

DRAFT

Implementing EPA's TMDL Vision Framework in RI



RI Department of Environmental Management
Office of Water Resources
March 2016

Background

The Clean Water Act (CWA) Section 303(d) Program provides a mechanism to integrate and implement water quality efforts for the restoration and protection of the nation's aquatic resources. This program systematically assesses waters and prioritizes restoration objectives that reduce pollutants through water quality restoration plans known as Total Maximum Daily Loads (TMDL) assessments, prescriptive permits and implementing alternative approaches to achieve water quality goals.

In 2013 the U.S. Environmental Protection Agency (USEPA) announced a new program framework to identify and prioritize water bodies for restoration and protection, entitled A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program (referred to as "the Vision"). The Vision is intended to help coordinate and focus EPA and State efforts to advance the effectiveness of the Clean Water Act Section 303(d) Program in the coming decade.

The new Vision will be implemented in phases from 2016 to 2022 and includes the following elements: prioritization, assessment, protection, alternatives, engagement, and integration. The Vision recommends that each State identify priority waters for restoration and/or protection plans by 2016, with the goal of completing those plans by 2022. This document provides Rhode Island Department of Environmental Management's approach to achieve the Vision's prioritization goal and identifies waters that are high priority for water quality planning efforts. This list will be periodically revised as plans progress and new information emerges.

Though CWA 303(d) statutory and regulatory obligations remain unchanged, including the requirement to update on a biannual basis the state's 303(d) list which identifies and prioritizes the state's impaired waters for TMDL development, the TMDL Vision Framework allows the state to articulate high priority waters for TMDL development (2016-2022) in the context of the State's broader overall water quality goals. As such, the Vision Priorities represent a subset of the required priority ranking (expressed as TMDL schedule) included in the state's 303d list.

EPA is providing states with flexibility in how they set priorities (for example by pollutant, designated use or watershed) but is requiring that a systematic approach be utilized to identify specific watersheds or waters prioritized for TMDL development. The Prioritization Goal serves as the foundation of the new approach and will guide planning and implementation of the other Goals.

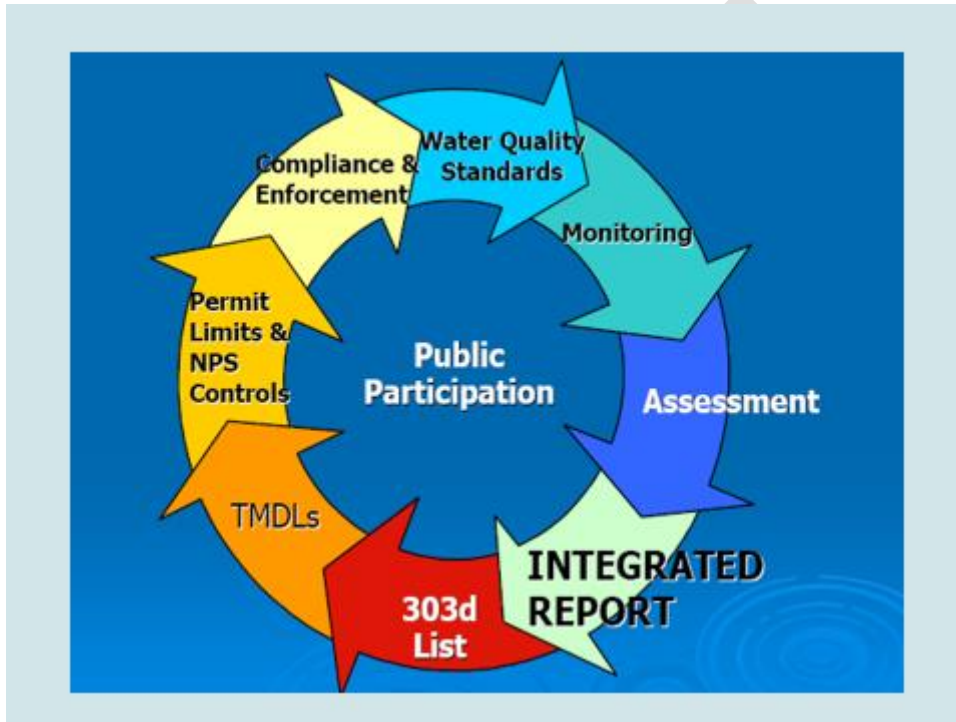
RI's Water Quality Management Framework

The Vision calls for integration across 303d program areas and systematic prioritization to more effectively implement efforts to restore and protect water resources. These concepts are embedded in RI's water quality management framework as has been documented in the RI Nonpoint Source Management Program Plan, completed in September 2014. Using sound science as its foundation, the water quality management framework consists of a five step process -- Monitor, Assess, Plan, Protect/Restore, and Evaluate:

- 1) Monitor the quality and condition of water resources.
- 2) Based on an assessment of available data, characterize the condition of the water resource and identify stressors or causes of degradation;

- 3) Develop a plan or strategies to restore and protect water resource conditions to achieve specified goals;
- 4) Implement the strategies to protect and restore water quality and aquatic habitat;
- 5) Evaluate results and cycle through the process again using information to adapt management in light of new information.

