

**STATE OF RHODE ISLAND
2018-2020 IMPAIRED WATERS REPORT
FEBRUARY 2021**



Brush Neck Cove, Warwick, RI

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Office of Water Resources
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INTRODUCTION

The Rhode Island Department of Environmental Management's Office of Water Resources has prepared this Impaired Waters Report to provide a complete list of all impaired waterbodies in the State of Rhode Island including:

- Category 5: Known as the 303(d) list. Waterbodies identified as impaired and requiring development of a Total Maximum Daily Load ¹_(TMDL).
- Category 4: Other impaired waterbodies not requiring development of a TMDL because:
 - Waterbodies for which a TMDL has been developed (Category 4A)
 - Waterbodies where other pollution control requirements are reasonably expected to result in attainment of water quality standards (Category 4B)
 - Waterbodies having impairments not caused by a pollutant (Category 4C)

Clean Water Act Requirements

The federal Clean Water Act (CWA) Section 303(d) requires states to identify and list those waterbodies that are not expected to meet state water quality standards after the implementation of technology-based controls and, as such, require the development of TMDLs. States must include on the list the specific cause(s) of the impairment (if known). Rhode Island's 303(d) list of impaired waters developed by the Rhode Island Department of Environmental Management (RIDEM) fulfills this CWA requirement. The 303(d) listing requirement is part of a process detailed in the CWA, which requires all states to do the following:

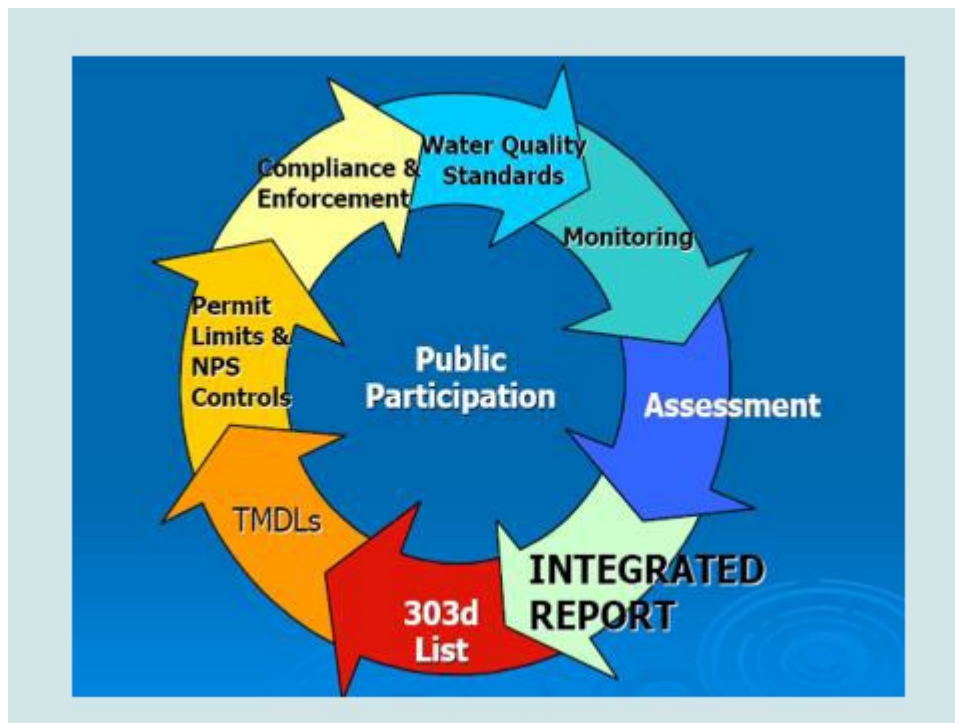
- Establish water quality standards (WQS) (including Water Designated Uses and Water Quality Criteria to protect those uses) for the state's surface waters.
- Monitor water quality conditions of the state's waters.
- Assess water quality conditions of the state's waters and develop biennial reports describing the water quality conditions (CWA section 305(b)).
- Identify and list impaired waters (that is those waters that do not meet WQS with existing required technology-based pollution controls alone) in the state's 303(d) list.
- Set priority rankings (i.e. a schedule for development of TMDLs) for all impaired waters included on the 303(d) list.
- Determine TMDLs for each listed waterbody and each cause of impairment that establish acceptable pollutant loads from both point and nonpoint pollution sources that allow the impaired waterbody to meet WQS.
- Submit the 303(d) list and all TMDLs to United States Environmental Protection Agency (USEPA) for approval.
- Incorporate TMDLs into the state's continuing planning process.

¹ **TMDL** is Total Maximum Daily Load and refers to the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. The term also refers to the waterbody specific studies completed to determine the allowable pollutant levels and the pollution control activities needed to restore water quality.

These CWA requirements provide a mechanism to integrate and implement water quality efforts for the restoration and protection of the nation's aquatic resources. They are embedded in Rhode Island's water quality management framework which consists of a five-step process:

- Monitor the quality and condition of water resources.
- Based on an assessment of available data, characterize the condition of the water resource, and identify stressors or causes of degradation.
- Develop a plan or strategies to restore and protect water resource conditions to achieve specified goals.
- Implement the strategies to protect and restore water quality and aquatic habitat.
- Evaluate results and cycle through the process again using information to adapt management considering new information.

The following graphic describes these CWA responsibilities implemented by RIDEM as part of this process.



Rhode Island's water quality management framework is a systems management approach purposefully designed to address water resource protection and restoration in a 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 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. A more detailed description of the state's overall management approach can be found in the updated State Guide Plan Element Report 121: Water Quality 2035 (RI Division of Planning, 2016)².

305(b) Water Quality Assessment Process

Section 305(b) of the CWA requires states to survey their water quality for attainment of the fishable/swimmable goals of the CWA and to report the water quality assessments biennially (every even year). Each waterbody or waterbody segment is assigned a waterbody identification (WBID) number for tracking purposes to assist with water quality assessments, mapping, reporting, and/or trend analysis. The attainment of the CWA goals is measured by determining whether waters support their designated uses (defined as the most sensitive and therefore governing water uses which the class is intended to protect). For the purposes of the 305(b) water quality assessments, seven designated uses are evaluated³:

- Fish and Wildlife Habitat (Aquatic Life Use)
- Drinking Water Supply
- Shellfish Consumption
- Shellfish Controlled Relay and Depuration
- Fish Consumption
- Primary Contact Recreation
- Secondary Contact Recreation

² http://www.planning.ri.gov/documents/LU/water/2016/SGP_WQMP_Approved%2010.13.16.pdf

³ Only the designated uses associated with the waterbody's classification is assessed.

Designated uses are the goals or intended uses for surface waterbodies, whether they are being attained or not. Table 1 lists the designated uses as they appear in the 305(b) assessment process, the comparable designated use as described in the Rhode Island Water Quality Regulations, and the applicable water classification to which the designated uses apply.

Table 1 Designated Uses for Surface Waters as Described in the Rhode Island Water Quality Regulations and 305(b) Assessments.

305(b) Designated Use	RI WQ Regulations Designated Use	Applicable Classification of Water	Designated Use Definition
Drinking Water Supply ^a	Public Drinking Water Supply	AA	The waterbody can supply safe drinking water with conventional treatment.
Swimming / Recreation	Primary Contact Recreation	AA ^a , A, B, B1, B{a}, B1{a}, SA, SA{b}, SB, SB{a}, SB1, SB1{a} <i>(all surface waters)</i>	Swimming, water skiing, surfing, and similar water contact activities where a high degree of bodily contact with the water, immersion and ingestion are likely.
Swimming / Recreation	Secondary Contact Recreation	AA ^a , A, B, B1, B{a}, B1{a}, C ^b , SA, SA{b}, SB, SB{a}, SB1, SB1{a}, SC ^b <i>(all surface waters)</i>	Boating, canoeing, fishing, kayaking or other recreational activities in which there is minimal contact by the human body with the water and the probability of immersion and/or ingestion of the water is minimal.
Aquatic Life Support / Fish, other Aquatic Life, and Wildlife	Fish and Wildlife Habitat	AA, A, B, B1, B{a}, B1{a}, C ^b , SA, SA{b}, SB, SB{a}, SB1, SB1{a}, SC ^b <i>(all surface waters)</i>	Waters suitable for the protection, maintenance, and propagation of a viable community of aquatic life and wildlife.
Shellfishing / Shellfish Consumption	Shellfish harvesting for direct human consumption	SA, SA{b}	The waterbody supports a population of shellfish and is free from pathogens that could pose a human health risk to consumers
Shellfish Controlled Relay and Depuration	Shellfish harvesting for controlled relay and depuration	SB, SB{a}	Waters are suitable for the transplant of shellfish to Class SA waters for ambient depuration and controlled harvest.
Fish Consumption	No specific analogous use, but implicit in "Fish and Wildlife Habitat"	AA ^a , A, B, B1, B{a}, B1{a}, C ^b , SA, SA{b}, SB, SB{a}, SB1, SB1{a}, SC ^b <i>(all surface waters)</i>	The waterbody supports fish free from contamination that could pose a human health risk to consumers.

