Rhode Island's Integrated Reporting Process and Draft 2024 303(d) List

Woonasquatucket River at the Mowry Conservation Area

RIDEM

Office of Water Resources

May 22, 2024 at 3:30 PM

Overview of Presentation

- Background Federal Clean Water Act Requirements
- Overview of Assessment Process
- Results of Assessment → 2024 303(d) List
- Water Quality Restoration Activities
  - Investments leading to improved water quality
  - Ongoing and planned water quality restoration studies

Federal Clean Water Act

Restore and maintain the chemical, physical, and biological integrity of the nation's waters.

Clean Water Act Requirements

- **Water Quality Standards for the state's waters**
  - Water Quality Classification and Designated Uses
  - Water Quality Criteria
- **Monitor, Assess, and Report**
  - Water Quality Conditions of the State's Waters
  - Integrated Lists
- **List Impaired Waters**
  - Waters where *traditional technology-based* pollution controls are not adequate to meet *water quality standards*
  - Prioritize and Schedule TMDL Development for all waters on 303(d) Impaired Waters List

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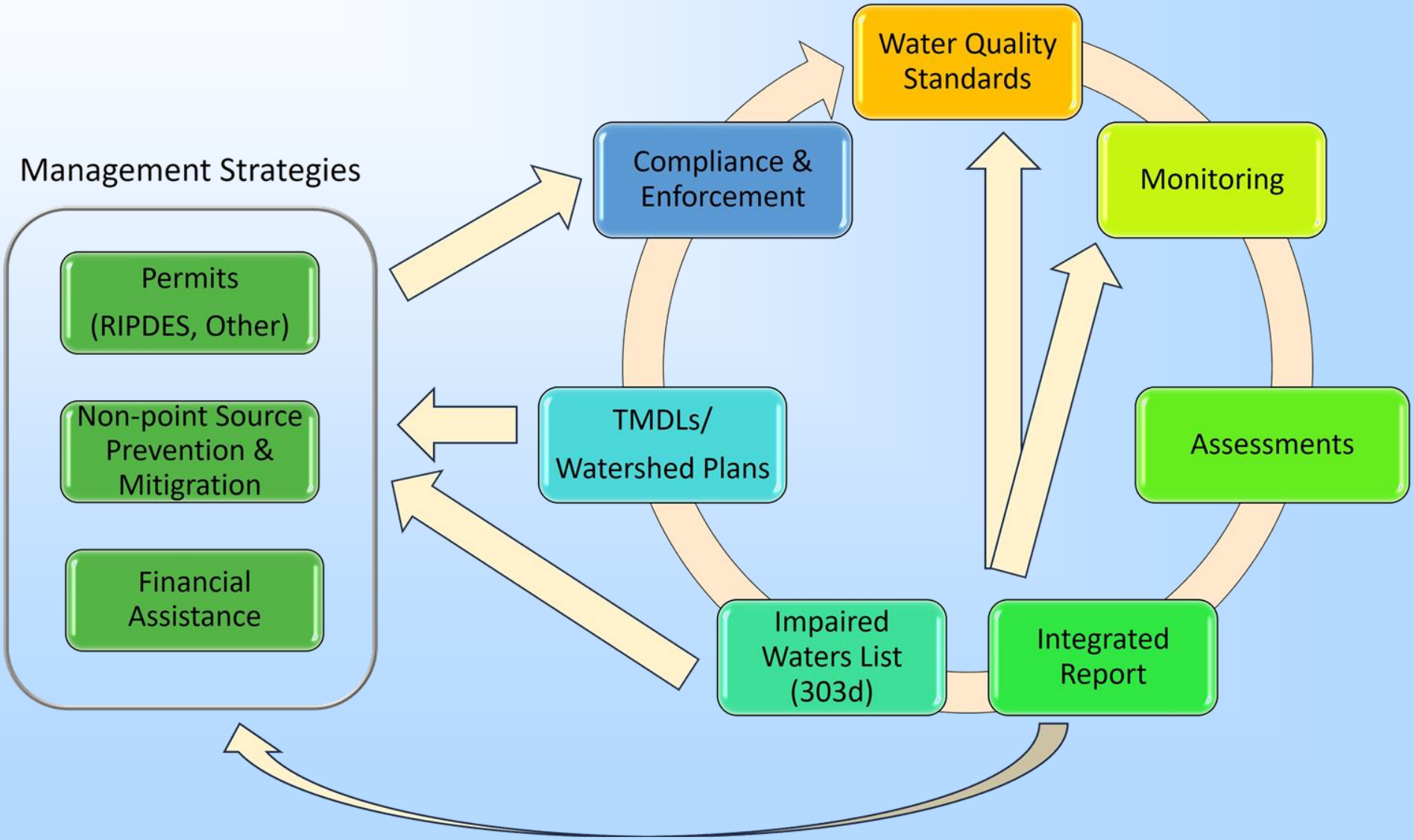
Water Quality Management Framework