The following graphic describes the specific Clean Water Act responsibilities implemented by RIDEM as part of this process.



Complementing RI's Nonpoint Source Management Plan is a more comprehensive long-range water quality planning effort underway by RIDEM Office of Water Resources, RI Coastal Resources Management Council, and the Division of Planning/Statewide Planning Program to update the Water Quality Management Plan element of the State Guide Plan (referred to as Water Quality 2035). This updated State Guide Plan element will describe the state's management framework and strategies for ensuring that Rhode Island's water resources are of a quality that supports healthy aquatic ecosystems and meets the needs of future generations.

Rhode Island's water quality management framework is a systems management approach purposefully designed to address water resource protection and restoration in a more holistic manner. It acknowledges the continuing implementation of established governmental programs to regulate various water pollution sources, protect aquatic habitat and facilitate water quality improvements. Building on these programs, it incorporates the use of a watershed-based approach as a means to facilitate more effective management of our water resources. The aim is to integrate management activities related to water quality and aquatic habitats within a given watershed. The framework provides a process for government and other stakeholders to prioritize problems and work collaboratively on a watershed basis to optimize results in terms of both environmental outcomes and the other societal benefits associated with improved water quality and habitat.

DEM's evolving approach to implement the new TMDL Vision is consistent with the state's overall management approach and prioritization process articulated in the updated Water Quality 2035 including prioritizing healthy watersheds for protection. Future Performance Partnership Agreements between EPA and DEM will identify watersheds selected for prioritization.

What is the condition of Rhode Island's surface waters?

On a bi-annual basis, RIDEM assesses the quality of the state's surface waters and reports the results in the state's Integrated Water Quality Monitoring and Assessment Report. Each waterbody or waterbody segment is assigned a waterbody identification (WBID) number for purposes of tracking. For the 2014 assessment cycle, RIDEM tracked 881 waterbody units statewide.

Five lists/categories of water quality assessment information are used in the Integrated Reporting process. Based on the state's Consolidated Assessment and Listing Methodology (CALM), each waterbody assessment unit (WBID) is placed into one of the following five assessment categories:

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|------------|--|
| Category 1 | Attaining all water quality standards for all designated uses. |
| Category 2 | Attaining some of the designated uses; and insufficient or no data and information is available to determine if the remaining uses are attained. |
| Category 3 | Insufficient or no data and information are available to determine if any designated use is attained or impaired. |
| Category 4 | Impaired or threatened for one or more designated uses but does not require development of a TMDL:
4A: TMDL has been completed.
4B: Other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future.
4C: Impairment is not caused by a pollutant. |
| Category 5 | Impaired or threatened for one or more designated uses by a pollutant(s), and requires a TMDL. This Category constitutes the state's 303(d) List of Impaired Waters. |

The results of the assessment, reported in the 2014 Integrated List, reveal the following conclusions:

- Data were available to fully or partially assess 55% (or 491) of the waterbody units. Data was lacking in 45% (or 390) of the units; consisting primarily of small streams and some lakes. Recent targeted monitoring of streams is expected to narrow the gap in future assessment cycles.
- Forty-two percent (or 206) of the assessed units were found to have acceptable water quality.
- About 50% (or 246) of the assessed units were found to have unacceptable conditions caused by excessive pollutants including pathogens, nutrients, metals and a few others. These include 129 rivers/stream units, 65 lake/pond units and 52 coastal water units. About 8% (or 39) of the assessed units were found to have unacceptable conditions related to non-pollutant causes (for example non-native aquatic weeds).

Table 1 provides a more detailed summary of the results of the 2014 assessment cycle.