^a Class AA waters may be subject to restricted recreational use by State and local authorities.

^b Class C/SC waters classifications are retained in the RI Water Quality Regulations, but no waters are assigned that classification at this time.

Designated use support status is determined by comparing available water quality information to the water quality standards established in the Rhode Island Water Quality Regulations. Table 2 lists the indicators used in evaluating attainment for each designated use. For the Impaired

Waters List presented in this document, the methodology for this cycle’s assessment process is outlined in RIDEM’s 2018-2020 Consolidated Assessment and Listing Methodology (CALM) document: <http://www.dem.ri.gov/programs/benviron/water/quality/pdf/calm20.pdf>. The results of this analysis are then used to categorize each waterbody’s specific designated uses as *Fully Supporting* or *Not Supporting*. If data is considered insufficient or if no data is available to evaluate a designated use, it is considered *Not Assessed*. Waterbodies that are *Not Supporting* their designated uses as determined during the 305(b) assessment process are placed on the state’s List of Impaired Waters, which is developed in accordance with CWA Section 303(d).

Table 2 Designated Uses and Indicators for Attainment Evaluations.

Designated Use	Indicators Evaluated ^a
Drinking Water Supply	<ul style="list-style-type: none"> • Compliance with SDWA standards (MCLs) in the finished drinking water ^b • Finished Drinking Water Restrictions – use advisories associated with source water contamination ^b • Treatment Requirements – contaminants in source water that requires more than conventional treatment ^b
Swimming/Primary and Secondary Recreation	<ul style="list-style-type: none"> • Enterococci ^c • Fecal coliform bacteria ^c • Beach closure information for designated beach waters ^b • Minimum water quality general criteria and aesthetics
Fish, other Aquatic Life, and Wildlife	<ul style="list-style-type: none"> • Biological (macroinvertebrate) data including physical habitat information ^c • Conventional parameters ^c • Toxic parameters in water column ^c • Toxicity data ^c • Minimum water quality general criteria and aesthetics (narrative criteria) ^c
Shellfish Consumption	<ul style="list-style-type: none"> • Fecal coliform bacteria ^c • RI Shellfish Growing Area Monitoring Program classifications • Minimum water quality general criteria and aesthetics (narrative criteria) ^c
Shellfish Controlled Relay and Depuration	<ul style="list-style-type: none"> • Based on National Shellfish Sanitation Program (NSSP) protocol
Fish Consumption	<ul style="list-style-type: none"> • Fish consumption advisories for specific waterbodies ^b

^a Core indicators are represented in **bold** lettering.

^b Evaluated by Rhode Island Department of Health (HEALTH)

^c Evaluated using the Rhode Island Water Quality Regulations

INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT

Since 2008, RIDEM has produced an Integrated Water Quality Monitoring and Assessment Report which integrates the state's Section 305(b) Water Quality Assessment Report and Section 303(d) Impaired Waters List into one document. Following US EPA issued guidance⁴, the Integrated Report provides a streamlined approach to assessing and reporting on water quality. The Integrated Report Guidance emphasizes the importance of monitoring and assessing waterbodies in each category to obtain the information needed to evaluate progress toward attainment of water quality standards, to address data gaps, and to ensure that waterbodies which currently meet water quality standards, continue to do so.

Each waterbody is placed into only one of the five reporting categories in the Integrated Report. However, the attainment status of each designated use is documented to facilitate tracking of information and to assist in addressing data gaps by directing water quality monitoring efforts. For example, a waterbody may be *Fully Supporting* for swimming use, but it may be *Not Assessed* for aquatic life use due to insufficient data.

The Integrated Report format provides five lists/categories of water quality assessment information, described in Table 3. The integration of assessment determinations follows a hierarchical approach where determination of impairment for any cause (pollutant) for any designated use will result in placement of the waterbody in Category 5 (Needs a TMDL). Similarly, there is a hierarchical approach to placement of a waterbody into Category 4A (TMDL completed) over 4B (Other pollution control measures) over 4C (Impairment not caused by a pollutant). Based on the state's consolidated assessment and listing methodology (CALM), each surface waterbody of the state is placed into one of the five assessment categories.

⁴ Memorandum from Suzanne Schwartz. Information Concerning 2010 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions. May 5, 2009.
(https://www.epa.gov/sites/production/files/2015-10/documents/2009_05_06_tmdl_guidance_final52009.pdf)

Table 3 Integrated Reporting Categories.

Category	Integrated Reporting Description	Meaning
1	<ul style="list-style-type: none"> Attaining all designated uses No use is threatened 	<ul style="list-style-type: none"> Considered "fully supporting" all designated uses
2	<ul style="list-style-type: none"> Attaining some designated uses No use is threatened Insufficient or no data is available to assess other uses 	<ul style="list-style-type: none"> Some uses are "fully supporting", more data is needed for other designated uses
3	<ul style="list-style-type: none"> Insufficient or no data is available to assess any use 	<ul style="list-style-type: none"> Monitoring is needed
4	<ul style="list-style-type: none"> Impaired or threatened for one or more use but does not require a TMDL because: 	<ul style="list-style-type: none"> Impaired or threatened but no TMDL development needed
4A	<ul style="list-style-type: none"> TMDL has already been completed 	
4B	<ul style="list-style-type: none"> Other pollution control measures are reasonably expected to result in attainment of water quality standard in near future 	
4C	<ul style="list-style-type: none"> Impairment is not caused by a pollutant (e.g. aquatic invasive species) 	
5	<ul style="list-style-type: none"> Impaired or threatened for one or more uses and requires a TMDL 	<ul style="list-style-type: none"> Development of TMDL needed 303(d) Impaired Waters List

Impaired waterbodies can be moved from Category 5 and Category 4 to Category 1, if, in accordance with the CALM, recent data indicates that the waterbody is now meeting all water quality standards for all designated uses. Alternatively, an impaired waterbody can be moved from Category 5 and Category 4 to Category 2, if, in accordance with the CALM, recent data indicates that the waterbody is now meeting water quality standards for some designated uses and is not assessed for other designated uses.

As described above, the five Integrated Report Categories represent assessment status under Section 305(b) while Category 5 represents the reporting requirements under Section 303(d) of the Clean Water Act. Only Category 5 (Impaired Waters List) of the Integrated Report is subject to US EPA approval and public participation requirements. Therefore, while all the lists (Categories 1-5) are made available for public information and education purposes, RIDEM seeks comments only on the Category 5 list (303(d) List of Impaired Waters).

Summary of Ambient Water Quality Monitoring Data

RIDEM strives to consider all readily available water quality data and related information in developing the 305(b) water quality assessments and 303(d) Impaired Waters List. To achieve this goal, certain data quality assurance (QA) and quality control (QC) procedures must be met to include the data in the assessment process. Detailed requirements for data considered in this cycle can be found in the 2018-2020 CALM.

In general, the primary source of data generated for assessments is developed from programs

that fall under the umbrella of Rhode Island's Water Monitoring Strategy (<http://dem.ri.gov/programs/benviron/water/quality/surfwq/pdfs/ri-water-monitoring-strategy-19.pdf>). The RIDEM Office of Water Resources (RIDEM-OWR) has a primary role in implementing the strategy by both conducting monitoring programs and supporting monitoring by other entities. Collectively, the monitoring programs are aimed at gathering the ambient water quality data needed to assess water quality conditions and support management decisions.

The RIDEM-OWR ambient water quality monitoring program collects data on the state's rivers and streams using a rotating basin approach (<http://www.dem.ri.gov/pubs/qapp/ambirivr2.pdf>). Adopted in 2004, the approach has been successful in addressing large data gaps and EPA's requirement that states increase the percentage of assessed waters. This approach integrates biological, chemical, and physical monitoring and involves an intensive data collection effort in a watershed. Almost 300 stations have been sampled statewide over five-year cycles providing a comprehensive dataset that supports a more complete assessment of water quality conditions in rivers and streams than was possible before.