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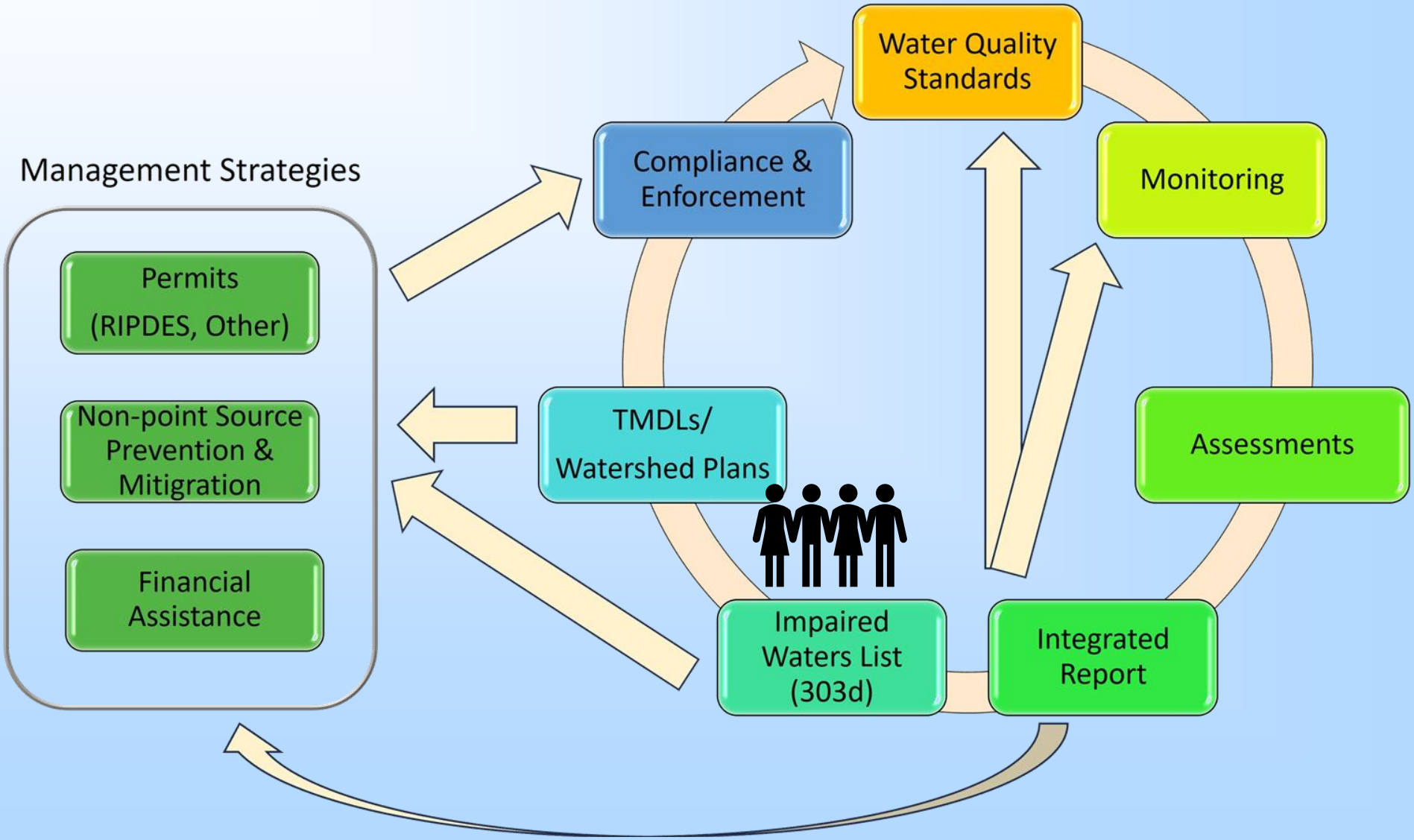
Water Quality Management Framework



Water Quality Standards

Designated Uses

Goal Uses of the waterbody

Fish consumption 

Swimming 

Aquatic life 

Drinking water, etc. 

Water Classifications

Class is defined by a set of Designated Uses

AA, A, B, SA, SB, etc.

Water Quality Criteria

Pollutant thresholds to protect Designated Uses

Numeric

5.0 mg/L dissolved oxygen

Narrative

"None in concentrations or combinations that could be harmful to humans or fish and wildlife for the most sensitive and governing water class use…"

RI Water Quality Classifications

Designated Use	Applicable Classifications	Designated Use Definitions
Drinking Water Supply	AA	Supply safe drinking water with conventional treatment.
Primary Contact Recreation/Swimming	**All surface waters**	Swimming, water skiing, surfing or other recreational activities with prolonged and intimate contact by the human body with water.
Secondary Contact Recreation/Boating	**All surface waters**	Boating, canoeing, fishing, kayaking or other recreational activities with minimal contact by the human body with the water and the probability of ingestion of the water is minimal.
Aquatic Life Support/ Fish, other Aquatic Life and Wildlife	**All surface waters**	Waters suitable for the protection, maintenance, and propagation of a viable community of aquatic life and wildlife.
Shellfishing/ Shellfish Consumption	SA, SA{b}	Supports a population of shellfish and is free from pathogens that could pose a human health risk to consumers.
Shellfish Controlled Relay and Depuration	SB	Suitable for the transplant of shellfish to Class SA waters for ambient depuration and controlled harvest.
Fish Consumption	**All surface waters**	Supports fish free from contamination that could pose a human health risk to consumers.