Table 1 - 2014 Integrated List Summary

Category		Waterbody Type				2014 Totals (WBIDs)
		Estuarine	Rivers	Lakes	Coastal	
1	Meets all WQS	13	1	2	0	16
2	Meets some WQS; no data for other uses	64	87	38	1	190
3	No Data	3	290	97	0	390
4A	Impaired - TMDL completed	17	74	34	0	125
4B	Impaired – Control Action in place	0	0	0	0	0
4C	Impaired- Non pollution	1	4	34	0	39
5	Impaired – Needs TMDL	35	55	31	0	121
Totals		133	511	236	1	881

Note that waterbodies (or waterbody assessment units) may appear in only one category but may have designated uses or impairments assigned to different categories. If a waterbody has one impairment that requires a TMDL to be developed, that waterbody (or waterbody assessment unit) will appear in Category 5 – even though certain designated uses or impairments would place it in another category. For example, the Mt Hope Bay waterbody assessment units are listed in Category 5 because a TMDL is needed to address nitrogen and dissolved oxygen impairments, despite the fact that the fishes bioassessment and temperature impairments are assigned Category 4B and fecal coliform impairment is assigned to Category 4A.

Two of the most widespread causes of water pollution documented in Rhode Island are pathogens and nutrients:

Pathogens – Waterborne pathogens include bacteria, viruses and other organisms that may cause disease or health problems in humans. In Rhode Island, the assessment of recreational and swimming uses is based on enterococci (or fecal coliform) and shellfishing uses on fecal coliform.

Nutrients – Nutrients are chemical elements that all living organisms need for growth. In surface waters, excess nutrients fuel algal blooms that upset the ecological balance and can lead to water quality degradation in a process known as eutrophication. Severe algal blooms can result in the

depletion of oxygen in the water that aquatic life needs for survival. Excess algae also reduce water clarity, preventing the growth of desirable plants (such as sea grasses) and hamper the ability of aquatic life to find food. Cyanobacteria blooms may result in the release of natural toxins that can be harmful to humans and pets. Freshwaters are primarily affected by excess phosphorus, while in coastal waters nitrogen is the nutrient of highest concern. In some cases, both nutrients may interact and contribute to the water pollution problem.

Elements of the new Clean Water Act Vision Priorities

Prioritization Goal

The intent of the Prioritization Goal is for States to express Clean Water Act 303(d) Program priorities in the context of the State's broader, overall water quality goals, as articulated in the following goal statement:

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.

RIDEM has developed its CWA Vision priorities within the context of the state's ongoing water quality management and planning efforts, described previously. The long-term goal for all Rhode Island watersheds is to achieve clean and healthy waters. At the state scale, it is important to identify which water quality stressors and watersheds or waterbodies will be the focus of attention within the limited resources of state water resource programs. Beginning in the mid-1990s, RIDEM has been seeking public input on the establishment of priorities to guide statewide water programs (including regulatory programs, TMDL development, ranking systems for award of loans financed by the Clean Water State Revolving Fund and grants available from Section 319 and State issued-bonds). These well-established priorities emphasize protection of public health and are primarily associated with the two major causes of water quality pollution: pathogens and nutrients. These priorities are periodically re-visited based on new information gained through updated water resource assessments, progress in implementing pollution controls, new scientific research and as information is made available, on changing climatic conditions.

For the period from 2015 – 2019, RIDEM's Office of Water Resources' priorities are:

- Protection and restoration of drinking water supply source waters;
- Protection and restoration of shellfish growing area waters;
- Protection and restoration of public beach waters;
- Restoration of waters degraded due to excess nutrients; and
- Protection and restoration of water quality to support high quality aquatic habitats and aquatic life.

As allowed by US EPA, DEM has opted to select priority waters within the 2016-2022 priorities planning horizon in two year increments. Within the context of the well-established and publically vetted priorities, RIDEM/OWR program managers selected the TMDL vision priority waters given the impairments and known causes of the 303d listed waters, and ongoing pollution abatement actions planned and/or underway to address these impairments.

The result of this priority setting analysis was the selection of the nine reservoirs that serve as sources of supply to the Newport Water Division as the state's priority waters for the 2015-2017

time period. These waters were submitted under the 303(d) Measures, WQ-27, shown in Table 2. These priorities will also be reflected in the TMDL goals that are routinely negotiated under DEM's Performance Partnership Agreement with USEPA.