Over the past ten years, the Office of Water Resources has invested considerable resources to advance the state's river and stream biological monitoring and assessment program. Development of a stronger biological monitoring and assessment program has highlighted the need to move from using a Reference Site Approach to a Reference Condition Approach, where possible. Prior to the 2016 assessment, RIDEM used a Reference Site Approach statewide to evaluate macroinvertebrate communities in Rhode Island rivers and streams in conducting Aquatic Life Use support decisions, when macroinvertebrate data was available. Under the Reference Site Approach, biological conditions in rivers and streams were measured against conditions observed at a reference station. Because healthy biological communities may vary, instead of using one reference station, the Reference Condition Approach is developed using multiple stations to account for natural differences. Further details on the Reference Condition Approach to biological assessments are in the 2018-2020 CALM.

Data limitations restrict applicability of the new Reference Condition Approach to only the Coastal Plains and Hills ecoregion of the state (generally the interior, non-coastal areas of RI). Within the state's two Lowland ecoregions (Long Island Sound and Narragansett/Bristol), core sites with minimal disturbance have not been identified in sufficient numbers to support index development in these areas of the state. Furthermore, because streams in the state's Lowland ecoregions are more typically characterized by non-riffle low gradient systems, it is not appropriate to apply the new approach, which was developed using riffle habitat data, to these lowland streams. Similarly, due to significant differences in stream order, size of contributing watershed, and other physiographic features, the developed approach and wadeable, riffle metrics are also not applicable to the state's larger non-wadeable rivers. Furthermore, this approach has not been applied in lakes or ponds.

Much of the data available on the quality of the state's lakes is generated by the University of Rhode Island Watershed Watch program that has coordinated volunteer-based monitoring in lakes for since 1988. RIDEM-OWR financially supports this sizable lake water quality monitoring

effort that also collects data on selected tributary streams and coastal waters. For this cycle, the tributary stream and coastal water data was used to highlight areas where further monitoring by RIDEM/OWR is warranted. The lakes data continued, as in the past, to be the primary source of data for assessments.

The RIDEM-OWR also conducts program-specific monitoring activities including targeted water quality investigations of impaired waters conducted in support of TMDLs, bacteriological monitoring of shellfish growing areas, and effluent monitoring of wastewater discharges. Since 2004, the RIDEM-OWR has also provided support to sustain fixed-site monitoring stations in Narragansett Bay via agreements with URI-Graduate School of Oceanography (URI-GSO). RIDEM-OWR along with the RI Water Resources Board also supports water quality and stream flow gage measurements via an agreement with USGS. There is a variety of other data generated by programs outside of the Water Monitoring Strategy framework that are also used in the assessment process. With each 305(b) assessment cycle, the RIDEM Office of Water Resources actively solicits submittal of such data and information for consideration in developing the Integrated Report.

With release of this draft 2018-2020 303(d) List for public review, the Department considers this biennial assessment cycle to be completed. Any new data or information made available to the Department during the public comment period will be considered for inclusion in this cycle on a case by case basis. In general, data and information made available during the public comment period is evaluated for use during the next assessment cycle and development of the next biennial Integrated Report.

Terminology Used to Describe Common Impairments and Causes

A general explanation of the terminology used to describe impairments is provided below:

- Biodiversity Impairments are characterized according to the type of biological data and evaluation that led to the listing. The cause terms used include: *Benthic Macroinvertebrate Bioassessment*; *Sediment Toxicity Tests*; *Whole Effluent Toxicity (WET) Tests*. One macroinvertebrate bioassessment term is used according to the evaluation that led to the listing: *Benthic Macroinvertebrate Bioassessment* is determined by sampling of riffles in wadeable streams/rivers in high gradient Ecoregions, using the Rapid Bioassessment Protocol (RBP).
- Nutrient Impairments are specified according to the element causing the impairment. Generally, for freshwaters, *Total Phosphorus* is listed as the cause of the impairment, and for saltwaters, *Total Nitrogen* is listed as the cause of the impairment.
- Pathogen Impairments are listed as *Enterococcus* or *fecal coliform* to reflect the actual bacteria indicator that led to the listing.
- Mercury Impairments are characterized according to the media impacted as either fish tissue (*mercury in fish tissue*), water column (*mercury in water column*) or sediments (*mercury*).
- Total Toxics and Unknown Toxicity Impairments are characterized according to the

type of biological data and evaluation that led to the listing. The cause terms used include: *Sediment Bioassays, WET Tests, Ambient Bioassays – Chronic Aquatic Toxicity.*

Observed Effects

The Integrated Report format allows for tracking monitoring observations that may indicate a decline in water quality. These monitoring observations, called Observed Effects, represent responses to pollutants or other stressors causing impairment. Such Observed Effects can include excess algal growth, chlorophyll a, taste and odor, color, sedimentation/ siltation, and noxious aquatic plants. Prior to 2008, these terms were shown as causes of impairment.

Beginning with the 2008 303(d) List, these terms were moved from causes of impairment to Observed Effects. It should be noted that for waterbodies where a TMDL was approved by U.S. EPA for this cause, it is maintained as a cause to represent that the TMDL has or will address the effect.

INTEGRATED REPORT CATEGORY 5 (303(d) LIST) – IMPAIRED WATERS REQUIRING TMDL DEVELOPMENT

Overview

The 303(d) List identifies waterbodies within the State that are not currently meeting Rhode Island Water Quality Standards and that require a TMDL be developed addressing the identified water quality impairment or pollutant. This list is compiled by RIDEM-OWR and is based upon the most recent comprehensive assessment of water quality conditions, as described above. The 303(d) list establishes a scheduled time frame for development of TMDLs and is used to help prioritize the State's water quality monitoring and restoration planning activities. It is important to note that the scheduling is not necessarily representative of the severity of water quality impacts, but rather reflective of the priority given for TMDL development with consideration to shellfishing waters, drinking water supplies and other priority areas identified by partner agencies and organizations, or the public.

The 303(d) list reflects the dynamic process of tracking the quality of the state's waters. As data gaps have been filled and the geographic coverage and/or scope of monitoring efforts expanded, both the number of new waterbodies and new impairments (for waterbodies previously listed for other pollutants) on the 303(d) list has increased. Concurrently, actual water quality improvements in response to upgrades at wastewater treatment facilities or other pollution control efforts as well as refinements in sampling and analytical techniques, and assessment protocol have resulted in removing or delisting of waterbody impairments. Because many of the state's waterbodies are impaired for multiple parameters, waterbodies may still appear on the 303(d) list despite these improvements.

Prioritizing Waters for TMDL Development

A key component of the 303(d) listing process is establishing timelines for TMDL development. In 2013, the U.S. Environmental Protection Agency (USEPA) announced a new program framework to identify and prioritize waterbodies 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. RIDEM's approach to implementing EPA's Vision is outlined in Rhode Island's 303(d) Vision Framework – May 2016:
<http://www.ri.gov/programs/benviron/water/quality/rest/pdfs/vision16.pdf>.

RIDEM will also continue its work with partners including US EPA and Massachusetts Department of Environmental Protection in development of a water quality model to support development of TMDLs addressing Dissolved Oxygen impairments to Providence and Seekonk Rivers, Narragansett Bay and Greenwich Bay. RIDEM, in partnership with CT Department of Energy and Environmental Protection, will also undertake efforts to further characterize existing nutrient related conditions in the Tidal Pawcatuck River and Little Narragansett Bay, and work towards development of TMDLs, as relevant and resources allow. RIDEM and CT DEEP will look to collaborate with US EPA and others in this effort.

Broad Observations on the 2018-2020 303(d) list

The 2018-2020 303(d) list identifies 198 assessment units (WBID Numbers) having at least one impairment in need of a TMDL. This compares with 190 assessment units on the 2016 303(d) list. For 2018-2020, most of the impaired waters are rivers (109 WBIDs), followed by lakes (51 WBIDs) and estuarine waters (38 WBIDs).

Table 5 Summary of 2018-2020 303(d) List Impairments by Basin and Waterbody Type.

