, a temperature refugia issue the division determined is nutrient-related. Exceptions to nutrients-related listings being lower priority may occur for segments with nutrient standards already applied (for example, reservoirs with control regulations).

Arsenic Listings

In 2005 the commission updated arsenic standards for drinking water supply, water plus fish and fish ingestion as a range (0.02ug/L-10ug/L). For a number of reasons, compliance with the current health based standard of 0.02 ug/L may not be feasible for some discharge permit holders. In April 2013 the commission adopted temporary modifications statewide for water plus fish chronic arsenic where a permitted discharger with a water quality-based effluent limit compliance problem exists. The Division intends to address the uncertainty of the water plus fish chronic arsenic standard with respect to a technologically feasible level of treatment through a continued workgroup process and propose a revised water plus fish chronic arsenic standard as part of the 2016 Basic Standards Rulemaking Hearing. Due to this uncertainty in the standard, arsenic listings are a lower priority for TMDL development.

Secondary Drinking Water Listings

Assessment of iron, manganese and sulfate data has been inconsistent due to interpretation issues associated with the standards, specifically interpretation associated with assessing attainment when data are unavailable to determine existing water quality as of January 1, 2000. This inconsistency is being addressed through the 2016 listing methodology process. Setting ambient-based standards where appropriate is also being addressed through a stakeholder process associated with the 2016 Basic Standards Rulemaking Hearing. Additionally, iron, manganese and sulfate are secondary drinking water standards related to taste and odor rather than human health risk. For these reasons, the division is indentifying these 2012 listed impairments as lower priority for TMDL development.

Aquatic Life Provisional Listings

The division, with help from EPA, developed a multi-metric bioassessment tool for Colorado to evaluate impairment of the aquatic life use. The tool is designed to detect environmental stresses that result in alteration of the biological community but does not identify specific stressors. Once a segment is provisionally listed based on the multi-metric bioassessment tool, the cause of impairment must be identified through additional data collection. Until a pollutant/cause is identified, these aquatic life use impairment listings are a low priority for TMDL development.

Mercury Listings

Mercury impairments are based on elevated mercury levels in fish tissue. Due to the human health risk associated with consuming fish with high levels of mercury, these listings were previously identified as higher priority for TMDL development. However, because of the complexity of mercury fate and transport through natural systems as well as the challenges associated with source identification and control, the division is identifying TMDL development for mercury impairments as lower priority while additional information is acquired and evaluated. For example, the division plans to use the results of a current Nonpoint Source project to support future mercury TMDL development and implementation, perhaps at a statewide scale. As the division prepares for this future TMDL development that

will support implementation, fish consumption advisories are in place throughout the state to protect human health.

Phase 1 Results

Of the 348 pollutant/waterbody combinations on the 2012 list, the phase 1 initial screening prioritized 146 combinations for TMDL development. As illustrated on Figure 1, the 146 pollutant/waterbody combinations are predominantly tied to selenium, metals and e coli causes.