Table 2: 303d Vision: TMDL priorities for 2015-2017

Waterbody Description	WBID	Impairments
Gardiner Pond. Middletown	RI0007035L-01	Total Phosphorous, Total Organic Carbon
Lawton Valley Reservoir. Portsmouth	RI0007035L-06	Total Phosphorus, Total Organic Carbon
Nelson Paradise Pond. Middletown	RI0007035L-02	Total Phosphorous, Total Organic Carbon
Nonquit Pond. Tiverton	RI0007035L-08	Total Phosphorus, Total Organic Carbon
North Easton Pond (Green End Pond). Middletown, Newport	RI0007035L-03	Total Phosphorus, Excess Algal Growth, Other flow regime alterations, Total Organic Carbon
Saint Mary's Pond. Portsmouth	RI0007035L-05	Total Phosphorus, Total Organic Carbon
Sisson Pond. Portsmouth	RI0007035L-10	Total Phosphorus, Total Organic Carbon
South Easton Pond. Middletown, Newport	RI0007035L-04	Total Phosphorus, Total Organic Carbon
Watson Reservoir. Little Compton	RI0007035L-07	Total Phosphorus, Total Organic Carbon

Assessment Goal

The stated purpose of this goal is to encourage a comprehensive understanding of the water quality status of at least each State's priority areas, so as to ensure that appropriate management actions can be taken to protect and restore these waters. The specific goal states:

By 2020, States identify the extent of healthy and CWA Section 303(d) impaired waters in each State's priority watersheds or waters through site-specific assessment.

The goal description acknowledges that detailed assessments of the nation's waters have been a challenge given the number and extent of waters, variety of pollutants that could affect them, and the limited resources available to undertake the task. Given these challenges, RIDEM has recognized the importance of being strategic about how limited monitoring and assessment resources are deployed.

As part of its ongoing approach to monitoring the status of its surface waters, Rhode Island will continue to assess waters in accordance with its up-to-date Consolidated Assessment and Listing Methodology (CALM), Comprehensive State Monitoring and Assessment Strategy, applicable criteria and water quality standards, with appropriate sampling, data analysis and assessment techniques for all water resource types, as required by the CWA and other federal and state statutes, to determine the extent of healthy and impaired waters for all the state's waters including those located in the priority watersheds. Collectively, the state's surface water monitoring programs are aimed at gathering ambient data to assess water quality conditions, identify healthy

waters and water quality impairments, and support management decision-making. Among many applications, the data generated are used in establishing and reviewing the State's water quality standards, measuring progress toward achieving water quality goals, and supplying information for use in development of permit limits for wastewater discharges and water quality restoration studies (TMDLs). Reviews of available monitoring data have documented gaps in information needed to support assessments. Among the gaps related to public health are a lack of data concerning fish tissue contamination, concerns regarding insufficient monitoring at freshwater beaches and public boat launch sites, and limited monitoring of cyanobacteria blooms. Resource constraints at both RIDEM and RI Department of Health currently limit data collection. Future monitoring plans will give consideration as to how these gaps can be reduced.

Alternatives Goal

EPA's long term vision includes a goal encouraging states' use of alternative approaches, in addition to TMDLs, to address water quality protection and restoration goals. The specific goal states:

By 2018, States use alternative approaches, in addition to TMDLs that incorporate adaptive management and are tailored to specific circumstances where such approaches are better suited to implement priority watershed or water actions that achieve the water quality goals of each state, including identifying and reducing nonpoint sources of pollution.

The Alternatives Goal description acknowledges that TMDLs will remain the most dominant programmatic tool for addressing impaired waters, but encourages states to identify, evaluate, and promote, as appropriate other tools that may be more immediately beneficial or practicable to achieving water quality standards. Within this framework, an alternative approach to a TMDL may be pursued in the near term for specific impaired waters, which would remain on the state's 303d List of Impaired Waters until water quality standards are attained but are assigned a low priority for TMDL development as alternative approaches are pursued.

RIDEM has and will continue to look for the most effective approach, TMDL or non-TMDL, to advance water quality improvements and ultimately achieve water quality standards. RIDEM applies an adaptive management approach in the scheduling of TMDLs for impairments where studies and/or models have documented that specific point sources(s) are the predominate cause of the impairment and pollution control requirements are in place that are reasonably expected to result in attainment of applicable water quality standard(s) in the near future. Low priority for TMDL development has been assigned to these impairments as compliance with the required actions is expected to result in water quality improvements and possibly negate the need for a TMDL. RIDEM will continue to evaluate alternative approaches and to consider the reporting of non-TMDL approaches utilizing methods developed by EPA under the Alternatives Goal.

Protection Goal

EPA's long term 303d vision also includes the following stated goal for protection:

For the 2016 reporting cycle and beyond, in addition to the traditional TMDL development priorities and schedules for waters in need of restoration, States identify protection planning priorities and approaches along with schedules to help prevent

impairments in healthy waters, in a manner consistent with each state's systematic prioritization.

