Draft Massachusetts Integrated List of Waters for the Clean Water Act 2024/2026 Reporting Cycles

Appendix 15
Concord River Basin
Assessment and Listing Decision Summary

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Watershed Planning Program

The mission of the Watershed Planning Program (WPP) in the Massachusetts Department of Environmental Protection is to protect, enhance, and restore the quality and value of the waters of the Commonwealth. Guided by the federal Clean Water Act, WPP implements this mission statewide through five Sections that each have a different technical focus: (1) Surface Water Quality Standards; (2) Surface Water Quality Monitoring; (3) Data Management and Water Quality Assessment; (4) Total Maximum Daily Load; and (5) Nonpoint Source Management. Together with other MassDEP programs and state environmental agencies, WPP shares in the duty and responsibility to secure the environmental, recreational, and public health benefits of clean water for all people of the Commonwealth.

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Disclaimer

References to trade names, commercial products, manufacturers, or distributors in this report constituted neither endorsement nor recommendation by MassDEP.

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Notice of Availability

This report is available on the Massachusetts Department of Environmental Protection website.

Overview of Appendix Contents

This Integrated Report (IR) Appendix functions as a watershed-based Assessment and Listing Decision Summary that catalogs the most recent assessment decisions for each assessment unit (AU) that was updated as part of the 2024/2026 IR cycle.

The appendix begins with 2024/26 Cycle Impairment Changes, a comprehensive table summarizing all impairments that were either added, removed, changed, or unchanged between the 2022 and 2024/2026 reporting cycles. This table presents the overall impairment status at the waterbody scale, across all designated uses. The table does not detail use-specific impairment changes; those details are provided in subsequent sections of the appendix.

Following 2024/26 Cycle Impairment Changes, the appendix provides an individual section for each AU updated during the 2024/2026 cycle. Each AU section details the supporting data and rationale for each designated use attainment determination, including any associated impairment removal decisions. Changes in impairment status at the designated use level are documented in full within the corresponding Designated Use Attainment Decision. AUs where no usable data were available for the 2024/2026 IR cycle are included, but with the assessment information from the 2022 cycle is carried forward.

The following abbreviations are used when referencing designated uses:

- ALU - Aquatic Life Use
- FC - Fish Consumption Use
- SH - Shellfish Harvesting Use
- AES - Aesthetic Use
- PCR - Primary Contact Recreation Use
- SCR - Secondary Contact Recreation Use

When listing an impairment, parentheses and an asterisk (*) are utilized to denote “pollution” or non-pollutant impairments that do not require the development of a Total Maximum Daily Load (TMDL). Where applicable, further explanation of the ATTAINS impairment code is provided within square brackets [].

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Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Allowance Brook	MA82A-37	2	2	None	--	Unchanged
Ashland Reservoir	MA82003	4a	5	(Non-Native Aquatic Plants*)	--	Unchanged
Ashland Reservoir	MA82003	4a	5	Enterococcus	--	Added
Ashland Reservoir	MA82003	4a	5	Mercury in Fish Tissue	42396	Unchanged
Assabet Brook	MA82B-17	5	5	Benthic Macroinvertebrates	--	Unchanged
Assabet River	MA82B-01	5	5	(Dewatering*)	--	Unchanged
Assabet River	MA82B-01	5	5	Benthic Macroinvertebrates	35103	Changed
Assabet River	MA82B-01	5	5	Fish Bioassessments	--	Unchanged
Assabet River	MA82B-02	5	4a	(Aquatic Plants (Macrophytes)*)	--	Unchanged
Assabet River	MA82B-02	5	4a	(Curly-leaf Pondweed*)	--	Unchanged
Assabet River	MA82B-02	5	4a	Algae	35104	Unchanged
Assabet River	MA82B-02	5	4a	Benthic Macroinvertebrates	35104	Changed
Assabet River	MA82B-02	5	4a	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Assabet River	MA82B-02	5	4a	Fecal Coliform	R1_MA_2024_04	Changed
Assabet River	MA82B-02	5	4a	Nutrient/Eutrophication Biological Indicators	35104	Unchanged
Assabet River	MA82B-03	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Assabet River	MA82B-03	5	5	(Debris*)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Assabet River	MA82B-03	5	5	Algae	35105	Unchanged
Assabet River	MA82B-03	5	5	Ambient Bioassays - Chronic Aquatic Toxicity	--	Unchanged
Assabet River	MA82B-03	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Assabet River	MA82B-03	5	5	Fecal Coliform	R1_MA_2024_04	Changed
Assabet River	MA82B-03	5	5	Nutrient/Eutrophication Biological Indicators	35105	Unchanged
Assabet River	MA82B-03	5	5	Odor	--	Unchanged
Assabet River	MA82B-03	5	5	Phosphorus, Total	35105	Unchanged
Assabet River	MA82B-03	5	5	Trash	--	Unchanged
Assabet River	MA82B-04	5	5	(Water Chestnut*)	--	Unchanged
Assabet River	MA82B-04	5	5	Algae	35106	Unchanged
Assabet River	MA82B-04	5	5	Benthic Macroinvertebrates	35106	Changed
Assabet River	MA82B-04	5	5	Dissolved Oxygen	35106	Unchanged
Assabet River	MA82B-04	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Assabet River	MA82B-04	5	5	Fecal Coliform	R1_MA_2024_04	Changed
Assabet River	MA82B-04	5	5	Fish Bioassessments	--	Unchanged
Assabet River	MA82B-04	5	5	Nutrient/Eutrophication Biological Indicators	35106	Changed
Assabet River	MA82B-04	5	5	Phosphorus, Total	35106	Unchanged
Assabet River	MA82B-05	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Assabet River	MA82B-05	5	5	(Debris*)	--	Unchanged
Assabet River	MA82B-05	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Assabet River	MA82B-05	5	5	(Fanwort*)	--	Unchanged
Assabet River	MA82B-05	5	5	(Water Chestnut*)	--	Unchanged
Assabet River	MA82B-05	5	5	Algae	35107	Unchanged
Assabet River	MA82B-05	5	5	Dissolved Oxygen	35107	Unchanged
Assabet River	MA82B-05	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Assabet River	MA82B-05	5	5	Fecal Coliform	R1_MA_2024_04	Changed
Assabet River	MA82B-05	5	5	Nutrient/Eutrophication Biological Indicators	35107	Unchanged
Assabet River	MA82B-05	5	5	Odor	--	Unchanged
Assabet River	MA82B-05	5	5	Phosphorus, Total	35107	Unchanged
Assabet River	MA82B-05	5	5	Trash	--	Unchanged
Assabet River	MA82B-06	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Assabet River	MA82B-06	5	5	(Fanwort*)	--	Unchanged
Assabet River	MA82B-06	5	5	(Water Chestnut*)	--	Unchanged
Assabet River	MA82B-06	5	5	Dissolved Oxygen	35108	Unchanged
Assabet River	MA82B-06	5	5	Escherichia Coli (E. Coli)	--	Unchanged
Assabet River	MA82B-06	5	5	Other Organics	--	Unchanged
Assabet River	MA82B-06	5	5	Unspecified Metals in Sediment	--	Unchanged
Assabet River	MA82B-07	5	4a	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Assabet River	MA82B-07	5	4a	Fecal Coliform	R1_MA_2024_04	Changed
Assabet River Reservoir	MA82004	5	5	(Aquatic Plants (Macrophytes)*)	--	Added

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Assabet River Reservoir	MA82004	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Assabet River Reservoir	MA82004	5	5	(Water Chestnut*)	--	Unchanged
Assabet River Reservoir	MA82004	5	5	Algae	--	Unchanged
Assabet River Reservoir	MA82004	5	5	Dissolved Oxygen	--	Unchanged
Assabet River Reservoir	MA82004	5	5	Dissolved Oxygen Supersaturation	--	Unchanged
Assabet River Reservoir	MA82004	5	5	Mercury in Fish Tissue	33880	Unchanged
Assabet River Reservoir	MA82004	5	5	Turbidity	--	Unchanged
Barkers Pond	MA82006	--	5	Transparency / Clarity	--	Added
Bartlett Pond	MA82007	4c	4c	(Aquatic Plants (Macrophytes)*)	--	Added
Bartlett Pond	MA82007	4c	4c	(Curly-leaf Pondweed*)	--	Unchanged
Bartlett Pond	MA82007	4c	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Bartlett Pond	MA82007	4c	4c	(Fanwort*)	--	Unchanged
Bartlett Pond	MA82007	4c	4c	(Water Chestnut*)	--	Unchanged
Batemans Pond	MA82008	4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged
Beaver Brook	MA82A-34	5	5	Dissolved Oxygen	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Beaver Brook	MA82A-34	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Boons Pond	MA82011	4a	5	(Fanwort*)	--	Unchanged
Boons Pond	MA82011	4a	5	(Non-Native Aquatic Plants*)	--	Unchanged
Boons Pond	MA82011	4a	5	Algae	2353	Unchanged
Boons Pond	MA82011	4a	5	Mercury in Fish Tissue	33880	Unchanged
Boons Pond	MA82011	4a	5	PFAS in Fish Tissue	--	Added
Broad Meadow Brook	MA82A-39	5	5	Benthic Macroinvertebrates	--	Unchanged
Broad Meadow Brook	MA82A-39	5	5	Dissolved Oxygen	--	Unchanged
Broad Meadow Brook	MA82A-39	5	5	Escherichia Coli (E. Coli)	--	Unchanged
Broad Meadow Brook	MA82A-39	5	5	Fish Bioassessments	--	Unchanged
Carding Mill Pond	MA82015	5	5	(Aquatic Plants (Macrophytes)*)	--	Unchanged
Carding Mill Pond	MA82015	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Carding Mill Pond	MA82015	5	5	(Water Chestnut*)	--	Unchanged
Carding Mill Pond	MA82015	5	5	Algae	--	Unchanged
Carding Mill Pond	MA82015	5	5	Dissolved Oxygen Supersaturation	--	Unchanged
Carding Mill Pond	MA82015	5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
Carding Mill Pond	MA82015	5	5	Phosphorus, Total	--	Unchanged
Cedar Swamp Pond	MA82016	3	3	None	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Chauncy Lake	MA82017	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Chauncy Lake	MA82017	5	5	Harmful Algal Blooms	--	Unchanged
Clamshell Pond	MA82018	4c	4c	(Water Chestnut*)	--	Unchanged
Cold Harbor Brook	MA82B-18	2	2	None	--	Unchanged
Cold Spring Brook	MA82A-18	5	5	Benthic Macroinvertebrates	--	Unchanged
Cold Spring Brook	MA82A-18	5	5	Dissolved Oxygen	--	Unchanged
Coles Brook	MA82B-22	5	5	Chloride	--	Unchanged
Coles Brook	MA82B-22	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Concord River	MA82A-07	5	5	(Asian Clam*)	--	Unchanged
Concord River	MA82A-07	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Concord River	MA82A-07	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Concord River	MA82A-07	5	5	(European Water Clover*)	--	Unchanged
Concord River	MA82A-07	5	5	(Fanwort*)	--	Unchanged
Concord River	MA82A-07	5	5	(Water Chestnut*)	--	Unchanged
Concord River	MA82A-07	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Concord River	MA82A-07	5	5	Fecal Coliform	R1_MA_2024_04	Changed
Concord River	MA82A-07	5	5	Mercury in Fish Tissue	--	Unchanged
Concord River	MA82A-07	5	5	PFAS in Fish Tissue	--	Added

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Concord River	MA82A-08	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Concord River	MA82A-08	5	5	(European Water Clover*)	--	Unchanged
Concord River	MA82A-08	5	5	(Fanwort*)	--	Unchanged
Concord River	MA82A-08	5	5	(Fish Passage Barrier*)	--	Unchanged
Concord River	MA82A-08	5	5	(Water Chestnut*)	--	Unchanged
Concord River	MA82A-08	5	5	Chloride	--	Unchanged
Concord River	MA82A-08	5	5	Escherichia Coli (E. Coli)	--	Unchanged
Concord River	MA82A-08	5	5	Mercury in Fish Tissue	--	Unchanged
Concord River	MA82A-08	5	5	PFAS in Fish Tissue	--	Added
Concord River	MA82A-08	5	5	Trash	--	Unchanged
Concord River	MA82A-09	5	5	(Debris*)	--	Unchanged
Concord River	MA82A-09	5	5	Algae	--	Unchanged
Concord River	MA82A-09	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Concord River	MA82A-09	5	5	Fecal Coliform	R1_MA_2024_04	Changed
Concord River	MA82A-09	5	5	Mercury in Fish Tissue	--	Unchanged
Concord River	MA82A-09	5	5	PFAS in Fish Tissue	--	Added
Concord River	MA82A-09	5	5	Trash	--	Unchanged
Concord River	MA82A-09	5	5	Turbidity	--	Unchanged
Danforth Brook	MA82B-19	2	2	None	--	Unchanged
Dean Park Pond	MA82026	5	5	Harmful Algal Blooms	--	Unchanged
Denny Brook	MA82A-27	3	3	None	--	Unchanged
Dudley Pond	MA82029	5	5	(Curly-leaf Pondweed*)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Dudley Pond	MA82029	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Dudley Pond	MA82029	5	5	(Non-Native Fish/Shellfish/Zooplankton*)	--	Unchanged
Dudley Pond	MA82029	5	5	Dissolved Oxygen	--	Unchanged
Dudley Pond	MA82029	5	5	Turbidity	--	Unchanged
Eames Brook	MA82A-13	5	5	(Debris*)	--	Unchanged
Eames Brook	MA82A-13	5	5	Algae	--	Unchanged
Eames Brook	MA82A-13	5	5	Benthic Macroinvertebrates	--	Unchanged
Eames Brook	MA82A-13	5	5	Odor	--	Unchanged
Eames Brook	MA82A-13	5	5	Trash	--	Unchanged
Elizabeth Brook	MA82B-12	5	4a	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Elm Street Pond	MA82032	3	3	None	--	Unchanged
Farm Pond	MA82035	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Farm Pond	MA82035	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Farm Pond	MA82035	5	5	(Fanwort*)	--	Unchanged
Farm Pond	MA82035	5	5	Algae	--	Unchanged
Farm Pond	MA82035	5	5	Turbidity	--	Unchanged
Farrar Pond	MA82036	5	5	Mercury in Fish Tissue	--	Unchanged
Fisk Pond	MA82038	4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged
Fisk Pond	MA82038	4c	4c	(Water Chestnut*)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Fiske Street Pond	MA82037	3	3	None	--	Unchanged
Fort Meadow Brook	MA82B-11	2	2	None	--	Unchanged
Fort Meadow Reservoir	MA82042	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Fort Meadow Reservoir	MA82042	5	5	(Fanwort*)	--	Unchanged
Fort Meadow Reservoir	MA82042	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Fort Meadow Reservoir	MA82042	5	5	Chlordane in Fish Tissue	--	Unchanged
Fort Meadow Reservoir	MA82042	5	5	Phosphorus, Total	--	Unchanged
Fort Pond	MA82043	3	3	None	--	Unchanged
Fort Pond Brook	MA82B-13	2	2	None	--	Unchanged
Framingham Reservoir #1	MA82044	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Framingham Reservoir #1	MA82044	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Framingham Reservoir #1	MA82044	5	5	(Water Chestnut*)	--	Unchanged
Framingham Reservoir #1	MA82044	5	5	Mercury in Fish Tissue	--	Unchanged
Framingham Reservoir #2	MA82045	5	5	Mercury in Fish Tissue	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Framingham Reservoir #2	MA82045	5	5	Turbidity	--	Unchanged
Framingham Reservoir #3	MA82046	4c	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Gates Pond	MA82047	3	3	None	--	Unchanged
Gates Pond Brook	MA82B-10	2	2	None	--	Unchanged
Gleasons Pond	MA82048	3	4c	(Aquatic Plants (Macrophytes)*)	--	Added
Great Brook	MA82B-29	5	5	Escherichia Coli (E. Coli)	--	Unchanged
Great Meadows Pond #3	MA82053	4c	4c	(Water Chestnut*)	--	Unchanged
Grist Mill Pond	MA82055	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Grist Mill Pond	MA82055	5	5	(Water Chestnut*)	--	Unchanged
Grist Mill Pond	MA82055	5	5	Algae	--	Unchanged
Grist Mill Pond	MA82055	5	5	Dissolved Oxygen Supersaturation	--	Unchanged
Grist Mill Pond	MA82055	5	5	Fecal Coliform	--	Unchanged
Grist Mill Pond	MA82055	5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
Grist Mill Pond	MA82055	5	5	Phosphorus, Total	--	Unchanged
Hager Pond	MA82056	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Hager Pond	MA82056	5	5	(Water Chestnut*)	--	Unchanged
Hager Pond	MA82056	5	5	Algae	--	Unchanged
Hager Pond	MA82056	5	5	Dissolved Oxygen Supersaturation	--	Unchanged
Hager Pond	MA82056	5	5	Fecal Coliform	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Hager Pond	MA82056	5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
Hager Pond	MA82056	5	5	Phosphorus, Total	--	Unchanged
Hager Pond	MA82056	5	5	Turbidity	--	Unchanged
Heard Pond	MA82058	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Heard Pond	MA82058	5	5	(Fanwort*)	--	Unchanged
Heard Pond	MA82058	5	5	(Water Chestnut*)	--	Unchanged
Heard Pond	MA82058	5	5	Algae	--	Unchanged
Heard Pond	MA82058	5	5	Mercury in Fish Tissue	--	Unchanged
Heard Pond	MA82058	5	5	Transparency / Clarity	--	Unchanged
Heart Pond	MA82059	5	5	(Non-Native Fish/Shellfish/Zooplankton*)	--	Unchanged
Heart Pond	MA82059	5	5	(Water Chestnut*)	--	Unchanged
Heart Pond	MA82059	5	5	Escherichia Coli (E. Coli)	--	Unchanged
Heart Pond	MA82059	5	5	Harmful Algal Blooms	--	Added
Heart Pond	MA82059	5	5	Mercury in Fish Tissue	--	Unchanged
Hocomonco Pond	MA82060	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Hocomonco Pond	MA82060	5	5	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)	--	Unchanged
Hop Brook	MA82A-05	5	5	(Water Chestnut*)	--	Unchanged
Hop Brook	MA82A-05	5	5	Algae	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Hop Brook	MA82A-05	5	5	Benthic Macroinvertebrates	--	Unchanged
Hop Brook	MA82A-05	5	5	Dissolved Oxygen	--	Unchanged
Hop Brook	MA82A-05	5	5	Dissolved Oxygen Supersaturation	--	Unchanged
Hop Brook	MA82A-05	5	5	Escherichia Coli (E. Coli)	--	Removed
Hop Brook	MA82A-05	5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
Hop Brook	MA82A-05	5	5	Phosphorus, Total	--	Unchanged
Hop Brook	MA82A-05	5	5	Turbidity	--	Unchanged
Hop Brook	MA82A-06	5	5	Dissolved Oxygen	--	Unchanged
Hop Brook	MA82A-06	5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
Hop Brook	MA82A-06	5	5	Phosphorus, Total	--	Unchanged
Hop Brook	MA82B-20	5	5	Benthic Macroinvertebrates	--	Unchanged
Hop Brook	MA82B-20	5	5	Chloride	--	Unchanged
Hopkinton Reservoir	MA82061	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Hopkinton Reservoir	MA82061	5	5	Dissolved Oxygen	--	Unchanged
Hopkinton Reservoir	MA82061	5	5	Enterococcus	--	Added
Hopkinton Reservoir	MA82061	5	5	Harmful Algal Blooms	--	Unchanged
Howard Brook	MA82B-26	3	3	None	--	Unchanged
Indian Brook	MA82A-23	2	2	None	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Indian Brook	MA82A-24	2	2	None	--	Unchanged
Jackstraw Brook	MA82A-28	3	3	None	--	Unchanged
Jackstraw Brook	MA82A-32	2	2	None	--	Unchanged
Lake Cochituate	MA82020	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Lake Cochituate	MA82020	5	5	Dissolved Oxygen	--	Unchanged
Lake Cochituate	MA82020	5	5	Harmful Algal Blooms	--	Added
Lake Cochituate	MA82020	5	5	PCBs in Fish Tissue	--	Unchanged
Lake Cochituate	MA82020	5	5	PFAS in Fish Tissue	--	Added
Lake Cochituate	MA82125	5	5	(Asian Clam*)	--	Unchanged
Lake Cochituate	MA82125	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Lake Cochituate	MA82125	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Lake Cochituate	MA82125	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Lake Cochituate	MA82125	5	5	Dissolved Oxygen	--	Unchanged
Lake Cochituate	MA82125	5	5	Harmful Algal Blooms	--	Added
Lake Cochituate	MA82125	5	5	PCBs in Fish Tissue	--	Unchanged
Lake Cochituate	MA82126	5	5	(Asian Clam*)	--	Unchanged
Lake Cochituate	MA82126	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Lake Cochituate	MA82126	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Lake Cochituate	MA82126	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Lake Cochituate	MA82126	5	5	(Water Chestnut*)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Lake Cochituate	MA82126	5	5	Harmful Algal Blooms	--	Added
Lake Cochituate	MA82126	5	5	PCBs in Fish Tissue	--	Unchanged
Lake Cochituate	MA82126	5	5	PFAS in Fish Tissue	--	Added
Lake Cochituate	MA82127	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Lake Cochituate	MA82127	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Lake Cochituate	MA82127	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Lake Cochituate	MA82127	5	5	(Water Chestnut*)	--	Unchanged
Lake Cochituate	MA82127	5	5	Dissolved Oxygen	--	Unchanged
Lake Cochituate	MA82127	5	5	Harmful Algal Blooms	--	Added
Lake Cochituate	MA82127	5	5	PCBs in Fish Tissue	--	Unchanged
Lake Cochituate	MA82127	5	5	PFAS in Fish Tissue	--	Added
Learned Pond	MA82069	3	3	None	--	Unchanged
Little Chauncy Pond	MA82070	5	5	(Aquatic Plants (Macrophytes)*)	--	Added
Little Chauncy Pond	MA82070	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Little Chauncy Pond	MA82070	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Little Chauncy Pond	MA82070	5	5	Mercury in Fish Tissue	--	Unchanged
Long Pond	MA82072	5	5	Algae	--	Unchanged
Long Pond	MA82072	5	5	Dissolved Oxygen	--	Unchanged
Long Pond	MA82072	5	5	Phosphorus, Total	--	Unchanged
Meadow Pond	MA82129	3	3	None	--	Unchanged
Milham Reservoir	MA82077	3	3	None	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Mill Brook	MA82A-20	4c	4c	(Habitat Assessment*)	--	Unchanged
Nagog Pond	MA82082	3	3	None	--	Unchanged
Nashoba Brook	MA82B-14	5	5	(Dewatering*)	--	Unchanged
Nashoba Brook	MA82B-14	5	5	Benthic Macroinvertebrates	--	Unchanged
Nashoba Brook	MA82B-14	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Nashoba Brook	MA82B-14	5	5	Temperature	--	Unchanged
North Brook	MA82B-21	5	5	(Curly-leaf Pondweed*)	--	Unchanged
North Brook	MA82B-21	5	5	Temperature	--	Unchanged
North Great Meadows	MA82084	4c	4c	(Water Chestnut*)	--	Unchanged
Nutting Lake	MA82088	5	5	(Water Chestnut*)	--	Unchanged
Nutting Lake	MA82088	5	5	Escherichia Coli (E. Coli)	--	Unchanged
Nutting Lake	MA82088	5	5	Mercury in Fish Tissue	33880	Unchanged
Nutting Lake	MA82124	4a	4a	Mercury in Fish Tissue	33880	Unchanged
Pantry Brook	MA82A-19	5	4a	Fecal Coliform	R1_MA_2024_04	Changed
Piccadilly Brook	MA82A-30	5	5	Fish Bioassessments	--	Unchanged
Piccadilly Brook	MA82A-30	5	5	Temperature	--	Unchanged
Pine Brook	MA82A-14	2	2	None	--	Unchanged
Puffers Pond	MA82092	5	5	Mercury in Fish Tissue	--	Unchanged
River Meadow Brook	MA82A-10	5	5	(Debris*)	--	Unchanged
River Meadow Brook	MA82A-10	5	5	(Water Chestnut*)	--	Unchanged
River Meadow Brook	MA82A-10	5	5	Benthic Macroinvertebrates	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
River Meadow Brook	MA82A-10	5	5	Chloride	--	Unchanged
River Meadow Brook	MA82A-10	5	5	Dissolved Oxygen	--	Unchanged
River Meadow Brook	MA82A-10	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
River Meadow Brook	MA82A-10	5	5	Fecal Coliform	R1_MA_2024_04	Changed
River Meadow Brook	MA82A-10	5	5	Temperature	--	Unchanged
River Meadow Brook	MA82A-10	5	5	Trash	--	Unchanged
Rocky Pond	MA82095	4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged
Rutters Brook	MA82A-29	3	3	None	--	Unchanged
Saxonville Pond	MA82097	5	5	(Aquatic Plants (Macrophytes)*)	--	Unchanged
Saxonville Pond	MA82097	5	5	(European Water Clover*)	--	Unchanged
Saxonville Pond	MA82097	5	5	(Fanwort*)	--	Unchanged
Saxonville Pond	MA82097	5	5	(Water Chestnut*)	--	Unchanged
Saxonville Pond	MA82097	5	5	Mercury in Fish Tissue	--	Unchanged
Saxonville Pond	MA82097	5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
Second Division Brook	MA82B-09	2	2	None	--	Unchanged
Sheep Fall Brook	MA82B-25	2	2	None	--	Unchanged
Smith Pond	MA82099	3	3	None	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Solomon Pond	MA82100	3	3	None	--	Unchanged
Spencer Brook	MA82B-15	2	2	None	--	Unchanged
Stony Brook	MA82A-33	2	2	None	--	Unchanged
Sudbury Reservoir	MA82106	4a	4a	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Sudbury Reservoir	MA82106	4a	4a	(Water Chestnut*)	--	Unchanged
Sudbury Reservoir	MA82106	4a	4a	Mercury in Fish Tissue	33880	Unchanged
Sudbury River	MA82A-01	2	2	None	--	Unchanged
Sudbury River	MA82A-03	5	5	(Asian Clam*)	--	Unchanged
Sudbury River	MA82A-03	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Sudbury River	MA82A-03	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
Sudbury River	MA82A-03	5	5	(Water Chestnut*)	--	Unchanged
Sudbury River	MA82A-03	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Sudbury River	MA82A-03	5	5	Fish Bioassessments	--	Unchanged
Sudbury River	MA82A-03	5	5	Mercury in Fish Tissue	--	Unchanged
Sudbury River	MA82A-04	5	5	(Water Chestnut*)	--	Unchanged
Sudbury River	MA82A-04	5	5	Dissolved Oxygen	--	Unchanged
Sudbury River	MA82A-04	5	5	Mercury in Fish Tissue	--	Unchanged
Sudbury River	MA82A-25	5	5	(Water Chestnut*)	--	Unchanged
Sudbury River	MA82A-25	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Sudbury River	MA82A-25	5	5	Mercury in Fish Tissue	--	Unchanged
Sudbury River	MA82A-26	5	5	(Water Chestnut*)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Sudbury River	MA82A-26	5	5	Benthic Macroinvertebrates	--	Unchanged
Sudbury River	MA82A-26	5	5	Mercury in Fish Tissue	--	Unchanged
Taylor Brook	MA82B-08	3	3	None	--	Unchanged
Tripp Pond	MA82107	3	3	None	--	Unchanged
Unnamed Tributary	MA82A-15	5	5	Algae	--	Unchanged
Unnamed Tributary	MA82A-15	5	5	Ambient Bioassays - Chronic Aquatic Toxicity	--	Unchanged
Unnamed Tributary	MA82A-15	5	5	Dissolved Oxygen	--	Unchanged
Unnamed Tributary	MA82A-15	5	5	Phosphorus, Total	--	Unchanged
Unnamed Tributary	MA82A-15	5	5	Total Suspended Solids (TSS)	--	Unchanged
Unnamed Tributary	MA82A-16	5	5	Algae	--	Unchanged
Unnamed Tributary	MA82A-16	5	5	Dissolved Oxygen	--	Unchanged
Unnamed Tributary	MA82A-16	5	5	Dissolved Oxygen Supersaturation	--	Unchanged
Unnamed Tributary	MA82A-16	5	5	pH, High	--	Unchanged
Unnamed Tributary	MA82A-16	5	5	Phosphorus, Total	--	Unchanged
Unnamed Tributary	MA82A-16	5	5	Total Suspended Solids (TSS)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Unnamed Tributary	MA82A-17	5	5	Algae	--	Unchanged
Unnamed Tributary	MA82A-17	5	5	Dissolved Oxygen	--	Unchanged
Unnamed Tributary	MA82A-17	5	5	Dissolved Oxygen Supersaturation	--	Unchanged
Unnamed Tributary	MA82A-17	5	5	Phosphorus, Total	--	Unchanged
Unnamed Tributary	MA82A-17	5	5	Total Suspended Solids (TSS)	--	Unchanged
Unnamed Tributary	MA82A-22	5	5	(Curly-leaf Pondweed*)	--	Unchanged
Unnamed Tributary	MA82A-22	5	5	(Debris*)	--	Unchanged
Unnamed Tributary	MA82A-22	5	5	Benthic Macroinvertebrates	--	Unchanged
Unnamed Tributary	MA82A-22	5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
Unnamed Tributary	MA82A-22	5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
Unnamed Tributary	MA82A-22	5	5	Trash	--	Unchanged
Unnamed Tributary	MA82A-31	4c	4c	(Flow Regime Modification*)	--	Unchanged
Unnamed Tributary	MA82A-31	4c	4c	(Water Chestnut*)	--	Unchanged
Unnamed Tributary	MA82A-35	2	2	None	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Unnamed Tributary	MA82A-36	2	2	None	--	Unchanged
Unnamed Tributary	MA82B-16	3	3	None	--	Unchanged
Unnamed Tributary	MA82B-23	2	2	None	--	Unchanged
Unnamed Tributary	MA82B-24	2	2	None	--	Unchanged
Unnamed Tributary	MA82B-27	3	3	None	--	Unchanged
Unnamed Tributary	MA82B-28	3	3	None	--	Unchanged
Unnamed Tributary	MA82B-31	5	5	Benthic Macroinvertebrates	--	Unchanged
Unnamed Tributary	MA82B-31	5	5	Chloride	--	Unchanged
Unnamed Tributary	MA82B-31	5	5	Dissolved Oxygen	--	Unchanged
Unnamed Tributary	MA82B-31	5	5	Escherichia Coli (E. Coli)	--	Unchanged
Unnamed Tributary	MA82B-32	2	2	None	--	Unchanged
Walden Pond	MA82109	4a	5	Mercury in Fish Tissue	33880	Unchanged
Walden Pond	MA82109	4a	5	PFAS in Fish Tissue	--	Added
Warners Pond	MA82110	4a	4a	(Water Chestnut*)	--	Unchanged
Warners Pond	MA82110	4a	4a	Mercury in Fish Tissue	33880	Unchanged
Waushakum Pond	MA82112	5	5	(Non-Native Aquatic Plants*)	--	Unchanged

Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Waushakum Pond	MA82112	5	5	Chlorophyll-a	--	Unchanged
Waushakum Pond	MA82112	5	5	Dissolved Oxygen	--	Unchanged
Waushakum Pond	MA82112	5	5	Phosphorus, Total	--	Unchanged
Waushakum Pond	MA82112	5	5	Turbidity	--	Unchanged
West Pond	MA82115	3	3	None	--	Unchanged
Westborough Reservoir	MA82114	3	3	None	--	Unchanged
White Pond	MA82118	5	5	Dissolved Oxygen	--	Unchanged
White Pond	MA82118	5	5	Harmful Algal Blooms	--	Unchanged
White Pond	MA82119	3	3	None	--	Unchanged
Whitehall Brook	MA82A-11	5	5	Benthic Macroinvertebrates	--	Unchanged
Whitehall Brook	MA82A-11	5	5	Dissolved Oxygen	--	Unchanged
Whitehall Reservoir	MA82120	5	5	(Fanwort*)	--	Unchanged
Whitehall Reservoir	MA82120	5	5	(Non-Native Aquatic Plants*)	--	Unchanged
Whitehall Reservoir	MA82120	5	5	Dissolved Oxygen	--	Unchanged
Whitehall Reservoir	MA82120	5	5	Mercury in Fish Tissue	33880	Unchanged
Whitehall Reservoir	MA82120	5	5	Phosphorus, Total	--	Unchanged
Williams Lake	MA82121	3	3	None	--	Unchanged
Willis Pond	MA82122	3	3	None	--	Unchanged
Winning Pond	MA82123	4c	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged

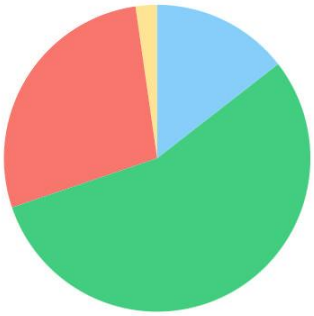
Waterbody	AU_ID	AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
Winning Pond	MA82123	4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged
Winning Pond	MA82123	4c	4c	(Water Chestnut*)	--	Unchanged

Allowance Brook (MA82A-37)

Location:	(locally known as Landham Brook) From outlet small unnamed pond south of Hiram Road, Framingham to mouth at confluence with Hop Brook, Sudbury.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

Allowance Brook (MA82A-37)

Watershed Area: 4.49 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	4.49	4.29	1.29	1.22
Agriculture	2.3%	1.6%	4.4%	3.1%
Developed	27.9%	28.3%	20.5%	21.2%
Natural	55.3%	55.4%	45.9%	45.9%
Wetland	14.5%	14.8%	29.2%	29.8%
Impervious	14.5%	14.8%	10.9%	11.3%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Allowance Brook (MA82A-37), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Allowance Brook (MA82A-37) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for Allowance Brook (MA82A-37) is assessed as Fully Supporting based on *E. coli* data collected at OARS_LND-007 in 2021. OARS staff/volunteers collected limited *E. coli* bacteria samples in the downstream third of Allowance Brook (MA82A-37) at OARS_LND-007 [Raymond Rd. southern bridge, Sudbury] from Jun-Aug 2021 (n=3). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 100 CFU/100mL). These *E. coli* data meet 2024 CALM guidance.