Basin	River Assessment Units (WBID)	Lake Assessment Units (WBID)	Estuarine Assessment Units (WBID)	Total Assessment Units (WBID)
Blackstone	24 (↑3)	8	0	32
Coastal	13 (↑4)	7	1	21
Moshassuck	6	1	0	7
Narragansett	12	11	34 (↑1)	57
Pawcatuck	28 (↓1)	8	1	37
Pawtuxet	17 (↑1)	7	0	24
Westport	1	0	0	1
Thames	1	5	0	6
Woonasquatucket	9	4	0	13
TOTAL	109	51	38	198

The 303(d) list reflects ongoing water quality management activities and priorities. Changes from the 2016 303(d) list to the 2018-2020 303(d) list include the addition of new impairments on waterbodies not previously listed and the delisting of impairments and/or certain waterbodies as described in greater detail below, as well as the shifting of time schedules for completion of TMDLs. The TMDL schedules presented in the 2018-2020 303(d) list reflect the state's ongoing water pollution control strategies, as well as the state's current capacity to collect the necessary data and information needed to develop TMDLs.

New Impairments

Table 6 lists the new waterbody impairments added to the 2018-2020 303(d) list. Those waterbodies added to the 303(d) list for the first time in 2018-2020 are noted by an asterisk. The Category 5 table at the end of the document lists all impairments associated with each waterbody.

Table 6 New Waterbody Impairments identified on the 2018-2020 303(d) List.

Waterbody Name	Waterbody ID	Cause of Impairment
Borden Brook & Tribs *	RI0010031R-01	Enterococci
Dry Brook & Tribs (Johnston) *	RI0006018R-02B	Enterococci
Quaket Creek *	RI0010031R-04	Enterococci
Trib to Nonquit Pond *	RI0010031R-20	Enterococci
Abbott Run Brook North & Tribs	RI0001006R-01A	Iron
Burnt Swamp Brook & Tribs	RI0001006R-06	Iron
Indian Brook *	RI0001006R-05	Iron
Quaket Creek *	RI0010031R-04	Iron
Sylvyns Brook *	RI0001006R-09	Iron
Slatersville Reservoir	RI0001002L-09	Mercury in Fish Tissue
Borden Brook & Tribs *	RI0010031R-01	Phosphorus, Total
Chapman Pond	RI0008039L-01	Phosphorus, Total
Quaket Creek *	RI0010031R-04	Phosphorus, Total
Trib to Nonquit Pond *	RI0010031R-20	Phosphorus, Total
Tribs to Watson Reservoir *	RI0010031R-21	Phosphorus, Total
Buckeye Brook & Tribs	RI0007024R-01	Zinc, Dissolved, Lead

* Waterbody or waterbody segment is added to the 303d list for the first time in 2018-2020

Impairments Removed from the 303(d) list

The reasons for “delisting” a waterbody impairment and removing it from the 303(d) list (Category 5) include:

- TMDL for the impairment has been completed and approved by EPA.
- Other pollution control requirements are reasonably expected to result in attainment of the water quality standard associated with the impairment.
- The impairment is not caused by a pollutant.
- Current monitoring data indicated that the water quality standard for the impairment is now being met.
- Original basis for listing was incorrect.
- Cause not appropriate, given changes to assessment and listing protocol.

During the 2018-2020 cycle, RIDEM is proposing to remove 10 waterbody impairment causes from the 303d list (Category 5) because current monitoring data indicate that water quality standards for the impairment is now being met. A list of waterbody impairments proposed for delisting from the state’s 303(d) list is provided below; detailed documentation supporting the removal of these impairments from the 303d list is found in the separate Delisting Document.

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Table 7 Waterbody Impairments Delisted in 2018-2020 Integrated Reporting Cycle.

Waterbody Name	Waterbody ID	Cause of Impairment	Reason for Delisting*	Page Number in Delisting Document
Wood River & Tribs	RI0008040R-16D	Copper	WQ	20
Blackstone River	RI0001003R-01A	Dissolved Oxygen	WQ	3
Blackstone River	RI0001003R-01B	Dissolved Oxygen	WQ	3
Blackstone River	RI0001003R-01A	Total Phosphorus	WQ	3
Blackstone River	RI0001003R-01B	Total Phosphorus	WQ	3
Upper Narragansett Bay	RI0007024E-01B	Fecal Coliform	WQ	12
Mt. Hope Bay	RI0007032E-01A	Fish Bioassessments	WQ	17
Mt. Hope Bay	RI0007032E-01B	Fish Bioassessments	WQ	17
Mt. Hope Bay	RI0007032E-01C	Fish Bioassessments	WQ	17
Mt. Hope Bay	RI0007032E-01D	Fish Bioassessments	WQ	17

* Reasons for Delisting - WQ: water quality standards met; NA: Cause not appropriate; NC: Original listing incorrect.

INTEGRATED REPORT CATEGORY 4A – IMPAIRED WATERS HAVING APPROVED TMDLS

Rhode Island's Water Quality Restoration Program

The goal of RIDEM's TMDL program is to develop and implement studies aimed at restoring impaired waterbodies to an acceptable condition that meets water quality standards and supports their designated uses (e.g., shellfish harvesting, primary contact (swimming) and aquatic life support). There are several steps that are common to the development of most TMDLs:

- Identify the impaired waterbodies and pollutant(s) not meeting water quality standards.
- Assemble and review available data and information on the waterbody and its watershed.
- Identify stakeholders having an interest in the waterbody and/or watershed.
- Identify data gaps that need to be addressed to satisfactorily characterize water quality conditions and pollution sources causing the identified impairment, and other factors affecting the extent and severity of the impairment.
- If needed, develop and implement a monitoring plan (and Quality Assurance Project Plan) to collect additional data to further characterize water quality and pollution sources. As part of the assessment process, pollution sources are identified and their significance assessed including point sources, such as wastewater treatment facility discharges and stormwater outfalls, and non-point sources, such as septic systems and un-channelized runoff from agricultural and urbanized areas.
- Estimate the current amount of point and non-point sources entering the waterbody.
- Establish the TMDL water quality target (typically the applicable water quality standard) and estimate the allowable load of the pollutant that the waterbody can receive and still meet water quality standards (i.e., the total maximum daily load). A water quality model, based on either computer simulations or empirical equations, may be used. For bacteria TMDLs, a concentration-based approach may be applied whereby a percentage reduction in fecal coliform concentrations is determined to represent necessary pollutant reductions.
- Allocate allowable loads between point and nonpoint sources as well as a margin of safety.
- Develop an implementation plan identifying the specific actions necessary to achieve the waterbody's water quality target(s).
- Conduct public meeting(s) and formally solicit and respond to public comments.
- Submit the final TMDL to EPA for formal approval.

Public participation is vital to the success of any water quality restoration effort. Wherever possible, RIDEM utilizes a "watershed approach" in developing TMDLs - evaluating watersheds as a whole, and partnering with local officials, environmental organizations, and others to identify problem areas, collect relevant water quality data, and identify potential pollution sources and solutions. RIDEM seeks input from stakeholders at key points in the TMDL development process. In the initial stages of developing the TMDL, stakeholders can play an important role by contributing both water quality data and their in-depth local knowledge of

the watershed. This information helps RIDEM to better characterize conditions in the waterbody and more easily identify pollution sources in the watershed. At the midpoint of the process, typically after supplemental water quality monitoring has been completed, RIDEM may host a meeting to discuss the monitoring results and to identify potential pollution sources and possible solutions. Finally, once a draft TMDL document is completed, it is made available for public review and comment for a 30-day period, and a public meeting is held to present the TMDL report and to seek public input on the report's findings and implementation plan.

Status of TMDL Development

To date, the Office of Water Resources has completed TMDLs addressing a total of 203 related impairments/causes on 176 assessment units (WBIDs) which account for 148 distinctly named waterbodies. Current TMDL development activities are focused on water quality impairments on Tributaries to Warwick Pond and Buckeye Brook, and the nine reservoirs that are sources of supply to the Newport Water System (Gardiner Pond, Nelson Paradise Pond, South Easton's Pond, North Easton's Pond, St Mary's Pond, Sisson Pond, Lawton Valley Reservoir, Watson Reservoir and Nonquit Pond). Table 8 shows the waterbody impairments for which a TMDL has been completed by RIDEM and approved by US EPA are tracked in Category 4A. Note that if a TMDL has been completed for an impairment but there are other impairments requiring development of a TMDL, that waterbody will continue to appear in Category 5. To date, six waterbodies for which a TMDL was completed have been found to be meeting water quality standards for the parameter in which it was impaired. They are not included in this table⁵.

Table 8 Category 4A – Waterbody Impairments having Approved TMDLs.

Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Stafford Pond	RI0007037L-01	Excess Algal Growth	3/23/1999
Stafford Pond	RI0007037L-01	Oxygen, Dissolved	3/23/1999
Stafford Pond	RI0007037L-01	Phosphorus (Total)	3/23/1999
Fry Brook & Tribs	RI0007028R-02	Fecal Coliform	1/25/2001
Hunt River	RI0007028R-03A	Fecal Coliform	1/25/2001
Hunt River	RI0007028R-03C	Fecal Coliform	1/25/2001
Hunt River & Tribs	RI0007028R-03B	Fecal Coliform	1/25/2001
Scrabbletown Brook	RI0007028R-06	Fecal Coliform	1/25/2001
Mumford Brook	RI0010044R-10	Fecal Coliform	4/29/2002
Pettaquamscutt River	RI0010044E-01A	Fecal Coliform	4/29/2002
Pettaquamscutt River	RI0010044E-01B	Fecal Coliform	4/29/2002
Palmer River	RI0007022E-01A	Fecal Coliform	5/15/2002
Barrington River	RI0007021E-01A	Fecal Coliform	9/30/2002

⁵ The six waterbodies removed from the table are Gilbert Stuart Stream, Moswansicut Brook, Pawtuxet River South Branch, Nooseneck River & Tribs, Boyd Brook, and Greenwich Cove.

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Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Runnins River & Tribs	RI0007021R-01	Fecal Coliform	9/30/2002
Crooked Brook	RI0010044R-03	Fecal Coliform	2/19/2003
Indian Run Brook & Tribs	RI0010045R-02	Fecal Coliform	7/31/2003
Mitchell Brook	RI0010045R-03A	Fecal Coliform	7/31/2003
Mitchell Brook	RI0010045R-03B	Fecal Coliform	7/31/2003
Rocky Brook & Tribs	RI0010045R-04	Fecal Coliform	7/31/2003
Saugatucket River & Tribs	RI0010045R-05B	Fecal Coliform	7/31/2003
Barber Pond	RI0008039L-14	Oxygen, Dissolved	6/26/2004
Chickasheen Brook	RI0008039R-05A	Aquatic Plants - Native	6/26/2004
Chickasheen Brook	RI0008039R-05A	Phosphorus (Total)	6/26/2004
Yawgoo Pond	RI0008039L-15	Excess Algal Growth	6/26/2004
Yawgoo Pond	RI0008039L-15	Oxygen, Dissolved	6/26/2004
Yawgoo Pond	RI0008039L-15	Phosphorus (Total)	6/26/2004
Sakonnet River	RI0010031E-01A	Fecal Coliform	4/7/2005
The Cove, Island Park	RI0010031E-03B	Fecal Coliform	4/7/2005
Apponaug Cove	RI0007025E-01	Fecal Coliform	2/16/2006
Baker Creek	RI0007025R-06	Fecal Coliform	2/16/2006
Brushneck Cove	RI0007025E-02	Fecal Coliform	2/16/2006
Buttonwoods Cove	RI0007025E-03	Fecal Coliform	2/16/2006
Dark Entry Brook	RI0007025R-04	Fecal Coliform	2/16/2006
Factory Pond Stream & Tribs	RI0010043R-02	Fecal Coliform	2/16/2006
Gorton Pond Trib	RI0007025R-13	Fecal Coliform	2/16/2006
Greenhill Pond	RI0010043E-02	Fecal Coliform	2/16/2006
Greenwich Bay	RI0007025E-04A	Fecal Coliform	2/16/2006
Greenwich Bay	RI0007025E-04B	Fecal Coliform	2/16/2006
Greenwood Creek	RI0007025R-11	Fecal Coliform	2/16/2006
Hardig Brook & Tribs	RI0007025R-01	Fecal Coliform	2/16/2006
Maskerchugg River	RI0007025R-03	Fecal Coliform	2/16/2006
Mill Brook	RI0007025R-14	Fecal Coliform	2/16/2006
Ninigret Pond	RI0010043E-04B	Fecal Coliform	2/16/2006
Saddle Brook	RI0007025R-16	Fecal Coliform	2/16/2006
Southern Creek (Carpenter Brook)	RI0007025R-09	Fecal Coliform	2/16/2006
Teal Pond Stream	RI0010043R-04	Fecal Coliform	2/16/2006
Tuscatucket Brook	RI0007025R-05	Fecal Coliform	2/16/2006
Warwick Cove	RI0007025E-06A	Fecal Coliform	2/16/2006

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Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Warwick Cove	RI0007025E-06B	Fecal Coliform	2/16/2006
Kickemuit Reservoir (Warren Reservoir)	RI0007034L-01	Excess Algal Growth	9/28/2006
Kickemuit Reservoir (Warren Reservoir)	RI0007034L-01	Fecal Coliform	9/28/2006
Kickemuit Reservoir (Warren Reservoir)	RI0007034L-01	Phosphorus (Total)	9/28/2006
Kickemuit Reservoir (Warren Reservoir)	RI0007034L-01	Taste and Odor	9/28/2006
Kickemuit Reservoir (Warren Reservoir)	RI0007034L-01	Turbidity	9/28/2006
Upper Kickemuit River	RI0007034R-01	Fecal Coliform	9/28/2006
Assapumpset Brook & Tribs	RI0002007R-01	Fecal Coliform	7/3/2007
Woonasquatucket River	RI0002007R-10D	Copper	7/3/2007
Woonasquatucket River	RI0002007R-10D	Lead	7/3/2007
Woonasquatucket River	RI0002007R-10D	Zinc	7/3/2007
Woonasquatucket River & Tribs	RI0002007R-10B	Fecal Coliform	7/3/2007
Woonasquatucket River & Tribs	RI0002007R-10C	Fecal Coliform	7/3/2007
Woonasquatucket River & Tribs	RI0002007R-10A	Zinc	7/3/2007
Almy Pond	RI0010047L-01	Phosphorus (Total)	9/27/2007
Brickyard Pond	RI0007020L-02	Oxygen, Dissolved	9/27/2007
Brickyard Pond	RI0007020L-02	Phosphorus (Total)	9/27/2007
Gorton Pond	RI0007025L-01	Excess Algal Growth	9/27/2007
Gorton Pond	RI0007025L-01	Oxygen, Dissolved	9/27/2007
Gorton Pond	RI0007025L-01	Phosphorus (Total)	9/27/2007
Mashapaug Pond	RI0006017L-06	Excess Algal Growth	9/27/2007
Mashapaug Pond	RI0006017L-06	Oxygen, Dissolved	9/27/2007
Mashapaug Pond	RI0006017L-06	Phosphorus (Total)	9/27/2007
North Easton Pond (Green End Pond)	RI0007035L-03	Excess Algal Growth	9/27/2007
North Easton Pond (Green End Pond)	RI0007035L-03	Phosphorus (Total)	9/27/2007
Roger Williams Park Ponds	RI0006017L-05	Excess Algal Growth	9/27/2007
Roger Williams Park Ponds	RI0006017L-05	Oxygen, Dissolved	9/27/2007
Roger Williams Park Ponds	RI0006017L-05	Phosphorus (Total)	9/27/2007
Sand Pond (N. of Airport)	RI0006017L-09	Oxygen, Dissolved	9/27/2007
Sand Pond (N. of Airport)	RI0006017L-09	Phosphorus (Total)	9/27/2007
Spectacle Pond	RI0006017L-07	Excess Algal Growth	9/27/2007