Monitor, Assess, and Report

Assign Water Quality Classification

Define WATERBODY ID

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Monitor, Assess, and Report

Assign Water Quality Classification

Define Waterbody ID

Monitoring Data

Assessments

Meets WQ Standards

Does not Meet WQ Standards

Impaired waters List

TMDL/WQ Restoration

Consolidated Assessment and Listing Methodology (CALM)

- Framework of **decision-making process** for assessments
- Defines data **quality** and **quantity**
- **Category 1-5** Integrated Report Lists
  - Each waterbody is assigned a category
  - Category is based on **meeting water quality goals**

Comprehensive Assessment of Water Quality Conditions

- Use Readily Available Data
  - Data sources include federal and state agencies, universities, and volunteers.
- Review data
  - Evaluate for compliance with water quality standards, i.e. designated uses and criteria
- Integrated Report
  - Published Biennially
  - Combines the Section 305(b) State of the State's Waters Report and the Section 303(d) Impaired Waters List

Sources of 2024 Integrated Report Monitoring Data

Ambient River Monitoring (RIDEM)	Fixed Site Monitoring in Narragansett Bay
Large River Monitoring (USGS)	Narragansett Bay Commission
TMDL Studies (RIDEM)	Providence Water Supply Board
Fish Consumption, Beach Closure, & Drinking Water (RIDOH)	URI Watershed Watch
Shellfishing Program (RIDEM)	Pawtucket Water Supply Board
Hg Fish Tissue Surveys (USEPA NARS and ACESD)	City of Newport

Designated Uses & Assessment Indicators

Designated Use	Indicator
 Drinking Water	• Safe Drinking Water Act Standards (MCLs) • Finished drinking water restrictions • Treatment requirements more than conventional treatment • Fecal coliform bacteria (terminal reservoir)
  Swimming/Primary & Secondary Recreation	• **Enterococci bacteria** • **Fecal coliform bacteria** • **Beach closure information for designated beach waters** • Water quality general criteria and aesthetics
 Aquatic Life (fish, etc.) and Wildlife	• **Biological (macroinvertebrate) data with physical habitat** • **Conventional parameters** • Toxic parameters in water column • Toxicity data • Water quality general criteria and aesthetics
 Shellfish Consumption/Depuration	• **Fecal coliform bacteria** • **RI Shellfish Growing Area Monitoring Program classifications** • Water quality general criteria and aesthetics
 Fish Consumption	• **Fish consumption advisories**

* Core indicators are represented in BOLD lettering.

Integrated Report Listing Categories

Category	Description	Meaning
Category 1	• Attaining all designated uses • No use threatened	• Considered “fully supporting” all designated uses

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Category 2	• Attaining some designated uses • No use is threatened • Insufficient or no data to assess other designated uses	• Some designated uses are “fully supporting”, more data is needed for other designated uses

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Category 3	• Insufficient or no data to assess any designated use	• More monitoring is needed

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Category 3		• Insufficient or no data to assess any designated use	• More monitoring is needed
Category 4		• Impaired or threatened for one or more designated use but does not require a TMDL because:	• Impaired or threatened but no TMDL needed
	A	• TMDL has been completed	
	B	• Other pollution control measures are expected to result in attainment	
	C	• Impairment not caused by pollutant	

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Category 4		• Impaired or threatened for one or more designated use but does not require a TMDL because:	• Impaired or threatened but no TMDL needed
	A	• TMDL has been completed	
	B	• Other pollution control measures are expected to result in attainment	
	C	• Impairment not caused by pollutant	
Category 5		• Impaired or threatened for one or more designated use and requires a TMDL	• Development of a water quality restoration plan needed (TMDL) • Impaired Waters List (303d)

Draft 2024 Integrated Report Category Summary

Category	Waterbody Type					Totals (Waterbody IDs)			
	Estuary	Rivers	Lakes	Ocean	Ocean / Near Coastal	2024	2022	2018-20	2016
1	0	0	0	0	0	0	0	0	0
2	69	107	21	4	4	205	208	215	216
3	14	210	93	0	0	317	327	327	326
4A	18	70	39	0	0	127	127	118	119
4B	0	0	0	0	0	0	0	0	0
4C	0	2	31	0	0	33	36	32	31
5	37	122	49	0	0	208	192	198	190
Totals	**138**	**511**	**233**	**4**	**4**	**890**	**890**	**890**	**882**

Draft 2024 Integrated Report Category Summary

Category	Waterbody Type					Totals (Waterbody IDs)	
	Estuary	Rivers	Lakes	Ocean	Ocean / Near Coastal	2024	2022
1	0	0	0	0	0	⇔ 0	0
2	69	107	21	4	4	⇓ 205	208
3	14	210	93	0	0	⇓ 317	327
4A	18	70	39	0	0	⇔ 127	127
4B	0	0	0	0	0	⇔ 0	0
4C	0	2	31	0	0	⇓ 33	36
5	37	122	49	0	0	⇑ 208	192
Totals	**138**	**511**	**233**	**4**	**4**	**890**	**890**

Draft 2022 Integrated Report Category Summary

	Category	Primary Driver of Category Change
⇔	1	Narragansett Bay fish tissue data not yet reviewed
⇓	2	
⇓	3	
⇔	4A	
⇔	4B	
⇓	4C	
⇑	5	

Draft 2022 Integrated Report Category Summary

	Category	Primary Driver of Category Change
⇔	1	Narragansett Bay fish tissue data not yet reviewed
⇓	2	Waters switching between assessed and not assessed.
⇓	3	
⇔	4A	
⇔	4B	
⇓	4C	
⇑	5	