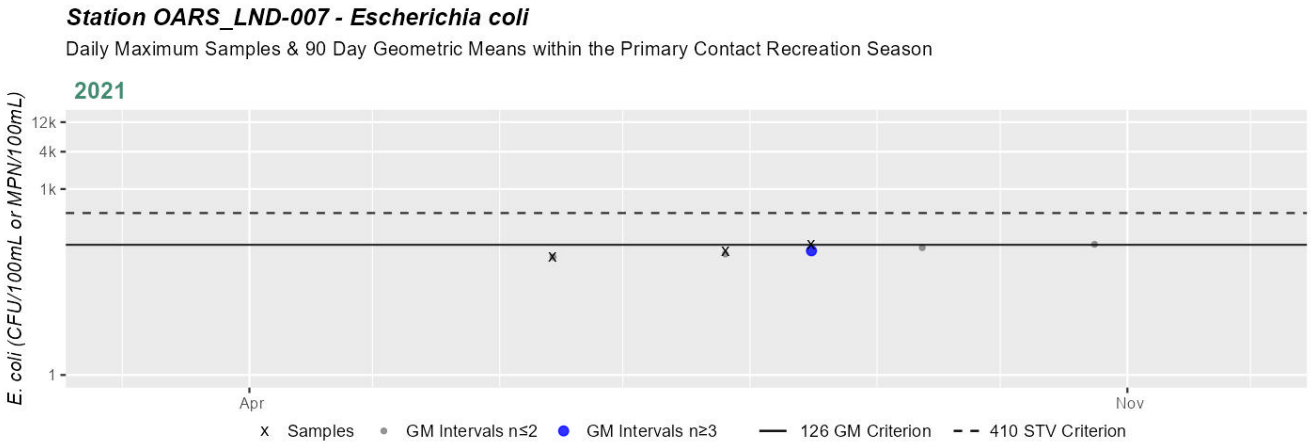
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_LND-007	OARS	Water Quality	Landham Brook	Raymond Rd. southern bridge, Sudbury	42.353936	-71.420862

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_LND-007	OARS	E. coli	06/14/21	08/16/21	3	80	128	100



Variable*	Result
Samples	3
SeasGM	100
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Allowance Brook (MA82A-37) is assessed as Fully Supporting based on *E. coli* data collected at OARS_LND-007 in 2021. OARS staff/volunteers collected limited *E. coli* bacteria samples in the downstream third of Allowance Brook (MA82A-37) at OARS_LND-007 [Raymond Rd. southern bridge, Sudbury] from Jun-Aug 2021 (n=3). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 100 CFU/100mL. These *E. coli* data meet 2024 CALM guidance.

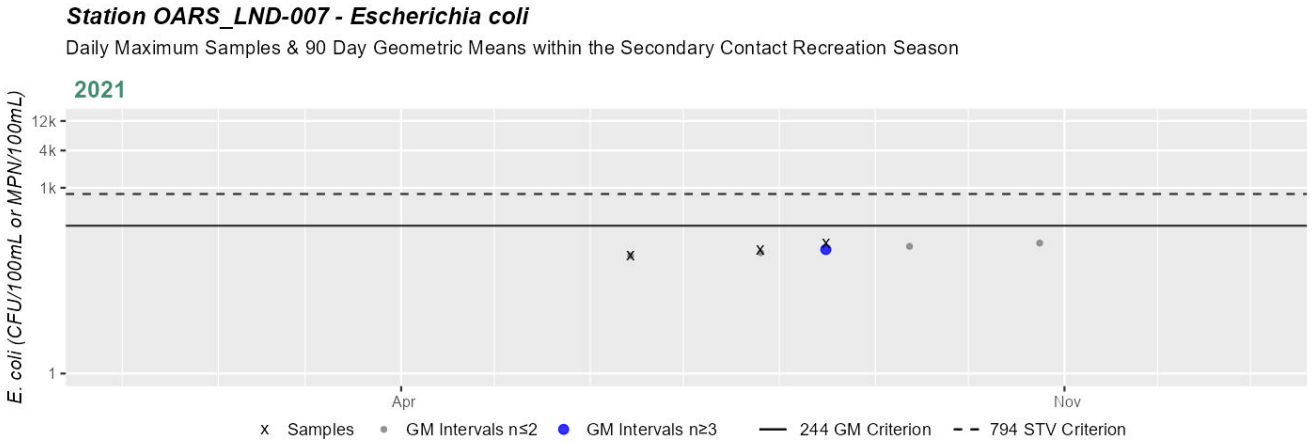
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_LND-007	OARS	Water Quality	Landham Brook	Raymond Rd. southern bridge, Sudbury	42.353936	-71.420862

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_LND-007	OARS	E. coli	06/14/21	08/16/21	3	80	128	100



Variable*	Result
Samples	3
SeasGM	100
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Ashland Reservoir (MA82003)

Location:	Ashland.
AU Type:	FRESHWATER LAKE
AU Size:	168 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	5	(Non-Native Aquatic Plants*)	--	Unchanged
4a	5	Enterococcus	--	Added
4a	5	Mercury in Fish Tissue	42396	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Enterococcus	Source Unknown (N)	--	--	--	X	--
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary

The Fish Consumption Use for Ashland Reservoir (MA82003) continues to be assessed as Not Supporting. The prior Mercury in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted at Ashland Reservoir (MA82003) in Ashland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. DPH issued a site-specific advisory for PFAS in Ashland Reservoir in their February 2023 Freshwater Fish Consumption Advisory List, and retained both this advisory as well as the existing Mercury advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Fish Consumption Advisories

Summary of Fish Toxics Sampling and Resulting Fish Consumption Advisories (MA DPH 2025) (MA DPH 2023b)

Summary Statement
Fish toxics sampling was conducted at Ashland Reservoir (MA82003) in Ashland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for Ashland Reservoir in their February 2023 Freshwater Fish Consumption Advisory List. Additionally, MA DPH retained the existing site-specific fish consumption advisories for Mercury associated with Ashland Reservoir in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for PFAS in Fish Tissue and Mercury in Fish Tissue for Ashland Reservoir (MA82003).

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Ashland Reservoir (MA82003) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Ashland Reservoir (MA82003) is assessed as Not Supporting. An Enterococcus impairment is being added due to DPH beach closure data not meeting the threshold at Ashland Reservoir-Main Beach (DCR) [Beach ID: 4533]. The prior Alert for Enterococcus is being removed.
Ashland Reservoir (MA82003) has a beach with DPH beach closure data: DCR's Ashland Reservoir-Main Beach [Beach ID: 4533] in Ashland. The beach was posted for >10% of the swimming season in 2019 (11%) and 2021 (21%) indicating an Enterococcus impairment.
Surface water sampling was conducted at the Main Beach on Ashland Reservoir (MA82003) as part of a May 2022 MA DPH study assessing 40 PFAS analytes in surface water and fish tissue samples collected from waterbodies in state parks. The average concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value (maximum average 4.0 ng/L PFOA).

Beach Postings

MA DPH Beach Posting Data Summary (% Bathing Season Posted 2014-2022) (Bailey, Logan Feb. 2, 2021) (Bailey Sept. 10, 2023) (MassDEP Undated 2)

Beach ID	Beach Name/ Town	Left Border (Lat., Long.)	Right Border (Lat., Long.)	2014	2015	2016	2017	2018	2019	2020	2021	2022	# years >10%
4533	Ashland Reservoir-Main Beach (DCR)/ Ashland	42.24410, -71.46570	42.24380, -71.46690	4%	0%	7%	2%	6%	11%	8%	21%	4%	2

Other Indicators

Summary of MA DPH 2021 and 2022 PFAS in Water Column Data (MA DPH 2023a, MA DPH 2023b)

Surface water sampling was conducted at the Main Beach on Ashland Reservoir (MA82003) in Ashland as part of a May 2022 MA DPH study assessing 40 PFAS analytes in surface water and fish tissue samples collected from waterbodies in state parks. The average concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value (maximum average 4.0 ng/L PFOA).

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary

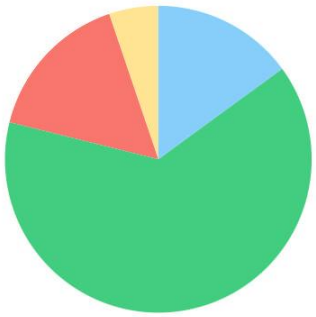
No bacteria monitoring data are available to assess the Secondary Contact Recreation Use for Ashland Reservoir (MA82003) so it is assessed as having Insufficient Information.
Since DPH's beach closure data indicate that the DCR Ashland Reservoir-Main Beach [Beach ID: 4533] was posted for >10% of the swimming season in 2019 and 2021 the beach closure data cannot be used to positively assess the Secondary Contact Recreation Use of Ashland Reservoir (MA82003).

Assabet Brook (MA82B-17)

Location:	(locally known as Elizabeth Brook) Headwaters, outlet Fletchers Pond, Stow to mouth at confluence with the Assabet River, Stow.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

Assabet Brook (MA82B-17)

Watershed Area: 20.10 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	20.10	4.34	6.93	1.42
Agriculture	5.2%	3.8%	4.3%	4.6%
Developed	15.9%	20.8%	13%	20.3%
Natural	63.9%	54.7%	55.4%	44%
Wetland	15%	20.8%	27.2%	31.1%
Impervious	6.6%	7.7%	5.6%	7.3%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Benthic Macroinvertebrates	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--

Recommendations

2024/26 Recommendations
2022 IR [Algae, low priority] Follow-up aesthetics observation data should be obtained at W2511 on Assabet Brook (MA82B-17) since an algal mat was documented in the summer of 2015 (an aesthetics impairment flag was noted during the Sept 9th survey due to a floating algal mat that "covers approximately 90% of stream" (MassDEP Undated 7)), resulting in an Alert on the Aesthetics Use in the 2022 IR cycle and carried forward in the 2024/2026 IR cycle. {W2511}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Assabet Brook (MA82B-17), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	YES

2024/26 Use Attainment Summary
The Aesthetics Use for Assabet Brook (MA82B-17), locally known as Elizabeth Brook, is assessed as Fully Supporting based on the general lack of objectionable conditions noted by MassDEP staff at W2511 in the summer of 2015. However, the prior Alert for an algal mat documented in the 2022 IR cycle is being carried forward and a recommendation for follow-up sampling will be made. MassDEP field crews recorded aesthetics observations at one station halfway down this Assabet Brook AU, west of White Pond Road, Stow ~4200 ft upstream of the confluence with the Assabet River (W2511/MAP2-655) during summer 2015 (n=5). Generally, no persistent odors, deposits, or turbidity were observed but an aesthetics impairment flag was noted during the Sept 9th survey due to a floating algal mat that "covers approximately 90% of stream" (MassDEP Undated 7).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2511	MassDEP	Water Quality	Assabet Brook	[west of White Pond Road, Stow approximately 4200 feet upstream of mouth at confluence with Assabet River, Stow]	42.427641	-71.485449

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2511	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2511 on Assabet Brook (MA82B-17) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted an aesthetics impairment flag (n=1).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2511	2015	5	5	1

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2511	Assabet Brook	2015	Aesthetics Impaired?	No	4	5
W2511	Assabet Brook	2015	Aesthetics Impaired?	Yes	1	5
W2511	Assabet Brook	2015	Aquatic Plant Density, Overall	Dense	1	5
W2511	Assabet Brook	2015	Aquatic Plant Density, Overall	Moderate	1	5
W2511	Assabet Brook	2015	Aquatic Plant Density, Overall	Sparse	3	5
W2511	Assabet Brook	2015	Color	Light Yellow/Tan	4	5
W2511	Assabet Brook	2015	Color	None	1	5
W2511	Assabet Brook	2015	Objectionable Deposits	No	5	5
W2511	Assabet Brook	2015	Odor	None	5	5
W2511	Assabet Brook	2015	Periphyton Density, Filamentous	None	4	5
W2511	Assabet Brook	2015	Periphyton Density, Filamentous	Very Dense	1	5
W2511	Assabet Brook	2015	Periphyton Density, Film	None	4	5
W2511	Assabet Brook	2015	Periphyton Density, Film	NR	1	5
W2511	Assabet Brook	2015	Scum	No	3	5
W2511	Assabet Brook	2015	Scum	Yes	2	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2511	Assabet Brook	2015	Turbidity	None	4	5
W2511	Assabet Brook	2015	Turbidity	Slightly Turbid	1	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Assabet Brook (MA82B-17), locally known as Elizabeth Brook, continues to be assessed as Fully Supporting. The prior Alert for a floating algal mat is being removed from the recreational uses but continues to be maintained under the Aesthetics Use.

MassDEP staff collected *E. coli* bacteria samples in Assabet Brook (MA82B-17) at W2511 [W of White Pond Rd, Stow ~4200 ft upstream of mouth at confluence with Assabet River, Stow] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100 mL STV (the seasonal GM was 72 CFU/100mL). These data are indicative of excellent water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2511	MassDEP	Water Quality	Assabet Brook	[west of White Pond Road, Stow approximately 4200 feet upstream of mouth at confluence with Assabet River, Stow]	42.427641	-71.485449

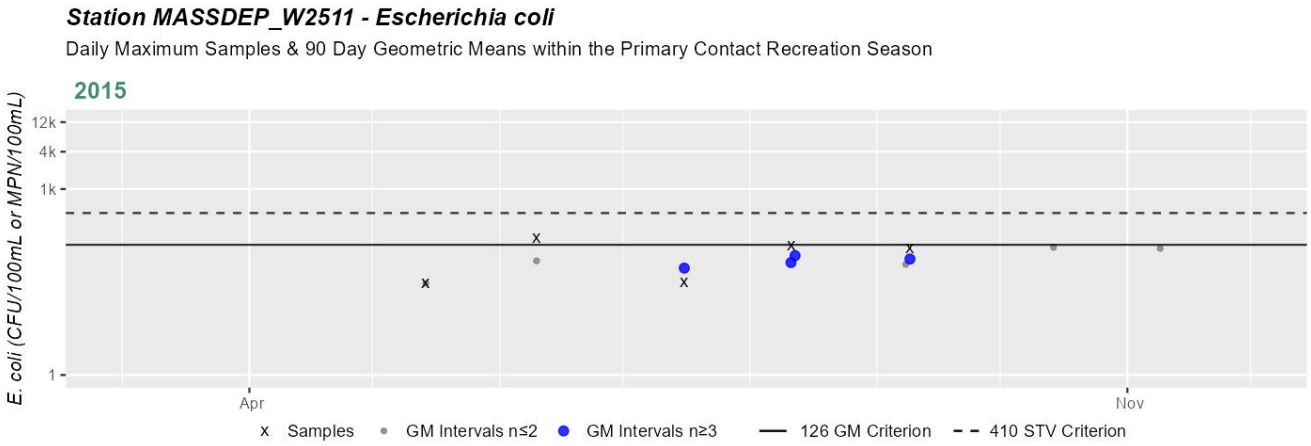
Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)

(MassDEP Undated 7) (MassDEP Undated 4)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2511	MassDEP	E. coli	05/14/15	09/09/15	5	30	160	72



Variable*	Result
Samples	5
SeasGM	72
#GMI	4
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Assabet Brook (MA82B-17), locally known as Elizabeth Brook, continues to be assessed as Fully Supporting. The prior Alert for a floating algal mat is being removed from the recreational uses but continues to be maintained under the Aesthetics Use. MassDEP staff collected *E. coli* bacteria samples in Assabet Brook (MA82B-17) at W2511 [W of White Pond Rd, Stow ~4200 ft upstream of mouth at confluence with Assabet River, Stow] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100 mL STV (the overall GM was 72 CFU/100mL). These data are indicative of excellent water quality conditions.

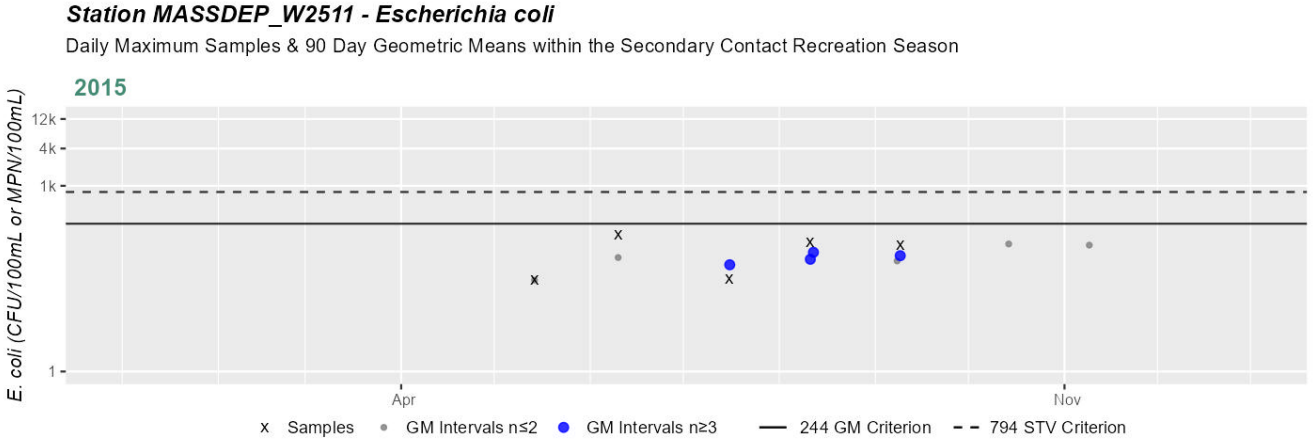
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2511	MassDEP	Water Quality	Assabet Brook	[west of White Pond Road, Stow approximately 4200 feet upstream of mouth at confluence with Assabet River, Stow]	42.427641	-71.485449

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2511	MassDEP	E. coli	05/14/15	09/09/15	5	30	160	72



Variable*	Result
Samples	5
SeasGM	72
#GMI	4
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River (MA82B-01)

Location:	Headwaters, outlet Assabet River Reservoir, Westborough to the Westborough WWTP discharge (NPDES: MA0100412), Westborough.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B: WWF, HQW

Assabet River (MA82B-01)

Watershed Area: 8.34 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	8.34	7.50	2.78	2.66
Agriculture	7%	6.8%	3.6%	3.7%
Developed	23.8%	23.2%	15.4%	15.8%
Natural	56.4%	57.5%	62.4%	63.3%
Wetland	12.8%	12.5%	18.6%	17.2%
Impervious	10%	10.2%	6.8%	7.1%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Dewatering*)	--	Unchanged
5	5	Benthic Macroinvertebrates	35103	Changed
5	5	Fish Bioassessments	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Dewatering*)	Source Unknown (N)	X	--	--	--	--
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Benthic Macroinvertebrates	Unspecified Urban Stormwater (Y)	X	--	--	--	--
Fish Bioassessments	Source Unknown (N)	X	--	--	--	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Benthic Macroinvertebrates	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Assabet River Total Maximum Daily Load for Total Phosphorus (Report CN 201.0, approved 9/23/2004, ATTAINS Action ID: 35103)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted recently in this Assabet River AU (MA82B-01), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Assabet River AU (MA82B-01) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary

No bacteria data are available to assess the Primary Contact Recreation Use for this upstream Assabet River AU (MA82B-01) so it is assessed as having Insufficient Information.
Surface water sampling was conducted by the USGS upstream of the Westborough WWTF discharge on this Assabet River AU (MA82B-01) at station USGS_01096603 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
USGS-01096603	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER NEAR WESTBOROUGH, MA; upstream of Westborough WWTF	42.280000	-71.638000

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS upstream of the Westborough WWTF discharge on this Assabet River AU (MA82B-01) at station USGS_01096603 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01096603	8/17/2020	5.13	9.39	10.1	2.66	6.21	1.9	30.7*
USGS-01096603	9/22/2020	4.08	E6.98	4.04	2.33	2.66	E1.41	20.8*
USGS-01096603	10/28/2020	3.82	6.16	5.46	E1.72	3.93	E1.15	20.2*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this upstream Assabet River AU (MA82B-01) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected historical *E. coli* bacteria samples in the middle of this Assabet River AU (MA82B-01) at W1468 [Maynard St bridge, Westborough] from May-Sep 2006 (n=5). Analysis of this limited frequency *E. coli* dataset from W1468 indicated no intervals had GMs >244 CFU/100mL, no samples exceeded the 794 CFU/100mL STV, and the overall GM was 96 CFU/100mL. Historic *E. coli* data from W1468 were indicative of good water quality, however, since these data were collected prior to the current IR window (2011-2022) they cannot be used to positively assess the Secondary Contact Recreation Use.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1468	MassDEP	Water Quality	Assabet River	[Maynard Street bridge, Westborough]	42.274060	-71.632242

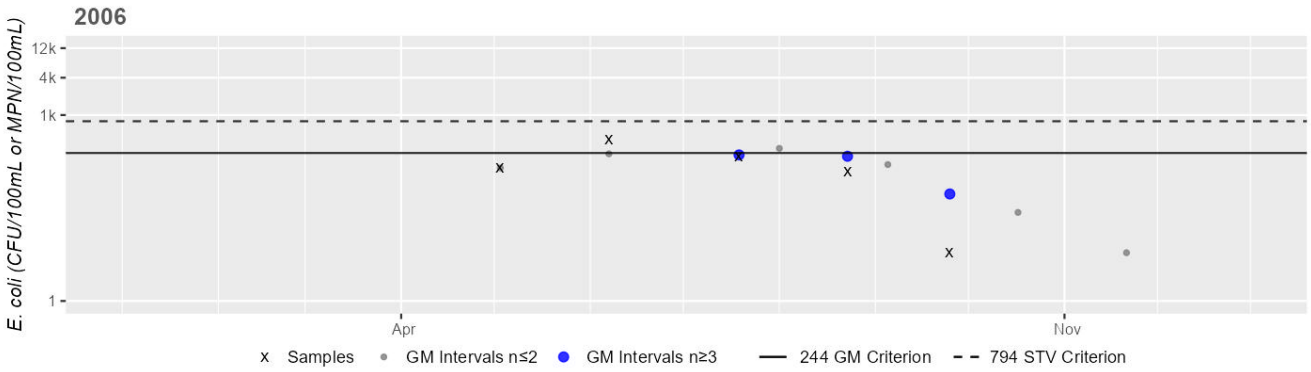
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1468	MassDEP	E. coli	05/03/06	09/25/06	5	6	400	96

Station MASSDEP_W1468 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	96
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River (MA82B-02)

Location:	From the Westborough WWTP discharge (NPDES: MA0100412), Westborough to the dam (NATID: MA02843) Route 20, Northborough.
AU Type:	RIVER
AU Size:	3.8 MILES
Classification/Qualifier:	B: WWF

Assabet River (MA82B-02)

Watershed Area: 19.98 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	19.98	7.62	6.81	2.96
Agriculture	4.4%	3.4%	3.1%	3.7%
Developed	33.9%	37.4%	23.7%	25.4%
Natural	48.4%	41.9%	49.6%	39.2%
Wetland	13.3%	17.4%	23.6%	31.7%
Impervious	15.6%	17.7%	10.6%	11.1%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	4a	(Aquatic Plants (Macrophytes)*)	--	Unchanged
5	4a	(Curly-leaf Pondweed*)	--	Unchanged
5	4a	Algae	35104	Unchanged
5	4a	Benthic Macroinvertebrates	35104	Changed
5	4a	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	4a	Fecal Coliform	R1_MA_2024_04	Changed
5	4a	Nutrient/Eutrophication Biological Indicators	35104	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Aquatic Plants (Macrophytes)*)	Source Unknown (N)	--	--	X	X	X
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Source Unknown (N)	--	--	X	X	X
Benthic Macroinvertebrates	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	--	--	--
Benthic Macroinvertebrates	Municipal Point Source Discharges (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Fecal Coliform	Source Unknown (N)	--	--	--	X	--
Nutrient/Eutrophication Biological Indicators	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	X	X	X
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X	--	X	X	X
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X	--	X	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Benthic Macroinvertebrates	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Assabet River Total Maximum Daily Load for Total Phosphorus (Report CN 201.0, approved 9/23/2004, ATTAINS Action ID: 35104)
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

2022 Removed Impairment	Removal Reason	Removal Comment
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Recommendations

2024/26 Recommendations
<2016 [effluent odors and a discharge, low priority] Conduct follow-up monitoring (aesthetics observations and potentially habitat survey) in this Assabet River AU (MA82B-02) to determine whether the prior Alerts for effluent odors and the discharge documented near the Juniper Hill Golf Course (first noted in the 2001 Concord Water Quality Assessment report (O'Brien-Clayton 2005) which summarized a local stream team's 2002 report) can be removed or whether an impairment is warranted {near Juniper Hill Golf Course on Assabet River (MA82B-02)}; <2016 [trash & algae, low priority] Conduct follow-up monitoring (aesthetics observations and potentially habitat survey) in this Assabet River AU (MA82B-02) to determine whether the prior Alerts for localized areas of trash and algal growth near the Rt. 20 dam (first noted in the 2001 Concord Water Quality Assessment report (O'Brien-Clayton 2005) which summarized a local stream team's 2002 report) can be removed or whether an impairments is warranted {near the Rt 20 dam on Assabet River (MA82B-02)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Assabet River (MA82B-02) AU, so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Aesthetics Use of this Assabet River AU (MA82B-02) continues to be assessed as Not Supporting with all prior impairments (Algae, Aquatic Plants (Macrophytes), Nutrient/Eutrophication Biological Indicators) being carried forward. Additionally, the prior Alerts for effluent odors, the discharge documented near the Juniper Hill Golf Course, as well as localized areas of trash and algal growth near the Rt. 20 dam (first noted in the 2001 Concord Water Quality Assessment report (O'Brien-Clayton 2005) which summarized a local stream team's 2002 report), are also being carried forward. MassDEP field crews recorded aesthetics observations at one station halfway down this Assabet River AU at School St, Northborough (W0695) during the summers of 2011 (n=6), 2012 (n=5) and 2013 (n=5). While there were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, three instances of dense/very dense filamentous algae were recorded in 2012 (however, this was the year that enhanced nutrient treatment was implemented at the Westborough WWTP (Beaudoin 2017). Now that time has passed since upgrades to the Westborough WWTP, data should be collected that will allow reevaluation of these impairments.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0695	MassDEP	Water Quality	Assabet River	[School Street, Northborough]	42.304853	-71.628451

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0695	2011	6	Aesthetic observations were made by MassDEP field sampling crews at Station W0695 on Assabet River (MA82B-02) during 6 site visits between Jan 2011 and Nov 2011. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.
W0695	2012	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0695 on Assabet River (MA82B-02) during 5 site visits between Feb 2012 and Oct 2012. There were some objectionable conditions recorded, including dense/very dense filamentous algae (n=3). These conditions are indicative of an Alert status.
W0695	2013	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0695 on Assabet River (MA82B-02) during 5 site visits between Jan 2013 and Sep 2013. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0695	2011	6	6	0
W0695	2012	5	5	3
W0695	2013	5	4	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0695	Assabet River	2011	Aquatic Plant Density, Overall	Moderate	1	6
W0695	Assabet River	2011	Aquatic Plant Density, Overall	None	4	6
W0695	Assabet River	2011	Aquatic Plant Density, Overall	Sparse	1	6
W0695	Assabet River	2011	Color	Light Yellow/Tan	3	6
W0695	Assabet River	2011	Color	None	2	6
W0695	Assabet River	2011	Color	Reddish	1	6
W0695	Assabet River	2011	Objectionable Deposits	No	6	6
W0695	Assabet River	2011	Odor	None	6	6
W0695	Assabet River	2011	Periphyton Density, Filamentous	None	6	6
W0695	Assabet River	2011	Periphyton Density, Film	None	6	6
W0695	Assabet River	2011	Scum	No	5	6
W0695	Assabet River	2011	Scum	Yes	1	6
W0695	Assabet River	2011	Turbidity	None	6	6
W0695	Assabet River	2012	Aquatic Plant Density, Overall	Moderate	1	5
W0695	Assabet River	2012	Aquatic Plant Density, Overall	None	2	5
W0695	Assabet River	2012	Aquatic Plant Density, Overall	Sparse	1	5
W0695	Assabet River	2012	Aquatic Plant Density, Overall	Very Dense	1	5
W0695	Assabet River	2012	Color	Light Yellow/Tan	2	5
W0695	Assabet River	2012	Color	None	3	5
W0695	Assabet River	2012	Objectionable Deposits	No	4	5
W0695	Assabet River	2012	Objectionable Deposits	Yes	1	5
W0695	Assabet River	2012	Odor	Effluent (Treated)	1	5
W0695	Assabet River	2012	Odor	Musty (Basement)	2	5
W0695	Assabet River	2012	Odor	None	2	5
W0695	Assabet River	2012	Periphyton Density, Filamentous	Dense	2	5
W0695	Assabet River	2012	Periphyton Density, Filamentous	None	2	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0695	Assabet River	2012	Periphyton Density, Filamentous	Very Dense	1	5
W0695	Assabet River	2012	Periphyton Density, Film	Moderate	1	5
W0695	Assabet River	2012	Periphyton Density, Film	None	4	5
W0695	Assabet River	2012	Scum	No	5	5
W0695	Assabet River	2012	Turbidity	Moderately Turbid	1	5
W0695	Assabet River	2012	Turbidity	None	4	5
W0695	Assabet River	2013	Aesthetics Impaired?	No	3	5
W0695	Assabet River	2013	Aesthetics Impaired?	NR	2	5
W0695	Assabet River	2013	Aquatic Plant Density, Overall	None	3	5
W0695	Assabet River	2013	Aquatic Plant Density, Overall	Sparse	1	5
W0695	Assabet River	2013	Aquatic Plant Density, Overall	Unobservable	1	5
W0695	Assabet River	2013	Color	None	4	5
W0695	Assabet River	2013	Color	Reddish	1	5
W0695	Assabet River	2013	Objectionable Deposits	No	4	5
W0695	Assabet River	2013	Objectionable Deposits	Unobservable	1	5
W0695	Assabet River	2013	Odor	Musty (Basement)	2	5
W0695	Assabet River	2013	Odor	None	3	5
W0695	Assabet River	2013	Periphyton Density, Filamentous	None	4	5
W0695	Assabet River	2013	Periphyton Density, Filamentous	Unobservable	1	5
W0695	Assabet River	2013	Periphyton Density, Film	None	4	5
W0695	Assabet River	2013	Periphyton Density, Film	Unobservable	1	5
W0695	Assabet River	2013	Scum	No	5	5
W0695	Assabet River	2013	Turbidity	None	5	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Assabet River AU (MA82B-02) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W0695. The prior Fecal Coliform impairment is being carried forward and the prior Algae, Aquatic Plants (Macrophytes), and Nutrient/Eutrophication Biological Indicators impairments (from the Aesthetics Use) are being carried forward.

MassDEP staff collected *E. coli* bacteria samples in the middle of this Assabet River AU (MA82B-02) at W0695 [School St, Northborough] from 2011-2013 (n=3-4/yr) but note that only the data from 2013 were of sufficient frequency to be evaluated according to the 2024 CALM. Analysis of the single year (2013) limited frequency *E. coli* dataset from W0695 indicated 100% of intervals had GMs >126 CFU/100mL, no samples exceeded the 410 CFU/100mL STV, and the seasonal GM was 202 CFU/100mL. These *E. coli* data from W0695 are indicative of an Escherichia Coli (E. Coli) impairment.