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Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Spectacle Pond	RI0006017L-07	Oxygen, Dissolved	9/27/2007
Spectacle Pond	RI0006017L-07	Phosphorus (Total)	9/27/2007
Upper Dam Pond	RI0006014L-04	Phosphorus (Total)	9/27/2007
Warwick Pond	RI0007024L-02	Oxygen, Dissolved	9/27/2007
Warwick Pond	RI0007024L-02	Phosphorus (Total)	9/27/2007
Alton Pond	RI0008040L-01	Mercury in Fish Tissue	12/20/2007
Ashville Pond	RI0008040L-04	Mercury in Fish Tissue	12/20/2007
Boone Lake	RI0008040L-14	Mercury in Fish Tissue	12/20/2007
Browning Mill Pond (Arcadia Pond)	RI0008040L-13	Mercury in Fish Tissue	12/20/2007
Eisenhower Lake	RI0008040L-16	Mercury in Fish Tissue	12/20/2007
Hundred Acre Pond	RI0008039L-13	Mercury in Fish Tissue	12/20/2007
Indian Lake	RI0010045L-04	Mercury in Fish Tissue	12/20/2007
J.L. Curran Reservoir (Fiskeville Reservoir)	RI0006016L-02	Mercury in Fish Tissue	12/20/2007
Larkin Pond	RI0008039L-11	Mercury in Fish Tissue	12/20/2007
Locustville Pond	RI0008040L-10	Mercury in Fish Tissue	12/20/2007
Meadowbrook Pond (Sandy Pond)	RI0008039L-05	Mercury in Fish Tissue	12/20/2007
Quidnick Reservoir	RI0006013L-04	Mercury in Fish Tissue	12/20/2007
Tucker Pond	RI0008039L-08	Mercury in Fish Tissue	12/20/2007
Watchaug Pond	RI0008039L-02	Mercury in Fish Tissue	12/20/2007
Wincheck Pond	RI0008040L-06	Mercury in Fish Tissue	12/20/2007
Wyoming Pond	RI0008040L-11	Mercury in Fish Tissue	12/20/2007
Yawgoo Pond	RI0008039L-15	Mercury in Fish Tissue	12/20/2007
Yawgoog Pond	RI0008040L-07	Mercury in Fish Tissue	12/20/2007
Indian Run Brook & Tribs	RI0010045R-02	Copper	6/2/2008
Indian Run Brook & Tribs	RI0010045R-02	Zinc	6/2/2008
Sands Pond	RI0010046L-01	Chlorophyll-a	6/2/2008
Sands Pond	RI0010046L-01	Excess Algal Growth	6/2/2008
Sands Pond	RI0010046L-01	Phosphorus (Total)	6/2/2008
Sands Pond	RI0010046L-01	Turbidity	6/2/2008
Saugatucket River	RI0010045E-01	Fecal Coliform	6/26/2008
Saugatucket River	RI0010045R-05C	Fecal Coliform	6/26/2008
Point Judith Pond	RI0010043E-06B	Fecal Coliform	6/28/2008
Point Judith Pond	RI0010043E-06C	Fecal Coliform	6/28/2008
Point Judith Pond	RI0010043E-06D	Fecal Coliform	6/28/2008

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Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Point Judith Pond	RI0010043E-06K	Fecal Coliform	6/28/2008
Buckeye Brook & Tribs	RI0007024R-01	Enterococcus	12/23/2008
Buckeye Brook & Tribs	RI0007024R-01	Fecal Coliform	12/23/2008
Lockwood Brook & Tribs	RI0007024R-03	Enterococcus	12/23/2008
Lockwood Brook & Tribs	RI0007024R-03	Fecal Coliform	12/23/2008
Old Mill Creek	RI0007024E-02	Enterococcus	12/23/2008
Old Mill Creek	RI0007024E-02	Fecal Coliform	12/23/2008
Parsonage (Knowles) Brook	RI0007024R-02	Enterococcus	12/23/2008
Parsonage (Knowles) Brook	RI0007024R-02	Fecal Coliform	12/23/2008
Tribes to Warwick Pond	RI0007024R-05	Enterococcus	12/23/2008
Tribes to Warwick Pond	RI0007024R-05	Fecal Coliform	12/23/2008
Warner Brook	RI0007024R-04	Enterococcus	12/23/2008
Warner Brook	RI0007024R-04	Fecal Coliform	12/23/2008
Kickemuit River	RI0007033E-01A	Fecal Coliform	1/14/2010
Kickemuit River	RI0007033E-01B	Fecal Coliform	1/14/2010
Kickemuit River	RI0007033E-01C	Fecal Coliform	1/14/2010
Mt. Hope Bay	RI0007032E-01A	Fecal Coliform	1/14/2010
Mt. Hope Bay	RI0007032E-01B	Fecal Coliform	1/14/2010
Mt. Hope Bay	RI0007032E-01C	Fecal Coliform	1/14/2010
Mt. Hope Bay	RI0007032E-01D	Fecal Coliform	1/14/2010
Little Narragansett Bay	RI0008038E-02A	Fecal Coliform	12/1/2010
Little Narragansett Bay	RI0008038E-02B	Fecal Coliform	12/1/2010
Mastuxet Brook & Tribs	RI0008039R-11	Enterococcus	12/1/2010
Mastuxet Brook & Tribs	RI0008039R-11	Fecal Coliform	12/1/2010
Tidal Pawcatuck River	RI0008038E-01A	Fecal Coliform	12/1/2010
Tidal Pawcatuck River	RI0008038E-01B	Fecal Coliform	12/1/2010
Belleville Ponds	RI0007027L-02	Phosphorus (Total)	12/28/2010
Belleville Upper Pond Inlet	RI0007027R-02	Phosphorus (Total)	12/28/2010
Ashaway River & Tribs	RI0008039R-02A	Enterococcus	9/22/2011
Bailey's Brook & Tribs	RI0007035R-01	Enterococcus	9/22/2011
Belleville Upper Pond Inlet	RI0007027R-02	Enterococcus	9/22/2011
Branch River & Tribs	RI0001002R-01A	Enterococcus	9/22/2011
Branch River & Tribs	RI0001002R-01B	Enterococcus	9/22/2011
Breakheart Brook & Tribs	RI0008040R-02	Enterococcus	9/22/2011
Brushy Brook & Tribs	RI0008040R-03B	Fecal Coliform	9/22/2011

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Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Burnt Swamp Brook & Tribs	RI0001006R-06	Enterococcus	9/22/2011
Canonchet Brook & Tribs	RI0008040R-04B	Enterococcus	9/22/2011
Chepachet River & Tribs	RI0001002R-03	Enterococcus	9/22/2011
Chickasheen Brook	RI0008039R-05A	Enterococcus	9/22/2011
Clear River	RI0001002R-05D	Enterococcus	9/22/2011
Clear River & Tribs	RI0001002R-05C	Enterococcus	9/22/2011
Crookfall Brook & Tribs	RI0001004R-01	Enterococcus	9/22/2011
Cutler Brook & Tribs	RI0002007R-02	Enterococcus	9/22/2011
Dry Brook & Tribs	RI0006018R-02A	Enterococcus	9/22/2011
Dutemple Brook	RI0008039R-30	Enterococcus	9/22/2011
East Sneece Brook	RI0001006R-03	Enterococcus	9/22/2011
Frenchtown Brook & Tribs	RI0007028R-01	Enterococcus	9/22/2011
Fresh Meadow Brook & Tribs	RI0010045R-01	Enterococcus	9/22/2011
Hunt River	RI0007028R-03D	Enterococcus	9/22/2011
Huntinghouse Brook	RI0006015R-11	Enterococcus	9/22/2011
Jamestown Brook	RI0007036R-01	Fecal Coliform	9/22/2011
Latham Brook & Tribs	RI0002007R-05	Enterococcus	9/22/2011
Long Brook & Tribs	RI0001006R-02	Enterococcus	9/22/2011
Maidford River	RI0007035R-02A	Fecal Coliform	9/22/2011
Maidford River	RI0007035R-02B	Fecal Coliform	9/22/2011
Mashapaug Pond	RI0006017L-06	Fecal Coliform	9/22/2011
Meadow Brook & Tribs	RI0008039R-13	Enterococcus	9/22/2011
Meshanticut Brook & Tribs	RI0006017R-02	Enterococcus	9/22/2011
Mile Brook	RI0008039R-14	Enterococcus	9/22/2011
Moosup River & Tribs	RI0005011R-03	Enterococcus	9/22/2011
Moshassuck River & Tribs	RI0003008R-01A	Enterococcus	9/22/2011
Moshassuck River & Tribs	RI0003008R-01B	Enterococcus	9/22/2011
Paradise Brook	RI0007035R-03	Fecal Coliform	9/22/2011
Parmenter Brook & Tribs	RI0008039R-37	Enterococcus	9/22/2011
Pascoag River	RI0001002R-09	Enterococcus	9/22/2011
Pawcatuck River & Tribs	RI0008039R-18B	Enterococcus	9/22/2011
Pawcatuck River & Tribs	RI0008039R-18C	Enterococcus	9/22/2011
Phillips Brook & Tribs	RI0008040R-14	Enterococcus	9/22/2011
Roger Williams Park Ponds	RI0006017L-05	Fecal Coliform	9/22/2011
Sandhill Brook & Tribs	RI0007028R-05	Fecal Coliform	9/22/2011