Draft 2022 Integrated Report Category Summary

	Category	Primary Driver of Category Change
⇔	1	Narragansett Bay fish tissue data not yet reviewed
⇩	2	Waters switching between assessed and not assessed or impaired.
⇩	3	Waters switching between not assessed and impaired.
⇔	4A	
⇔	4B	
⇩	4C	
⇧	5	

Draft 2022 Integrated Report Category Summary

	Category	Primary Driver of Category Change
⇔	1	Narragansett Bay fish tissue data not yet reviewed
⇩	2	Waters switching between assessed and not assessed.
⇩	3	Waters switching between not assessed and impaired.
⇔	4A	Several TMDLs approved. Waterbodies with approved TMDLs still have at least one other impairment requiring a TMDL.
⇔	4B	
⇩	4C	
⇧	5	

Draft 2022 Integrated Report Category Summary

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⇔	1	Narragansett Bay fish tissue data not yet reviewed
⇓	2	Waters switching between assessed and not assessed.
⇓	3	Waters switching between not assessed and impaired.
⇔	4A	Several TMDLs approved. Waterbodies with approved TMDLs still have at least one other impairment requiring a TMDL.
⇔	4B	
⇓	4C	Waterbodies found to have aquatic invasive species. Four waters moved to Category 5 (impairment needing a TMDL).
⇑	5	

Draft 2022 Integrated Report Category Summary

	Category	Primary Driver of Category Change
⇔	1	Narragansett Bay fish tissue data not yet reviewed
⇓	2	Waters switching between assessed and not assessed, impaired, or found to have aquatic invasive species.
⇓	3	Waters switching between not assessed and impaired.
⇔	4A	Several TMDLs approved. Waterbodies with approved TMDLs still have at least one other impairment requiring a TMDL.
⇔	4B	
⇓	4C	Lakes found to have aquatic invasive species. Four waters moved to Category 5 (impairment needing a TMDL).
⇑	5	Bacteria impairments

New 4C Impairments on 2024 303(d) List

Cause	Waterbodies
Non-Native Aquatic Plants	• Pawtuxet River (South Branch Seg A) • Pawtuxet River (North Branch Seg B) • Browning Mill Pond (Arcadia Pond)

4C Impairments do not require TMDL plans because the impairment is not caused by a pollutant.

Impaired Waters List
RI 2024 303(d) List

Category 5 Waters

- **Impaired or threatened** for one or more designated uses and requires a TMDL
- **Establishes scheduled time frame** for development of TMDLs
- Helps **prioritize** the State's water quality monitoring and restoration activities

New Impairments on 2024 303(d) List

Cause	Waterbodies
Enterococci	• Annawomscott Brook • Mosskettuash Brook & Tribs • Cedar Brook & Tribs • Nichols River • Annaquatucket River & Tribs • Cocumcussoc Brook & Tribs • Mill Creek & Tribs • Wannuchecomecut Brook & Tribs • Chipuxet River • Wood River & Tribs • Saugatucket River & Tribs
Fecal Coliform	• Potowomut River
Dissolved Oxygen	• Melville Ponds
Total Phosphorus	• Meshanticut Pond • Melville Pond Tribs
Mercury in Fish Tissue	• Moscow Pond • Asa Pond

Draft 2024 Integrated Report Summary Statistics

RIVERS

1376 Miles in RI

- **1112 miles (81%) are assessed.**
- **786 assessed miles (70%) are impaired.**
- **501 assessed miles (45%) are impaired and scheduled for a TMDL.**

LAKES AND PONDS

18,693 Acres in RI

- **15,619 acres (84%) are assessed**
- **11,340 assessed acres (72%) are impaired**
- **5,228 assessed acres (33%) are impaired and scheduled for a TMDL.**

ESTUARIES

159 Sq. Miles in RI

- **157 sq. miles (98%) are assessed**
- **57 assessed sq. miles (36%) are impaired**
- **51 assessed sq. miles (33%) are impaired and scheduled for a TMDL.**

"Take-Aways" From 2024 Assessment and Impaired Waters Report

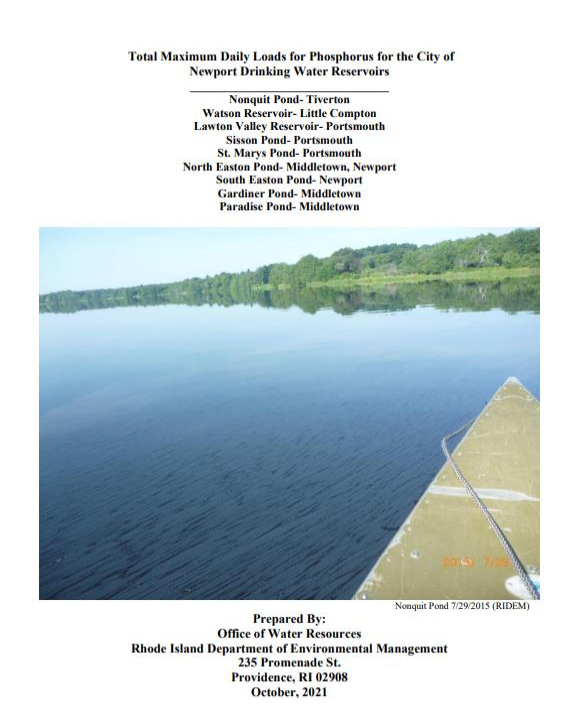
- Small overall change between 2022 and 2024
  - 17 new 303(d) impairments requiring a TMDL
  - Total waterbodies with 303(d) impairments increased from 192 (2022) to 208 (2024)
  - 3 new impairments related to invasive plants
- Three TMDLs completed addressing 3 bacteria impairments on 3 waterbodies
  - TMDLs completed and approved but remain on the list due to other pollutants still requiring a TMDL
  - Borden Brook, Quaker Creek, and an unnamed tributary to Nonquit Pond (RI0010031R-20)
- Schedule shifts for TMDL development

Current TMDL Projects

TMDL – Water Quality Restoration Studies

What is a Total Maximum Daily Load?