Surface water sampling was conducted by the USGS downstream of the Westborough WWTF discharge on the Assabet River (MA82B-02) at station USGS_421700071381901 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

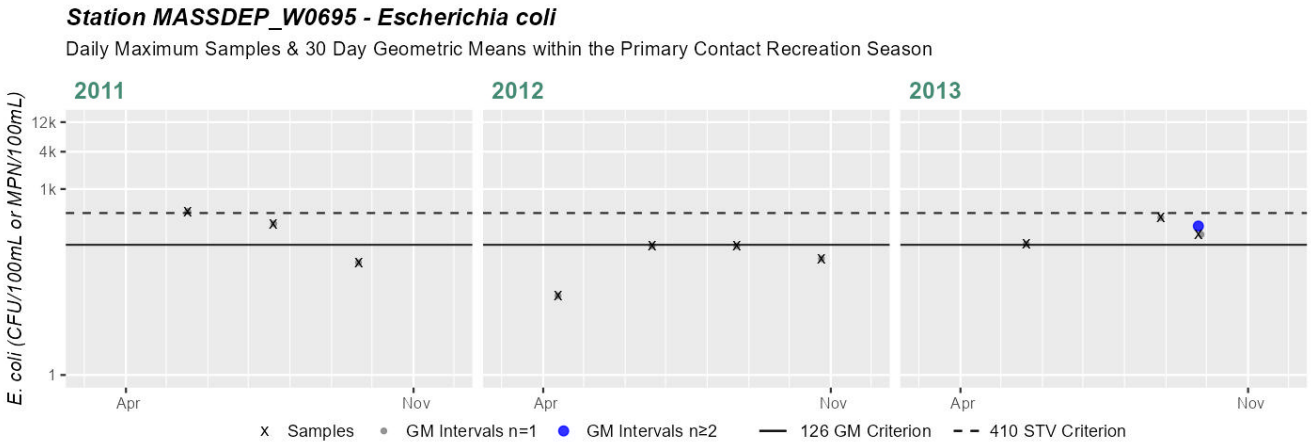
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0695	MassDEP	Water Quality	Assabet River	[School Street, Northborough]	42.304853	-71.628451
USGS-421700071381901	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER DS FROM WESTBOROUGH WTP AT ROUTE 9; downstream of Westborough WWTF	42.283000	-71.639000

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0695	MassDEP	E. coli	05/17/11	09/21/11	3	65	435	198
W0695	MassDEP	E. coli	04/11/12	10/24/12	4	19	121	67
W0695	MassDEP	E. coli	05/20/13	09/25/13	3	130	345	202



Variable*	Result
Samples	3
SeasGM	198
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	4
SeasGM	67
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	3
SeasGM	202
#GMI	1
#GMI Ex	1
%GMI Ex	100%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS downstream of the Westborough WWTF discharge on the Assabet River (MA82B-02) at station USGS_421700071381901 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-421700071381901	8/17/2020	11.6	4.84	2.1	2.87	9.66	6.37	26.1*
USGS-421700071381901	9/22/2020	13.2	E5.37	E1.32	2.89	11.2	6.1	27.3*

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-421700071381901	10/28/2020	13.7	6.86	8.69	2.39	10.9	3.86	36.4*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Assabet River AU (MA82B-02) continues to be assessed as Not Supporting. The prior Algae, Aquatic Plants (Macrophytes), and Nutrient/Eutrophication Biological Indicators impairments (from the Aesthetics Use) are being carried forward. An Escherichia Coli (E. Coli) impairment is being added based on a re-evaluation of bacteria data not meeting the threshold at W1469, W0695, and W1470. MassDEP staff collected *E. coli* bacteria samples in the Assabet River (MA82B-02) in the historic IR window (1997-2010) at 3 stations which will be discussed below. Note that while samples were collected at the middle station, W0695, from 2011-2013 in the current IR window (2011-2022), the data were not of sufficient frequency, according to the 2024 CALM, to be evaluated so they will not be discussed. Samples were collected from the following stations/sample years from upstream to downstream: at the upstream end of the AU at W1469 [upstream at Rt. 9 bridge, Westborough] from May-Sep 2006 (n=5), in the middle of the AU at W0695 [School St, Northborough] from 2006-2010 (n=3-6/yr; note that only data from 2006 were of sufficient frequency to be evaluated), and at the downstream end of the AU at W1470 [Rt. 20, upstream of dam, Northborough] from May-Sep 2006 (n=5). The historic data that were of sufficient frequency to be evaluated (i.e., single year, limited frequency datasets) for all three stations were indicative of an Escherichia Coli (E. Coli) impairment: the percentage of intervals with GMs >244 CFU/100mL ranged from 66-100%, 2 samples exceeded the 794 CFU/100mL STV at all 3 stations, and the overall GMs ranged from 332-455 CFU/100mL.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0695	MassDEP	Water Quality	Assabet River	[School Street, Northborough]	42.304853	-71.628451
W1469	MassDEP	Water Quality	Assabet River	[upstream at Route 9 bridge, Westborough]	42.283508	-71.638587
W1470	MassDEP	Water Quality	Assabet River	[Route 20, upstream of dam, Northborough]	42.320370	-71.635535

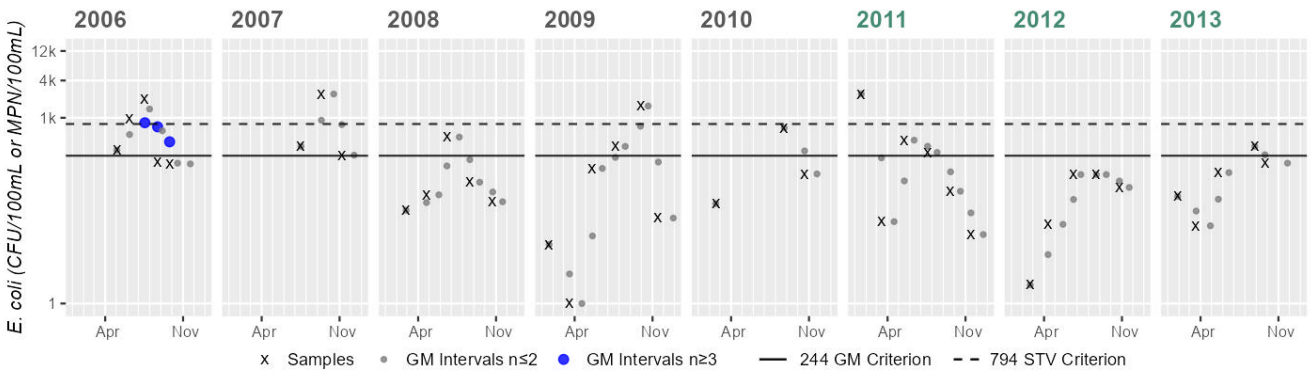
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0695	MassDEP	E. coli	05/03/06	09/25/06	5	180	2000	455
W0695	MassDEP	E. coli	07/18/07	11/07/07	3	249	2420	592
W0695	MassDEP	E. coli	02/27/08	10/22/08	5	32	488	81
W0695	MassDEP	E. coli	01/21/09	11/17/09	6	1	1550	50
W0695	MassDEP	E. coli	02/18/10	10/20/10	3	41	687	151
W0695	MassDEP	E. coli	01/19/11	11/16/11	6	13	2419	131
W0695	MassDEP	E. coli	02/22/12	10/24/12	5	2	121	33
W0695	MassDEP	E. coli	01/28/13	09/25/13	5	18	345	95
W1469	MassDEP	E. coli	05/03/06	09/25/06	5	26	2800	332
W1470	MassDEP	E. coli	05/03/06	09/25/06	5	150	1000	402

Station MASSDEP_W0695 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	455
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	2
%n>STV	40%

Variable*	Result
Samples	3
SeasGM	592
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	5
SeasGM	81
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	6
SeasGM	50
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	16%

Variable*	Result
Samples	3
SeasGM	151
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	6
SeasGM	131
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	16%

Variable*	Result
Samples	5
SeasGM	33
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	95
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

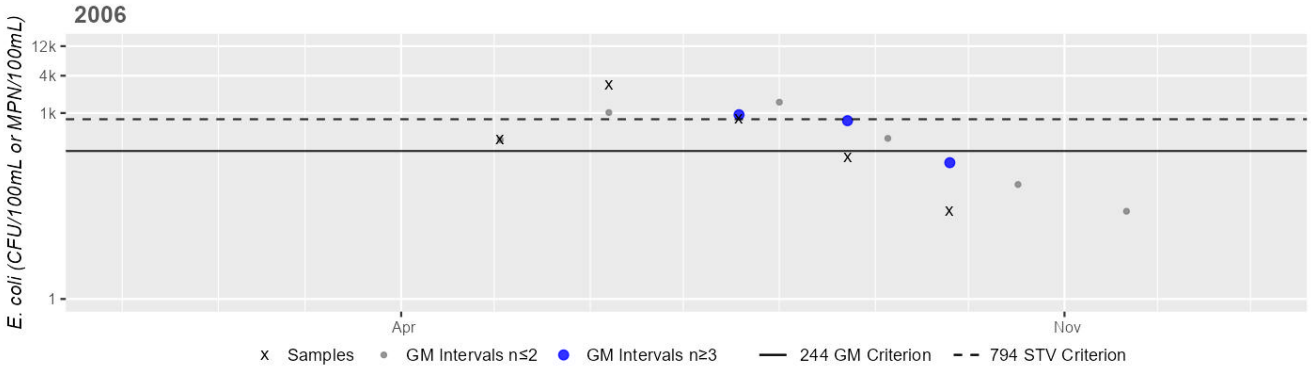
Cumulative %GMI Exceedance Historic (1997-2010)
100%

Cumulative %GMI Exceedance Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1469 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



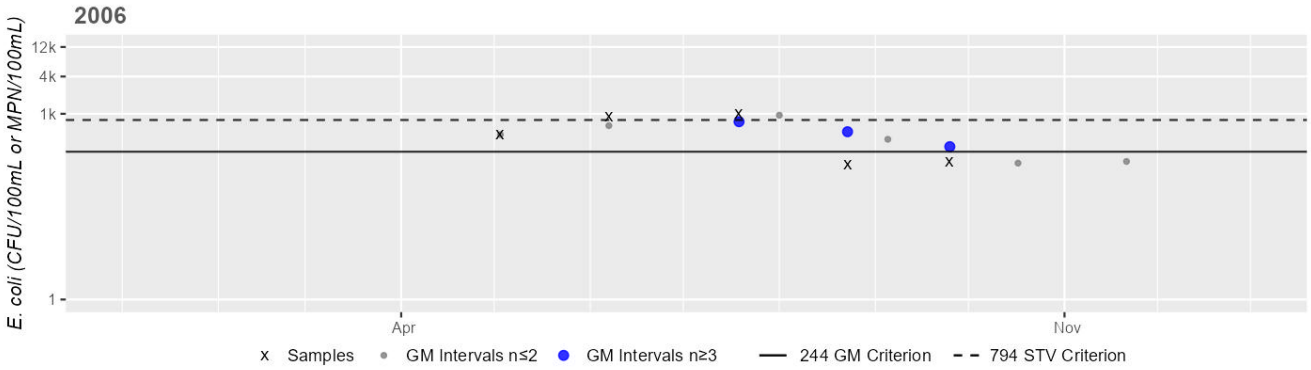
Variable*	Result
Samples	5
SeasGM	332
#GMI	3
#GMI Ex	2
%GMI Ex	66%
n>STV	2
%n>STV	40%

Cumulative %GMI Exceedance
Historic (1997-2010)
66%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1470 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	402
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	2
%n>STV	40%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River (MA82B-03)

Location:	From the dam (NATID: MA02843) Route 20, Northborough to the Marlborough West WWTP discharge (NPDES: MA0100480), Marlborough.
AU Type:	RIVER
AU Size:	2.4 MILES
Classification/Qualifier:	B: WWF

Assabet River (MA82B-03)

Watershed Area: 35.34 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	35.34	9.55	12.52	3.46
Agriculture	4.1%	2.8%	3%	3.2%
Developed	30.5%	30.5%	21.4%	20.2%
Natural	50.6%	49.2%	49.5%	43.4%
Wetland	14.8%	17.6%	26.1%	33.2%
Impervious	14.2%	13.7%	9.8%	8.9%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Debris*)	--	Unchanged
5	5	Algae	35105	Unchanged
5	5	Ambient Bioassays - Chronic Aquatic Toxicity	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Fecal Coliform	R1_MA_2024_04	Changed
5	5	Nutrient/Eutrophication Biological Indicators	35105	Unchanged
5	5	Odor	--	Unchanged
5	5	Phosphorus, Total	35105	Unchanged
5	5	Trash	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Debris*)	Municipal Point Source Discharges (Y)	--	--	X	X	X
(Debris*)	Source Unknown (N)	--	--	X	X	X
Algae	Municipal Point Source Discharges (Y)	X	--	X	X	X
Algae	Source Unknown (N)	X	--	X	X	X
Ambient Bioassays - Chronic Aquatic Toxicity	Source Unknown (N)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Fecal Coliform	Source Unknown (N)	--	--	--	X	--
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	--	--	X	X	X
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	--	--	X	X	X
Odor	Municipal Point Source Discharges (Y)	--	--	X	X	X
Odor	Source Unknown (N)	--	--	X	X	X
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Trash	Municipal Point Source Discharges (Y)	--	--	X	X	X
Trash	Source Unknown (N)	--	--	X	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

2022 Removed Impairment	Removal Reason	Removal Comment
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Assabet River AU (MA82B-03), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Assabet River AU (MA82B-03) continues to be assessed as Not Supporting, with the Algae, Odor, Nutrient/Eutrophication Biological Indicators, Debris, and Trash impairments being carried forward. Since the prior Alert identified for High Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the Aesthetics Use but will continue to be maintained under the Aquatic Life Use as an impairment. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Assabet River AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

No bacteria or other indicator data for this Assabet River AU (MA82B-03) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) and Fecal Coliform impairments are being carried forward and the prior Algae, Debris, Nutrient/Eutrophication Biological Indicators, Odor, and Trash impairments (from the Aesthetics Use) are being carried forward. Since the prior Alert identified for High Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the recreation uses but will continue to be maintained under the Aquatic Life Use as an impairment.
Surface water sampling was conducted by the USGS upstream of the Marlborough (Westerly) WWTF discharge on the Assabet River (MA82B-03) at station USGS_01096720 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
USGS-01096720	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT BOUNDARY ST. NR NORTHBOROUGH, MA; upstream of Marlborough (Westerly) WWTF	42.341000	-71.616000

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS upstream of the Marlborough (Westerly) WWTF discharge on the Assabet River (MA82B-03) at station USGS_01096720 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01096720	8/18/2020	10.8	6.2	3.02	2.43	7.73	6.01	26.7*
USGS-01096720	9/21/2020	12.1	6.06	E1.74	3.04	8.24	6.49	27.0*
USGS-01096720	10/29/2020	E10.7	E6.59	3.77	3.19	6.04	4.64	28.0*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Assabet River AU (MA82B-03) continues to be assessed as Not Supporting. The prior Algae, Debris, Nutrient/Eutrophication Biological Indicators, Odor, and Trash impairments (from the Aesthetics Use) are being carried forward. An Escherichia Coli (E. Coli) impairment is being added based on a re-evaluation of bacteria data not meeting the threshold at W1471 in 2006. MassDEP staff collected *E. coli* bacteria samples during the historic IR window (1997-2010) at 2 stations on this Assabet River AU (MA82B-03). Samples were collected from the following stations/sample years from upstream to downstream: in the middle of the AU at W1471 [Allen St bridge, upstream of dam, Northborough] from May-Sep 2006 (n=5) and at the downstream end of the AU at W1472 [Boundary St bridge, Northborough/Marlborough (~600 ft upstream from Marlborough Westerly WWTP discharge)] from May-Sep 2006 (n=5). Analysis of the single year limited frequency *E. coli* dataset from W1471 indicated 100% of intervals had GMs >244 CFU/100mL, 1 sample exceeded the 794 CFU/100mL STV, and the overall GM was 424 CFU/100mL. Analysis of the historic single year limited frequency *E. coli* dataset from W1472 indicated 33% of intervals had GMs >244 CFU/100mL, no samples exceeded the 794 CFU/100mL STV, and the overall GM was 184 CFU/100mL. While historic *E. coli* data from W1472 meet 2024 CALM guidance, historic *E. coli* data from the middle of the AU at W1471 are indicative of an *E. coli* impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1471	MassDEP	Water Quality	Assabet River	[Allen Street bridge, upstream of dam, Northborough]	42.329497	-71.630063
W1472	MassDEP	Water Quality	Assabet River	[Boundary Street bridge, Northborough/Marlborough (approximately 600 feet upstream from Marlborough Westerly WWTP discharge)]	42.341512	-71.616410

Bacteria Data

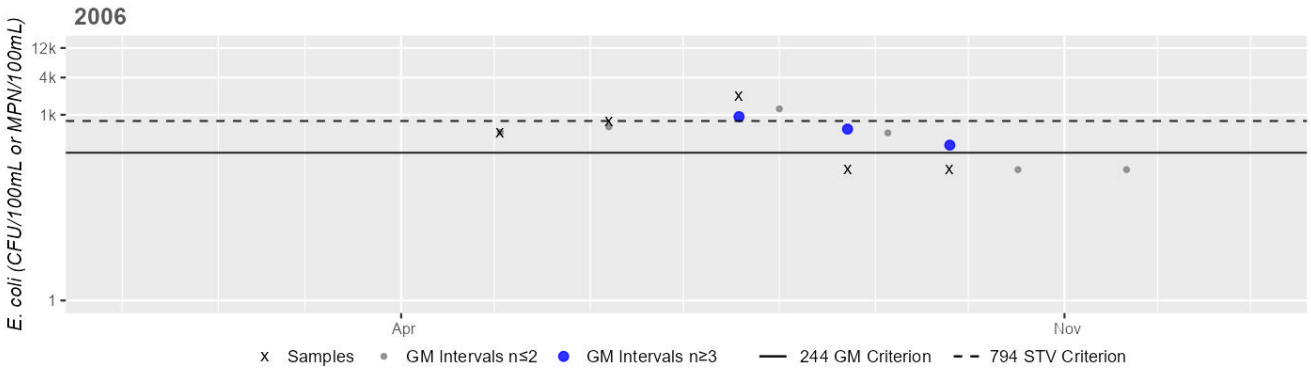
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1471	MassDEP	E. coli	05/03/06	09/25/06	5	130	2000	424

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1472	MassDEP	E. coli	05/03/06	09/25/06	5	58	550	184

Station MASSDEP_W1471 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



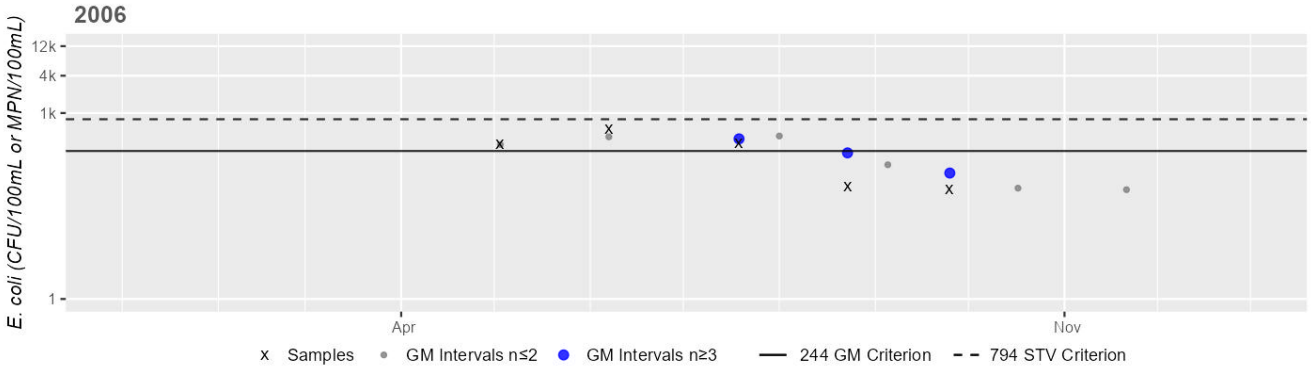
Variable*	Result
Samples	5
SeasGM	424
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1472 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	184
#GMI	3
#GMI Ex	1
%GMI Ex	33%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
33%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River (MA82B-04)

Location:	From the Marlborough West WWTP discharge (NPDES: MA0100480), Marlborough to the Hudson WWTP discharge (NPDES: MA0101788), Hudson.
AU Type:	RIVER
AU Size:	8 MILES
Classification/Qualifier:	B: WWF

Assabet River (MA82B-04)

Watershed Area: 74.09 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	74.09	9.20	28.12	3.29
Agriculture	4.5%	1.1%	3.6%	0.9%
Developed	27.2%	37.9%	20.3%	29.5%
Natural	54%	47.9%	51.1%	44.5%
Wetland	14.3%	13.1%	25.1%	25.1%
Impervious	13.1%	19.9%	9.8%	15.7%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	35106	Unchanged
5	5	Benthic Macroinvertebrates	35106	Changed
5	5	Dissolved Oxygen	35106	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Fecal Coliform	R1_MA_2024_04	Changed
5	5	Fish Bioassessments	--	Unchanged
5	5	Nutrient/Eutrophication Biological Indicators	35106	Changed
5	5	Phosphorus, Total	35106	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	X	X	X
Algae	Municipal Point Source Discharges (Y)	X	--	X	X	X
Algae	Source Unknown (N)	X	--	X	X	X
Benthic Macroinvertebrates	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	--	--	--
Benthic Macroinvertebrates	Municipal Point Source Discharges (Y)	X	--	--	--	--
Dissolved Oxygen	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	--	--	--
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Escherichia Coli (E. Coli)	Municipal Point Source Discharges (Y)	--	--	--	X	X
Fecal Coliform	Municipal Point Source Discharges (Y)	--	--	--	X	--
Fish Bioassessments	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	--	--	--
Fish Bioassessments	Municipal Point Source Discharges (Y)	X	--	--	--	--
Nutrient/Eutrophication Biological Indicators	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	X	X	X
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X	--	X	X	X

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X	--	X	X	X
Phosphorus, Total	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	--	--	--
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Benthic Macroinvertebrates	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Assabet River Total Maximum Daily Load for Total Phosphorus (Report CN 201.0, approved 9/23/2004, ATTAINS Action ID: 35106)
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)
Nutrient/Eutrophication Biological Indicators	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Assabet River Total Maximum Daily Load for Total Phosphorus (Report CN 201.0, approved 9/23/2004, ATTAINS Action ID: 35106)

Recommendations

2024/26 Recommendations
<2016 [Mercury in Fish Tissue, high priority] Conduct follow-up fish toxics sampling in the vicinity of F0042 in the impoundment upstream of the Washington Street Dam on the MA842B-04 AU of the Assabet River (an Alert was identified prior to the 2016 IR cycle due to mercury measured in 1997 at F0042 in largemouth bass filets that was very close to the MassDPH trigger concentration (O'Brien-Clayton 2005)). {F0042}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	YES

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted recently in this Assabet River AU (MA82B-04), so the Fish Consumption Use is Not Assessed. However, the prior Alert for Mercury in Fish Tissue (due to mercury measured in 1997 at F0042 upstream of the Washington Street Dam in largemouth bass filets that was very close to the MassDPH trigger concentration (O'Brien-Clayton 2005)) is being carried forward. A recommendation for follow-up sampling will be made.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Assabet River AU (MA82B-04) continues to be assessed as Not Supporting, with the prior Algae and Nutrient/Eutrophication Biological Indicators impairments being carried forward. Since the prior Alert identified for High Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the Aesthetics Use but will continue to be maintained under the Aquatic Life Use as an impairment. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Assabet River AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Assabet River AU (MA82B-04) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at OARS_ABT-162 from 2019-2022. The prior Fecal Coliform impairment is being carried forward and the prior Algae and Nutrient/Eutrophication Biological Indicators impairments (from the Aesthetics Use) are being carried forward. Since the prior Alert identified for High Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the recreational uses but will continue to be maintained under the Aquatic Life Use as an impairment.

OARS staff/volunteers collected *E. coli* bacteria samples at the downstream end of this Assabet River AU (MA82B-04) at OARS_ABT-162 [Cox St, Hudson] from 2019-2022 (n=9-15/yr). Analysis of this multi-year high/moderate frequency *E. coli* dataset from OARS_ABT-162 indicated that all four years of data were indicative of poor water quality: in all four years >10%/20% of intervals had GMs >126 CFU/100mL (36-92%), 2 yrs (2020 and 2021) had exceedances of the 410 CFU/100mL STV (>10% of samples in 2020 at 13% and 2 samples in the moderate frequency 2021), and cumulatively across years 68% of intervals had GMs >126 CFU/100mL. *E. coli* data from OARS_ABT-162 are indicative of an Escherichia Coli (E. Coli) impairment.

Surface water sampling was conducted by the USGS downstream of the Marlborough (Westerly) WWTF discharge on the Assabet River (MA82B-04) at station USGS_01096725 on three dates during August to October 2020 and upstream of the Hudson WWTF discharge on the Assabet River (MA82B-04) at station USGS_01096870 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study) in samples from both stations.

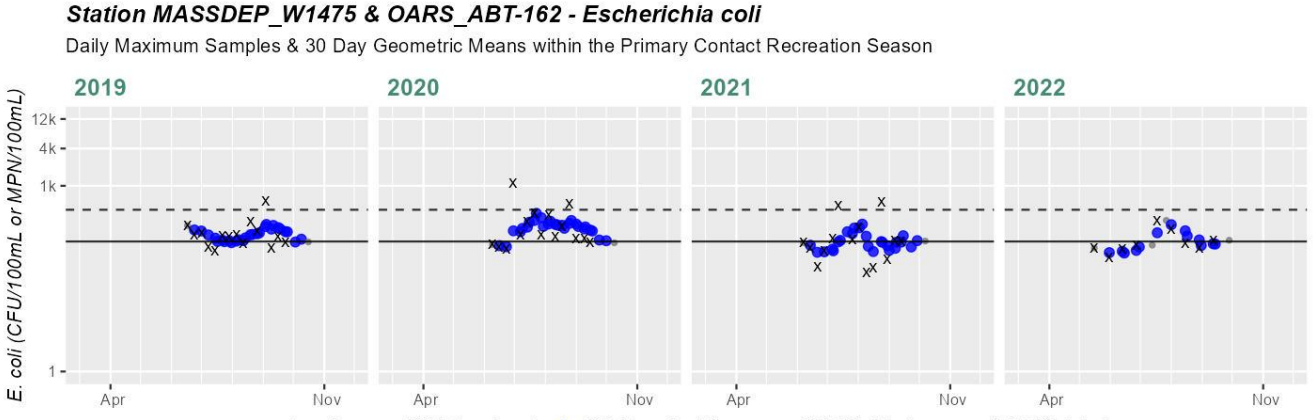
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_ABT-162	OARS	Water Quality	Assabet River	Cox St, Hudson	42.399671	-71.545983
USGS-01096725	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER, DS MARLBOROUGH WWTP; downstream of Marlborough (Westerly) WWTF	42.345000	-71.614000
USGS-01096870	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT COX ST NEAR HUDSON, MA; upstream of Hudson WWTF	42.400000	-71.546000

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_ABT-162	OARS	E. coli	06/17/19	09/23/19	15	88	560	161
OARS_ABT-162	OARS	E. coli	06/08/20	09/14/20	15	96	1100	202
OARS_ABT-162	OARS	E. coli	06/07/21	09/13/21	14	40	548	119
OARS_ABT-162	OARS	E. coli	05/16/22	09/12/22	9	70	276	122



Variable*	Result
Samples	15
SeasGM	161
#GMI	27
#GMI Ex	24
%GMI Ex	88%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	15
SeasGM	202
#GMI	27
#GMI Ex	25
%GMI Ex	92%
n>STV	2
%n>STV	13%

Variable*	Result
Samples	14
SeasGM	119
#GMI	25
#GMI Ex	9
%GMI Ex	36%
n>STV	2
%n>STV	14%

Variable*	Result
Samples	9
SeasGM	122
#GMI	13
#GMI Ex	5
%GMI Ex	38%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
68%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS downstream of the Marlborough (Westerly) WWTF discharge on the Assabet River (MA82B-04) at station USGS_01096725 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).
Surface water sampling was conducted by the USGS upstream of the Hudson WWTF discharge on the Assabet River (MA82B-04) at station USGS_01096870 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01096725	8/18/2020	9.67	6.57	2.49	2.34	6.89	6.28	25.4*
USGS-01096725	9/21/2020	10.6	5.43	E1.44	E1.81	6.44	5.75	23.2*
USGS-01096725	10/29/2020	E9.5	E5.44	2.98	3.05	5.93	5	24.6*
USGS-01096870	8/18/2020	9.49	7.62	E1.98	2.86	7.73	6.13	26.4*
USGS-01096870	9/21/2020	10.3	6.01	E1.64	2.31	6.18	6.39	24.3*
USGS-01096870	10/29/2020	E9.86	E7.14	2.8	2.92	4.28	5.2	27.1*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Assabet River AU (MA82B-04) continues to be assessed as Not Supporting. The prior Algae and Nutrient/Eutrophication Biological Indicators impairments (from the Aesthetics Use) are being carried forward. An Escherichia Coli (E. Coli) impairment is being added based on a re-evaluation of 2006 bacteria data not meeting the threshold at W1474. Since the prior Alert identified for High Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the recreational uses but will continue to be maintained under the Aquatic Life Use as an impairment.

MassDEP and OARS staff/volunteers collected *E. coli* bacteria samples in both the historic (1997-2010) & the current IR window (2011-2022) in this Assabet River AU (MA82B-04) from 2006-2022 at 3 stations. Samples were collected from the following stations/sample years from upstream to downstream: at the upstream end of the AU at W1473 [Robin Hill St bridge, Marlborough (~1500 ft downstream from Marlborough Westerly WWTP discharge)] from May-Sep 2006 (n=5), in the middle of the AU at W1474 [Chapin Rd bridge, Hudson] from May-Sep 2006 (n=5), and at the downstream end of the AU at the combined W1475 & OARS_ABT-162 station [Cox St bridge, Hudson & Cox St, Hudson] from May-Sep 2006 (historic n=5) and 2019-2022 (current n=9-15/yr). The historical data from W1473 meet 2024 CALM stands and therefore cannot be used for assessment purposes. Re-evaluation of the historic single year limited frequency *E. coli* dataset from W1474 indicated 100% of intervals had GMs >244 CFU/100mL, 1 sample exceeded the 794 CFU/100mL STV, and the overall GM was 274 CFU/100mL. While the historic *E. coli* data from the combined W1474 & OARS_ABT-162 station are indicative of poor water quality conditions, they are superseded by the analysis of the multi-year high/moderate mixed frequency *E. coli* dataset from W1475 & OARS_ABT-162 collected in the current IR window which indicated none of the 4 sufficient data years had any intervals where GMs were >244 CFU/100mL, there was only 1 exceedance of the 794 CFU/100mL STV in 2020, and cumulatively across years no intervals had GMs >244 CFU/100mL. Although current *E. coli* data from the combined W1475 & OARS_ABT-162 station meet 2024 CALM guidance, historic *E. coli* data from the middle of this Assabet River MA82B-04 AU at W1474 are indicative of an Escherichia Coli (E. Coli) impairment and no recent data are available to assess this location in the current window (2011-2022).