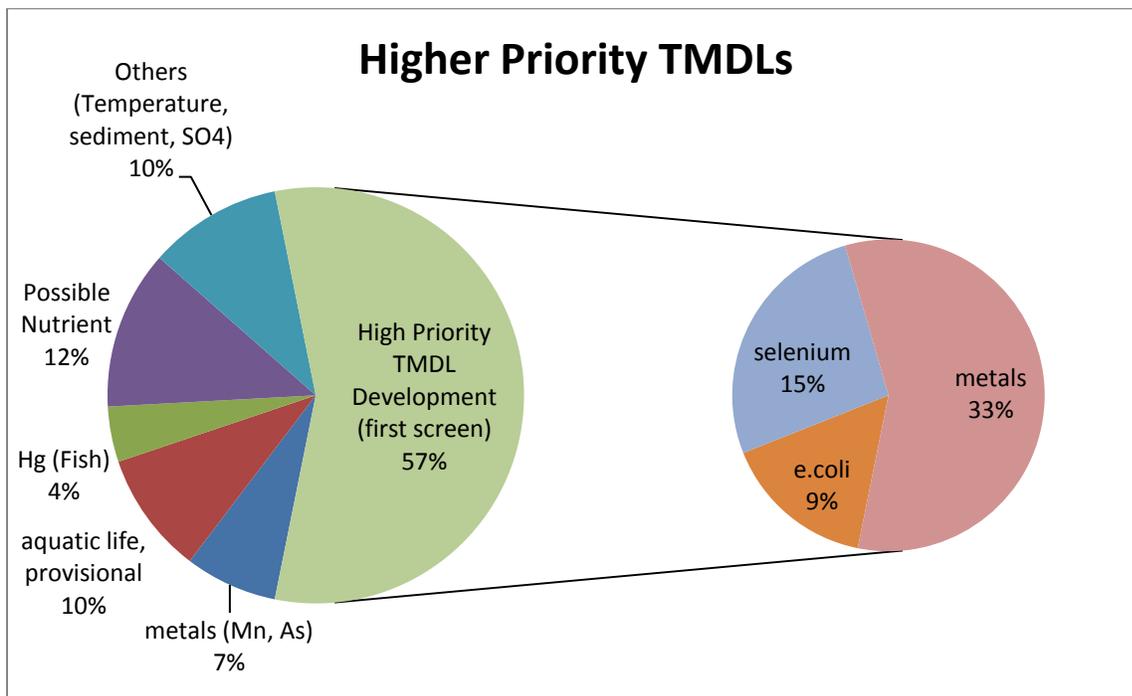


Figure 1: Metals, selenium and E. coli identified as higher priority for TMDL development in initial screening.

Phase 2: Recovery Potential Screening Tool

Phase 2 of the prioritization strategy is under development and will rely on iterative input from EPA and stakeholders. To kickoff phase 2, the division developed phase 2 preliminary draft criteria to help refine prioritization of the 146 pollutant/waterbody combinations identified as higher priority for TMDL development during phase 1. These preliminary draft criteria are shown in Exhibit A-2 (Appendix A). The division then investigated EPA's Recovery Potential Screening Tool (RPST) as a mechanism to translate these preliminary draft criteria into priorities based on relative restorability of water quality.

Preliminary Draft Criteria

The preliminary draft criteria are an initial compilation of primary factors that might affect TMDL development and therefore inform prioritization. The criteria cover programmatic/process, parameter-specific, source and system aspects and recognize the affect such things as potential de-listing, stakeholder involvement, permitted versus nonpoint sources, land-use and catastrophic events might have on defining TMDL development priorities. These preliminary draft criteria are presented here as a starting point for on-going dialogue about how to refine prioritization of the 146 pollutant/waterbody combinations.

The criteria are also provided here as context for the division's work to-date to evaluate the RPST for use in identifying TMDL development priorities. The division, in consultation with EPA and stakeholders, will finalize the criteria as phase 2 continues; it is important to note some of the criteria shown in Exhibit A-2 will remain as part of the prioritization strategy and some will not.

Overview of RPST

Recognizing it is not possible to work on every impaired waterbody at once, EPA's RPST was developed to aide states in developing a prioritization approach for TMDL development. The RPST uses a method to compare the relative restorability of large numbers of waterbodies. The tool measures several indicators that fall into three types: ecological, stressor and social.

- The ecological index score reflects overall condition and the capacity of the watershed to regain functionality, based on metrics related to natural watershed processes and structure.
- The stressor score reflects the pressures on watershed condition from several primary sources of pollutants and water quality impairments.
- The social context score includes many factors, such as community involvement, incentives, economics, governance, regulation, and planning status that do not constitute watershed condition but often strongly influence the level of effort and complexity of making improvements.

The user identifies a handful of indicators from each category. Using these indicators, the tool calculates individual index scores as well as a combined Recovery Potential Index score which then can be used to focus TMDL development priorities in support of waterbodies with the greatest potential for restoration. For more information about the RPST, please reference <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/recovery/overview.cfm>

Phase 2 Status

In addition to defining phase 2 preliminary draft criteria and evaluating use of the RPST, initial work to translate the criteria into RPST indicators is complete and is provided in Appendix B. In order to become familiar with the RPST and the level of effort necessary to use the tool, the division's initial indicator development was based on readily available information, both in-house as well as a set of indicators currently available based on national data sets, not on prioritization of the preliminary draft criteria. Examples of how some of the preliminary draft criteria are represented through the indicators developed to-date are provided below.