- Federally mandated Water Quality Restoration Study
- Determines amount of a pollutant that can be discharged into a water body and still maintain water quality standards
- TMDL equals the sum of pollutant allocations for:
  - Point sources (non-stormwater & stormwater)
  - Non-point sources
  - Plus a margin of safety


Total Maximum Daily Loads for Phosphorus for the City of Newport Drinking Water Reservoirs

Nonquit Pond- Tiverton
Watson Reservoir- Little Compton
Lawton Valley Reservoir- Portsmouth
Sisson Pond- Portsmouth
St. Marys Pond- Portsmouth
North Easton Pond- Middletown, Newport
South Easton Pond- Newport
Gardiner Pond- Middletown
Paradise Pond- Middletown

Nonquit Pond 7/29/2015 (RIDEM)

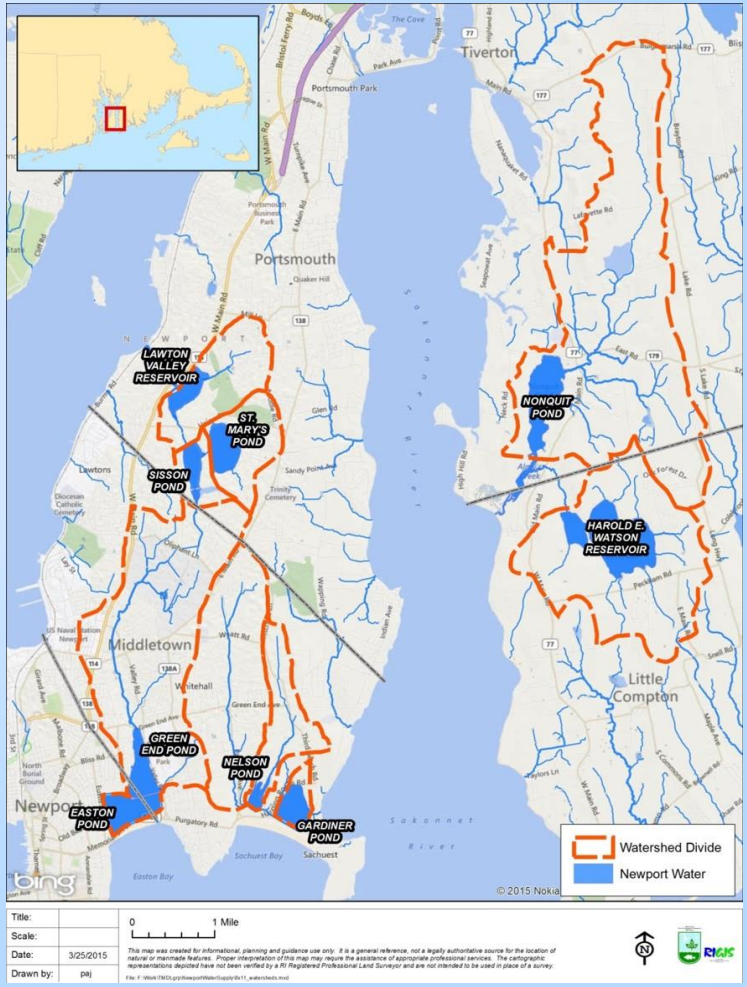
Prepared By:
Office of Water Resources
Rhode Island Department of Environmental Management
235 Promenade St.
Providence, RI 02908
October, 2021

Cover Page – Newport Drinking Water Supply Reservoirs TMDL

TMDL – Water Quality Restoration Studies

Reservoir TMDL approved by EPA in 2021

- **Newport Water Supply Reservoirs**
  - Drinking water and aquatic life use impairments caused by total organic carbon and total phosphorus
  - 9 Surface Water Reservoirs
- **Newport Water Supply Tributaries**
  - Amendments to the NWS Reservoir TMDL



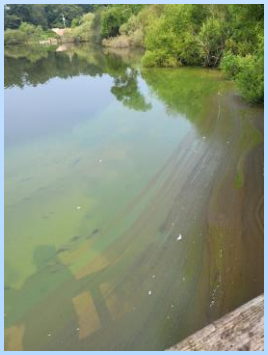
Brian.zalewsky@dem.ri.gov,
jane.sawyers@dem.ri.gov

TMDL – Water Quality Restoration Studies Proposed Near Term

- **Melville Ponds**
  - Total phosphorus (2008)
  - Experiences frequent cyanobacteria blooms
  - Long term volunteer dataset
  - RIDEM collected supplemental data 2021
  - TMDL required elements and implementation being developed 2024