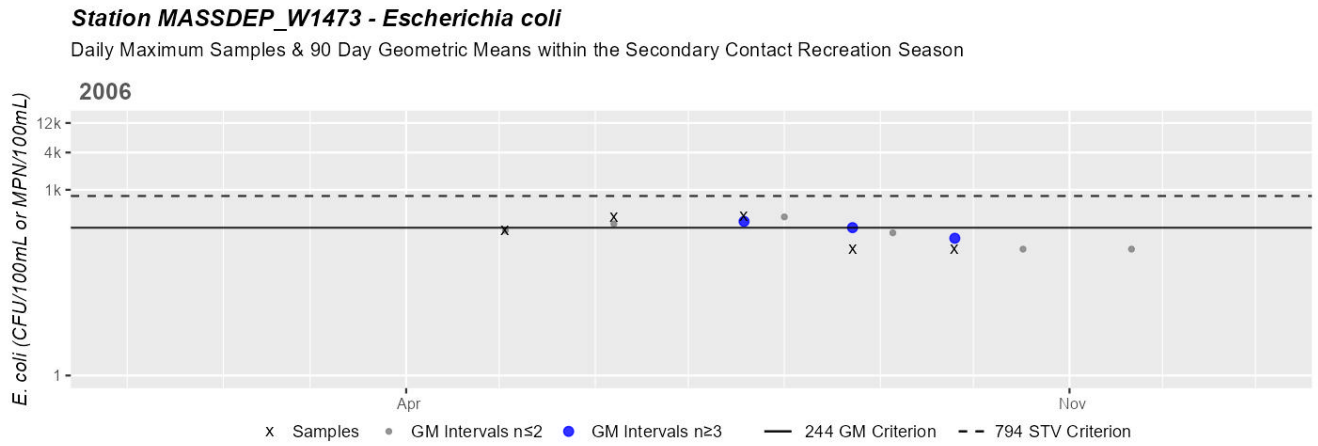
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1473	MassDEP	Water Quality	Assabet River	[Robin Hill Street bridge, Marlborough (approximately 1500 feet downstream from Marlborough Westerly WWTP discharge)]	42.346501	-71.614603
W1474	MassDEP	Water Quality	Assabet River	[Chapin Road bridge, Hudson]	42.380309	-71.586136
W1475	MassDEP	Water Quality	Assabet River	[Cox Street bridge, Hudson]	42.399798	-71.545986
OARS_ABT-162	OARS	Water Quality	Assabet River	Cox St, Hudson	42.399671	-71.545983

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1473	MassDEP	E. coli	05/03/06	09/25/06	5	110	370	204
W1474	MassDEP	E. coli	05/03/06	09/25/06	5	90	1800	274
W1475	MassDEP	E. coli	05/03/06	09/25/06	5	220	8000	553
OARS_ABT-162	OARS	E. coli	06/17/19	09/23/19	15	88	560	161
OARS_ABT-162	OARS	E. coli	06/08/20	09/14/20	15	96	1100	202
OARS_ABT-162	OARS	E. coli	06/07/21	09/13/21	14	40	548	119
OARS_ABT-162	OARS	E. coli	05/16/22	09/12/22	9	70	276	122



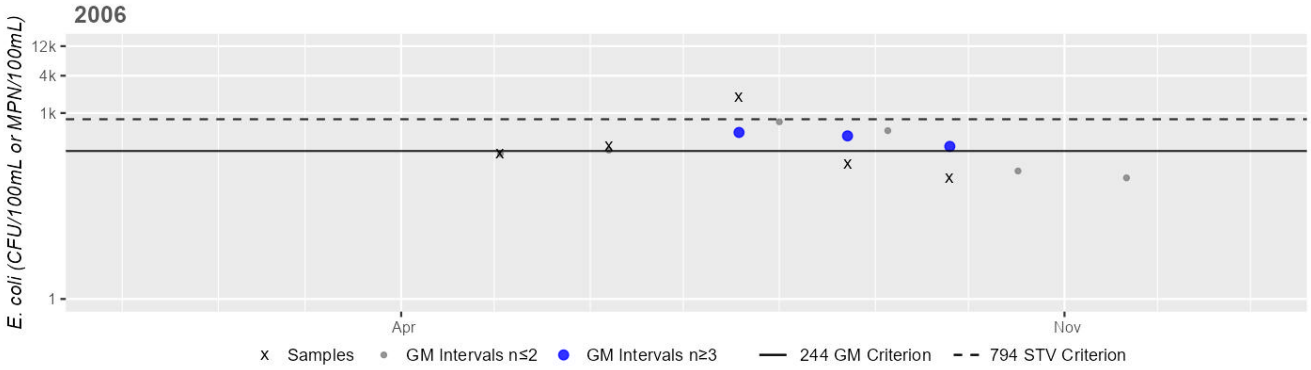
Variable*	Result
Samples	5
SeasGM	204
#GMI	3
#GMI Ex	2
%GMI Ex	66%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
66%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1474 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



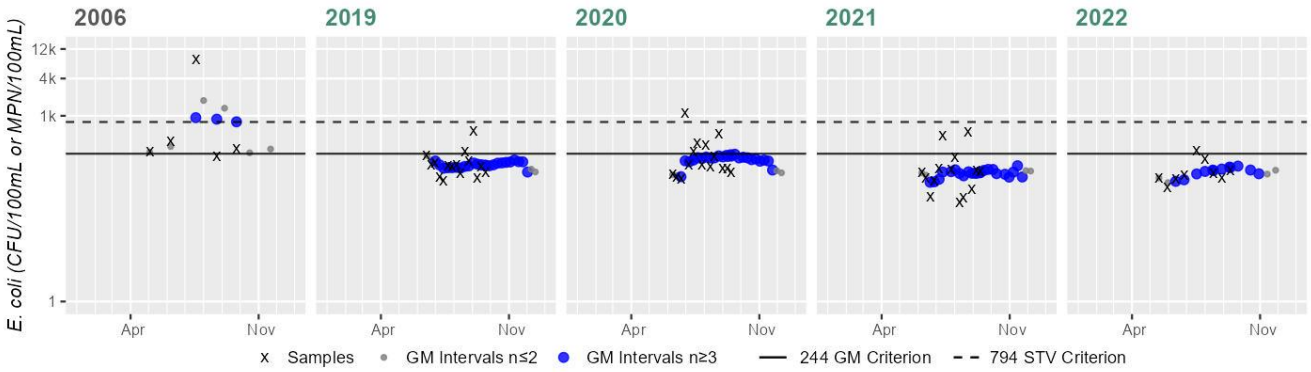
Variable*	Result
Samples	5
SeasGM	274
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1475 & OARS_ABT-162 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	553
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	1
%n>STV	20%

Variable*	Result
Samples	15
SeasGM	161
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	202
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	14
SeasGM	119
#GMI	23
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	9
SeasGM	122
#GMI	12
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

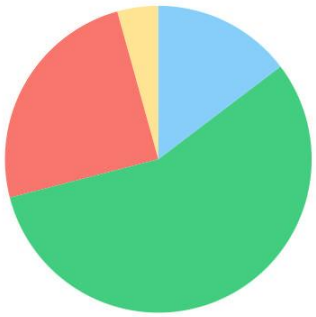
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River (MA82B-05)

Location:	From the Hudson WWTP discharge (NPDES: MA0101788), Hudson to the USGS gage (#01097000) at Routes 27/62, Maynard.
AU Type:	RIVER
AU Size:	8.2 MILES
Classification/Qualifier:	B: WWF

Assabet River (MA82B-05)

Watershed Area: 115.74 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	115.74	10.12	42.78	3.34
Agriculture	4.3%	1.9%	3.5%	2%
Developed	24.7%	19.1%	18.4%	16%
Natural	56.3%	58.7%	52.6%	53.6%
Wetland	14.7%	20.3%	25.5%	28.4%
Impervious	11.7%	9.6%	8.7%	8.3%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Debris*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	35107	Unchanged
5	5	Dissolved Oxygen	35107	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Fecal Coliform	R1_MA_2024_04	Changed
5	5	Nutrient/Eutrophication Biological Indicators	35107	Unchanged
5	5	Odor	--	Unchanged
5	5	Phosphorus, Total	35107	Unchanged
5	5	Trash	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Debris*)	Municipal Point Source Discharges (Y)	--	--	X	X	X
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Municipal Point Source Discharges (Y)	X	--	X	X	X
Dissolved Oxygen	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	--	--	--
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Fecal Coliform	Source Unknown (N)	--	--	--	X	--
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X	--	X	X	X
Odor	Municipal Point Source Discharges (Y)	--	--	X	X	X
Phosphorus, Total	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X	--	--	--	--
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Trash	Municipal Point Source Discharges (Y)	--	--	X	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Recommendations

2024/26 Recommendations
2024/2026 IR [multiple enrichment related impairments, high priority] With enhanced nutrient treatment upgrades completed in 2012 to the wastewater treatment facilities discharging to this Assabet River AU (MA82B-05) and other upstream AUs (Beaudoin 2017), biological and water quality surveys should be conducted in riverine and impounded reaches of this AU to reevaluate the appropriateness of all enrichment related impairments. {multiple stations along MA82B-05}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted recently in this Assabet River AU (MA82B-05), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Aesthetics use for this Assabet River AU (MA82B-05) continues to be assessed as Not Supporting with all prior impairments (Algae, Debris, Nutrient/Eutrophication Biological Indicators, Odor, Trash) being carried forward.
MassDEP field crews recorded aesthetics observations at one station at the downstream end of this Assabet River AU at USGS flow gaging station #01097000 near the Route 27/62 bridge, Maynard (W0697) in summer 2011 (n=6), 2012 (n=5), and 2013 (n=5). Observations at this site included very dense filamentous algae (n=3) in 2012, and objectionable deposits (minor amounts of trash) observed in 2011 (n=2) and 2013 (n=4). With enhanced nutrient treatment upgrades completed in 2012 to the wastewater treatment facilities discharging to this AU and other upstream AUs (Beaudoin 2017), biological and water quality surveys should be conducted in riverine and impounded reaches of this AU to reevaluate the appropriateness of all enrichment related impairments.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0697	MassDEP	Water Quality	Assabet River	[at USGS flow gaging station #01097000 near the Route 27/62 bridge, Maynard]	42.432064	-71.449741

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0697	2011	6	Aesthetic observations were made by MassDEP field sampling crews at Station W0697 on Assabet River (MA82B-05) during 6 site visits between Jan 2011 and Nov 2011. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=2).
W0697	2012	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0697 on Assabet River (MA82B-05) during 5 site visits between Feb 2012 and Oct 2012. There were some objectionable conditions recorded, including dense/very dense filamentous algae (n=3). These conditions are indicative of an Alert status.
W0697	2013	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0697 on Assabet River (MA82B-05) during 5 site visits between Jan 2013 and Sep 2013. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=4).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0697	2011	6	3	0

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0697	2012	5	5	4
W0697	2013	5	5	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0697	Assabet River	2011	Aquatic Plant Density, Overall	Sparse	1	6
W0697	Assabet River	2011	Aquatic Plant Density, Overall	Unobservable	5	6
W0697	Assabet River	2011	Color	Light Yellow/Tan	1	6
W0697	Assabet River	2011	Color	None	2	6
W0697	Assabet River	2011	Color	Reddish	2	6
W0697	Assabet River	2011	Color	Unobservable	1	6
W0697	Assabet River	2011	Objectionable Deposits	Unobservable	4	6
W0697	Assabet River	2011	Objectionable Deposits	Yes	2	6
W0697	Assabet River	2011	Odor	Effluent (Treated)	1	6
W0697	Assabet River	2011	Odor	Musty (Basement)	2	6
W0697	Assabet River	2011	Odor	None	2	6
W0697	Assabet River	2011	Odor	Other (Eutrophic)	1	6
W0697	Assabet River	2011	Periphyton Density, Filamentous	None	1	6
W0697	Assabet River	2011	Periphyton Density, Filamentous	Sparse	2	6
W0697	Assabet River	2011	Periphyton Density, Filamentous	Unobservable	3	6
W0697	Assabet River	2011	Periphyton Density, Film	None	2	6
W0697	Assabet River	2011	Periphyton Density, Film	Unobservable	4	6
W0697	Assabet River	2011	Scum	Yes	6	6
W0697	Assabet River	2011	Turbidity	Moderately Turbid	1	6
W0697	Assabet River	2011	Turbidity	None	2	6
W0697	Assabet River	2011	Turbidity	Unobservable	3	6
W0697	Assabet River	2012	Aquatic Plant Density, Overall	None	4	5
W0697	Assabet River	2012	Aquatic Plant Density, Overall	Sparse	1	5
W0697	Assabet River	2012	Color	Light Yellow/Tan	2	5
W0697	Assabet River	2012	Color	None	2	5
W0697	Assabet River	2012	Color	Reddish	1	5
W0697	Assabet River	2012	Objectionable Deposits	Unobservable	4	5
W0697	Assabet River	2012	Objectionable Deposits	Yes	1	5
W0697	Assabet River	2012	Odor	Musty (Basement)	1	5
W0697	Assabet River	2012	Odor	None	2	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0697	Assabet River	2012	Odor	Other (Eutrophic)	2	5
W0697	Assabet River	2012	Periphyton Density, Filamentous	None	2	5
W0697	Assabet River	2012	Periphyton Density, Filamentous	Very Dense	3	5
W0697	Assabet River	2012	Periphyton Density, Film	None	4	5
W0697	Assabet River	2012	Periphyton Density, Film	Very Dense	1	5
W0697	Assabet River	2012	Scum	No	2	5
W0697	Assabet River	2012	Scum	Yes	3	5
W0697	Assabet River	2012	Turbidity	Moderately Turbid	1	5
W0697	Assabet River	2012	Turbidity	None	2	5
W0697	Assabet River	2012	Turbidity	Slightly Turbid	1	5
W0697	Assabet River	2012	Turbidity	Unobservable	1	5
W0697	Assabet River	2013	Aesthetics Impaired?	No	3	5
W0697	Assabet River	2013	Aesthetics Impaired?	NR	2	5
W0697	Assabet River	2013	Aquatic Plant Density, Overall	None	3	5
W0697	Assabet River	2013	Aquatic Plant Density, Overall	Sparse	2	5
W0697	Assabet River	2013	Color	None	5	5
W0697	Assabet River	2013	Objectionable Deposits	Unobservable	1	5
W0697	Assabet River	2013	Objectionable Deposits	Yes	4	5
W0697	Assabet River	2013	Odor	None	4	5
W0697	Assabet River	2013	Odor	Other (Eutrophic)	1	5
W0697	Assabet River	2013	Periphyton Density, Filamentous	Moderate	1	5
W0697	Assabet River	2013	Periphyton Density, Filamentous	None	2	5
W0697	Assabet River	2013	Periphyton Density, Filamentous	Sparse	2	5
W0697	Assabet River	2013	Periphyton Density, Film	None	5	5
W0697	Assabet River	2013	Scum	No	2	5
W0697	Assabet River	2013	Scum	Yes	3	5
W0697	Assabet River	2013	Turbidity	None	5	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Assabet River AU (MA82B-05) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W0697 and OARS_ABT-077. The prior Fecal Coliform impairment is being carried forward and the prior Algae, Debris, Nutrient/Eutrophication Biological Indicators, Odor, and Trash impairments (from the Aesthetics Use) are being carried forward. With enhanced nutrient treatment upgrades completed in 2012 to the wastewater treatment facilities discharging to this AU and other upstream AUs (Beaudoin 2017), biological and water quality surveys should be conducted in riverine and impounded reaches of this AU to reevaluate the appropriateness of all enrichment related impairments.
MassDEP staff collected *E. coli* bacteria samples in this Assabet River AU (MA82B-05) at W0697 [at USGS flow gaging station #01097000 near the Rt. 27/62 bridge, Maynard] from 2011-2013 (n=3/yr). Note that data from 2011 and 2012 were insufficient to evaluate according to the 2024 CALM so only the data from 2013 are discussed below. Analysis of the single year (2013) limited frequency *E. coli* dataset from W0697 indicated 100% of intervals had GMs >126 CFU/100mL and 1 sample exceeded the 410 CFU/100mL STV (the seasonal GM was 200 CFU/100mL). *E. coli* data from W0697 are reflective of the existing Escherichia Coli (E. Coli) impairment. Note that OARS staff/volunteers collected *E. coli* bacteria samples nearby in the downstream Assabet River AU (MA82B-06) at OARS_ABT-077 [Rte 27/USGS, Maynard] from 2019-2022 (n=9-15/yr) and these data are being discussed here since they can be considered representative of this MA82B-05 AU. Analysis of this high/moderate frequency *E. coli* dataset from OARS_ABT-077 indicated 4 out of 4 sufficient data years had intervals where >10%/20% of the GMs were >126 CFU/100mL (2019-2022, 33-100%), 2 yrs had exceedances of the 410 CFU/100mL STV threshold (13% in high frequency 2020 and 2 samples in moderate frequency 2021), and cumulatively across years 69% of intervals had GMs >126 CFU/100mL. The multi-year *E. coli* data from OARS_ABT-077 are also reflective of the existing Escherichia Coli (E. Coli) impairment for this MA82B-05 AU.
Surface water sampling was conducted by the USGS downstream of the Hudson WWTF discharge on this Assabet River AU (MA82B-05) at station USGS_01096876 on three dates during August to October 2020 and upstream of the Maynard WWTF discharge on the Assabet River (MA82B-05) at station USGS_01097000 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study) in samples collected at both stations.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0697	MassDEP	Water Quality	Assabet River	[at USGS flow gaging station #01097000 near the Route 27/62 bridge, Maynard]	42.432064	-71.449741

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
USGS-01096876	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT ROUTE 62, HUDSON, MA; downstream of Hudson WWTF	42.404000	-71.526000
USGS-01097000	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT MAYNARD, MA; upstream of Maynard WWTF	42.432000	-71.450000

Bacteria Data

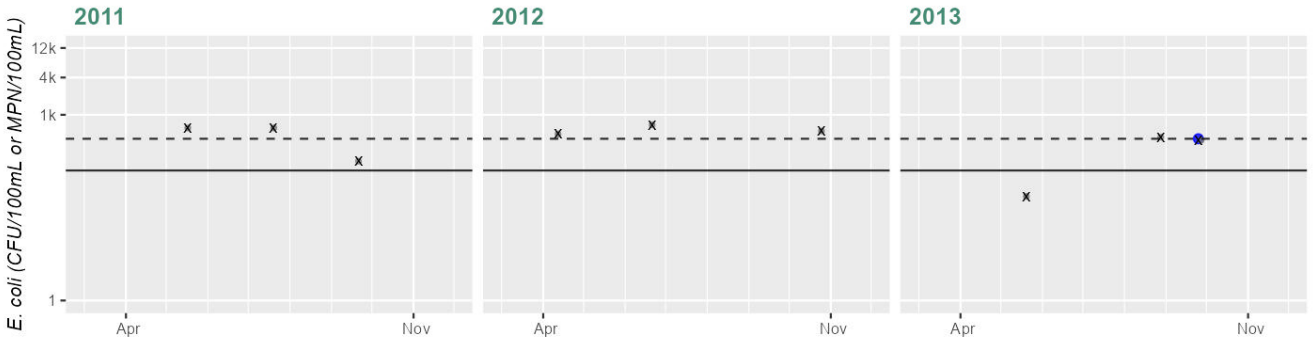
Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 4)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0697	MassDEP	E. coli	05/17/11	09/21/11	3	178	613	405
W0697	MassDEP	E. coli	04/11/12	10/24/12	3	488	687	568
W0697	MassDEP	E. coli	05/20/13	09/25/13	3	48	435	200

Station MASSDEP_W0697 - Escherichia coli

Daily Maximum Samples & 30 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	405
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	2
%n>STV	66%

Variable*	Result
Samples	3
SeasGM	568
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	3
%n>STV	100%

Variable*	Result
Samples	3
SeasGM	200
#GMI	1
#GMI Ex	1
%GMI Ex	100%
n>STV	1
%n>STV	33%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS downstream of the Hudson WWTF discharge on the Assabet River (MA82B-05) at station USGS_01096876 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).
Surface water sampling was conducted by the USGS upstream of the Maynard WWTF discharge on the Assabet River (MA82B-05) at station USGS_01097000 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01096876	8/18/2020	9.87	8.4	2.34	2.76	7.69	7.02	27.6*
USGS-01096876	9/21/2020	9.71	6.5	E1.84	2.31	6.71	6.53	24.3*
USGS-01096876	10/29/2020	E10.3	E9.26	2.75	3.29	4.29	4.91	30.0*
USGS-01097000	8/18/2020	9.95	10.3	4.17	5.74	7.15	6.02	34.9*
USGS-01097000	9/18/2020	7.06	E7.67	3	3.33	4.48	4.06	24.8*
USGS-01097000	10/27/2020	6.03	5.1	1.9	2.09	3.44	2.94	18.2*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Assabet River AU (MA82B-05) continues to be assessed as Not Supporting. The prior Algae, Debris, Nutrient/Eutrophication Biological Indicators, Odor, and Trash impairments (from the Aesthetics Use) are being carried forward. A new Escherichia Coli (E. Coli) impairment is being added based on bacteria data not meeting the threshold at OARS_ABT-077. With enhanced nutrient treatment upgrades completed in 2012 to the wastewater treatment facilities discharging to this AU and other upstream AUs (Beaudoin 2017), biological and water quality surveys should be conducted in riverine and impounded reaches of this AU to reevaluate the appropriateness of all enrichment related impairments.
MassDEP staff collected *E. coli* bacteria samples in both the historic (1997-2010) & the current IR window (2011-2022) in this Assabet River AU (MA82B-05) from 2006-2013 at 4 stations. Samples were collected from the following stations/sample years from upstream to downstream: near the relative upstream end of the AU at W1476 [Rt. 62 bridge, (Gleasondale) Stow] from May-Sep 2006 (n=5); in the middle of the AU at W1477 [Sudbury Rd bridge, Stow] from May-Sep 2006 (n=5) and at W1478 [White Pond Rd bridge, Stow/Maynard] from May-Sep 2006 (n=5); and near the downstream end of the AU at W0697 [at USGS flow gaging station #01097000 near the Rt. 27/62 bridge, Maynard] from 2007-2010 (historic n=3-6/yr) and 2011-2013 (current n=4-6/yr). These data will not be discussed in detail since they either indicated good water quality but cannot be used for assessment purposes because they were collected prior to the current IR window (W1476, W1477, W14787), or in the case of W0697, both the historical and current data were of insufficient frequency to be evaluated for the Secondary Contact Recreation Use according to the 2024 CALM.
Note that OARS staff/volunteers collected *E. coli* bacteria samples nearby in the downstream Assabet River AU (MA82B-06) at OARS_ABT-077 [Rte 27/USGS, Maynard] from 2019-2022 (n=9-15/yr) and these data are being discussed here since they can be considered representative of this MA82B-05 AU. Analysis of this high/moderate frequency *E. coli* dataset from OARS_ABT-077 indicated 2 out of 4 sufficient data years had intervals where >10%/20% of the GMs were >244 CFU/100mL (2020 & 2022, 64% & 50%), only 1 sample in any of the years exceeded the 794 CFU/100mL STV threshold, and cumulatively across years 28% of intervals had GMs >244 CFU/100mL. Based on the GM exceedances and cumulative GM exceedances, the multi-year *E. coli* data from OARS_ABT-077 are indicative of an Escherichia Coli (E. Coli) impairment for this MA82B-05 AU.

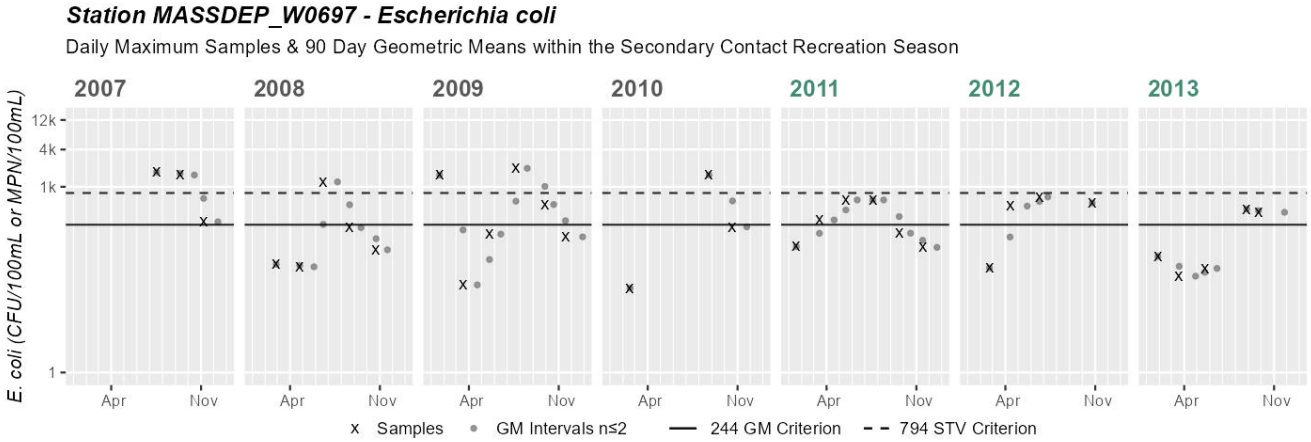
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0697	MassDEP	Water Quality	Assabet River	[at USGS flow gaging station #01097000 near the Route 27/62 bridge, Maynard]	42.432064	-71.449741
W1476	MassDEP	Water Quality	Assabet River	[Route 62 bridge, (Gleasondale) Stow]	42.404622	-71.526541
W1477	MassDEP	Water Quality	Assabet River	[Sudbury Road bridge, Stow]	42.411634	-71.508442
W1478	MassDEP	Water Quality	Assabet River	[White Pond Road bridge, Stow/Maynard]	42.423179	-71.474722

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0697	MassDEP	E. coli	07/18/07	11/07/07	3	272	1730	900
W0697	MassDEP	E. coli	02/27/08	10/22/08	5	51	1200	148
W0697	MassDEP	E. coli	01/21/09	11/17/09	6	26	1990	321
W0697	MassDEP	E. coli	02/18/10	10/20/10	3	23	1550	200
W0697	MassDEP	E. coli	01/19/11	11/16/11	6	105	613	245
W0697	MassDEP	E. coli	02/22/12	10/24/12	4	49	687	308
W0697	MassDEP	E. coli	01/28/13	09/25/13	5	36	435	116
W1476	MassDEP	E. coli	05/03/06	09/25/06	5	84	370	193
W1477	MassDEP	E. coli	05/03/06	09/25/06	5	32	200	100
W1478	MassDEP	E. coli	05/03/06	09/25/06	5	13	130	42



Variable*	Result
Samples	3
SeasGM	900
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	2
%n>STV	66%

Variable*	Result
Samples	5
SeasGM	148
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	20%

Variable*	Result
Samples	6
SeasGM	321
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	2
%n>STV	33%

Variable*	Result
Samples	3
SeasGM	200
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	6
SeasGM	245
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	4
SeasGM	308
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	116
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

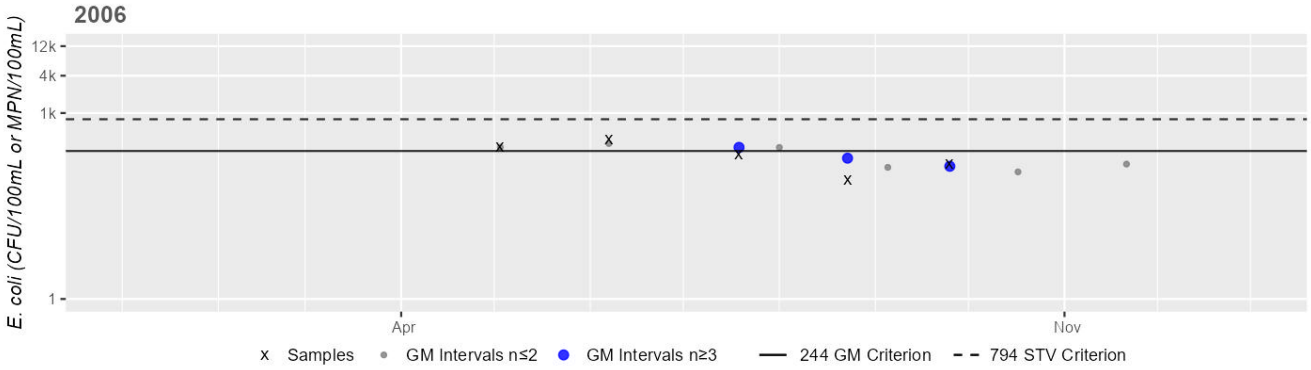
Cumulative %GMI Exceedance Historic (1997-2010)
0%

Cumulative %GMI Exceedance Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1476 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



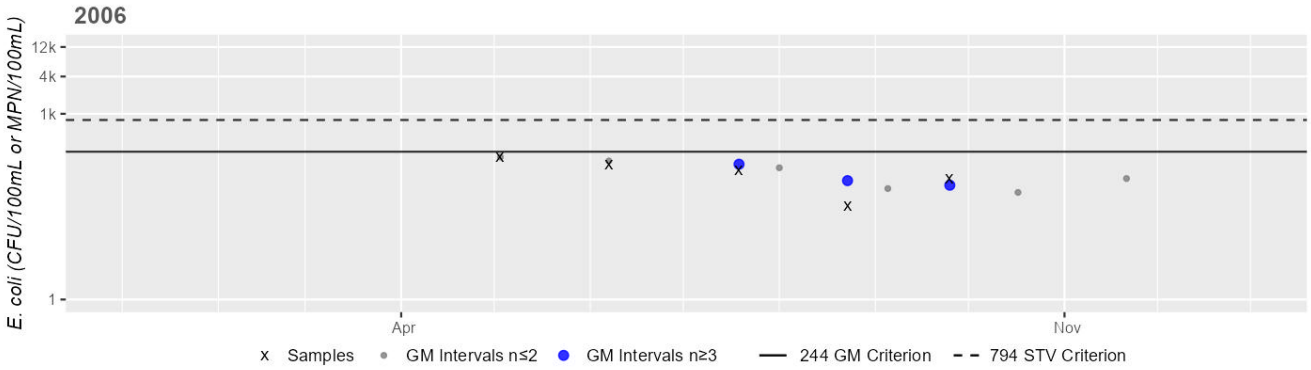
Variable*	Result
Samples	5
SeasGM	193
#GMI	3
#GMI Ex	1
%GMI Ex	33%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
33%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1477 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



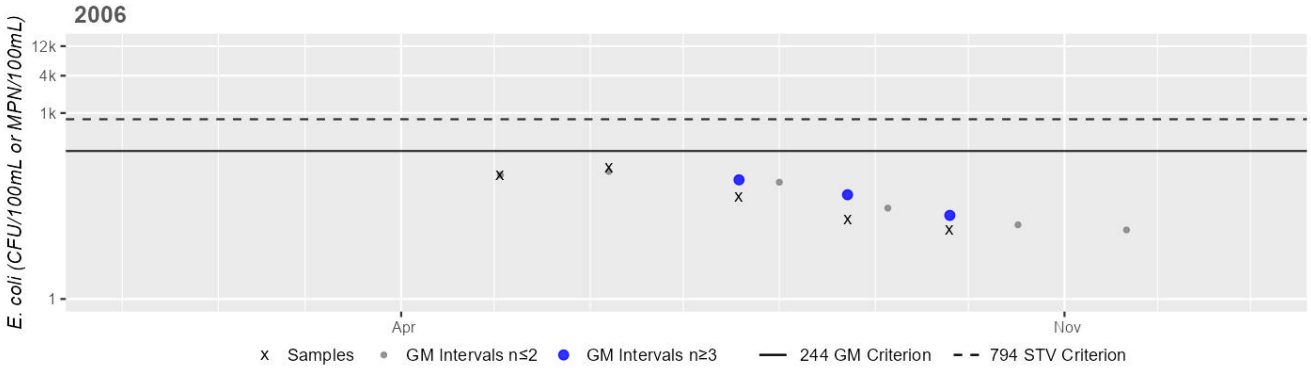
Variable*	Result
Samples	5
SeasGM	100
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1478 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	42
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River (MA82B-06)

Location:	From the USGS gage (#01097000) at Routes 27/62, Maynard to the Powdermill Dam (NATID: MA00128), Acton.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B: WWF

Assabet River (MA82B-06)

Watershed Area: 117.08 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	117.08	7.71	43.20	2.51
Agriculture	4.3%	1%	3.4%	0.6%
Developed	25%	27.9%	18.6%	22.8%
Natural	56.2%	53.5%	52.6%	52.7%
Wetland	14.6%	17.7%	25.4%	23.9%
Impervious	11.8%	15%	8.8%	12.5%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Dissolved Oxygen	35108	Unchanged
5	5	Escherichia Coli (E. Coli)	--	Unchanged
5	5	Other Organics	--	Unchanged
5	5	Unspecified Metals in Sediment	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Dissolved Oxygen	Internal Nutrient Recycling (Y)	X	--	--	--	--
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Other Organics	Source Unknown (N)	X	--	--	--	--
Unspecified Metals in Sediment	Municipal Point Source Discharges (Y)	X	--	--	--	--
Unspecified Metals in Sediment	Source Unknown (N)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted recently in this Assabet River AU (MA82B-06), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert

Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Assabet River AU (MA82B-06) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Assabet River AU (MA82B-06) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on multi-year bacteria data not meeting the threshold at OARS_ABT-077. OARS staff/volunteers collected *E. coli* bacteria samples at the upstream end of this Assabet River AU (MA82B-06) at OARS_ABT-077 [Rte 27/USGS, Maynard] from 2019-2022 (n=9-15/yr). Analysis of this high/moderate frequency *E. coli* dataset from OARS_ABT-077 indicated 4 out of 4 sufficient data years had intervals where >10%/20% of the GMs were >126 CFU/100mL (2019-2022, 33-100%), 2 yrs had exceedances of the 410 CFU/100mL STV threshold (13% in high frequency 2020 and 2 samples in moderate frequency 2021), and cumulatively across years 69% of intervals had GMs >126 CFU/100mL. The multi-year *E. coli* data from OARS_ABT-077 are reflective of the existing Escherichia Coli (E. Coli) impairment for this MA82B-06 AU.

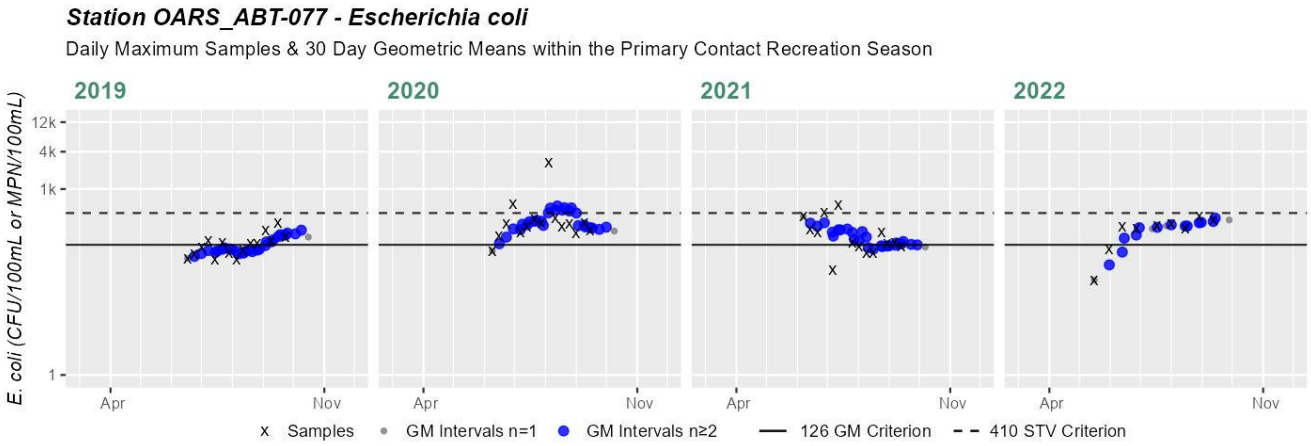
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_ABT-077	OARS	Water Quality	Assabet River	Rte 27/USGS, Maynard	42.432356	-71.449407

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_ABT-077	OARS	E. coli	06/17/19	09/23/19	15	72	280	121
OARS_ABT-077	OARS	E. coli	06/08/20	09/14/20	15	100	2640	288
OARS_ABT-077	OARS	E. coli	06/07/21	09/13/21	14	50	550	163
OARS_ABT-077	OARS	E. coli	05/16/22	09/12/22	9	34	365	193



Variable*	Result
Samples	15
SeasGM	121
#GMI	27
#GMI Ex	9
%GMI Ex	33%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	288
#GMI	27
#GMI Ex	27
%GMI Ex	100%
n>STV	2
%n>STV	13%

Variable*	Result
Samples	14
SeasGM	163
#GMI	25
#GMI Ex	17
%GMI Ex	68%
n>STV	2
%n>STV	14%

Variable*	Result
Samples	9
SeasGM	193
#GMI	13
#GMI Ex	11
%GMI Ex	84%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
69%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Assabet River AU (MA82B-06) is assessed as Not Supporting. An Escherichia Coli (E. Coli) impairment is being added due to multi-year bacteria data not meeting the threshold at OARS_ABT-077. OARS staff/volunteers collected *E. coli* bacteria samples at the upstream end of this Assabet River AU (MA82B-06) at OARS_ABT-077 [Rte 27/USGS, Maynard] from 2019-2022 (n=9-15/yr). Analysis of this high/moderate frequency *E. coli* dataset from OARS_ABT-077 indicated 2 out of 4 sufficient data years had intervals where >10%/20% of the GMs were >244 CFU/100mL (2020 & 2022, 64% & 50%), only 1 sample in any of the years exceeded the 794 CFU/100mL STV threshold, and cumulatively across years 28% of intervals had GMs >244 CFU/100mL. Based on the GM exceedances and cumulative GM exceedances, the multi-year *E. coli* data from OARS_ABT-077 are indicative of an Escherichia Coli (E. Coli) impairment for this MA82B-06 AU.