- NPS program priorities - Represented through the presence/absence of a watershed plan social indicator.
- Stakeholder involvement - Represented through the counties-jurisdictional complexity social indicator.
- Use classification - Represented through the high/medium/low classified uses social indicator.
- Metals - Represented through the active and abandoned mining activity stressor indicator.
- Selenium - Represented through the geology and irrigated lands stressor indicators.

Based on the availability of information and other feasibility considerations, the division will continue the translation of the preliminary draft criteria to RPST indicators in preparation for discussions with EPA and stakeholders.

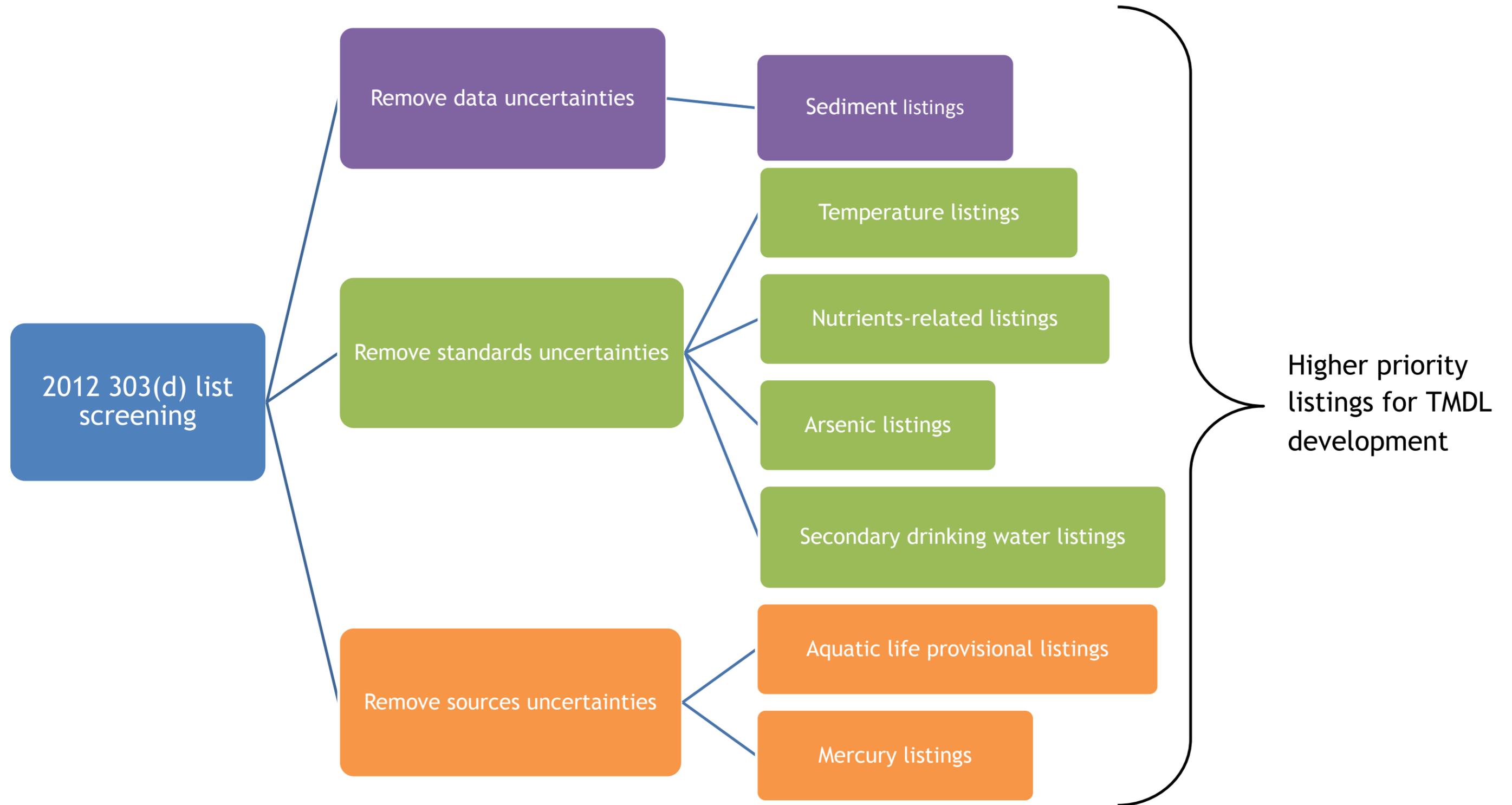
Next Steps

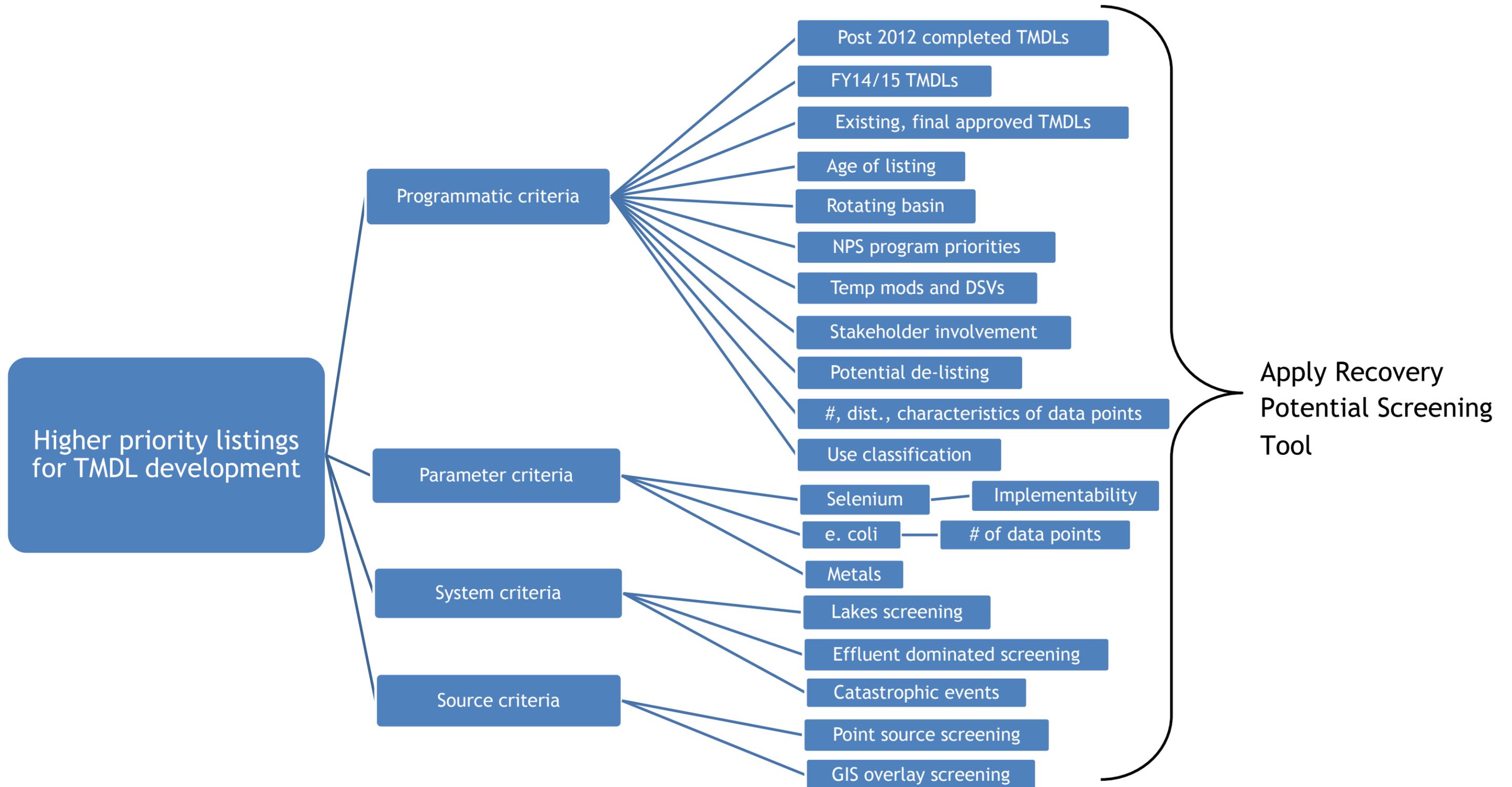
Additional development of phase 2 criteria and translation of those criteria to RPST indicators will continue through the first quarter of 2015. Refinement of phase 2 will be informed by a RPST retreat with EPA in early February, scenario development utilizing the RPST and a Water Quality Forum stakeholder discussion in March.