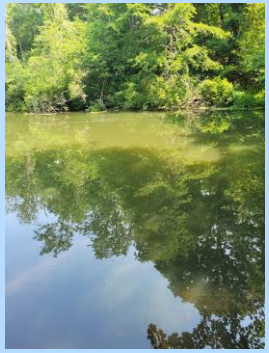
Brian.zalewsky@dem.ri.gov
Sarah.Frazar@dem.ri.gov

Upper Melville



July 20, 2021

Lower Melville

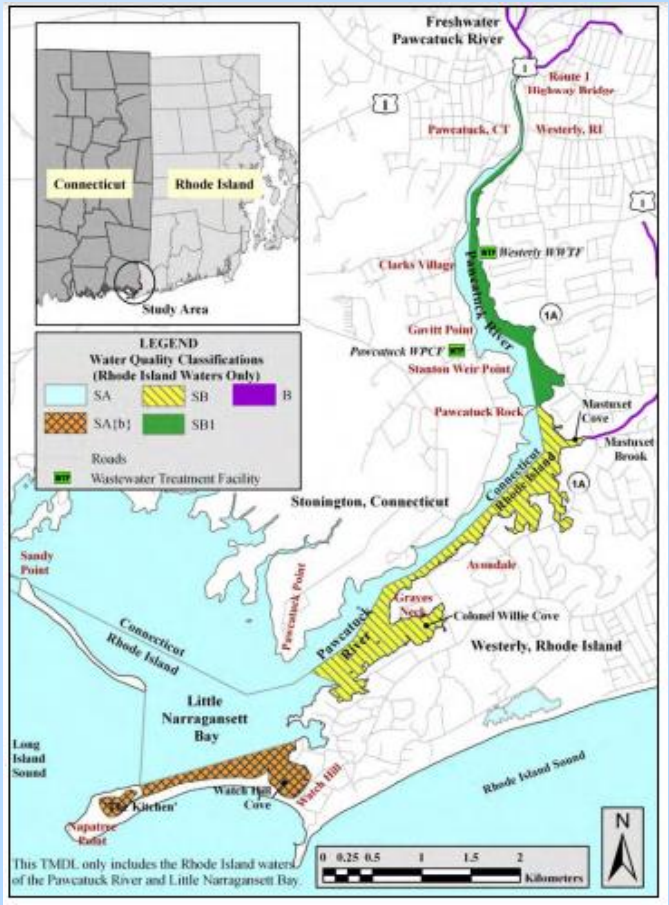


July 6, 2021

TMDL – Water Quality Restoration Studies Proposed Near Term

- **Tidal Pawcatuck River and Little Narragansett Bay**
  - Aquatic life use impairments associated with nutrient enrichment and dissolved oxygen*
  - RIDEM deployment of sondes
  - FW Model complete
  - EPA ACESD completing model development for estuarine areas

jane.sawyers@dem.ri.gov

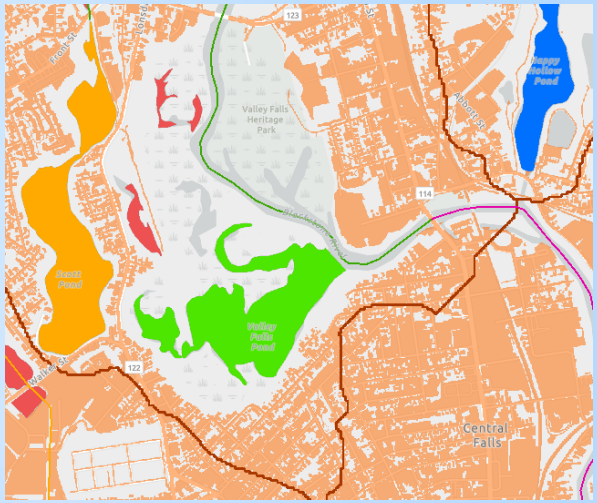


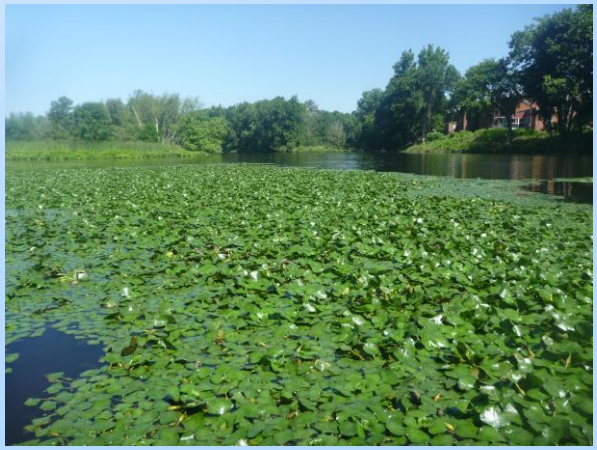
*Note that RI is evaluating whether to include lower segments as impaired