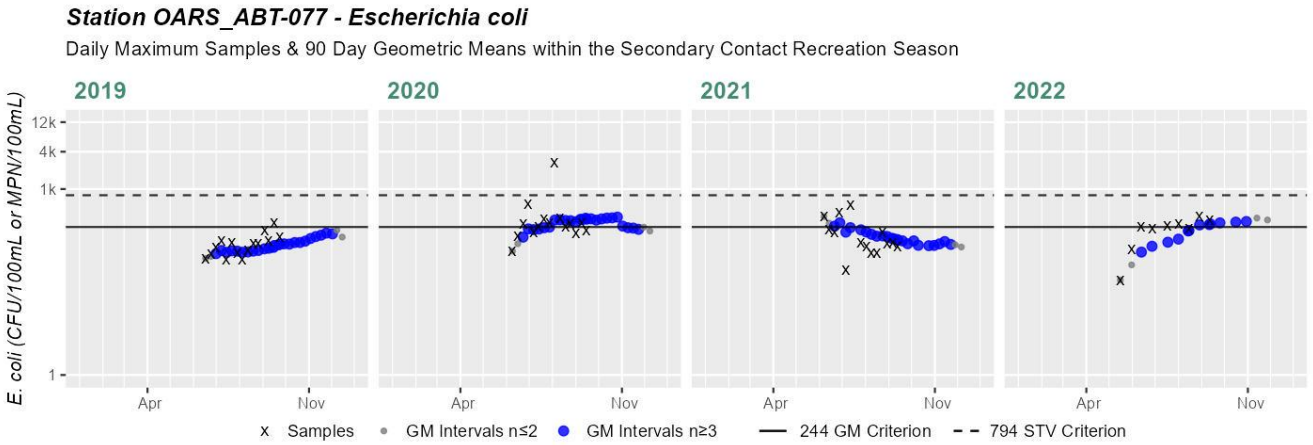
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_ABT-077	OARS	Water Quality	Assabet River	Rte 27/USGS, Maynard	42.432356	-71.449407

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_ABT-077	OARS	E. coli	06/17/19	09/23/19	15	72	280	121
OARS_ABT-077	OARS	E. coli	06/08/20	09/14/20	15	100	2640	288
OARS_ABT-077	OARS	E. coli	06/07/21	09/13/21	14	50	550	163
OARS_ABT-077	OARS	E. coli	05/16/22	09/12/22	9	34	365	193



Variable*	Result
Samples	15
SeasGM	121
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	288
#GMI	25
#GMI Ex	16
%GMI Ex	64%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	14
SeasGM	163
#GMI	23
#GMI Ex	2
%GMI Ex	8%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	9
SeasGM	193
#GMI	12
#GMI Ex	6
%GMI Ex	50%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
28%

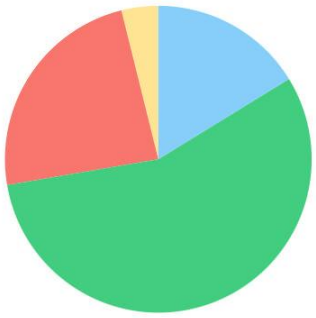
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River (MA82B-07)

Location:	From the Powdermill Dam (NATID: MA00128), Acton to mouth at confluence with the Sudbury River (forming headwaters Concord River), Concord.
AU Type:	RIVER
AU Size:	6.4 MILES
Classification/Qualifier:	B: WWF

Assabet River (MA82B-07)

Watershed Area: 177.88 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	177.88	10.91	65.19	3.94
Agriculture	3.9%	6.7%	3.2%	5.4%
Developed	23.8%	20.9%	17.6%	14.4%
Natural	56.1%	54.1%	51.2%	48.5%
Wetland	16.2%	18.4%	28%	31.7%
Impervious	11.2%	9.9%	8.2%	6.7%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	4a	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	4a	Fecal Coliform	R1_MA_2024_04	Changed

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Fecal Coliform	Source Unknown (N)	--	--	--	X	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Recommendations

2024/26 Recommendations
2010 [Mercury in Fish Tissue, high priority] MassDEP staff should determine the best location to conduct follow-up fish toxics sampling on the MA842B-07 AU of the Assabet River (in the vicinity of F0041 and/or farther upstream where elevated Mercury levels, should they be found in fish filets, would lead to a MA DPH site-specific fish consumption advisory associated with this MA82B-07 Assabet River AU). An Alert was identified during the 2010 IR cycle because of the potential for fish from the Concord and/or Sudbury rivers to easily migrate into this segment (both the Concord and Sudbury rivers have MDPH site-specific fish consumption advisories due to elevated mercury) (O'Brien-Clayton 2005). If resources permit, it would be preferable to determine whether contaminated fish may be migrating into the downstream reaches of this AU from the Concord and/or Sudbury River (note the single yellow bullhead with elevated Mercury documented in the Concord 2001 Water Quality Assessment Report (O'Brien-Clayton 2005)) and if this problem persists, or whether the problem is more widespread in upstream parts of the AU and prevalent enough to provide sufficient data to MA DPH that would warrant a site-specific advisory for this AU. {F0041} or upstream location (see recommendation details); 2024/2026 IR [E. coli & Fecal coliform, high priority] Conduct follow-up bacteria monitoring in the downstream Assabet River AU (MA82B-07) of sufficient frequency to potentially delist the Escherichia Coli (E. Coli) and Fecal Coliform impairments on the Primary Contact Recreation Use and the Escherichia Coli (E. Coli) impairment on the Secondary Contact Recreation Use. Although *E. coli* data indicating good conditions were collected recently in 2021 and 2022 at USGS-01097050 [Assabet River at Main St near Concord, MA; upstream of MCI Concord WWTF], the original 1987-1989 data that triggered the Fecal Coliform impairment were collected at four stations ranging from just downstream of the Powdermill Dam to the Rt 2 crossing in Concord. At a minimum, delisting quality data needs to be collected at the most downstream historical location at the Rt 2 crossing (in the vicinity of W0843 where data indicative of poor water quality were also collected more recently in 2006), which is also downstream of the MCI-Concord WWTP facility. Ideally, additional delisting quality data would also be collected among the cluster of historical stations located at the upstream end of the AU- see (Hanley 1988) and (Hanley 1990) for more information. {W0843} or other stations.

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	YES

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted recently in this Assabet River AU (MA82B-07), so the Fish Consumption Use is Not Assessed. The prior Alert, identified because of the potential for fish from the Concord and/or Sudbury rivers to easily migrate into this segment (both the Concord and Sudbury rivers have MDPH site-specific fish consumption advisories due to elevated mercury), is being carried forward.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Assabet River AU (MA82B-07) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Assabet River AU (MA82B-07) is assessed as Not Supporting. The Escherichia Coli (E. Coli) and Fecal Coliform impairments are being carried forward.
USGS staff collected *E. coli* bacteria samples in the Assabet River (MA82B-07) at USGS-01097050 [Assabet River at Main St near Concord, MA; upstream of MCI Concord WWTF] from 2021-2022 (n=4-7/yr). Analysis of the multi-year moderate/limited frequency *E. coli* dataset from USGS-01097050 indicated no intervals in either year had GMs >126 CFU/100mL, nor did any samples exceed the 410 CFU/100mL STV. While *E. coli* data from USGS-01097050 meet 2024 CALM guidance, they do not provide the geographic coverage needed to delist the historical Escherichia Coli (E. Coli) and Fecal Coliform impairments. A recommendation will be made to conduct geographically representative bacteria monitoring in this AU.
Surface water sampling was conducted by the USGS as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities on three dates during August to October 2020 at 3 stations on this Assabet River AU (MA82B-07): downstream of the Maynard WWTF discharge at station USGS_01097026, upstream of the MCI Concord WWTF discharge at station USGS_01097050, and downstream of the MCI Concord WWTF discharge at station USGS_01097390. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
USGS-01097026	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT POWDERMILL RD AT ACTON, MA; downstream of Maynard WWTF	42.441000	-71.429000
USGS-01097050	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT MAIN ST NEAR CONCORD, MA; upstream of MCI Concord WWTF	42.456483	-71.390061
USGS-01097390	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT RT 2 NEAR CONCORD, MA; downstream of MCI Concord WWTF	42.466000	-71.392000

Bacteria Data

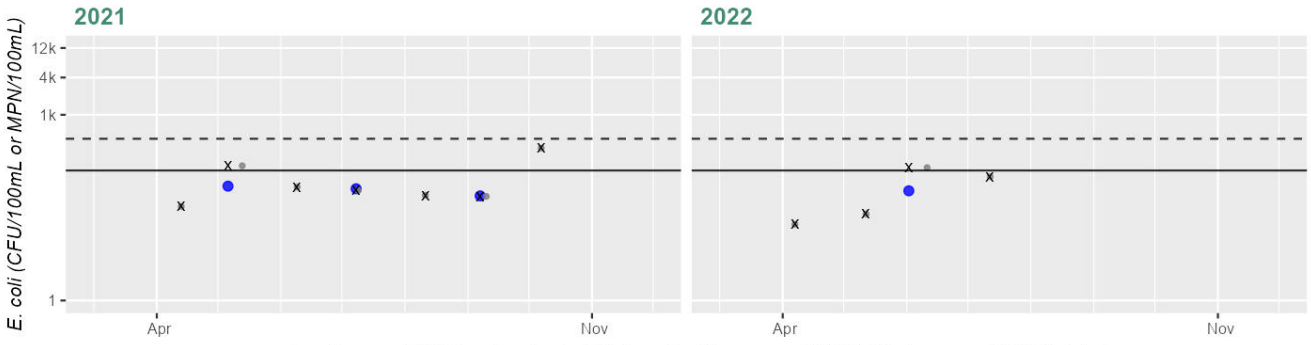
Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(USGS 2024) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
USGS-01097050	USGS Massachusetts Water Science Center	E. coli	04/13/21	10/07/21	7	33	290	75

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
USGS-01097050	USGS Massachusetts Water Science Center	E. coli	04/07/22	07/12/22	4	17	140	49

Station USGS-01097050 - Escherichia coli

Daily Maximum Samples & 30 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	7
SeasGM	75
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	4
SeasGM	49
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS downstream of the Maynard WWTF discharge on the Assabet River (MA82B-07) at station USGS_01097026 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).
Surface water sampling was conducted by the USGS upstream of the MCI Concord WWTF discharge on the Assabet River (MA82B-07) at station USGS_01097050 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

Summary

Surface water sampling was conducted by the USGS downstream of the MCI Concord WWTF discharge on the Assabet River (MA82B-07) at station USGS_01097390 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01097026	8/18/2020	10.3	10.8	4.37	5.07	7.09	5.79	35.4*
USGS-01097026	9/18/2020	V7.34	E8.13	3.46	2.82	4.91	3.72	25.6*
USGS-01097026	10/27/2020	6.34	5.06	1.91	2.16	3.58	2.74	18.6*
USGS-01097050	8/18/2020	9.72	8.63	3.25	4.15	6.85	6.01	30.5*
USGS-01097050	9/18/2020	8.46	E7.5	3.3	3.15	4.7	4.3	26.5*
USGS-01097050	10/27/2020	5.69	4.62	E1.71	1.91	3.37	2.62	16.7*
USGS-01097390	8/18/2020	10.4	8.68	3.14	4	6.8	5.84	30.8*
USGS-01097390	9/18/2020	8.32	E7.06	3.41	3.22	4.78	4.49	25.8*
USGS-01097390	10/27/2020	6.45	5.46	E1.76	1.96	3.91	2.81	19.0*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Assabet River AU (MA82B-07) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W1479 and W0843.
MassDEP and USGS staff collected *E. coli* bacteria samples in both the historic (1997-2010) & the current IR window (2011-2022) in this Assabet River AU (MA82B-07) from 2001-2022 at 3 stations. Samples were collected from the following stations/sample years from upstream to downstream: near the upstream end of the AU at W1479 [first Rt. 62 bridge crossing below the "Powdermill Dam", Acton] from May-Sep 2006 (n=5), in the middle of the AU at USGS-01097050 [Assabet River at Main St near Concord, MA; upstream of MCI Concord WWTF] from 2021-2022 (n=7-9/yr), and further downstream at W0843 [Rt. 2/2A bridge, Concord] in 2006 (n=5; data from 2001 are of insufficient frequency to evaluate, according to the 2024 CALM, and are not presented). Analysis of the multi-year moderate frequency *E. coli* dataset from USGS-01097050 indicated none of the intervals had GMs >244 CFU/100mL in either year, nor did any samples exceed the 794 CFU/100mL STV. While these recent data are indicative of good water quality conditions, the historical data from stations upstream and downstream were indicative of the Escherichia Coli (E. Coli) impairment, and no recent data are available for those locations. Analysis of the historic single year limited frequency *E. coli* dataset from W1479 (the most upstream station) indicated 100% of intervals had GMs >244 CFU/100mL, 3 samples exceeded the 794 CFU/100mL STV, and the overall GM was 707 CFU/100mL. Analysis of the historic single year limited frequency *E. coli* dataset from W0843 indicated 100% of intervals had GMs >244 CFU/100mL, no samples exceeded the 794 CFU/100mL STV, and the overall GM was 372 CFU/100mL. A recommendation will be made to conduct follow-up monitoring that is more geographically representative of the AU.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0843	MassDEP	Water Quality	Assabet River	[Route 2/2A bridge, Concord]	42.465688	-71.391434
W1479	MassDEP	Water Quality	Assabet River	[first Route 62 bridge crossing below the "Powdermill Dam", Acton]	42.440869	-71.429356
USGS-01097050	USGS Massachusetts Water Science Center	Water Quality	Assabet River	ASSABET RIVER AT MAIN ST NEAR CONCORD, MA; upstream of MCI Concord WWTF	42.456483	-71.390061

Bacteria Data

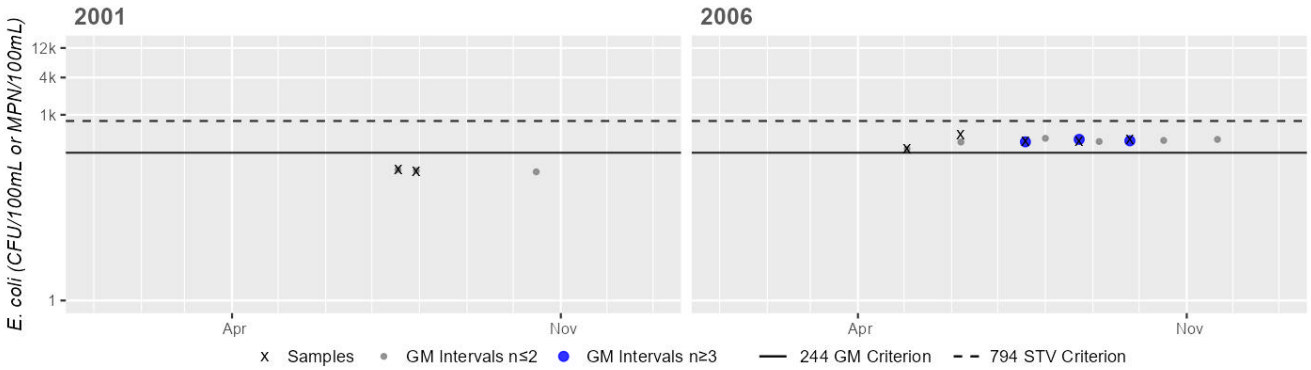
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (USGS 2024) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0843	MassDEP	E. coli	07/18/01	07/30/01	2	120	130	124
W0843	MassDEP	E. coli	05/03/06	09/25/06	5	280	470	372

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1479	MassDEP	E. coli	05/03/06	09/25/06	5	350	1400	707
USGS-01097050	USGS Massachusetts Water Science Center	E. coli	04/13/21	12/10/21	9	33	290	72
USGS-01097050	USGS Massachusetts Water Science Center	E. coli	01/20/22	07/12/22	7	17	140	42

Station MASSDEP_W0843 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	124
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

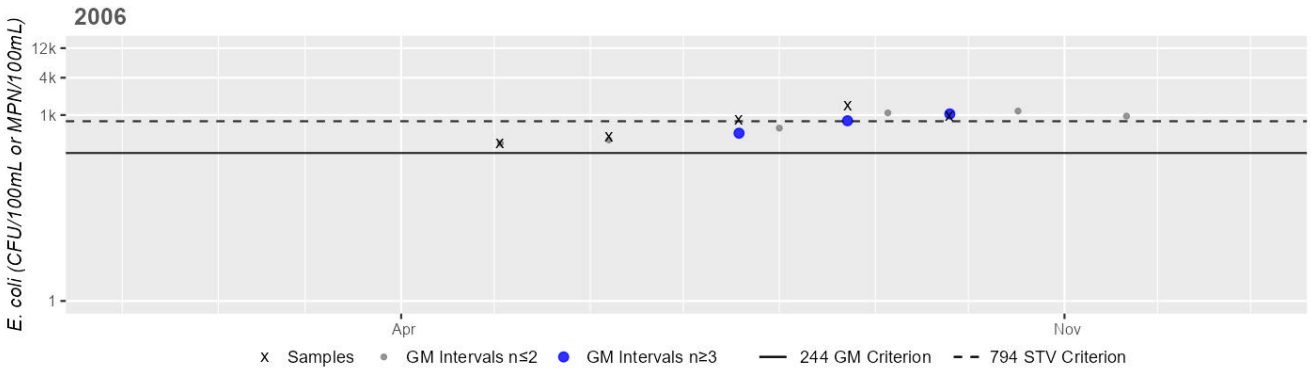
Variable*	Result
Samples	5
SeasGM	372
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1479 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



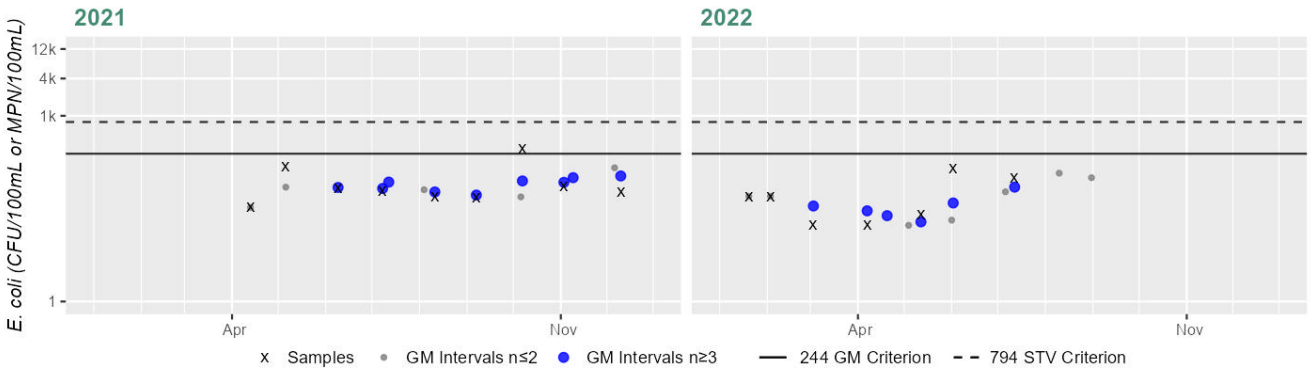
Variable*	Result
Samples	5
SeasGM	707
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	3
%n>STV	60%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station USGS-01097050 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	9
SeasGM	72
#GMI	9
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	7
SeasGM	42
#GMI	6
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Assabet River Reservoir (MA82004)

Location:	Westborough.
AU Type:	FRESHWATER LAKE
AU Size:	355 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Aquatic Plants (Macrophytes)*)	--	Added
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Dissolved Oxygen Supersaturation	--	Unchanged
5	5	Mercury in Fish Tissue	33880	Unchanged
5	5	Turbidity	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Aquatic Plants (Macrophytes)*)	Source Unknown (N)	--	--	X	X	X
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Source Unknown (N)	X	--	X	X	X
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen Supersaturation	Source Unknown (N)	X	--	--	--	--
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--
Turbidity	Source Unknown (N)	X	--	X	X	X

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Assabet River Reservoir (MA82004) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Assabet River Reservoir (referred to by MA DPH as "Mill Pond (SuAsCo Reservoir) above GH Nichols Dam") in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

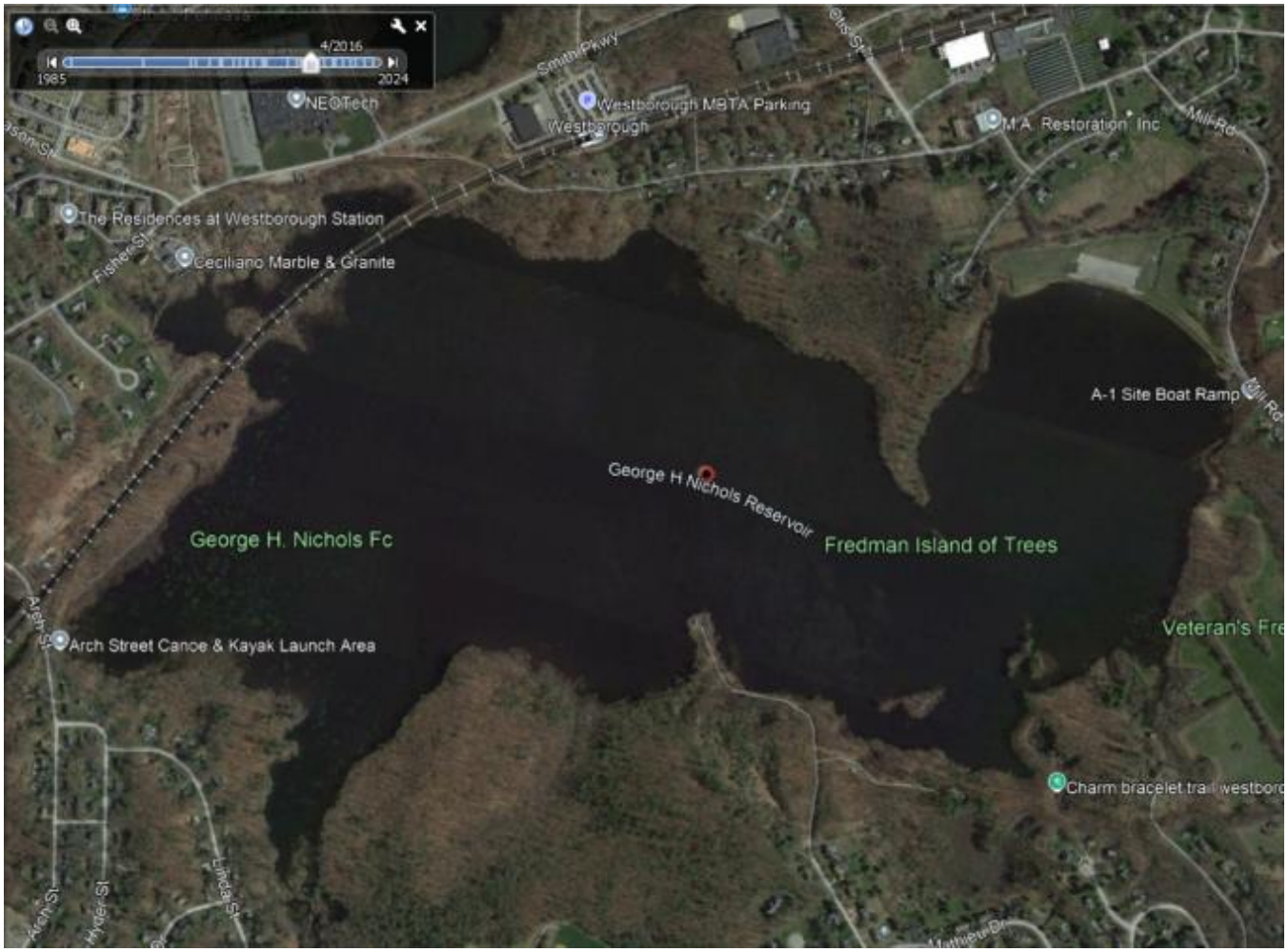
2024/26 Use Attainment	Alert
Not Supporting	NO

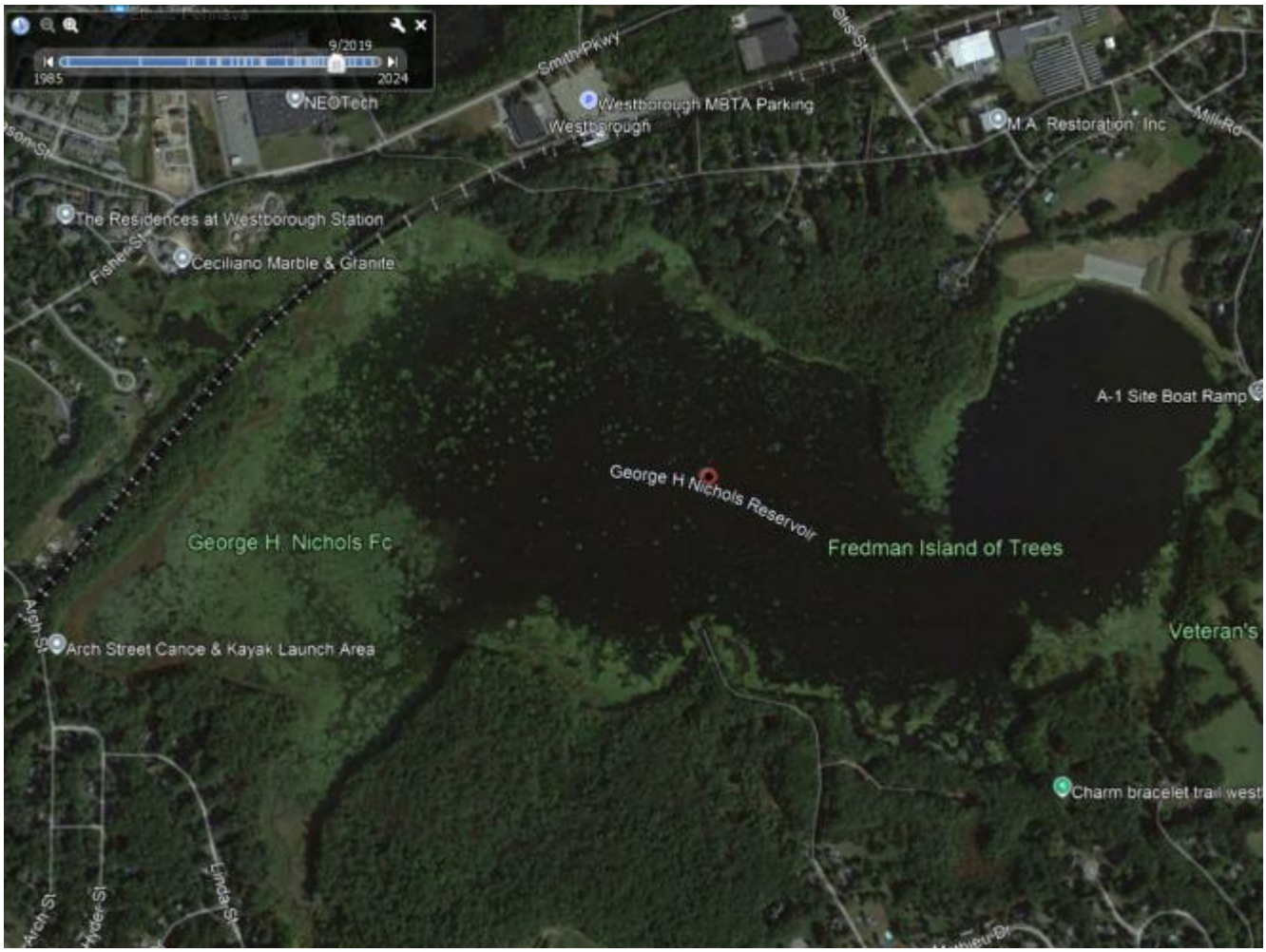
2024/26 Use Attainment Summary

The Aesthetics Use for Assabet River Reservoir (MA82004) continues to be assessed as Not Supporting with the Algae and Turbidity impairments being carried forward. Since the Eurasian Water Milfoil (Myriophyllum Spicatum) impairment was redundantly duplicated across multiple uses for this waterbody, the Eurasian Water Milfoil (Myriophyllum Spicatum) impairment is being removed from the Aesthetics Use, but will continue to be maintained under the Aquatic Life Use. Since MassDEP staff noted "very dense plant cover (all types) through most of the west side of the pond with very dense encroaching emergents around entire perimeter" during a summer 1996 synoptic survey (MassDEP 1996) and Google Earth images from September 2010, August 2016 and September 2019 (Google Earth Pro Undated) also show very dense plant cover throughout the west side of the pond and around the perimeter (>25% coverage overall) an Aquatic Plants (Macrophytes) non-pollutant impairment is being added in place of the Eurasian Water Milfoil (Myriophyllum Spicatum) impairment at this time. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Assabet River Reservoir AU.

Aesthetic Observations

Assabet River Reservoir (MA82004) Google Earth Imagery: Pond Outline (Apr 2016) Followed by Imagery from Sep 2019, Aug 2016, and Sep 2010 Showing Dense/Very Dense Vegetation Covering >25% of the Pond's Surface (Google Earth Pro Undated)


4/2016
1985
2024
NEOTech
Smith Pkwy
Westborough MBTA Parking
Westborough
M A Restoration Inc
Mill Rd
The Residences at Westborough Station
Fisher St
Ceciliano Marble & Granite
A-1 Site Boat Ramp
George H Nichols Reservoir
George H. Nichols Fc
Fredman Island of Trees
Arch St
Arch Street Canoe & Kayak Launch Area
Veteran's Fre
Charm bracelet trail westboro
Hyde St
Linda St


9/2019
1985
2024
NEOTech
Smith Pkwy
Westborough MBTA Parking
Westborough
M.A. Restoration, Inc
Mill Rd
The Residences at Westborough Station
Fisher St
Ceciliano Marble & Granite
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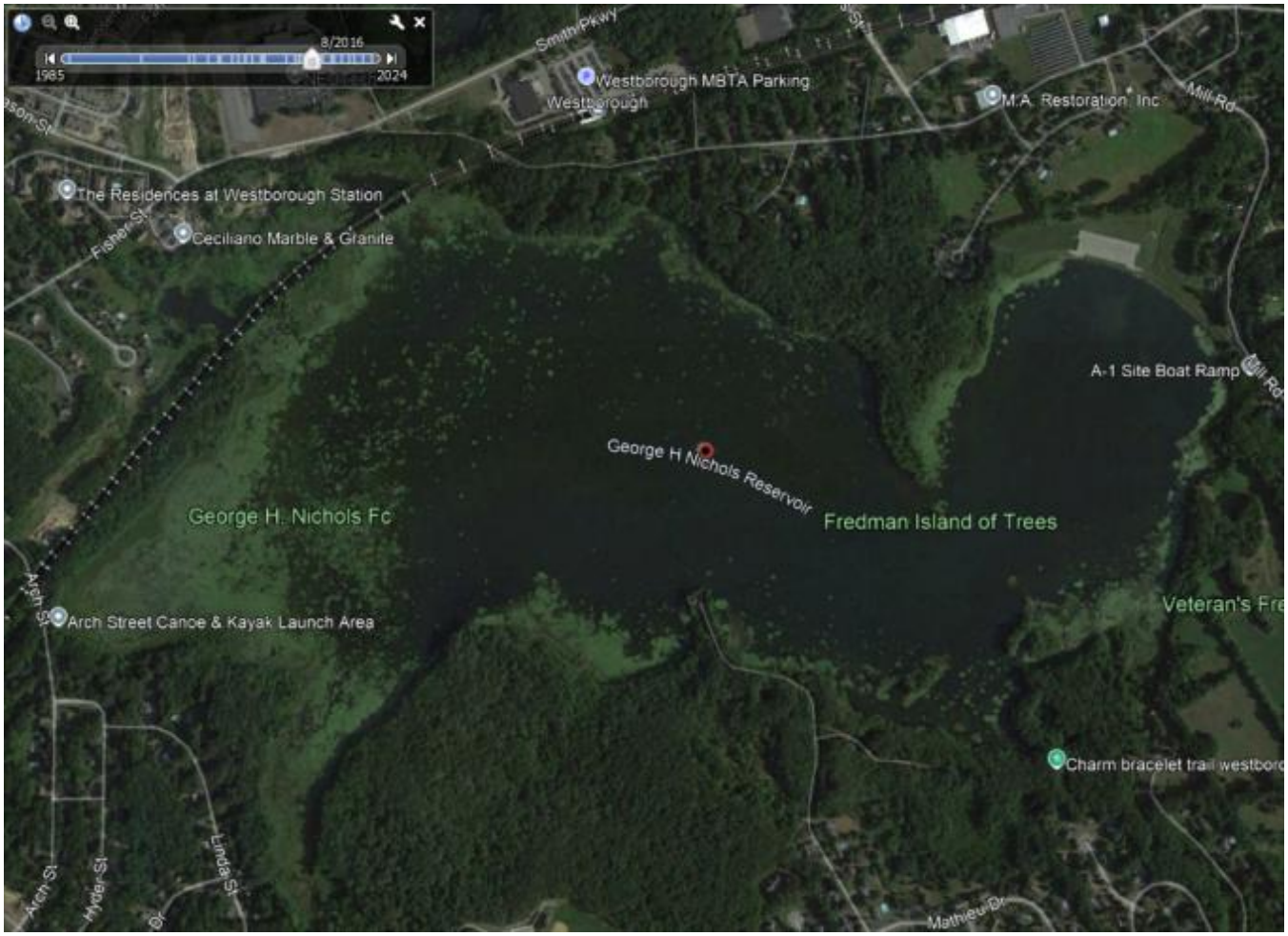
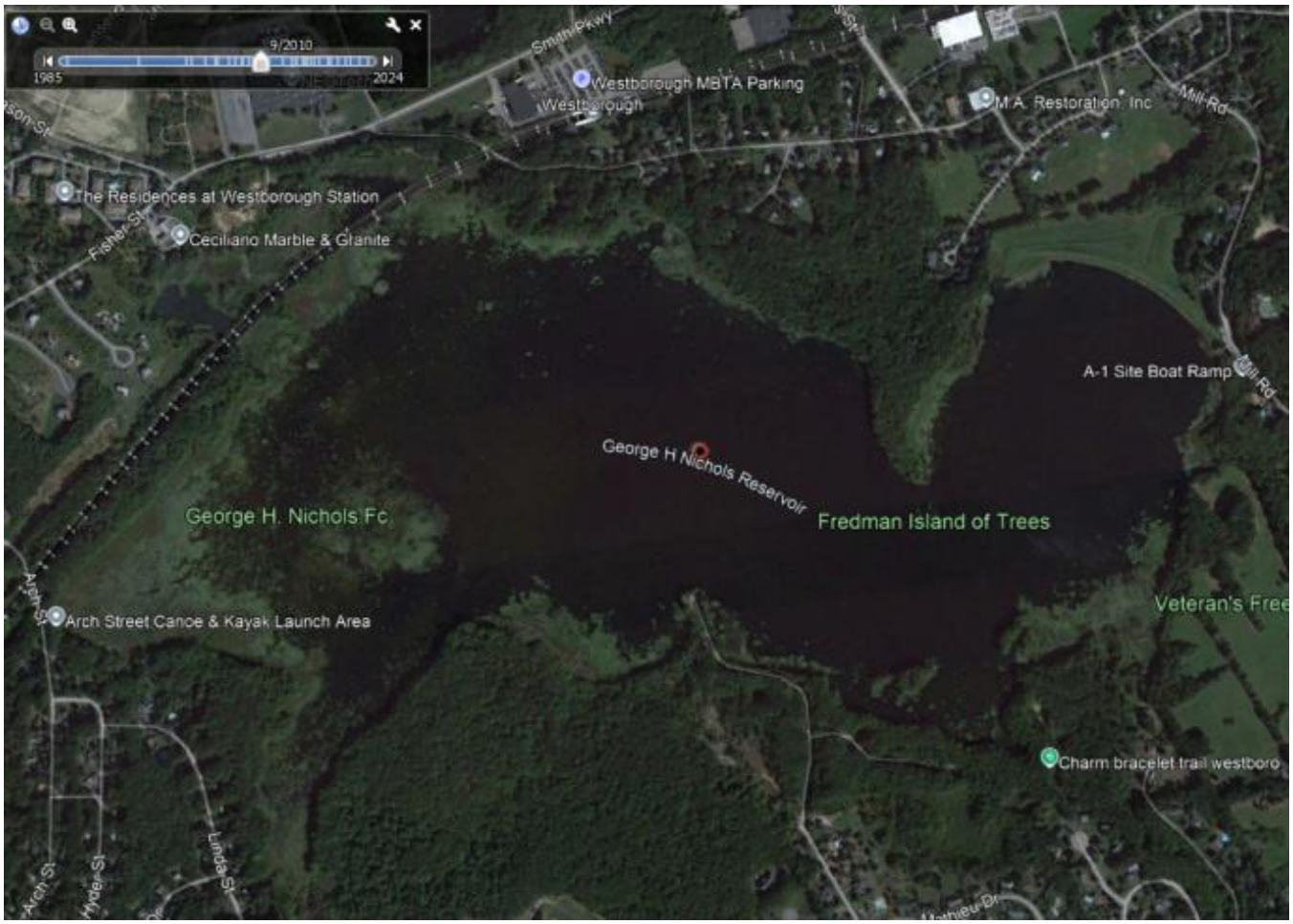
George H Nichols Reservoir
George H. Nichols Fc
Fredman Island of Trees
Arch St
Arch Street Canoe & Kayak Launch Area
Veteran's
Charm bracelet trail west
Arch St
Hyder St
Linda St


8/2016
1985
2024
Smith Pkwy
Westborough MBTA Parking
Westborough
M.A. Restoration, Inc
Mill Rd
The Residences at Westborough Station
Fisher St
Ceciliano Marble & Granite
A-1 Site Boat Ramp
George H Nichols Reservoir
George H. Nichols Fc
Fredman Island of Trees
Arch St
Arch Street Canoe & Kayak Launch Area
Veteran's Fre
Charm bracelet trail westboro
Arch St
Hyder St
Linda St
Mathieu Dr



Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for the Assabet River Reservoir (MA82004) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Algae and Turbidity impairments (from the Aesthetics Use) are being carried forward. Since the Eurasian Water Milfoil (Myriophyllum spicatum) impairment is being removed from the Aesthetics Use this cycle, this impairment is also being removed from the Primary Contact Recreation Use. An Aquatic Plants (Macrophytes) non-pollutant impairment is being added in place of the Eurasian Water Milfoil (Myriophyllum Spicatum) impairment.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for the Assabet River Reservoir (MA82004) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use continues to be assessed as Not Supporting. The prior Algae and Turbidity impairments (from the Aesthetics Use) are being carried forward. Since the Eurasian Water Milfoil (Myriophyllum spicatum) impairment is being removed from the Aesthetics Use this cycle, this impairment is also being removed from the Secondary Contact Recreation Use. An Aquatic Plants (Macrophytes) non-pollutant impairment is being added in place of the Eurasian Water Milfoil (Myriophyllum Spicatum) impairment.