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Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Simmons Brook & Tribs	RI0006018R-04	Enterococcus	9/22/2011
Stillwater River & Tribs	RI0002007R-09	Enterococcus	9/22/2011
Sucker Brook	RI0007037R-01	Enterococcus	9/22/2011
Taney Brook	RI0008039R-23	Enterococcus	9/22/2011
Tarkiln Brook & Tribs	RI0001002R-13B	Enterococcus	9/22/2011
Tomaquag Brook & Tribs	RI0008039R-24	Enterococcus	9/22/2011
Tribs to Tiogue Lake	RI0006014R-05	Enterococcus	9/22/2011
West River & Tribs	RI0003008R-03B	Enterococcus	9/22/2011
White Horn Brook & Tribs	RI0008039R-27B	Enterococcus	9/22/2011
Windsor Brook & Tribs	RI0006015R-30	Enterococcus	9/22/2011
Wood River & Tribs	RI0008040R-16A	Enterococcus	9/22/2011
Blackstone River	RI0001003R-01A	Cadmium	4/22/2013
Blackstone River	RI0001003R-01B	Cadmium	4/22/2013
Blackstone River	RI0001003R-01A	Enterococcus	4/22/2013
Blackstone River	RI0001003R-01A	Fecal Coliform	4/22/2013
Blackstone River	RI0001003R-01A	Lead	4/22/2013
Blackstone River	RI0001003R-01B	Lead	4/22/2013
Cherry Brook & Tribs	RI0001003R-02	Copper	4/22/2013
Cherry Brook & Tribs	RI0001003R-02	Enterococcus	4/22/2013
Cherry Brook & Tribs	RI0001003R-02	Fecal Coliform	4/22/2013
Mill River	RI0001003R-03	Enterococcus	4/22/2013
Mill River	RI0001003R-03	Fecal Coliform	4/22/2013
Peters River	RI0001003R-04	Copper	4/22/2013
Peters River	RI0001003R-04	Enterococcus	4/22/2013
Peters River	RI0001003R-04	Fecal Coliform	4/22/2013
Omega Pond	RI0004009L-03	Aluminum	4/17/2014
Omega Pond	RI0004009L-03	Cadmium	4/17/2014
Omega Pond	RI0004009L-03	Fecal Coliform	4/17/2014
Omega Pond	RI0004009L-03	Oxygen, Dissolved	4/17/2014
Omega Pond	RI0004009L-03	Phosphorus (Total)	4/17/2014
Ten Mile River & Tribs	RI0004009R-01A	Aluminum	4/17/2014
Ten Mile River & Tribs	RI0004009R-01B	Aluminum	4/17/2014
Ten Mile River & Tribs	RI0004009R-01A	Cadmium	4/17/2014
Ten Mile River & Tribs	RI0004009R-01B	Cadmium	4/17/2014
Ten Mile River & Tribs	RI0004009R-01A	Enterococcus	4/17/2014

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Waterbody Name	Waterbody ID	Cause of Impairment	Date TMDL Completed
Ten Mile River & Tribs	RI0004009R-01A	Fecal Coliform	4/17/2014
Ten Mile River & Tribs	RI0004009R-01A	Iron	4/17/2014
Ten Mile River & Tribs	RI0004009R-01A	Lead	4/17/2014
Ten Mile River & Tribs	RI0004009R-01A	Phosphorus (Total)	4/17/2014
Turner Reservoir North (Central Pond)	RI0004009L-01A	Aluminum	4/17/2014
Turner Reservoir North (Central Pond)	RI0004009L-01A	Cadmium	4/17/2014
Turner Reservoir North (Central Pond)	RI0004009L-01A	Oxygen, Dissolved	4/17/2014
Turner Reservoir North (Central Pond)	RI0004009L-01A	Phosphorus (Total)	4/17/2014
Turner Reservoir South	RI0004009L-01B	Aluminum	4/17/2014
Turner Reservoir South	RI0004009L-01B	Cadmium	4/17/2014
Turner Reservoir South	RI0004009L-01B	Oxygen, Dissolved	4/17/2014
Turner Reservoir South	RI0004009L-01B	Phosphorus (Total)	4/17/2014
Scott Pond	RI0001003L-01	Oxygen, Dissolved	8/12/2014
Scott Pond	RI0001003L-01	Phosphorus (Total)	8/12/2014
Acid Factory Brook & Tribs	RI0008040R-01	Enterococcus	9/17/2014
Baker Brook	RI0008040R-18	Enterococcus	9/17/2014
Pawcatuck River & Tribs	RI0008039R-18D	Enterococcus	9/17/2014
Pawcatuck River & Tribs	RI0008039R-18E	Enterococcus	9/17/2014
Pierce Brook	RI0007028R-07	Enterococcus	9/17/2014
Spring Brook and Tributaries	RI0008039R-41	Enterococcus	9/17/2014

INTEGRATED REPORT CATEGORY 4B – IMPAIRMENTS ADDRESSED BY OTHER POLLUTION CONTROL REQUIREMENTS

There are no current 4B impairments listed in the 2018-2020 Cycle.

In the 2008 assessment cycle, the Office of Water Resources moved two impairments, water temperature and fish bioassessments, associated with four waterbody segments in Mt. Hope Bay from Category 5 (Impaired and requiring a TMDL) to Category 4B (Other pollution control requirements are reasonably expected to result in attainment of the water quality standard associated with the impairment). Note that while these impairments were considered Category 4B, the four waterbody segments continued to be listed in Category 5 due to other impairments needing a TMDL.

In the 2016 assessment, the Office of Water Resources delisted the temperature impairments for Mt Hope Bay's four assessment units based on a review of available temperature data quantifying changes in water temperature associated with the May 2012 conversion to closed-cycle cooling at the Brayton Point plant, and documenting compliance with Rhode Island's Water Quality Standards for temperature in the Rhode Island portion of Mt Hope Bay. In the 2018-2020 assessment, the Office of Water Resources is delisting the fish bioassessment impairment, removing the remaining Category 4B impairment from these four waterbodies.

As described in detail in the 4B documentation provided with the 2008 Integrated Report, various water quality studies and trawling surveys conducted in Mt. Hope Bay documented the cause and effect relationship between Brayton Point Station's operations and thermal modifications and biodiversity impairments in Mt. Hope Bay. On Oct. 6, 2003, EPA Region I renewed Brayton Point Station's CWA permit setting strict limits for the facility's withdrawal of cooling water from, and its discharges of heated wastewater to, Mount Hope Bay. The permit was appealed to EPA's Environmental Appeals Board (EAB) and on September 27, 2007, the EAB issued its decision upholding EPA's final permit. The company subsequently appealed the EAB ruling to the Federal Court in the Fourth Circuit, but on December 17, 2007 Dominion Power withdrew its legal challenges to the final permit issued in 2003 by EPA and the Commonwealth of Massachusetts. The Brayton Point NPDES Permit (No. MA0003654) specifically required Brayton Point Station to:

- Reduce total annual heat discharge to the bay by 96%, from 42 trillion BTUs/year to 1.7 trillion BTUs/year, and
- Reduce water withdrawal from the bay by approximately 94%, from nearly 1 billion gallons/day to 70 million gallons/day.

Compliance with these permit limits will eliminate annual fishery losses by an estimated 94% and improve habitat quality.

EPA issued an administrative order containing a schedule for meeting all NPDES permit limits within 36 months of obtaining all the required construction and operating permits and approvals. Prior to construction, Brayton Point Power Station had four cooling water units.

Three units could withdraw up to 924.4 MGD from the Taunton River, while the remaining units could withdraw up to 375.4 MGD from the Lee River. All units discharged to a single discharge point along the western edge of the Brayton Point peninsula. The four units were converted to closed-cycle cooling and began operating as such beginning in October 2011. The last unit was brought online in May 2012.

Starting on May 13, 2012, the current NPDES permit became effective. The permit included heat and flow limits that are 95% lower than once through operations. The heat and flow limits are 1.7 BTU per year and 70 MGD (intake flow limit). The increased intake flow limit of 70 MGD in the 2012 permit corrects an inadvertent omission of including “blow-down” and “make up” water for one of the cooling towers in the intake flow limit established in the earlier permit. The permit does not include a temperature rise (i.e. delta T) limit since the Station is closed cycle. The final permit is on-line at EPA’s web site at:
<http://www.epa.gov/region1/npdes/permits/2012/finalma0003654permit.pdf>.

The Station’s NPDES permit required ongoing hydrographical and biological monitoring of Mount Hope Bay and surrounding waters. The permit required that results of biological and hydrological monitoring be summarized in an annual report including trends of the various parameters analyzed and any anomalies that appear in the annual historical data comparison. Brayton Point Station’s 2013 Annual Hydrological and Biological Monitoring Report (dated September 1, 2014) contains results of monitoring performed in 2013 including hydrographical studies, ichthyoplankton studies, trawl studies, revolving screen studies, beach seine studies and heavy metals studies.