A long term goal for all Rhode Island watersheds is to achieve clean and healthy waters and aquatic habitats. Existing regulatory programs that protect water quality and prevent pollution from a variety of sources are administered on a statewide basis across all watersheds as applicable. In Rhode Island, such programs include the Freshwater Wetlands Program, On-Site Wastewater Management Program, and application of stormwater management requirements for development and re-development projects described in the RI Stormwater Design and Installation Manual developed jointly by RIDEM and RI Coastal Resources Management Council. Given the extent of water quality and habitat degradation and the state's limited resources, it's a strategic necessity to set priorities in order to optimize progress. Well-established priorities related to the use of surface and ground waters have been incorporated into RIDEM statewide water quality programs including regulations which afford added protection to drinking water sources through tighter restrictions on activities that present pollution threats.

RIDEM Office of Water Resources is currently working stakeholders to develop regulations to implement legislative changes to the state's Freshwater Wetlands Act including the establishment of buffers to protect the state's wetlands including rivers and ponds following a tiered approach that takes into consideration watershed characteristics, existing land use, vulnerability and extent of the wetland resource, and wetland function among other characteristics. Other protective management approaches underway include development of watershed plans by RIDEM Office of Water as well as other entities (for example, the watershed planning efforts underway by the Wood-Pawcatuck Watershed Association). In future reporting cycles, as EPA guidance is further developed, RIDEM will consider identification of these and other specific protection planning efforts.

Engagement Goal

Rhode DEM has informed and solicited review and comment on the Prioritization Goal and selection of priority waters at two public meetings held in early summer 2015. The first of these meetings, held on June 16, 2015, was a meeting organized by DEM's Office of Water Resources to meet with the state's watershed organizations to discuss:

- highlights of recent actions affecting water quality management in Rhode Island,
- future direction of the State's Water Quality Management Planning including the TMDL Program Vision
- monitoring and assessment initiatives, and
- partnership opportunities and funding

The meeting was attended by individuals representing 13 watershed and statewide organizations. An overview of the long term 303d vision process and selected high priority waters was presented and discussed.

A presentation of the TMDL vision framework and priority waters was also given at a June 23, 2015 meeting of the advisory committee formed to work with RIDEM Office of Water Resources, RI Coastal Resources Management Council, and the Division of Planning/Statewide Planning Program RI on update of the Water Quality Management Plan element of the State Guide Plan (referred to as Water Quality 2035). The meeting was attended by 16 individuals representing state and federal agencies, municipal government, and watershed organizations.

No comments were received at either meeting about either the selection of priority waters, though participants did provide some input on specific concerns about assessment gaps, possible protective approaches that could be included, minor revisions to one of the prioritization goals, and incorporation of climate change into the TMDL vision. These comments are reflected in TMDL Vision Framework document.

Going forward, RIDEM will inform and solicit review and comment from the public and interested stakeholders about the proposed CWA Vision Priorities utilizing several potential avenues:

- information posted on our webpage,
- formal public review and comment process as part of the State's 303d list reporting (and Integrated Report), and
- presentations at other workshops and conferences focusing on water quality management initiatives.

Integration Goal

EPA's stated intent of this goal is to integrate the CWA 303(d) Program with other relevant programs that play a role in influencing water quality, as articulated in the goal statement:

By 2016, EPA and the States identify and coordinate implementation of key point source and nonpoint source control actions that foster effective integration across CWA programs other statutory programs (e.g. CERCLA, RCRA, SDWA, CAA) and the water quality efforts of other Federal departments and agencies (e.g. Agriculture, Interior, Commerce) to achieve the water quality goals of each state

A major avenue for the integration of key water quality initiatives is Rhode Island's watershed plans which serve as a mechanism to integrate the full range of actions recommended for protecting and restoring water quality and aquatic habitat within a given watershed. State Guide Plan Element: Water Quality 2035, in development, describes the state's various planning activities that play a key role in influencing water quality and habitat protection including TMDLs, Special Area Management Plans developed by the RI Coastal Resources Management Council, Water Supply Management Plans prepared by the State's 29 large water suppliers, Source Protection Plans prepared by the Department of Health Office of Drinking Water, and the State Wildlife Action Plan, among many other planning efforts.

RIDEM's Office of Water Resources will continue to integrate efforts across programs for which it has responsibility and will work to integrate and coordinate our water resources protection and restoration efforts with other divisions within DEM and outside agencies. DEM Office of Water Resources will pursue collaboration and outreach where there are clear benefits to watershed protection and restoration. Watershed Based Plans will document the results and actions of these collaborative ventures.