Barkers Pond (MA82006)

Location:	Acton.
AU Type:	FRESHWATER LAKE
AU Size:	6 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
--	5	Transparency / Clarity	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Transparency / Clarity	Source Unknown (N)	--	--	--	X	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Barkers Pond (MA82006), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Aesthetics Use for Barkers Pond (MA82006) is assessed as Fully Supporting based on observations made by MassDEP staff in 2017.
MassDEP staff recorded aesthetics observations as part of the MAP2 lake monitoring project in summer 2017 at two stations in Barkers Pond in Acton: at the western edge of the pond, east of the bend of Pond View Drive, Acton (W2707/MAP2L-161S, n=5) and at the deep hole index station (W2706/MAP2L-161, n=3). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, or littoral zone duckweed recorded in ten shoreline plots (n=1). During the MAP2 macrophyte mapping survey in Aug 2017 (n=1), less than 25% (7.1%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2706	MassDEP	Water Quality	Barkers Pond	[index site, Acton]	42.460782	-71.432256
W2707	MassDEP	Water Quality	Barkers Pond	[western edge of pond, east of the bend of Pond View Drive, Acton]	42.460674	-71.432996

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2706	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2706 (MAP2L-161) on Barkers Pond (MA82006) during 3 site visits between Jul 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 macrophyte mapping survey (n=1) in Aug 2017, less than 25% (7.1%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%.
W2707	2017	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2707 (MAP2L-161S) on Barkers Pond (MA82006) during 5 site visits between May 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2706	Barkers Pond	2017	Aesthetics Impaired?	No	3	3
W2706	Barkers Pond	2017	Aquatic Plant Density, Overall	None	1	3

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2706	Barkers Pond	2017	Aquatic Plant Density, Overall	NR	1	3
W2706	Barkers Pond	2017	Aquatic Plant Density, Overall	Unobservable	1	3
W2706	Barkers Pond	2017	Aquatic Plant Density, Whole Lake	Sparse	2	2
W2706	Barkers Pond	2017	Color	Brownish	1	3
W2706	Barkers Pond	2017	Color	Dark Tan	1	3
W2706	Barkers Pond	2017	Color	Light Yellow/Tan	1	3
W2706	Barkers Pond	2017	Duckweed Density, Whole Lake	None	2	2
W2706	Barkers Pond	2017	Objectionable Deposits	No	3	3
W2706	Barkers Pond	2017	Odor	None	3	3
W2706	Barkers Pond	2017	Scum	No	3	3
W2706	Barkers Pond	2017	Turbidity	Moderately Turbid	1	3
W2706	Barkers Pond	2017	Turbidity	NR	1	3
W2706	Barkers Pond	2017	Turbidity	Slightly Turbid	1	3
W2707	Barkers Pond	2017	Aesthetics Impaired?	No	5	5
W2707	Barkers Pond	2017	Color	Dark Tan	1	5
W2707	Barkers Pond	2017	Color	Light Yellow/Tan	2	5
W2707	Barkers Pond	2017	Color	None	1	5
W2707	Barkers Pond	2017	Color	NR	1	5
W2707	Barkers Pond	2017	Objectionable Deposits	No	5	5
W2707	Barkers Pond	2017	Odor	Musty (Basement)	1	5
W2707	Barkers Pond	2017	Odor	None	2	5
W2707	Barkers Pond	2017	Odor	Petroleum	1	5
W2707	Barkers Pond	2017	Odor	Sulfide (rotten egg)	1	5
W2707	Barkers Pond	2017	Scum	No	4	5
W2707	Barkers Pond	2017	Scum	Yes	1	5
W2707	Barkers Pond	2017	Turbidity	Moderately Turbid	1	5
W2707	Barkers Pond	2017	Turbidity	None	1	5
W2707	Barkers Pond	2017	Turbidity	Slightly Turbid	3	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Barkers Pond (MA82006) is assessed as Not Supporting. While bacteria data were indicative of good conditions, a Transparency / Clarity impairment is being added due to Secchi data not meeting the threshold at W2706.
In Barkers Pond (MA82006) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2706 [MAP2L-161, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2707 [MAP2L-161S, Shoreline]. At station W2706 (station depth=3.3 m) the Secchi depth measurements ranged from 0.7-1.35 m (n=3) with 2 measurements in Jul and Aug that were less than the 1.2 m (4 ft) threshold. The Secchi depth measurements are indicative of a Transparency / Clarity impairment. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples from either station (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2707 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff collected *E. coli* bacteria samples in Barkers Pond (MA82006) at W2707 [western edge of pond, E of the bend of Pond View Drive, Acton] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 28 CFU/100mL). *E. coli* data from W2707 are indicative of good water quality conditions.

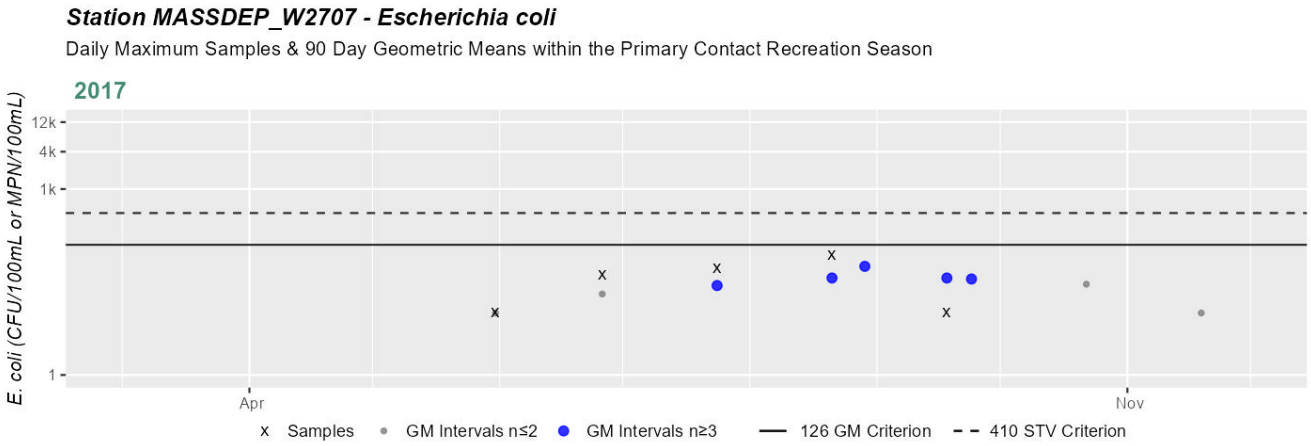
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2706	MassDEP	Water Quality	Barkers Pond	[index site, Acton]	42.460782	-71.432256
W2707	MassDEP	Water Quality	Barkers Pond	[western edge of pond, east of the bend of Pond View Drive, Acton]	42.460674	-71.432996

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2707	MassDEP	E. coli	05/31/17	09/18/17	5	10	85	28



Variable*	Result
Samples	5
SeasGM	28
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Other Indicators

Summary Statement for 2011-2022 Cyanobacteria Cell Count and Cyanotoxin Data, and Secchi Depth Data (MassDEP Undated 7) (MassDEP Undated 4)

Data Year(s)	Summary
2017	In Barkers Pond (MA82006) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2706 [MAP2L-161, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2707 [MAP2L-161S, Shoreline]. At station W2706 (station depth=3.3 m) the Secchi depth measurements ranged from 0.7-1.35 m (n=3) with 2 measurements in Jul and Aug that were less than the 1.2 m (4 ft) threshold. The Secchi depth measurements are indicative of a Transparency / Clarity impairment due to conditions at W2706. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2707 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP Cyanobacteria Cell Count Data Collected at Lakes and Impoundments (2016-2018) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2706	Barkers Pond	Index	2017	3	0	NA
W2707	Barkers Pond	Shoreline	2017	3	0	NA

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Barkers Pond (MA82006) is assessed as Fully Supporting. In Barkers Pond (MA82006) in 2017, MassDEP collected cyanobacteria cell count data at W2706 [MAP2L-161, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2707 [MAP2L-161S, Shoreline]. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples from either station (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2707 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff collected *E. coli* bacteria samples in Barkers Pond (MA82006) at W2707 [western edge of pond, E of the bend of Pond View Drive, Acton] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 28 CFU/100mL). *E. coli* data from W2707 are indicative of good water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2707	MassDEP	Water Quality	Barkers Pond	[western edge of pond, east of the bend of Pond View Drive, Acton]	42.460674	-71.432996

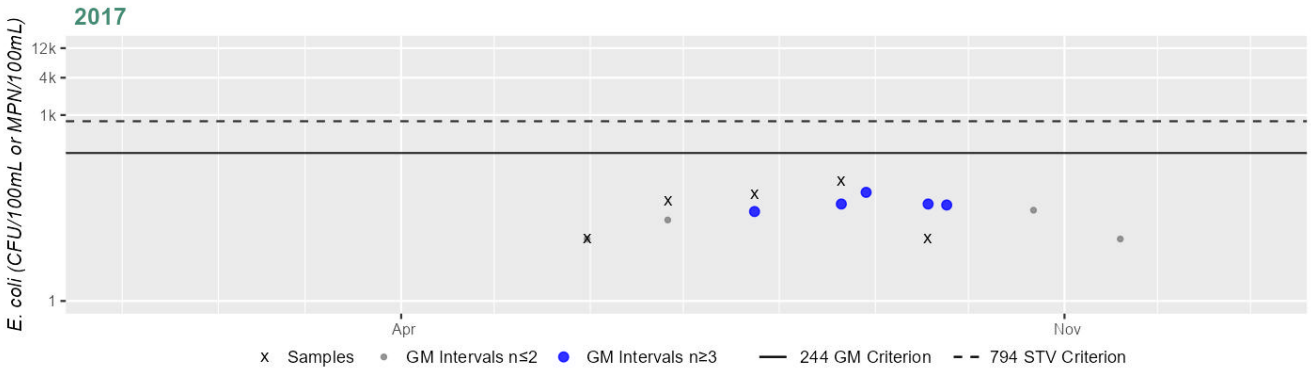
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2707	MassDEP	E. coli	05/31/17	09/18/17	5	10	85	28

Station MASSDEP_W2707 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	28
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance

Current (2011-2022)

0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Bartlett Pond (MA82007)

Location:	Northborough.
AU Type:	FRESHWATER LAKE
AU Size:	52 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Aquatic Plants (Macrophytes)*)	--	Added
4c	4c	(Curly-leaf Pondweed*)	--	Unchanged
4c	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
4c	4c	(Fanwort*)	--	Unchanged
4c	4c	(Water Chestnut*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Aquatic Plants (Macrophytes)*)	Source Unknown (N)	--	--	X	X	X
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Insufficient Information	No

2024/26 Use Attainment Summary
Fish toxics sampling was conducted in Bartlett Pond (MA82007) in 2017 as part of MassDEP's MAP2 lakes project (at station F0449), but MA DPH did not identify any freshwater fish consumption advisories, so there is Insufficient Information to assess the Fish Consumption Use.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Bartlett Pond (MA82007) is assessed as Not Supporting based on the observations from the 2017 MassDEP MAP2 macrophyte mapping survey, with an Aquatic Plants (Macrophytes) impairment being added. MassDEP staff recorded aesthetics observations as part of the MAP2 lake monitoring project in summer 2017 at two stations on Bartlett Pond in Northborough; at the eastern edge of the pond at boat launch west of Lyman Street, (W2718/MAP2L-172S, n=6) and at the deep hole index site (W2717/MAP2L-172, n=3). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, or littoral zone duckweed recorded in ten shoreline plots (n=1). During the MAP2 macrophyte mapping survey in Jul 2017 (n=1), greater than 25% (94.5%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%. The survey also noted moderate amounts of scum in the form of flocculant masses at the index site on one occasion in June.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2717	MassDEP	Water Quality	Bartlett Pond	[index site, Northborough]	42.316791	-71.618456
W2718	MassDEP	Water Quality	Bartlett Pond	[eastern edge of pond at boat launch west of Lyman Street, Northborough]	42.317758	-71.615802

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2717	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2717 (MAP2L-172) on Bartlett Pond (MA82007) during 3 site visits between Jun 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted dense/very dense aquatic plants (n=2). During the MAP2 macrophyte mapping survey (n=1) in Jul 2017, greater than 25% (94.5%) of the waterbody was determined to have an aquatic macrophyte biovolume >50% and the survey also noted an aesthetics impairment flag due to aquatic plants (macrophytes) and foam/flocs/scum/oil slicks. The observations from the MAP2 survey are indicative of an Aesthetics Use impairment.
W2718	2017	6	Aesthetic observations were made by MassDEP field sampling crews at Station W2718 (MAP2L-172S) on Bartlett Pond (MA82007) during 6 site visits between May 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2717	Bartlett Pond	2017	Aesthetics Impaired?	No	2	3
W2717	Bartlett Pond	2017	Aesthetics Impaired?	NR	1	3
W2717	Bartlett Pond	2017	Aquatic Plant Density, Overall	Dense	2	3
W2717	Bartlett Pond	2017	Aquatic Plant Density, Overall	Moderate	1	3
W2717	Bartlett Pond	2017	Aquatic Plant Density, Whole Lake	Unobservable	2	2
W2717	Bartlett Pond	2017	Color	Dark Tan	1	3
W2717	Bartlett Pond	2017	Color	Light Yellow/Tan	2	3
W2717	Bartlett Pond	2017	Duckweed Density, Whole Lake	None	1	2
W2717	Bartlett Pond	2017	Duckweed Density, Whole Lake	Unobservable	1	2
W2717	Bartlett Pond	2017	Objectionable Deposits	No	2	3
W2717	Bartlett Pond	2017	Objectionable Deposits	Yes	1	3
W2717	Bartlett Pond	2017	Odor	None	3	3
W2717	Bartlett Pond	2017	Scum	No	2	3
W2717	Bartlett Pond	2017	Scum	Yes	1	3
W2717	Bartlett Pond	2017	Turbidity	Moderately Turbid	1	3
W2717	Bartlett Pond	2017	Turbidity	Slightly Turbid	2	3
W2718	Bartlett Pond	2017	Aesthetics Impaired?	No	6	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2718	Bartlett Pond	2017	Color	Dark Tan	1	6
W2718	Bartlett Pond	2017	Color	Light Yellow/Tan	2	6
W2718	Bartlett Pond	2017	Color	None	2	6
W2718	Bartlett Pond	2017	Color	Yellowish	1	6
W2718	Bartlett Pond	2017	Objectionable Deposits	No	6	6
W2718	Bartlett Pond	2017	Odor	Fishy	1	6
W2718	Bartlett Pond	2017	Odor	None	4	6
W2718	Bartlett Pond	2017	Odor	Rotting Vegetables	1	6
W2718	Bartlett Pond	2017	Scum	No	5	6
W2718	Bartlett Pond	2017	Scum	Yes	1	6
W2718	Bartlett Pond	2017	Turbidity	None	2	6
W2718	Bartlett Pond	2017	Turbidity	Slightly Turbid	4	6

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Bartlett Pond (MA82007) is assessed as Not Supporting. An Aquatic Plants (Macrophytes) impairment is being added (from the Aesthetics Use).
In Bartlett Pond (MA82007) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2717 [MAP2L-172, Index-deep hole], and cyanobacteria cell count and cyanotoxins data at W2718 [MAP2L-172S, Shoreline]. Secchi depth data indicated water clarity meeting the 1.2m (4ft) threshold at W2717 in 2017 (n=3, 1.24-2m). The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2718 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff collected *E. coli* bacteria samples in Bartlett Pond (MA82007) at W2718 [eastern edge of pond at boat launch W of Lyman St, Northborough] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 13 CFU/100mL). *E. coli* data from W2718 are indicative of good water quality conditions.

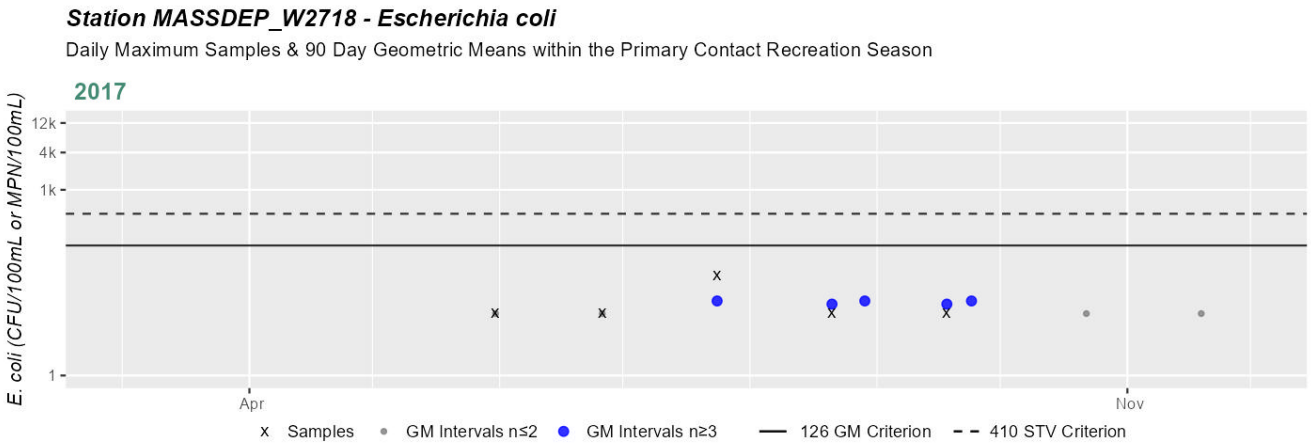
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2717	MassDEP	Water Quality	Bartlett Pond	[index site, Northborough]	42.316791	-71.618456
W2718	MassDEP	Water Quality	Bartlett Pond	[eastern edge of pond at boat launch west of Lyman Street, Northborough]	42.317758	-71.615802

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2718	MassDEP	E. coli	05/31/17	09/18/17	5	10	41	13



Variable*	Result
Samples	5
SeasGM	13
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Other Indicators

Summary Statement for 2011-2022 Cyanobacteria Cell Count and Cyanotoxin Data, and Secchi Depth Data
(MassDEP Undated 7) (MassDEP Undated 4)

Data Year(s)	Summary
2017	In Bartlett Pond (MA82007) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2717 [MAP2L-172, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2718 [MAP2L-172S, Shoreline]. At station W2717 (station depth=2.56 m) the Secchi depth measurements ranged from 1.24-2 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples in 2017 (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2718 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP Cyanobacteria Cell Count Data Collected at Lakes and Impoundments (2016-2018) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2717	Bartlett Pond	Index	2017	3	0	NA
W2718	Bartlett Pond	Shoreline	2017	3	0	NA

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Bartlett Pond (MA82007) is assessed as Not Supporting. An Aquatic Plants (Macrophytes) impairment is being added (from the Aesthetics Use).

In Bartlett Pond (MA82007) in 2017, MassDEP collected cyanobacteria cell count data at W2717 [MAP2L-172, Index-deep hole], and cyanobacteria cell count and cyanotoxins data at W2718 [MAP2L-172S, Shoreline]. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2718 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff collected *E. coli* bacteria samples in Bartlett Pond (MA82007) at W2718 [eastern edge of pond at boat launch W of Lyman St, Northborough] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset from W2718 indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 13 CFU/100mL). *E. coli* data from W2718 are indicative of good water quality.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2718	MassDEP	Water Quality	Bartlett Pond	[eastern edge of pond at boat launch west of Lyman Street, Northborough]	42.317758	-71.615802

Bacteria Data

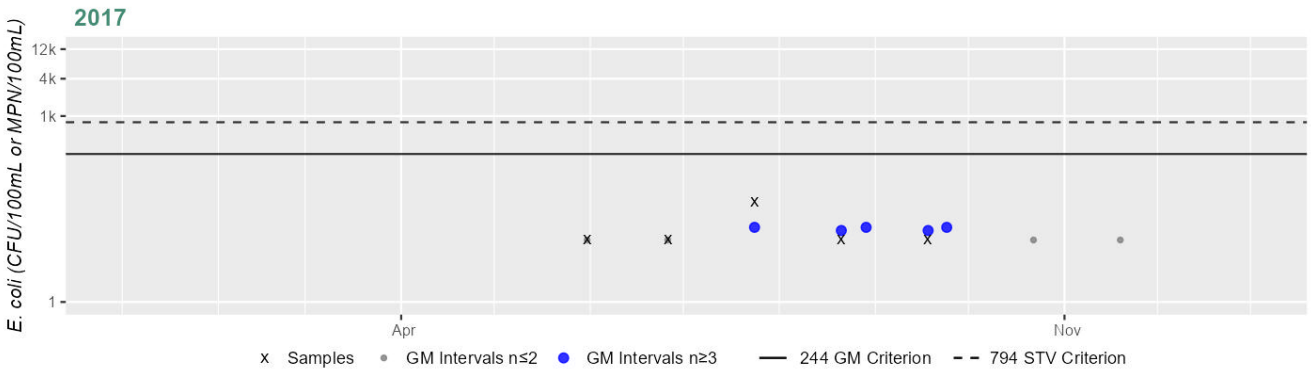
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 3)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2718	MassDEP	E. coli	05/31/17	09/18/17	5	10	41	13

Station MASSDEP_W2718 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	13
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance

Current (2011-2022)

0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Batemans Pond (MA82008)

Location:	Concord.
AU Type:	FRESHWATER LAKE
AU Size:	25 ACRES
Classification/Qualifier:	B

No usable data were available for Batemans Pond (MA82008) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Beaver Brook (MA82A-34)

Location:	Headwaters south at Rack Road, Chelmsford to mouth at confluence with River Meadow Brook, Chelmsford.
AU Type:	RIVER
AU Size:	6.3 MILES
Classification/Qualifier:	B

Beaver Brook (MA82A-34)

Watershed Area: 5.59 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	5.59	4.47	1.76	1.44
Agriculture	3.1%	3.3%	5.3%	6.4%
Developed	34.3%	37.3%	26.4%	28.6%
Natural	44.6%	46.2%	38.2%	38.2%
Wetland	17.9%	13.2%	30.1%	26.8%
Impervious	17.2%	18.7%	14%	15.5%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Dissolved Oxygen	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Beaver Brook (MA82A-34), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Beaver Brook (MA82A-34) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Beaver Brook (MA82A-34) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Beaver Brook (MA82A-34) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected *E. coli* bacteria samples in Beaver Brook (MA82A-34) at W2130 [~375 ft upstream of Summer St, Chelmsford] from May-Sep 2010 (n=6). Analysis of this historic limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 180 CFU/100mL). These data meet 2024 CALM guidance, but since they were collected prior to the current IR window (2011-2022) they cannot be used to positively assess the Secondary Contact Recreation Use of Beaver Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2130	MassDEP	Water Quality	Beaver Brook	[approximately 375 feet upstream of Summer Street, Chelmsford]	42.596001	-71.348255

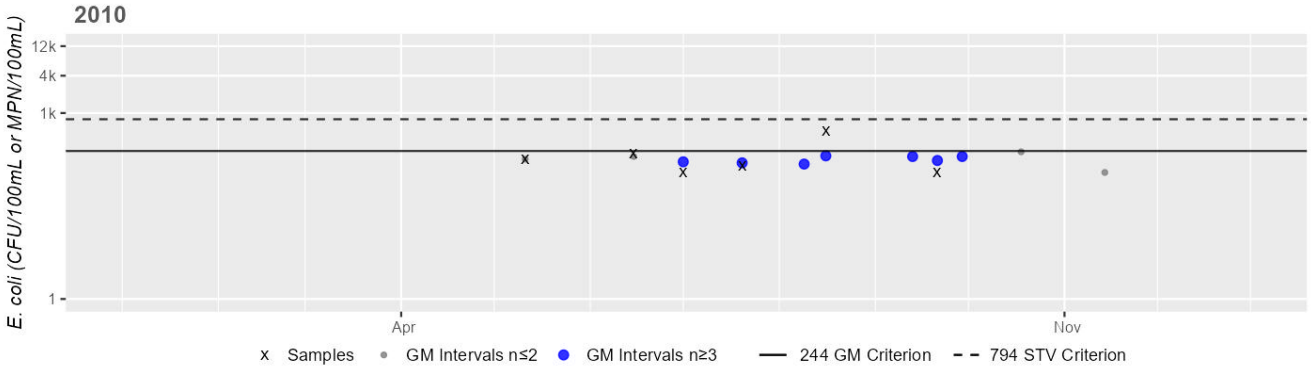
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2130	MassDEP	E. coli	05/11/10	09/21/10	6	110	510	180

Station MASSDEP_W2130 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	180
#GMI	7
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Boons Pond (MA82011)

Location:	Stow/Hudson.
AU Type:	FRESHWATER LAKE
AU Size:	174 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	5	(Fanwort*)	--	Unchanged
4a	5	(Non-Native Aquatic Plants*)	--	Unchanged
4a	5	Algae	2353	Unchanged
4a	5	Mercury in Fish Tissue	33880	Unchanged
4a	5	PFAS in Fish Tissue	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	X	--	X	X	X
Algae	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems) (Y)	X	--	X	X	X
Algae	Rural (Residential Areas) (Y)	X	--	X	X	X
Algae	Source Unknown (N)	X	--	X	X	X
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [Harmful Algal Blooms, medium priority] Follow-up monitoring should be conducted in Boons Pond (MA82011) to determine if Harmful Algal Blooms may be impairing the Recreational and Aesthetic uses. Monitoring should include observational data and collection of cyanobacteria cell count data, as well as continued reporting of algal blooms to MDPH.

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Boons Pond (MA82011) continues to be assessed as Not Supporting. The prior Mercury in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in Boons Pond (MA82011) at station F0035 (PFAS Study ID 2) on 05/31/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. MA DPH issued a site-specific advisory for PFAS in Boons Pond (referred to by MA DPH as ''Boon, Lake'') in their May 2024 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing Mercury advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
F0035	MassDEP	Fish Toxics	Boons Pond	[Hudson/Stow (aka: Lake Boone, Boon Pond) (impounded by Lake Boon Dam, NAT ID: MA00137)]	42.403676	-71.501914

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5)

Summary
Fish toxics sampling was conducted in Boons Pond (MA82011) at station F0035 (PFAS Study ID 2) on 05/31/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for Boons Pond (referred to by MA DPH as Boon, Lake) in their May 2024 Freshwater Fish Consumption Advisory List and retained them in the January 2025 list. Additionally, MA DPH retained the existing site-specific fish consumption advisories for Mercury associated with Boons Pond (referred to by MA DPH as Boon, Lake) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for PFAS in Fish Tissue and Mercury in Fish Tissue for Boons Pond (MA82011).

MassDEP 2022 PFAS in Fish Tissue Data for Massachusetts Surface Waters (MassDEP 2023b) (MassDEP Undated 5) (MA DPH 2023c)

[ng/g = ppb. All PFBA, PFBS, and HFPO-DA (Genx) concentrations <MDL. ND indicates that the PFAS analyte was not detected in any of the composite samples (i.e., it was <MDL). Means weighted by the number of fish in the contributing composites were calculated for any PFAS analyte – waterbody – species combination where an analyte was detected in at least one sample; if a sample did not have the analyte detected, the concentration for that sample was set to ½*MDL for the purposes of calculating a mean. Data are highlighted red per the fish consumption advisory thresholds summarized in Table 4.2 of MA DPH's 2023 Technical Support Document for the evaluation of PFAS in recreational waterbodies.]

[Species List: B = bluegill, LMB = largemouth bass, WP = white perch]

Station Code	PFAS Study ID	Sample Date	Species	Mean PFHxS ng/g	Mean PFNA ng/g	Mean PFOA ng/g	Mean PFOS ng/g	Analytes with ≥ 1 Sample Qualified
F0035	2	05/31/2022	B	0.07	0.15	ND	20.73	PFHxS & PFNA
F0035	2	05/31/2022	LMB	ND	ND	ND	9.23	
F0035	2	05/31/2022	WP	ND	ND	ND	5.20	

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Aesthetics Use for Boons Pond (MA82011) continues to be assessed as Not Supporting with the Algae impairment being carried forward. The prior Alert identified for Harmful Algal Blooms is being carried forward since C-HAB postings (blooms of >15 days in duration) were reported to MDPH for 2022. Since the Non-Native Aquatic Plants impairment was redundantly duplicated across multiple uses for this waterbody, the Non-Native Aquatic Plants impairment is being removed from the Aesthetics Use, but will continue to be maintained under the Aquatic Life Use.

MassDEP staff recorded aesthetics observations as part of the MAP2 lake monitoring project in summer 2017 at two stations on Boons Pond in Stow: the eastern edge of the northern lobe at the town beach of Pine Bluff Recreation Area, west of Sudbury Road (W2673/MAP2L-129S, n=7) and at the index site, in the south central lobe of the pond (W2672/MAP2L-129, n=3). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, or littoral zone duckweed recorded in ten shoreline plots (n=1), although shoreline algal blooms were noted on May 31st. During the MAP2 macrophyte mapping survey in Jul 2017 (n=1), less than 25% (1.2%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%.