After refinement of the draft prioritization strategy, the strategy will be implemented before June 1, 2015 to identify draft 2022 and federal fiscal year 2016 targets for TMDL development. By September 30, 2015, the prioritization strategy and the 2022 and federal fiscal year 2016 targets will be final. Both of these milestones will be informed by EPA and stakeholder input.

Beginning in 2018, the prioritization strategy and annual and 2022 TMDL development targets will be revisited as part of the biennial 303(d) listing methodology. This approach allows the strategy and its implementation to be adjusted based on new and current information which will help focus resources on TMDL development that facilitates implementation activities in support of restoring water quality. The 2016 303(d) listing methodology will not incorporate the TMDL prioritization strategy and outcomes of its implementation because the 2016 listing methodology will be finalized in early 2015 while the draft TMDL prioritization strategy is still under development.

APPENDIX A CO Draft TMDL Prioritization Strategy
Exhibit A-1
Phase 1: Initial Screening of 2012 List





Appendix B

Table B-1: Colorado specific indicators completed for phase 2 criteria

Indicator Name	Category (Eco, Stressor, Social)	Description	Completion Status
Geology- Shale	Stressor	% Shale in HUC12	Complete
Irrigated Acres	Stressor	% irrigated acres in HUC 12	Complete
Total Stream Miles	Stressor	Total Stream Miles at 1:100,000.	Complete
Impaired Stream Miles	Stressor	%stream miles impaired (entire 2012 303(d) list) in HUC12 - Note: Total Stream Miles within each HUC is a dependency to do this calculation.	Complete
Screened Impaired Stream Miles	Stressor	%stream miles impaired (SCREENED 2012 303(d) List- including TMDLs complete & currently in development) in HUC 12	Complete
Screened Impaired -(TMDL in Development only)	Social (inverse)	% stream miles impaired - TMDL in development from screened 2012 303(d) list - in HUC 12	Complete
Screened Impaired Stream Miles - without TMDL currently in development or completed	Stressor	% stream miles impaired (screened 2012 303(d) minus completed and in development) in HUC 12	Complete
Counties - jurisdictional complexity	Social	Count - # of Counties per HUC12	Complete
Mines -active, all	Stressor	Count - # of Active Mines in HUC 12	Complete
Mines - active sand and gravel	Stressor	Count - # of Active sand and gravel mines in HUC12	Complete
Mines - abandoned	Stressor	Count - # of abandoned mines in HUC 12	Complete
Mines - metals/coal/other	Stressor	Count -# of other Active (not sand and gravel) mines in HUC 12	Complete
Age of Listing	Social	Years listed (2014 minus year listed)	Complete
Temporary Modification	Stressor/Social (inverse)	Identify presence/absence of temporary modification (potential change in standard)	Complete
Completed TMDLs - Presence/absence	Stressor/Social	completed TMDL in HUC 12 (presence/absence)	Complete

Indicator Name	Category (Eco, Stressor, Social)	Description	Completion Status
Watershed Plan - presence/absence	Social	Watershedplan count by HUC12 statewide	Complete
Public Access - Public/private lands	Stressor	% private lands in HUC 12	Complete
Access - Oil and Gas Presence	Stressor	Count oil and gas wells per HUC 12	Complete
Outstanding Waters	Social	% outstanding waters in HUC 12	Complete
T&E Habitat	Social	presence/absence, T&E habitat within HUC 12	Complete - can do %stream miles if needed
Recent Flood (2013)/Fire Impacted Areas	Stressor	Presence/absence impaired HUC12 within 2013 flood impacted area	Complete
Classified Use	Social	2012 303(d) List priorities (Reg. 93) for screened impaired segments, high priorities are set to specific classified uses, H=3, M=2, L=1.	Complete