The RIDEM Division of Marine Fisheries compared various trawl data collected in Mount Hope Bay and in Narragansett Bay and detailed the results in a report entitled “Examining the effects of the Brayton Point Power Station on Mt. Hope Bay’s finfish community”. The report concluded that in the years since the cooling towers went online in 2011, aggregate fish abundance has experienced time series high levels in Mt. Hope Bay. Information documenting the compliance of Mount Hope Bay to the fish bioassessment part of its aquatic life use designated use is detailed in RIDEM 2018-2020 Delisting Document.

INTEGRATED REPORT CATEGORY 4C – IMPAIRMENTS NOT CAUSED BY A POLLUTANT

In some instances, a waterbody may be considered impaired for causes that are not pollutants and therefore a TMDL is not required nor the appropriate approach to address the impairment. Such causes include flow, aquatic plants (both native and non-native aquatic plants), and non-native fish, shellfish or zooplankton. These impairments are identified for tracking purposes and are listed in Category 4C. These impairments are addressed by other programs. It is noted that where waterbodies are impaired by pollutants, they will appear in Category 4A if all impairments are addressed by TMDLs or Category 5 if TMDLs are required. Table 9 is a compilation of all non-pollutant impairments. Two impairments - Branch River & Tribs (RI0001002R-01B) and Meshanticut Pond (RI0006017L-01) were added to Category 4C for non-native aquatic plants in 2018-2020.

Table 9 Integrated Report Category 4C – Non-Pollutant Waterbody Impairments.

Waterbody Name	Waterbody ID	Cause of Impairment
Gardiner Pond	RI0007035L-01	Flow Regime Modification
Lawton Valley Reservoir	RI0007035L-06	Flow Regime Modification
Nelson Paradise Pond	RI0007035L-02	Flow Regime Modification
North Easton Pond (Green End Pond)	RI0007035L-03	Flow Regime Modification
Saint Mary's Pond	RI0007035L-05	Flow Regime Modification
Sisson Pond	RI0007035L-10	Flow Regime Modification
Alton Pond	RI0008040L-01	Non-Native Aquatic Plants
Annaquatucket Mill Pond	RI0007027L-01	Non-Native Aquatic Plants
Arnold Pond	RI0005011L-03	Non-Native Aquatic Plants
Ashville Pond	RI0008040L-04	Non-Native Aquatic Plants
Barber Pond	RI0008039L-14	Non-Native Aquatic Plants
Barney Pond	RI0003008L-02	Non-Native Aquatic Plants
Belleville Ponds	RI0007027L-02	Non-Native Aquatic Plants
Blackstone River	RI0001003R-01A	Non-Native Aquatic Plants
Bowdish Reservoir	RI0005047L-03	Non-Native Aquatic Plants
Branch River & Tribs	RI0001002R-01B	Non-Native Aquatic Plants
Breakheart Pond	RI0008040L-15	Non-Native Aquatic Plants
Carbuncle Pond	RI0005011L-01	Non-Native Aquatic Plants
Carolina Trout Pond	RI0008040L-02	Non-Native Aquatic Plants
Carr Pond (N. Kingstown)	RI0010044L-03	Non-Native Aquatic Plants
Chapman Pond	RI0008039L-01	Non-Native Aquatic Plants
Chipuxet River	RI0008039R-06C	Non-Native Aquatic Plants
Clarksville Pond	RI0005047L-08	Non-Native Aquatic Plants
Clear River	RI0001002R-05D	Non-Native Aquatic Plants
Clear River & Tribs	RI0001002R-05C	Non-Native Aquatic Plants
Echo Lake	RI0007020L-07	Non-Native Aquatic Plants
Echo Lake (Pascoag Reservoir)	RI0001002L-03	Non-Native Aquatic Plants
Flat River Reservoir (Johnson Pond)	RI0006013L-01	Non-Native Aquatic Plants
Georgiaville Pond	RI0002007L-02	Non-Native Aquatic Plants
Glen Rock Reservoir	RI0008039L-19	Non-Native Aquatic Plants
Gorton Pond	RI0007025L-01	Non-Native Aquatic Plants

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Waterbody Name	Waterbody ID	Cause of Impairment
Happy Hollow Pond	RI0001006L-03	Non-Native Aquatic Plants
Hawkins Pond	RI0002007L-01	Non-Native Aquatic Plants
Hundred Acre Pond	RI0008039L-13	Non-Native Aquatic Plants
Indian Lake	RI0010045L-04	Non-Native Aquatic Plants
Lake Washington	RI0005047L-04	Non-Native Aquatic Plants
Larkin Pond	RI0008039L-11	Non-Native Aquatic Plants
Locustville Pond	RI0008040L-10	Non-Native Aquatic Plants
Maple Root Pond	RI0006013L-12	Non-Native Aquatic Plants
Meadowbrook Pond (Sandy Pond)	RI0008039L-05	Non-Native Aquatic Plants
Meshanticut Pond	RI0006017L-01	Non-Native Aquatic Plants
Mishnock Lake	RI0006014L-01	Non-Native Aquatic Plants
Olney Pond	RI0003008L-01	Non-Native Aquatic Plants
Pawcatuck River & Tribs	RI0008039R-18E	Non-Native Aquatic Plants
Pawtuxet River Main Stem	RI0006017R-03	Non-Native Aquatic Plants
Pocasset River & Tribs	RI0006018R-03A	Non-Native Aquatic Plants
Potowomut Pond	RI0007028L-01	Non-Native Aquatic Plants
Regulating Reservoir	RI0006015L-01	Non-Native Aquatic Plants
Reynolds Pond	RI0006012L-05	Non-Native Aquatic Plants
Robin Hollow Pond	RI0001006L-04	Non-Native Aquatic Plants
Roger Williams Park Ponds	RI0006017L-05	Non-Native Aquatic Plants
Round Top State Pond	RI0001002L-12	Non-Native Aquatic Plants
Saugatucket River	RI0010045R-05C	Non-Native Aquatic Plants
Secret Lake	RI0007027L-03	Non-Native Aquatic Plants
Silver Spring Lake	RI0010044L-02	Non-Native Aquatic Plants
Slack Reservoir	RI0002007L-03	Non-Native Aquatic Plants
Slatersville Reservoir	RI0001002L-09	Non-Native Aquatic Plants
Smith & Sayles Reservoir	RI0001002L-07	Non-Native Aquatic Plants
Sneech Pond	RI0001005L-01	Non-Native Aquatic Plants
Spring Grove Pond	RI0001002L-06	Non-Native Aquatic Plants
Spring Lake (Herring Pond)	RI0001002L-04	Non-Native Aquatic Plants
Tarbox Pond	RI0006012L-02	Non-Native Aquatic Plants
Tarkiln Pond	RI0001002L-08	Non-Native Aquatic Plants
Ten Mile River & Tribs	RI0004009R-01A	Non-Native Aquatic Plants
The Reservoir	RI0008039L-21	Non-Native Aquatic Plants
Thirty Acre Pond	RI0008039L-12	Non-Native Aquatic Plants
Three Ponds	RI0006017L-02	Non-Native Aquatic Plants
Tiogue Lake	RI0006014L-02	Non-Native Aquatic Plants
Turner Reservoir North (Central Pond)	RI0004009L-01A	Non-Native Aquatic Plants
Turner Reservoir South	RI0004009L-01B	Non-Native Aquatic Plants
Valley Falls Pond	RI0001003L-02	Non-Native Aquatic Plants
Wakefield Pond	RI0005047L-01	Non-Native Aquatic Plants
Wenscott Reservoir (Twin Rivers)	RI0003008L-05	Non-Native Aquatic Plants
Wilson Reservoir	RI0001002L-01	Non-Native Aquatic Plants
Wood River	RI0008040R-16B	Non-Native Aquatic Plants
Wood River & Tribs	RI0008040R-16C	Non-Native Aquatic Plants

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Waterbody Name	Waterbody ID	Cause of Impairment
Woonasquatucket Reservoir (Stump Pond)	RI0002007L-08	Non-Native Aquatic Plants
Woonasquatucket River	RI0002007R-10D	Non-Native Aquatic Plants
Woonasquatucket River & Tribs	RI0002007R-10B	Non-Native Aquatic Plants
Woonasquatucket River & Tribs	RI0002007R-10C	Non-Native Aquatic Plants
Wyoming Pond	RI0008040L-11	Non-Native Aquatic Plants
Mishnock Lake	RI0006014L-01	Non-native Fish, Shellfish, or Zooplankton
Tiogue Lake	RI0006014L-02	Non-native Fish, Shellfish, or Zooplankton