During the period 2015 through 2022, C-HAB postings for Boons Pond (MDPH name Lake Boon) were reported to MDPH based on visual observations for an estimated 11 days in 2019 (according to Town of Stow personnel, the 2019 Aug 23 advisory was not formally lifted since it became too cold for swimming (Gendron July 8, 2021); Sept 2, the date of Labor Day in 2019, was used to calculate the estimated bloom duration) as well as 18 days in 2022 and no blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, this data is reflective of the existing Alert identified for Harmful Algal Blooms in Boons Pond and a recommendation for follow-up sampling will be made.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2672	MassDEP	Water Quality	Boons Pond	[index site, south central lobe, Stow]	42.396110	-71.494999
W2673	MassDEP	Water Quality	Boons Pond	[eastern edge of northern lobe at the town beach of Pine Bluff Recreation Area, west of Sudbury Road, Stow]	42.406100	-71.499524

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2672	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2672 (MAP2L-129) on Boons Pond (MA82011) during 3 site visits between Jun 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 macrophyte mapping survey (n=1) in Jul 2017, less than 25% (1.2%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%.
W2673	2017	7	Aesthetic observations were made by MassDEP field sampling crews at Station W2673 (MAP2L-129S) on Boons Pond (MA82011) during 7 site visits between May 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots. Shoreline algal blooms were noted by DEP field crews on May 31, 2017.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2672	Boons Pond	2017	Aesthetics Impaired?	No	3	3
W2672	Boons Pond	2017	Aquatic Plant Density, Overall	None	3	3
W2672	Boons Pond	2017	Aquatic Plant Density, Whole Lake	Unobservable	2	2
W2672	Boons Pond	2017	Color	Light Yellow/Tan	2	3
W2672	Boons Pond	2017	Color	None	1	3
W2672	Boons Pond	2017	Duckweed Density, Whole Lake	None	1	2
W2672	Boons Pond	2017	Duckweed Density, Whole Lake	Unobservable	1	2
W2672	Boons Pond	2017	Objectionable Deposits	No	2	3
W2672	Boons Pond	2017	Objectionable Deposits	Yes	1	3
W2672	Boons Pond	2017	Odor	None	3	3
W2672	Boons Pond	2017	Scum	No	1	3
W2672	Boons Pond	2017	Scum	Yes	2	3
W2672	Boons Pond	2017	Turbidity	Slightly Turbid	3	3
W2673	Boons Pond	2017	Aesthetics Impaired?	No	7	7
W2673	Boons Pond	2017	Color	Light Yellow/Tan	1	7
W2673	Boons Pond	2017	Color	None	4	7
W2673	Boons Pond	2017	Color	Yellowish	2	7
W2673	Boons Pond	2017	Objectionable Deposits	No	7	7
W2673	Boons Pond	2017	Odor	Musty (Basement)	1	7
W2673	Boons Pond	2017	Odor	None	6	7
W2673	Boons Pond	2017	Scum	No	5	7
W2673	Boons Pond	2017	Scum	Yes	2	7
W2673	Boons Pond	2017	Turbidity	Moderately Turbid	1	7

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2673	Boons Pond	2017	Turbidity	None	3	7
W2673	Boons Pond	2017	Turbidity	Slightly Turbid	3	7

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Boons Pond (MDPH name Lake Boon) (MA82011) were reported to MDPH based on visual observations for an estimated 11 days in 2019 (according to Town of Stow personnel, the 2019 Aug 23 advisory was not formally lifted since it became too cold for swimming (Gendron July 8, 2021); Sept 2, the date of Labor Day in 2019, was used to calculate the estimated bloom duration) as well as 18 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for C-HABs in this waterbody and a recommendation for follow-up sampling will be made.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Boons Pond (MDPH name Lake Boon)	Stow					11			18

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Boons Pond (MA82011) continues to be assessed as Not Supporting. While *E. coli* data collected at W2673 in 2017 were indicative of excellent conditions, the prior Algae impairment (from the Aesthetics Use) is being carried forward. Since the Non-Native Aquatic Plants impairment is being removed from the Aesthetics Use this cycle, this impairment is also being removed from the Primary Contact Recreation Use. An Alert is being retained for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Boons Pond (MDPH name Lake Boon) were reported to MDPH based on visual observations for an estimated 11 days in 2019 (according to Town of Stow personnel, the 2019 Aug 23 advisory was not formally lifted since it became too cold for swimming (Gendron July 8, 2021); Sept 2, the date of Labor Day in 2019, was used to calculate the estimated bloom duration) as well as 18 days in 2022 and no blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, this data is reflective of the existing Alert identified for Harmful Algal Blooms in Boons Pond and a recommendation for follow-up sampling will be made.

In Boons Pond (MA82011) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2672 [MAP2L-129, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2673 [MAP2L-129S, Shoreline]. At station W2672 (station depth=6.5 m) the Secchi depth measurements ranged from 2.27-4.45 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2673 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff collected *E. coli* bacteria samples in Boons Pond (MA82011) at W2673 [eastern edge of northern lobe at the town beach of Pine Bluff Recreation Area, W of Sudbury Rd, Stow] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset from W2673 indicated no intervals had GMs >126 CFU/100 mL and no samples exceeded the 410 CFU/100 mL STV (the seasonal GM was 11 CFU/100 mL). *E. coli* data from W2673 are indicative of excellent water quality conditions. Surface water sampling was conducted in Boons Pond (locally known as Lake Boon) (MA82011) at station W3260 (PFAS Study ID 2) on 05/31/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2672	MassDEP	Water Quality	Boons Pond	[index site, south central lobe, Stow]	42.396110	-71.494999
W2673	MassDEP	Water Quality	Boons Pond	[eastern edge of northern lobe at the town beach of Pine Bluff Recreation Area, west of Sudbury Road, Stow]	42.406100	-71.499524

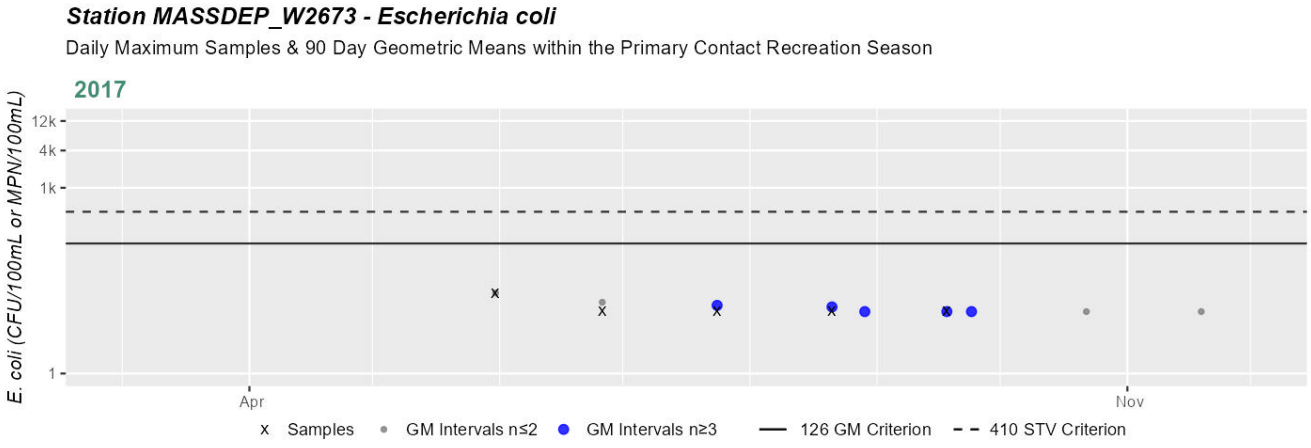
Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W3260	MassDEP	Water Quality	Boons Pond	[the default location representing co-located water/fish PFAS sampling, Stow/Hudson (aka: Lake Boone, Boon Pond)]	42.403676	-71.501914

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 4)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2673	MassDEP	E. coli	05/31/17	09/18/17	5	10	20	11



Variable*	Result
Samples	5
SeasGM	11
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance Current (2011-2022)

0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement(s) for MassDEP 2022 PFAS in Water Column Data (MassDEP 2023b) (MassDEP Undated 4)

Summary
Surface water sampling was conducted in Boons Pond (locally known as Lake Boon) (MA82011) at station W3260 (PFAS Study ID 2) on 05/31/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

MassDEP 2022 PFAS in Water Column Data for Massachusetts Surface Waters (MassDEP 2023b) (MassDEP Undated 4)

[HFPO-DA is also known as GenX; the ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here); * indicates the ∑PFAS6 concentration was qualified since data for one or more individual PFAS6 analytes were qualified; b = blank contamination qualifier, d = qualifier indicating precision of field duplicates did not meet project data quality objectives; j = 'estimated' value qualifier; ## = censored data.]

Station Code	PFAS Study ID	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	HFPO-DA ng/L	∑PFAS6 ng/L
W3260	2	05/31/2022	7	2.9	<0.56	1.3j	2.8j	3.6	<2.3	15.0*

Summary Statement for 2011-2022 Cyanobacteria Cell Count and Cyanotoxin Data, and Secchi Depth Data (MassDEP Undated 7) (MassDEP Undated 4)

Data Year(s)	Summary
2017	In Boons Pond (MA82011) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2672 [MAP2L-129, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2673 [MAP2L-129S, Shoreline]. At station W2672 (station depth=6.5 m) the Secchi depth measurements ranged from 2.27-4.45 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2673 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP Cyanobacteria Cell Count Data Collected at Lakes and Impoundments (2016-2018) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2672	Boons Pond	Index	2017	3	0	NA
W2673	Boons Pond	Shoreline	2017	3	0	NA

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Boons Pond (MA82011) continues to be assessed as Not Supporting. While *E. coli* data collected at W2673 in 2017 were indicative of excellent conditions, the prior Algae impairment (from the Aesthetics Use) is being carried forward. Since the Non-Native Aquatic Plants impairment is being removed from the Aesthetics Use this cycle, this impairment is also being removed from the Secondary Contact Recreation Use. An Alert is being retained for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Boons Pond (MDPH name Lake Boon) were reported to MDPH based on visual observations for an estimated 11 days in 2019 (according to Town of Stow personnel, the 2019 Aug 23 advisory was not formally lifted since it became too cold for swimming (Gendron July 8, 2021); Sept 2, the date of Labor Day in 2019, was used to calculate the estimated bloom duration) as well as 18 days in 2022 and no blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, this data is reflective of the existing Alert identified for Harmful Algal Blooms in Boons Pond and a recommendation for follow-up sampling will be made.
In Boons Pond (MA82011) in 2017, MassDEP collected cyanobacteria cell count data at W2672 [MAP2L-129, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2673 [MAP2L-129S, Shoreline]. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples from either station (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2673 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff collected *E. coli* bacteria samples in Boons Pond (MA82011) at W2673 [eastern edge of northern lobe at the town beach of Pine Bluff Recreation Area, W of Sudbury Rd, Stow] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset from W2673 indicated no intervals had GMs >244 CFU/100 mL and no samples exceeded the 794 CFU/100 mL STV (the overall GM was 11 CFU/100 mL). *E. coli* data from W2673 are indicative of excellent water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2673	MassDEP	Water Quality	Boons Pond	[eastern edge of northern lobe at the town beach of Pine Bluff Recreation Area, west of Sudbury Road, Stow]	42.406100	-71.499524

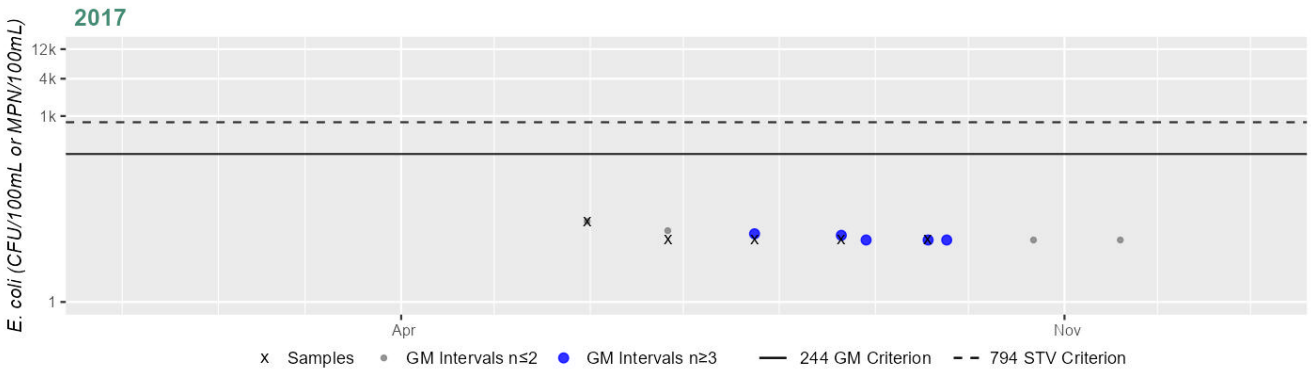
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2673	MassDEP	E. coli	05/31/17	09/18/17	5	10	20	11

Station MASSDEP_W2673 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	11
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance

Current (2011-2022)

0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Broad Meadow Brook (MA82A-39)

Location:	Headwaters east of Concord Road, Marlborough to mouth at inlet Sudbury Reservoir, Marlborough.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

Broad Meadow Brook (MA82A-39)

Watershed Area: 0.94 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	0.94	0.94	0.31	0.31
Agriculture	0%	0%	0%	0%
Developed	40.8%	40.8%	35.8%	35.8%
Natural	48%	48%	43.5%	43.5%
Wetland	11.2%	11.2%	20.7%	20.7%
Impervious	19.6%	19.6%	17.4%	17.4%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Escherichia Coli (E. Coli)	--	Unchanged
5	5	Fish Bioassessments	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Benthic Macroinvertebrates	Channelization (Y)	X	--	--	--	--
Benthic Macroinvertebrates	Erosion and Sedimentation (Y)	X	--	--	--	--
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Fish Bioassessments	Source Unknown (N)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Broad Meadow Brook (MA82A-39), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use of Broad Meadow Brook (MA82A-39) is assessed as Fully Supporting based on the general lack of objectionable conditions noted by MassDEP staff during the summer of 2015. MassDEP field crews recorded aesthetics observations at one station three-quarters of the way down Broad Meadow Brook, roughly 680 ft downstream/south of Rt. 20, Marlborough during summer 2015 (W2520, n=5). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2520	MassDEP	Water Quality	Broad Meadow Brook	[approximately 680 feet downstream/south of Route 20, Marlborough]	42.347696	-71.517941

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2520	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2520 on Broad Meadow Brook (MA82A-39) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2520	2015	5	4	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2520	Broad Meadow Brook	2015	Aesthetics Impaired?	No	5	5
W2520	Broad Meadow Brook	2015	Aquatic Plant Density, Overall	Sparse	5	5
W2520	Broad Meadow Brook	2015	Color	Light Yellow/Tan	2	5
W2520	Broad Meadow Brook	2015	Color	None	3	5
W2520	Broad Meadow Brook	2015	Objectionable Deposits	No	3	5
W2520	Broad Meadow Brook	2015	Objectionable Deposits	Yes	2	5
W2520	Broad Meadow Brook	2015	Odor	None	5	5
W2520	Broad Meadow Brook	2015	Periphyton Density, Filamentous	None	3	5
W2520	Broad Meadow Brook	2015	Periphyton Density, Filamentous	NR	1	5
W2520	Broad Meadow Brook	2015	Periphyton Density, Filamentous	Sparse	1	5
W2520	Broad Meadow Brook	2015	Periphyton Density, Film	None	4	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2520	Broad Meadow Brook	2015	Periphyton Density, Film	NR	1	5
W2520	Broad Meadow Brook	2015	Scum	No	4	5
W2520	Broad Meadow Brook	2015	Scum	Yes	1	5
W2520	Broad Meadow Brook	2015	Turbidity	None	5	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Broad Meadow Brook (MA82A-39) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W2520 in 2015.
MassDEP staff collected *E. coli* bacteria samples three-quarters of the way down Broad Meadow Brook (MA82A-39) at W2520 [~680 ft downstream/S of Rt. 20, Marlborough] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 100% of intervals had GMs >126 CFU/100mL and 4 samples exceeded the 410 CFU/100mL STV (the seasonal GM was 766 CFU/100mL). These data from W2520 are indicative of an Escherichia Coli (E. Coli) impairment.

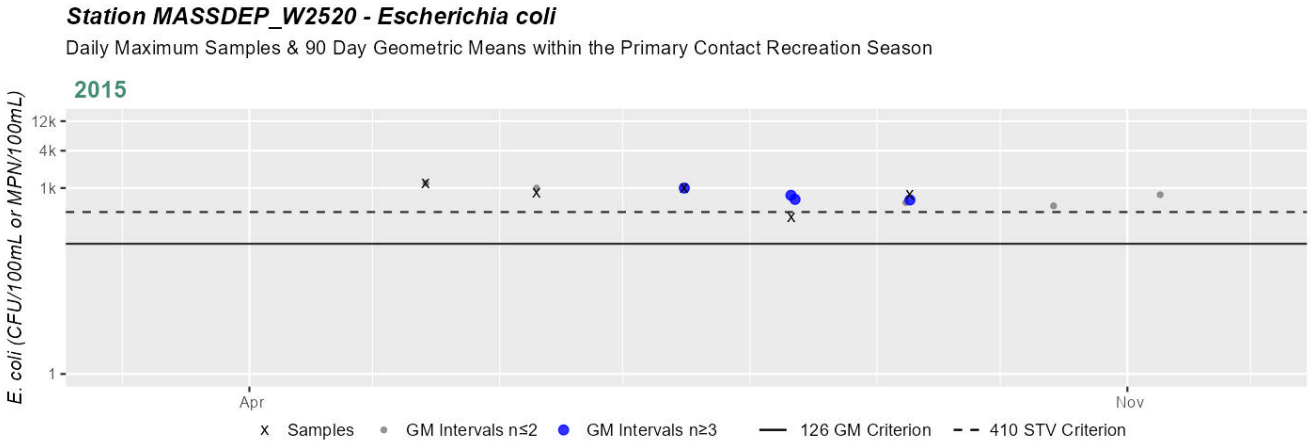
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2520	MassDEP	Water Quality	Broad Meadow Brook	[approximately 680 feet downstream/south of Route 20, Marlborough]	42.347696	-71.517941

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2520	MassDEP	E. coli	05/14/15	09/09/15	5	340	1200	766



Variable*	Result
Samples	5
SeasGM	766
#GMI	4
#GMI Ex	4
%GMI Ex	100%
n>STV	4
%n>STV	80%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Broad Meadow Brook (MA82A-39) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W2520 in 2015. MassDEP staff collected *E. coli* bacteria samples three-quarters of the way down Broad Meadow Brook (MA82A-39) at W2520 [~680 ft downstream/S of Rt. 20, Marlborough] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 100% of intervals had GMs >244 CFU/100mL and 3 samples exceeded the 794 CFU/100mL STV (the overall GM was 766 CFU/100mL). These data from W2520 are indicative of an Escherichia Coli (E. Coli) impairment.

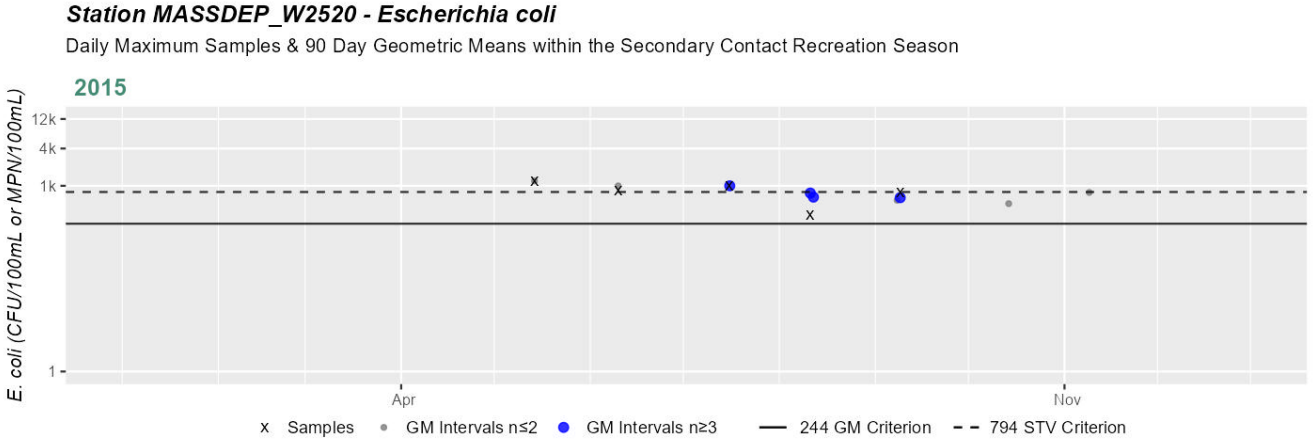
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2520	MassDEP	Water Quality	Broad Meadow Brook	[approximately 680 feet downstream/south of Route 20, Marlborough]	42.347696	-71.517941

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2520	MassDEP	E. coli	05/14/15	09/09/15	5	340	1200	766



Variable*	Result
Samples	5
SeasGM	766
#GMI	4
#GMI Ex	4
%GMI Ex	100%
n>STV	3
%n>STV	60%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Carding Mill Pond (MA82015)

Location:	Sudbury.
AU Type:	FRESHWATER LAKE
AU Size:	40 ACRES
Classification/Qualifier:	B

No usable data were available for Carding Mill Pond (MA82015) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Aquatic Plants (Macrophytes)*)	--	Unchanged
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Dissolved Oxygen Supersaturation	--	Unchanged
5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Aquatic Plants (Macrophytes)*)	Municipal Point Source Discharges (Y)	--	--	X	X	X
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Algae	Municipal Point Source Discharges (Y)	--	--	X	X	X
Dissolved Oxygen Supersaturation	Municipal Point Source Discharges (Y)	X	--	--	--	--
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X	--	X	X	X
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--

Cedar Swamp Pond (MA82016)

Location:	Westborough.
AU Type:	FRESHWATER LAKE
AU Size:	17 ACRES
Classification/Qualifier:	B: ORW

No usable data were available for Cedar Swamp Pond (MA82016) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Chauncy Lake (MA82017)

Location:	Westborough.
AU Type:	FRESHWATER LAKE
AU Size:	173 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	Harmful Algal Blooms	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Harmful Algal Blooms	Source Unknown (N)	--	--	X	X	X

Recommendations

2024/26 Recommendations
2024/2026 IR [Harmful Algal Blooms, low priority] Based on information in the 2024/2026 IR cycle, follow-up monitoring should be conducted in Chauncy Lake (MA82017) to confirm whether Harmful Algal Blooms are impairing the Recreational and Aesthetic uses since the prior impairment was based on visual data. Monitoring should include the collection of cyanobacteria cell count data and observational data, as well as continued reporting of algal blooms to MDPH. {Chauncy Lake (MA82017)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted recently in Chauncy Lake (MA82017), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Chauncy Lake (MA82017) continues to be assessed as Not Supporting with the prior impairment for Harmful Algal Blooms being carried forward, since blooms were reported in 2016 & 2017. MassDEP staff recorded a limited number of aesthetics observations at one station on Chauncy Lake as part of the Cyanobacteria Monitoring Project during the summers of 2017 and 2018, at the southeastern edge of lake, at beach north of the intersection of Chauncy and Lyman streets, Westborough (W2929, n=1/yr). There were generally no objectionable conditions (odors, deposits, growths, or turbidity) recorded. However, during the period 2015 through 2022, C-HAB postings for Chauncy Lake were reported to MDPH based on visual observations for 67 days in 2016, 53 days in 2017, and 11 days in 2019. No blooms were reported in other years. The blooms reported in recent years are reflective of the existing Harmful Algal Blooms impairment for Chauncy Lake. Since the existing Harmful Algal Blooms impairment was based on visual observations, however, a recommendation is being made to confirm the impairment with cyanobacteria cell count data.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2929	MassDEP	Water Quality	Chauncy Lake	[southeastern edge of lake, at beach north of the intersection of Chauncy and Lyman streets, Westborough]	42.291203	-71.608652

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2929	2017	1	Aesthetic observations were made by MassDEP field sampling crews at Station W2929 on Chauncy Lake (MA82017) during 1 site visit on Aug 04, 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. However, aesthetic observations are limited (n<3).
W2929	2018	1	Aesthetic observations were made by MassDEP field sampling crews at Station W2929 on Chauncy Lake (MA82017) during 1 site visit on Jul 25, 2018. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. However, aesthetic observations are limited (n<3).

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2929	Chauncy Lake	2017	Aesthetics Impaired?	No	1	1
W2929	Chauncy Lake	2017	Color	None	1	1
W2929	Chauncy Lake	2017	Objectionable Deposits	No	1	1
W2929	Chauncy Lake	2017	Odor	None	1	1
W2929	Chauncy Lake	2017	Scum	Yes	1	1
W2929	Chauncy Lake	2017	Turbidity	None	1	1
W2929	Chauncy Lake	2018	Aesthetics Impaired?	No	1	1
W2929	Chauncy Lake	2018	Color	None	1	1
W2929	Chauncy Lake	2018	Objectionable Deposits	No	1	1
W2929	Chauncy Lake	2018	Odor	None	1	1
W2929	Chauncy Lake	2018	Scum	No	1	1
W2929	Chauncy Lake	2018	Turbidity	None	1	1

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Chauncy Lake (MA82017) were reported to MDPH based on visual observations for 67 days in 2016, 53 days in 2017, and 11 days in 2019. No blooms were reported in other years. Since blooms were reported in recent years, a prior Harmful Algal Bloom impairment is being carried forward and the Aesthetics Use and Primary/Secondary Contact Recreational Uses continue to be assessed as Not Supporting. Since the existing Harmful Algal Blooms impairment was based on visual observations, a recommendation is being made to confirm the impairment with cyanobacteria cell count data.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Chauncy Lake	Westborough		67	53		11			

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for Chauncy Lake (MA82017) continues to be assessed as Not Supporting. The prior Harmful Algal Blooms impairment is being carried forward based on the occurrence of C-HAB postings extending >20 days in 2 recent years. During the period 2015 through 2022, C-HAB postings for Chauncy Lake (MA82017) were reported to MDPH based on visual observations for 67 days in 2016, 53 days in 2017, and 11 days in 2019. No blooms were reported in other years. The blooms reported in recent years are reflective of the existing Harmful Algal Blooms impairment for Chauncy Lake. Since the existing Harmful Algal Blooms impairment was based on visual observations, however, a recommendation is being made to confirm the impairment with cyanobacteria cell count data.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Chauncy Lake (MA82017) continues to be assessed as Not Supporting. The prior Harmful Algal Blooms impairment is being carried forward based on the occurrence of C-HAB postings extending >20 days in 2 recent years. During the period 2015 through 2022, C-HAB postings for Chauncy Lake (MA82017) were reported to MDPH based on visual observations for 67 days in 2016, 53 days in 2017, and 11 days in 2019. No blooms were reported in other years. The blooms reported in recent years are reflective of the existing Harmful Algal Blooms impairment for Chauncy Lake. Since the existing Harmful Algal Blooms impairment was based on visual observations, however, a recommendation is being made to confirm the impairment with cyanobacteria cell count data.

Clamshell Pond (MA82018)

Location:	Clinton.
AU Type:	FRESHWATER LAKE
AU Size:	24 ACRES
Classification/Qualifier:	B

No usable data were available for Clamshell Pond (MA82018) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Water Chestnut*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Cold Harbor Brook (MA82B-18)

Location:	Headwaters, outlet Rocky Pond, Boylston to mouth at confluence with Howard Brook, Northborough.
AU Type:	RIVER
AU Size:	6.1 MILES
Classification/Qualifier:	B

Cold Harbor Brook (MA82B-18)

Watershed Area: 6.91 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	6.91	4.56	2.49	1.78
Agriculture	3.2%	4.8%	2.8%	3.8%
Developed	26.2%	24%	20.7%	20.2%
Natural	56.3%	56.5%	48.8%	49.5%
Wetland	14.3%	14.7%	27.8%	26.4%
Impervious	12.3%	11.6%	9.8%	9.8%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Cold Harbor Brook (MA82B-18), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Cold Harbor Brook (MA82B-18) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Cold Harbor Brook (MA82B-18) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Cold Harbor Brook (MA82B-18) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected historical *E. coli* bacteria samples in Cold Harbor Brook (MA82B-18) at 2 stations in 2010. Samples were collected from the following stations/sample years in the middle of the AU from upstream to downstream: W2139 [~300 ft upstream of Rt. 290, Northborough] from May-Sep 2010 (n=6) and W2129 [Crawford St, Northborough] from May-Sep 2010 (n=6). Analysis of these historic single year limited frequency *E. coli* datasets indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV at either station (overall GMs ranged from 68-70 CFU/100mL). Historic *E. coli* data from W2139 and W2129 meet 2024 CALM guidance. However, since these data were collected prior to the current IR window (2011-2022), they cannot be used to positively assess the Secondary Contact Recreation Use.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2129	MassDEP	Water Quality	Cold Harbor Brook	[Crawford Street, Northborough]	42.328537	-71.676575
W2139	MassDEP	Water Quality	Cold Harbor Brook	[approximately 300 feet upstream of Route 290, Northborough]	42.333324	-71.680170

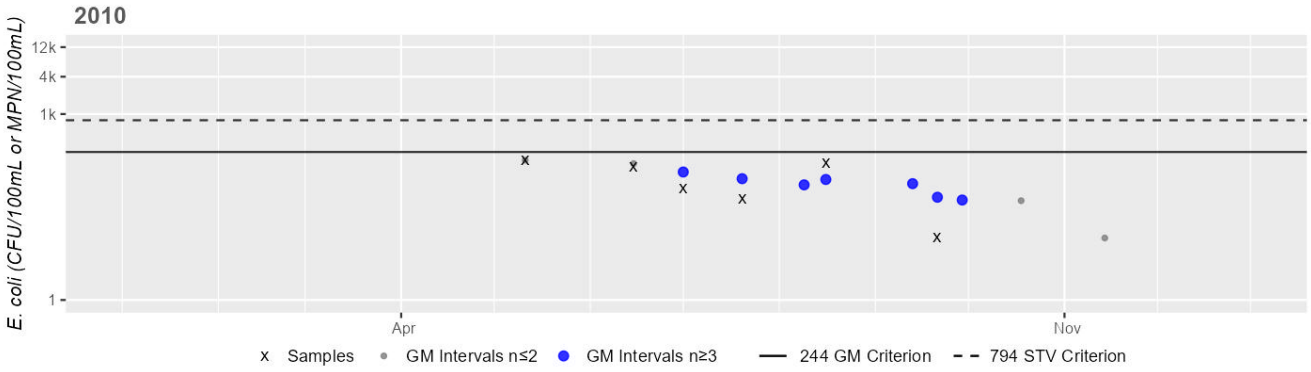
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2129	MassDEP	E. coli	05/11/10	09/21/10	6	10	180	68
W2139	MassDEP	E. coli	05/11/10	09/21/10	6	10	280	70

Station MASSDEP_W2129 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



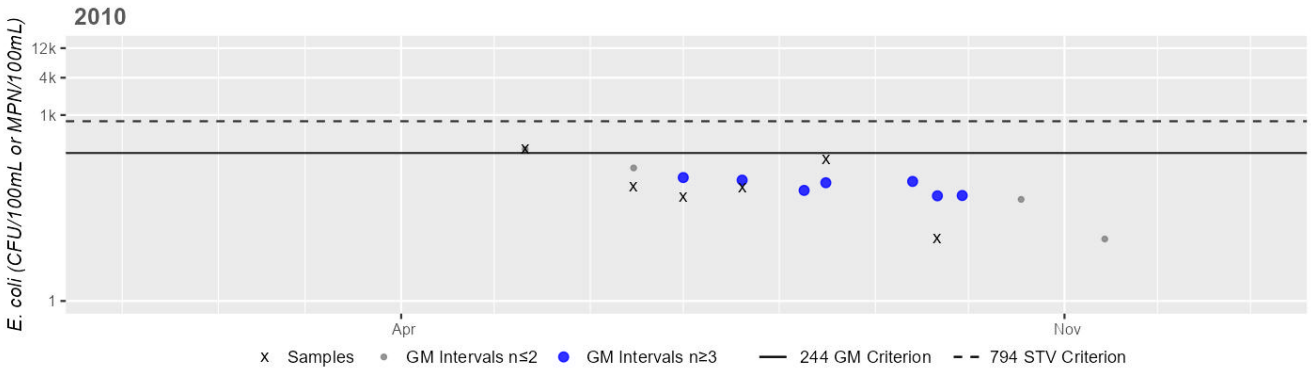
Variable*	Result
Samples	6
SeasGM	68
#GMI	7
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2139 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	70
#GMI	7
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

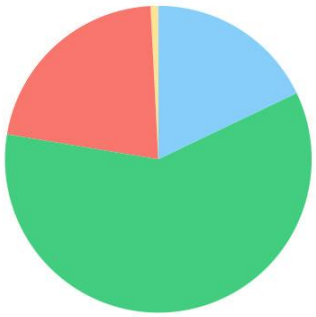
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Cold Spring Brook (MA82A-18)

Location:	Headwaters outlet Bloods Pond, Hopkinton to inlet Ashland Reservoir, Ashland.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B

Cold Spring Brook (MA82A-18)

Watershed Area: 5.47 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	5.47	5.47	1.95	1.95
Agriculture	0.8%	0.8%	0.8%	0.8%
Developed	21.6%	21.6%	14.5%	14.5%
Natural	59.7%	59.7%	50.8%	50.8%
Wetland	17.9%	17.9%	33.9%	33.9%
Impervious	8.9%	8.9%	5.5%	5.5%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Cold Spring Brook (MA82A-18), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Cold Spring Brook (MA82A-18) is assessed as Fully Supporting based on the general lack of objectionable conditions noted by MassDEP staff in the summer of 2015 at W2508. MassDEP field crews recorded aesthetics observations at one station halfway down this Cold Spring Brook AU, roughly 340 ft upstream/south of Clinton St, Hopkinton during summer 2015 (W2508/MAP2-651, n=5). There were generally no noted persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded by field crews during these site visits.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2508	MassDEP	Water Quality	Cold Spring Brook	[approximately 340 feet upstream/south of Clinton Street, Hopkinton]	42.224779	-71.477671

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2508	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2508 on Cold Spring Brook (MA82A-18) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2508	2015	5	5	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2508	Cold Spring Brook	2015	Aesthetics Impaired?	No	5	5
W2508	Cold Spring Brook	2015	Aquatic Plant Density, Overall	Moderate	3	5
W2508	Cold Spring Brook	2015	Aquatic Plant Density, Overall	Sparse	2	5
W2508	Cold Spring Brook	2015	Color	Light Yellow/Tan	4	5
W2508	Cold Spring Brook	2015	Color	Reddish	1	5
W2508	Cold Spring Brook	2015	Objectionable Deposits	No	4	5
W2508	Cold Spring Brook	2015	Objectionable Deposits	Yes	1	5
W2508	Cold Spring Brook	2015	Odor	None	5	5
W2508	Cold Spring Brook	2015	Periphyton Density, Filamentous	None	3	5
W2508	Cold Spring Brook	2015	Periphyton Density, Filamentous	NR	1	5
W2508	Cold Spring Brook	2015	Periphyton Density, Filamentous	Sparse	1	5
W2508	Cold Spring Brook	2015	Periphyton Density, Film	None	4	5
W2508	Cold Spring Brook	2015	Periphyton Density, Film	Sparse	1	5
W2508	Cold Spring Brook	2015	Scum	No	4	5
W2508	Cold Spring Brook	2015	Scum	Yes	1	5
W2508	Cold Spring Brook	2015	Turbidity	None	3	5
W2508	Cold Spring Brook	2015	Turbidity	Slightly Turbid	2	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for Cold Spring Brook (MA82A-18) continues to be assessed as Fully Supporting. MassDEP staff collected *E. coli* bacteria samples in Cold Spring Brook (MA82A-18) at W2508 [~340 ft upstream/S of Clinton St in Hopkinton] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 82 CFU/100mL). These *E. coli* data are indicative of good water quality.