TMDL – Water Quality Restoration Studies Proposed Near Term

- **Valley Falls Pond**
  - Impaired for Total Phosphorus, Dissolved Oxygen, Lead, and Fecal coliform since 1998
  - Impaired for Non-native aquatic plants since 2016
    - Dense infestation of water chestnut
  - EPA providing contractor support to develop TMDL with enhanced EJ community engagement
  - Highly impervious watershed but northern shore undeveloped and owned by State

jane.sawyers@dem.ri.gov



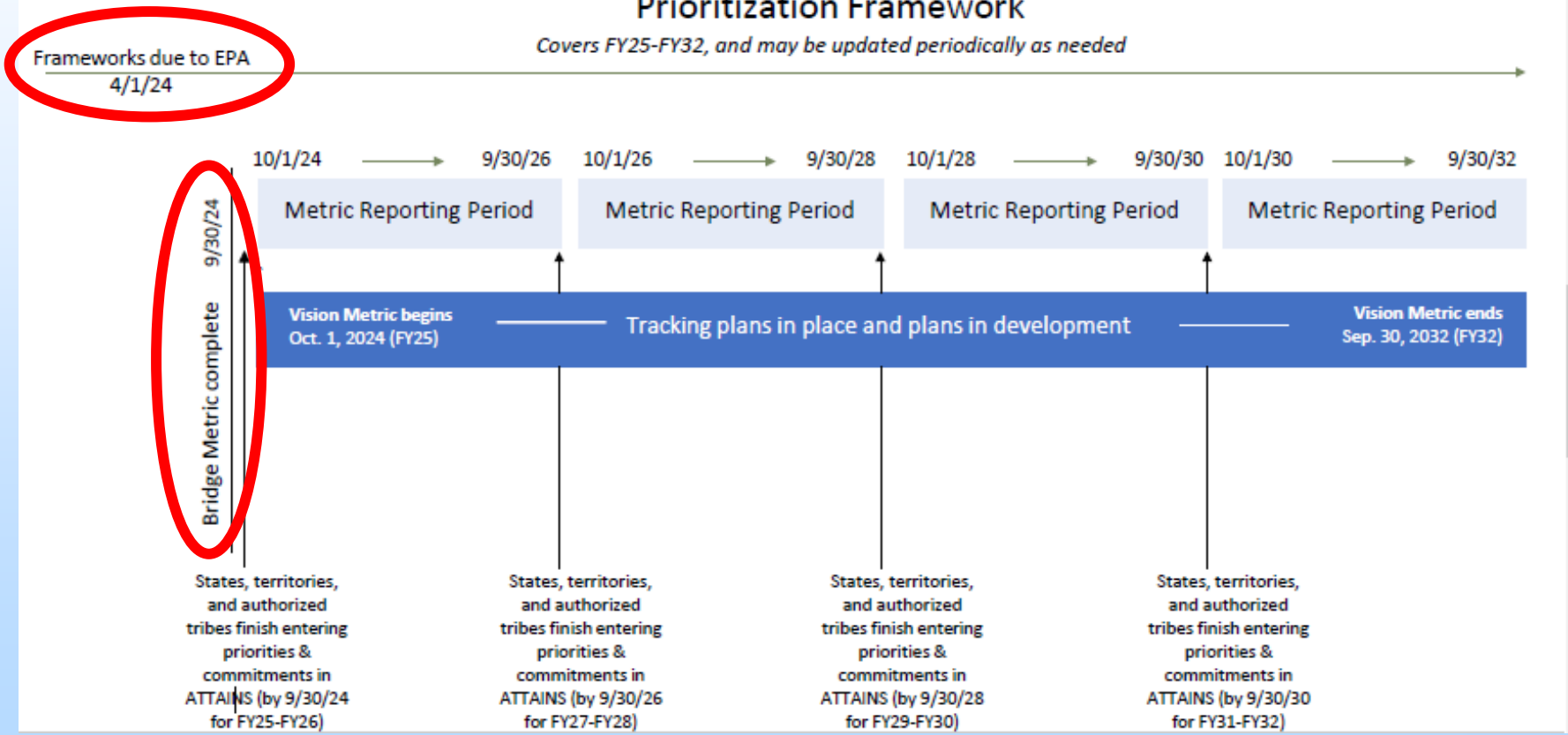


USEPA TMDL Vision 2.0 Process

TMDL 2.0 Vision Process

- 2013 – USEPA announces new TMDL program framework to identify and prioritize waterbodies
  - Vision 1.0 (2013 – 2022)
  - Foster integration across program areas and focus EPA/State efforts to advance CWA effectiveness
- 2024 – States/territories begin implementation of second phase of Vision
  - Vision 2.0 (2022 – 2032)
  - Renews support of Vision 1.0 goals and introduces new focus areas
  - First step is document State's Vision 2.0 Approach

Prioritization Framework and Vision Metric Timeline



TMDL Vision 2.0 Process

- Bridge Metric 2023 - 2024

Waterbody	Municipality	WBID	Impairments*
Borden Brook	Tiverton and Little Compton	RI0010031R-01	**Enterococcus,** Total Phosphorus
Quaker Creek	Tiverton	RI0010031R-04	**Enterococcus,** Total Phosphorus, Iron
Tributary to Nonquit Pond	Tiverton	RI0010031R-20	**Enterococcus,** Total Phosphorus

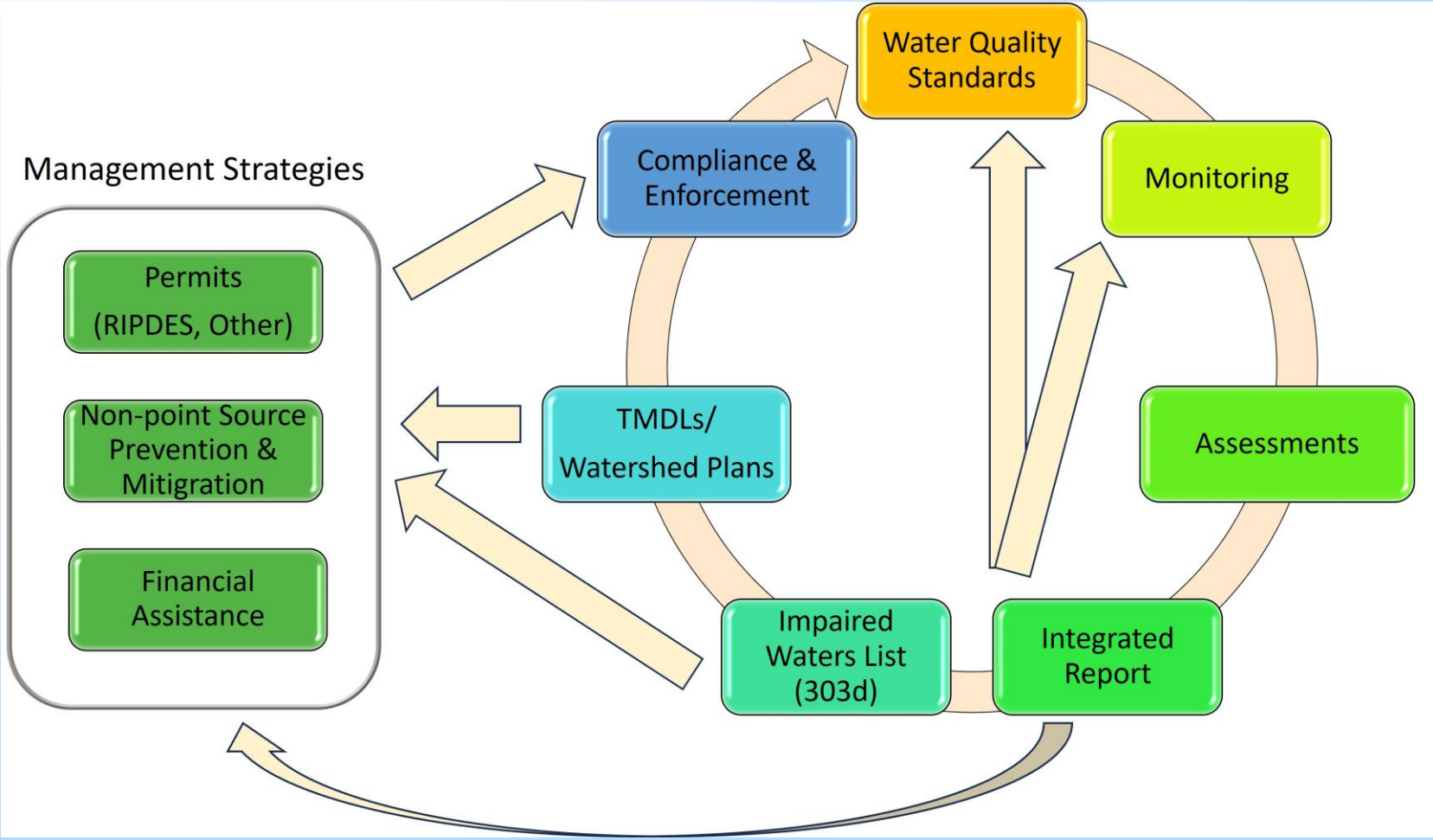
*Bold impairments are priority TMDL completion for FY-23-24

TMDL Vision 2.0 Framework Document

TMDL Vision 2.0 Process

- Rhode Island's Water Quality Objectives
  - Long term goal is for all watersheds to achieve clean and healthy waters
    - Protection and restoration of **drinking water supplies**
    - Protection and restoration of **shellfish growing area waters**
    - Protection and restoration of waters used for **public recreation including beaches**
    - Protection and restoration of **high quality aquatic habitats**

TMDL Vision 2.0 Process



TMDL Vision 2.0 Process

Most Prevalent 2022 Water Quality Impairments by Water Type

Rivers	Lakes and Ponds	Estuaries/Coastal Waters
Bacteria	Mercury in Fish Tissue	Nutrients and Nutrient Impacts
Metals	Non-Native Aquatic Plants* (Aquatic Invasive Species)	Bacteria
Non-Native Aquatic Plants* (Aquatic Invasive Species)	Nutrients and Nutrient Impacts	Sediment Bioassay

TMDL Vision 2.0 Process

- Potential TMDL Prioritization Core Areas for Vision 2.0
  - Lake Nutrient Impairments
  - Shellfishing Pre-Closures
  - Salt Pond Eutrophication
  - Tribal Water Quality
  - Metals in Rivers

DEM ACCEPTING Comments on Draft 2024 303(d) list

Send 303(d) Comments to:

Colin Millar
DEM/Office of Water Resources
235 Promenade Street, Providence, RI 02908
colin.millar@dem.ri.gov

View or download the Draft 2024 303(d)list:
https://dem.ri.gov/sites/g/files/xkgbur861/files/2024-05/303d24.pdf
Comments accepted through June 10, 2024

Send TMDL Feedback to:

Jane Sawyers
DEM/Office of Water Resources
235 Promenade Street, Providence, RI 02908
jane.sawyers@dem.ri.gov

View or download the Draft Vision 2.0:
https://dem.ri.gov/sites/g/files/xkgbur861/files/2024-05/tmdl-ri-vision.pdf
Feedback accepted through June 10, 2024