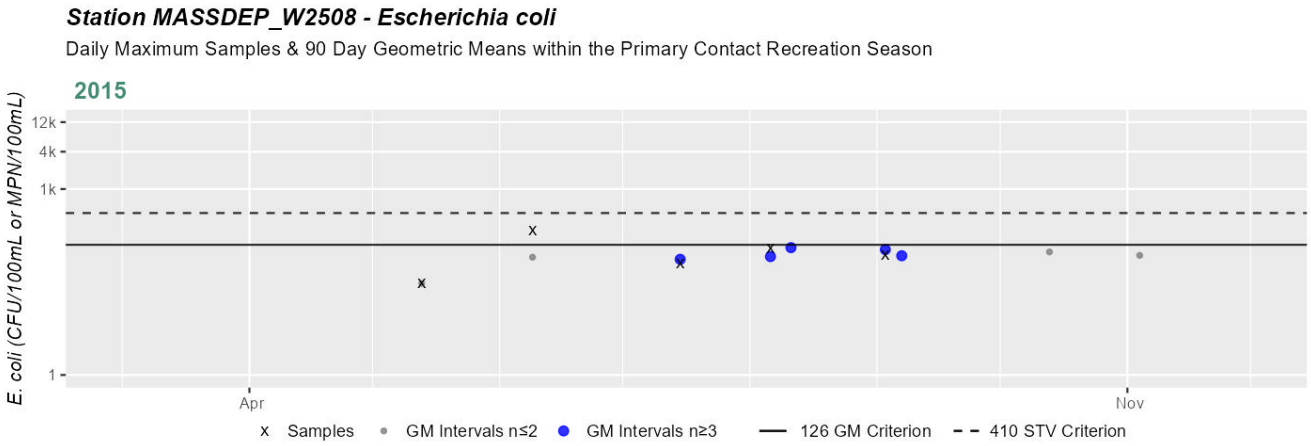
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2508	MassDEP	Water Quality	Cold Spring Brook	[approximately 340 feet upstream/south of Clinton Street, Hopkinton]	42.224779	-71.477671

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2508	MassDEP	E. coli	05/13/15	09/03/15	5	30	210	82



Variable*	Result
Samples	5
SeasGM	82
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Cold Spring Brook (MA82A-18) continues to be assessed as Fully Supporting. MassDEP staff collected *E. coli* bacteria samples in Cold Spring Brook (MA82A-18) at W2508 [~340 ft upstream/S of Clinton St in Hopkinton] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 82 CFU/100mL). These *E. coli* data are indicative of good water quality.

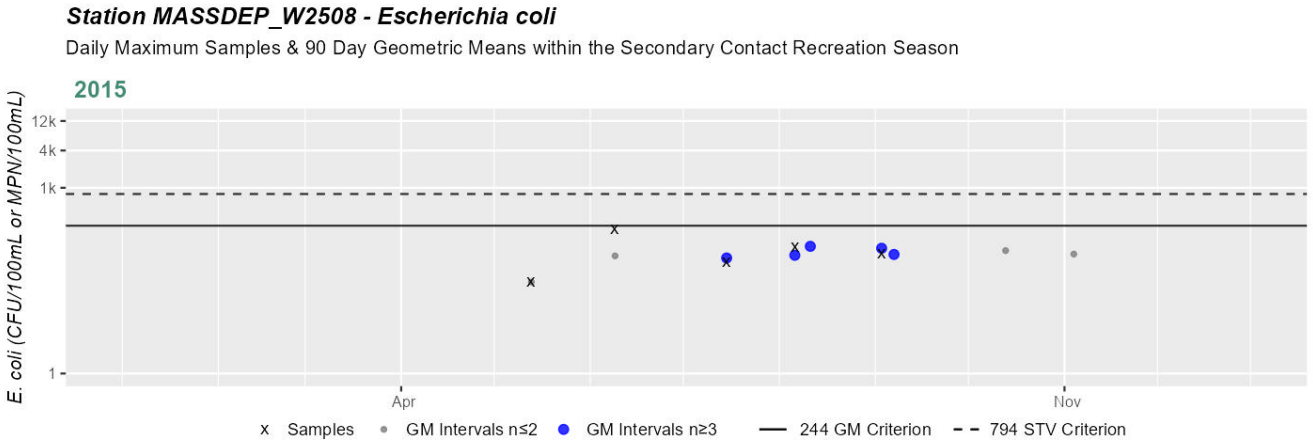
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2508	MassDEP	Water Quality	Cold Spring Brook	[approximately 340 feet upstream/south of Clinton Street, Hopkinton]	42.224779	-71.477671

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2508	MassDEP	E. coli	05/13/15	09/03/15	5	30	210	82



Variable*	Result
Samples	5
SeasGM	82
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Coles Brook (MA82B-22)

Location:	Headwaters, east of Francine Road, Acton to mouth at confluence with Fort Pond Brook, Acton.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

Coles Brook (MA82B-22)

Watershed Area: 2.00 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	2.00	2.00	0.60	0.60
Agriculture	4.6%	4.6%	1.2%	1.2%
Developed	31.5%	31.5%	23.6%	23.6%
Natural	47.5%	47.5%	40%	40%
Wetland	16.4%	16.4%	35.2%	35.2%
Impervious	18.8%	18.8%	12.8%	12.8%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Chloride	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Chloride	Highway/Road/Bridge Runoff (Non-construction Related) (Y)	X	--	--	--	--
Chloride	Impervious Surface/Parking Lot Runoff (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Coles Brook (MA82B-22), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Coles Brook (MA82B-22) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Coles Brook (MA82B-22) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Coles Brook (MA82B-22) is assessed as Not Supporting. An Escherichia Coli (E. Coli) impairment is being added based on a re-evaluation of bacteria data not meeting the threshold at W2137. MassDEP staff collected *E. coli* bacteria samples in the downstream half of Coles Brook (MA82B-22) at W2137 [~550 ft upstream of Robinwood Rd, Acton] from May-Sep 2010 (n=6). Analysis of this historic single year limited frequency *E. coli* dataset indicated 85% of intervals had GMs >244 CFU/100mL and 1 sample exceeded the 794 CFU/100mL STV (the overall GM was 436 CFU/100mL). Historic *E. coli* data from W2137 are indicative of an Escherichia Coli (E. Coli) impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2137	MassDEP	Water Quality	Coles Brook	[approximately 550 feet upstream of Robinwood Road, Acton]	42.467398	-71.428426

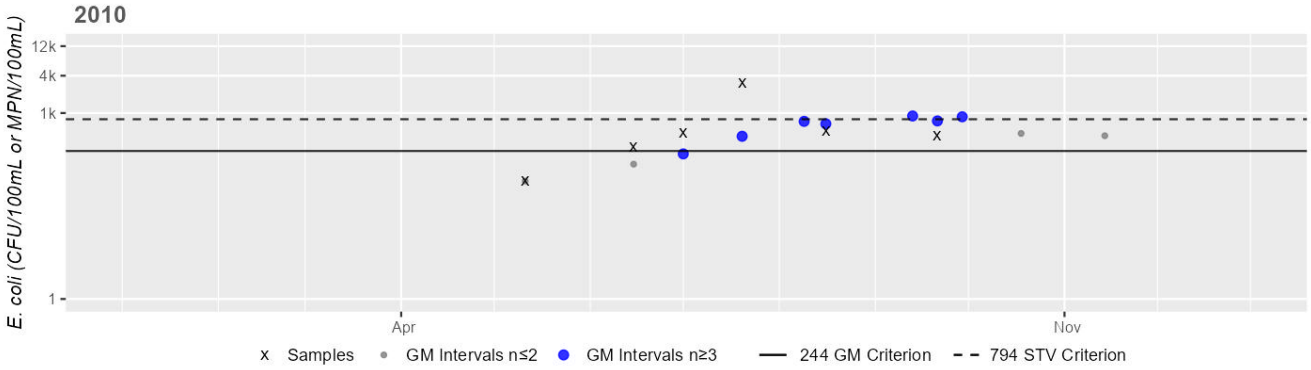
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2137	MassDEP	E. coli	05/11/10	09/21/10	6	80	3000	436

Station MASSDEP_W2137 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	436
#GMI	7
#GMI Ex	6
%GMI Ex	85%
n>STV	1
%n>STV	16%

Cumulative %GMI Exceedance
Historic (1997-2010)
85%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Concord River (MA82A-07)

Location:	Headwaters, confluence Assabet and Sudbury rivers, Concord to Billerica Water Supply intake, Billerica.
AU Type:	RIVER
AU Size:	10.4 MILES
Classification/Qualifier:	B: TWS, WWF

Concord River (MA82A-07)

Watershed Area: 366.66 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	366.66	8.39	130.76	1.93
Agriculture	3.2%	1.6%	2.7%	2.6%
Developed	25.6%	39.3%	17.6%	24%
Natural	54.5%	45.6%	51.6%	48.3%
Wetland	16.7%	13.5%	28.1%	25.1%
Impervious	12.8%	22.1%	8.6%	13.9%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Asian Clam*)	--	Unchanged
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(European Water Clover*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Fecal Coliform	R1_MA_2024_04	Changed
5	5	Mercury in Fish Tissue	--	Unchanged
5	5	PFAS in Fish Tissue	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Asian Clam*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(European Water Clover*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Municipal Point Source Discharges (N)	--	--	--	X	--
Escherichia Coli (E. Coli)	Unspecified Urban Stormwater (N)	--	--	--	X	--
Fecal Coliform	Municipal Point Source Discharges (N)	--	--	--	X	--
Fecal Coliform	Unspecified Urban Stormwater (N)	--	--	--	X	--
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Recommendations

2024/26 Recommendations
2024/2026 IR [E. coli and Fecal Coliform, high priority] Follow-up bacteria monitoring should be conducted in this upstream Concord River AU (MA82A-07) to provide justification for a potential delisting of the Escherichia Coli (E. Coli) and Fecal Coliform impairments from the Primary Contact Recreation Use. The MA82A-07 AU has been impaired for Pathogens since the 1992 IR cycle (MassDEP 2024) and this was likely based on data collected in 1979 and 1986 at multiple stations indicating that the river suffered from periodic elevated fecal coliform concentrations throughout the AU (MassDEQE 1980, Webber 1987). While recent *E. coli* data collected by OARS at OARS_CND-110 and OARS_CND-093 from 2019-2022 and reported on during the 2024/2026 IR cycle could provide a partial justification for a delisting, *E. coli* data of sufficient frequency should also be collected in the downstream developed part of the AU in the vicinity of the Rt 129 crossing of the Concord River in Billerica (where some of the historical data that triggered the impairment were collected) or, alternatively, in the vicinity of the nearby Billerica water supply intake (which is the reference for the downstream border of the AU). Note that the upstream part of the AU is much less developed since the river flows through the Great Meadows National Wildlife Refuge and consideration should be given to splitting the AU at the downstream border of the refuge. {Rt 129 crossing of the Concord River (MA82A-07) in Billerica}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary

The Fish Consumption Use for this Concord River AU (MA82A-07) continues to be assessed as Not Supporting. The prior Mercury in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in the downstream Concord River AU (MA82A-08) at station F0486 (PFAS Study ID 44) [west of Muldoon Park boat launch, Billerica] on 08/19/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. MA DPH issued a site-specific advisory for PFAS in the Concord River (referred to by MA DPH as ''Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)'' or ''Concord River'') in their May 2024 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing Mercury advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5)

Summary
Fish toxics sampling was conducted in the downstream Concord River AU (MA82A-08) at station F0486 (PFAS Study ID 44) [west of Muldoon Park boat launch, Billerica] on 08/19/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for the Concord River (referred to by MA DPH as Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)) in their May 2024 Freshwater Fish Consumption Advisory List and retained them in the January 2025 list. Additionally, MA DPH retained the existing site-specific fish consumption advisories for Mercury associated with the Concord River (referred to by MA DPH as Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for Mercury in Fish Tissue and PFAS in Fish Tissue for this Concord River AU (MA82A-07).

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Concord River AU (MA82A-07) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Concord River AU (MA82A-07) continues to be assessed as Not Supporting with the Escherichia Coli (E. Coli) and Fecal Coliform impairments being carried forward.
OARS staff/volunteers collected *E. coli* bacteria samples in the Concord River (MA82A-07) from 2019-2022 at 2 stations. Samples were collected from the following stations/sample years from upstream to downstream: roughly 1/3 of the way down the AU at OARS_CND-110 [Rt 225, Bedford] from 2019-2021 (n=14-15/yr) and roughly 2/3 of the way down the AU at OARS_CND-093 [Rt 4, Billerica] from May-Sep 2022 (n=9). Analysis of the multi-year high/moderate frequency *E. coli* dataset from OARS_CND-110 indicated no intervals in any year had a GM >126 CFU/100mL and there were no exceedances of the 410 CFU/100mL STV. Analysis of the single year moderate frequency *E. coli* dataset from OARS_CND-093 also indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV. Seasonal GMs among the two stations ranged from 8-46 CFU/100mL. While *E. coli* data from OARS_CND-110 and OARS_CND-093 are indicative of good water quality conditions, the downstream portion of the AU is more developed than the upstream/middle of the AU and a recommendation is being made to collect additional *E. coli* data at the Rt 129 crossing of the Concord River in Billerica (location of some of the historical data triggering a Pathogens impairment, later converted to Escherichia Coli (E. Coli) and Fecal Coliform) to potentially justify the delisting of the pathogen indicators (see Recommendation for more details).
Surface water sampling was conducted by the USGS upstream of the Concord WWTF discharge on the Concord River (MA82A-07) at station USGS_01098880 and downstream of the Concord WWTF discharge on the Concord River (MA82A-07) at station USGS_423033071185001 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

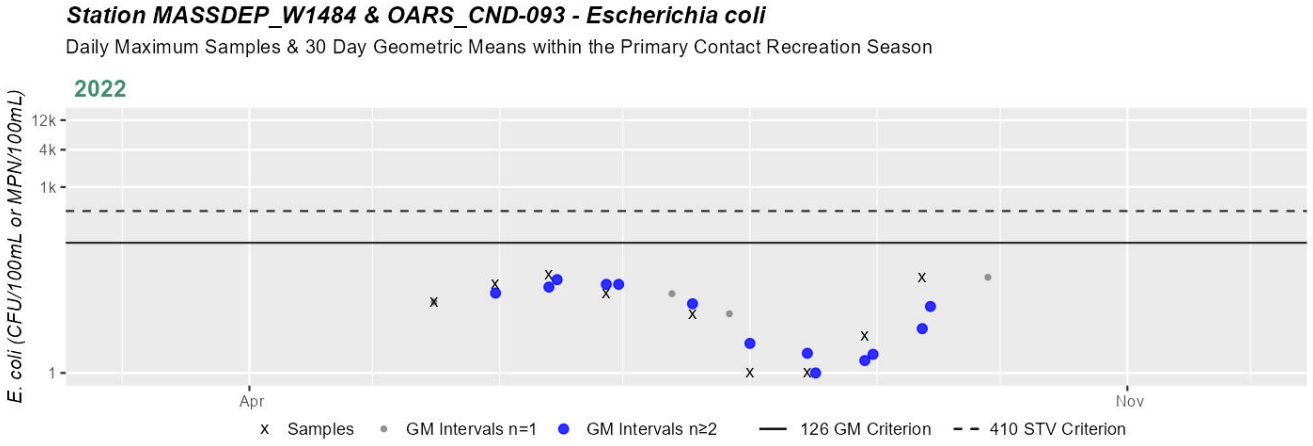
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_CND-093	OARS	Water Quality	Concord River	Rte 4, Billerica	42.534943	-71.299375
OARS_CND-110	OARS	Water Quality	Concord River	Rte 225, Bedford	42.509160	-71.313342
USGS-01098880	USGS Massachusetts Water Science Center	Water Quality	Concord River	CONCORD RIVER NEAR LOWELL ROAD, CONCORD, MA; upstream of Concord WWTF	42.467000	-71.356000
USGS-423033071185001	USGS Massachusetts Water Science Center	Water Quality	Concord River	CONCORD R RT225 CARLISLE-BEDFORD, MA; downstream of Concord WWTF	42.509000	-71.314000

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

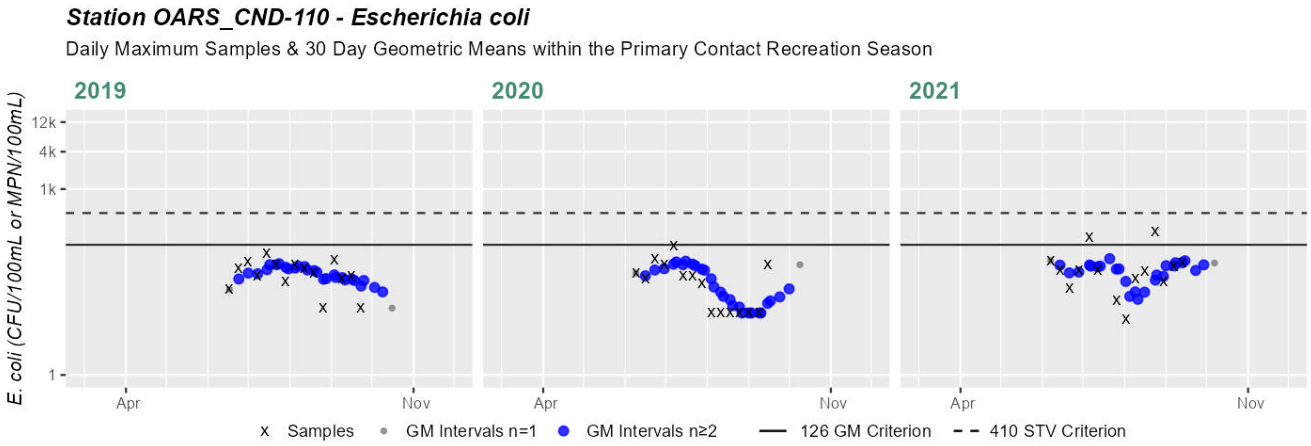
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_CND-093	OARS	E. coli	05/16/22	09/12/22	9	1	38	8
OARS_CND-110	OARS	E. coli	06/17/19	09/23/19	15	12	92	40
OARS_CND-110	OARS	E. coli	06/08/20	09/14/20	15	10	120	26
OARS_CND-110	OARS	E. coli	06/07/21	09/13/21	14	8	204	46



Variable*	Result
Samples	9
SeasGM	8
#GMI	13
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*



Variable*	Result
Samples	15
SeasGM	40
#GMI	27
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	26
#GMI	27
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	14
SeasGM	46
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS upstream of the Concord WWTF discharge on the Concord River (MA82A-07) at station USGS_01098880 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).
Surface water sampling was conducted by the USGS downstream of the Concord WWTF discharge on the Concord River (MA82A-07) at station USGS_423033071185001 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01098880	8/27/2020	6.77	6.72	1.89	2.98	5.5	4.69	21.9*
USGS-01098880	9/17/2020	6.37	E5.5	1.88	E2.65	4.61	3.53	19.8*
USGS-01098880	10/28/2020	E7.06	E6.28	V1.94	V2.4	4.17	3.97	21.2*
USGS-423033071185001	8/27/2020	7.15	6.72	2.34	3.39	5.67	4.37	23.4*
USGS-423033071185001	9/17/2020	6.66	E5.96	2.02	2.72	4.51	3.66	21.0*
USGS-423033071185001	10/28/2020	E6.95	E6.28	E1.92	V2.57	3.96	3.91	21.4*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Concord River AU (MA82A-07) continues to be assessed as Fully Supporting.

OARS staff/volunteers collected *E. coli* bacteria samples in the current IR window (2011-2022) in the Concord River (MA82A-07) from 2019-2022 at 2 stations. Samples were collected from the following stations/sample years from upstream to downstream: OARS_CND-110 [Rte 225, Bedford] from 2019-2021 (n=14-15/yr) and OARS_CND-093 [Rte 4, Billerica] from May-Sep 2022 (current n=9). Analysis of the multi-year high/moderate frequency *E. coli* dataset from OARS_CND-110 indicated none of the 3 data years had any intervals where GMs were >244 CFU/100mL, nor were there any exceedances of the 794 CFU/100mL STV. Analysis of the single year moderate frequency *E. coli* dataset from OARS_CND-093 again indicated none of the intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV. Annual GMs among the two stations ranged from 8-46 CFU/100mL *E. coli* data from OARS_CND-110 and OARS_CND-093 are indicative of good water quality conditions.

Historically, MassDEP collected *E. coli* bacteria samples in the historic (1997-2010) IR window in the Concord River (MA82A-07) in 2006 at four stations. Samples were collected from the following stations/sample years from upstream to downstream: W1482 [Monument St bridge, Concord] from May-Sep 2006 (n=5), W1483 [Rt. 225 bridge, Carlisle/Bedford] from May-Sep 2006 (n=5), W1484 [Rt. 4 bridge, (Riverside) Billerica; same location as OARS_CND-093] from May-Sep 2006 (historic n=5), and W1485 [River St bridge, Billerica] from May-Sep 2006 (n=5). *E. coli* data from these stations are similarly indicative of good conditions but cannot be used for assessment purposes since they were collected prior to the current IR window.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1482	MassDEP	Water Quality	Concord River	[Monument Street bridge, Concord]	42.471165	-71.349894
W1483	MassDEP	Water Quality	Concord River	[Route 225 bridge, Carlisle/Bedford]	42.509028	-71.314118
W1484	MassDEP	Water Quality	Concord River	[Route 4 bridge, (Riverside) Billerica]	42.534890	-71.299530
W1485	MassDEP	Water Quality	Concord River	[River Street bridge, Billerica]	42.557475	-71.282525
OARS_CND-093	OARS	Water Quality	Concord River	Rte 4, Billerica	42.534943	-71.299375
OARS_CND-110	OARS	Water Quality	Concord River	Rte 225, Bedford	42.509160	-71.313342

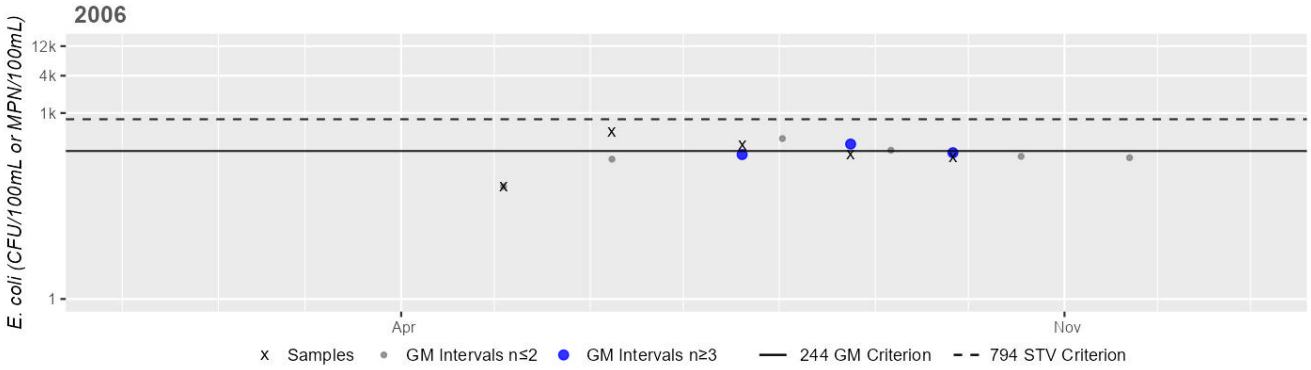
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1482	MassDEP	E. coli	05/04/06	09/26/06	5	65	500	207
W1483	MassDEP	E. coli	05/04/06	09/26/06	5	39	350	74
W1484	MassDEP	E. coli	05/04/06	09/26/06	5	6	390	36
W1485	MassDEP	E. coli	05/04/06	09/26/06	5	13	330	37
OARS_CND-093	OARS	E. coli	05/16/22	09/12/22	9	1	38	8
OARS_CND-110	OARS	E. coli	06/17/19	09/23/19	15	12	92	40
OARS_CND-110	OARS	E. coli	06/08/20	09/14/20	15	10	120	26
OARS_CND-110	OARS	E. coli	06/07/21	09/13/21	14	8	204	46

Station MASSDEP_W1482 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



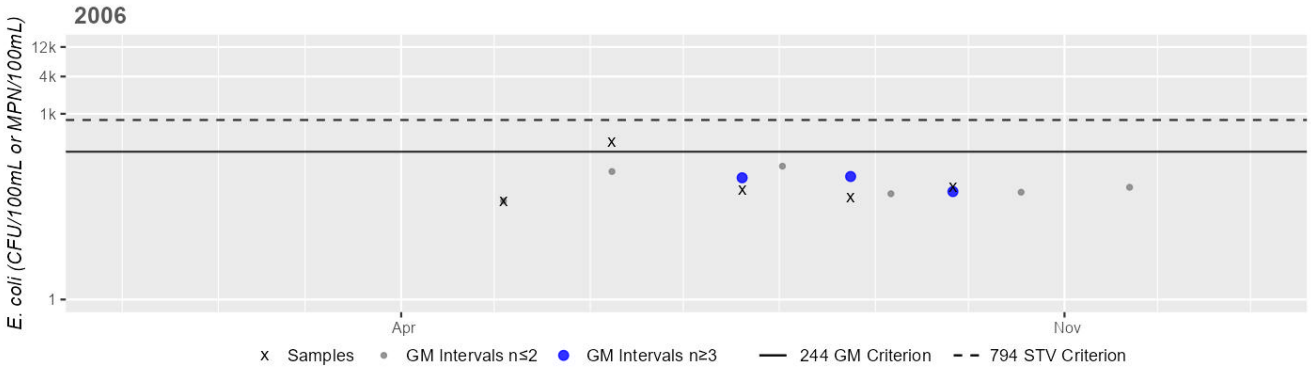
Variable*	Result
Samples	5
SeasGM	207
#GMI	3
#GMI Ex	1
%GMI Ex	33%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
33%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1483 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



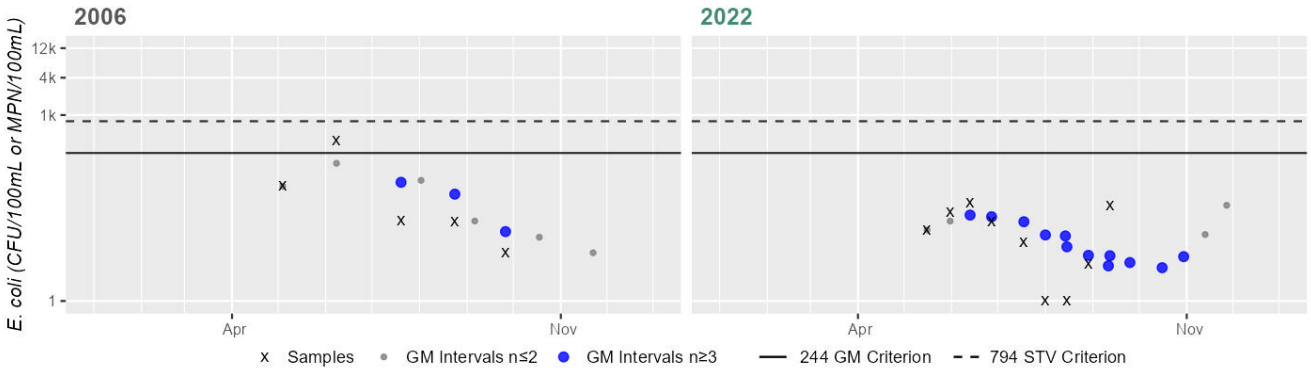
Variable*	Result
Samples	5
SeasGM	74
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1484 & OARS_CND-093 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	36
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	9
SeasGM	8
#GMI	12
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

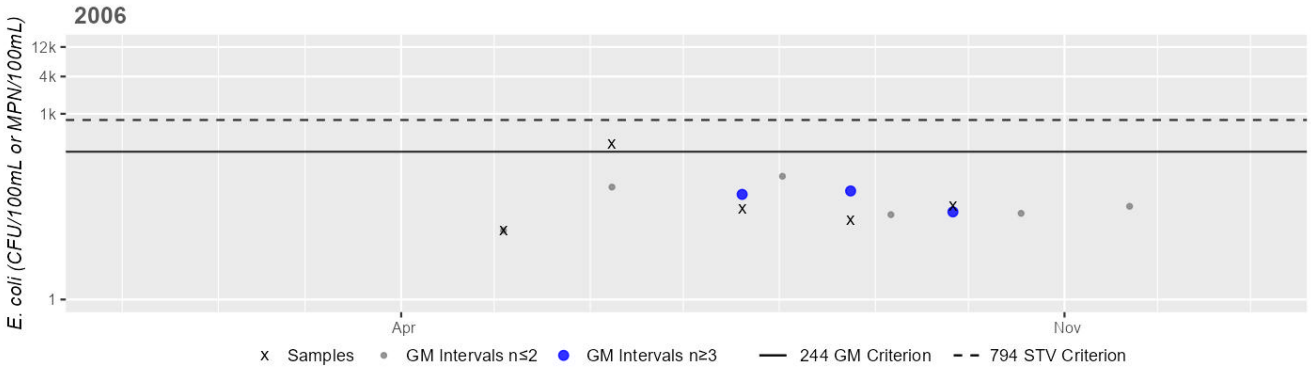
Cumulative %GMI Exceedance Historic (1997-2010)
0%

Cumulative %GMI Exceedance Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1485 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



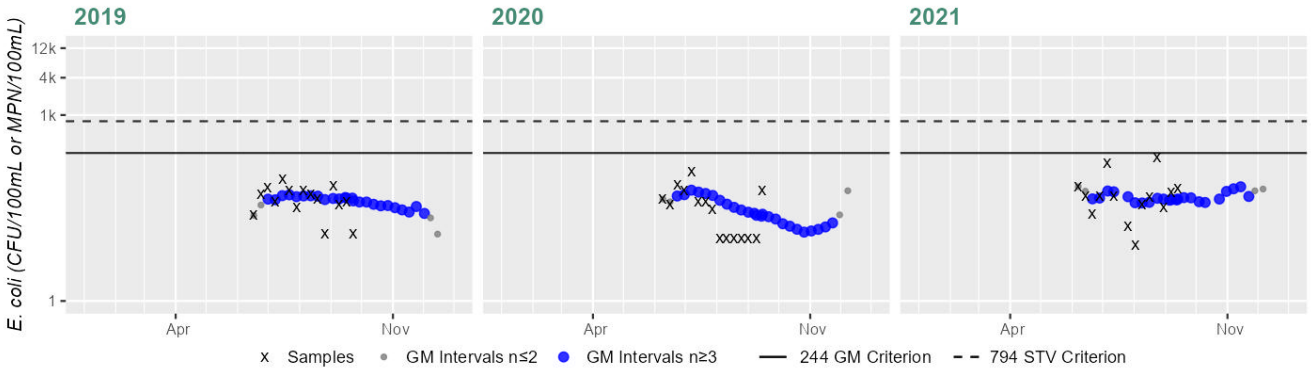
Variable*	Result
Samples	5
SeasGM	37
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_CND-110 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	40
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	26
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	14
SeasGM	46
#GMI	23
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Concord River (MA82A-08)

Location:	From Billerica Water Supply intake, Billerica to Rogers Street bridge, Lowell.
AU Type:	RIVER
AU Size:	5.1 MILES
Classification/Qualifier:	B: WWF

Concord River (MA82A-08)

Watershed Area: 399.51 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	399.51	9.70	140.69	3.07
Agriculture	3.1%	0.1%	2.7%	0.2%
Developed	26.5%	52.8%	18.2%	35.8%
Natural	53.7%	32.6%	50.8%	34.3%
Wetland	16.8%	14.6%	28.3%	29.7%
Impervious	13.4%	33.4%	9.1%	24%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(European Water Clover*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	(Fish Passage Barrier*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Chloride	--	Unchanged
5	5	Escherichia Coli (E. Coli)	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged
5	5	PFAS in Fish Tissue	--	Added
5	5	Trash	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(European Water Clover*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Chloride	Highway/Road/Bridge Runoff (Non-construction Related) (Y)	X	--	--	--	--
Chloride	Impervious Surface/Parking Lot Runoff (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	--	--	--	X	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--
Trash	Municipal (Urbanized High Density Area) (Y)	--	--	X	X	X

Recommendations

2024/26 Recommendations
2024/2026 IR [Turbidity & Algae, low priority] Additional aesthetics observations should be recorded in the vicinity of station W2227 at the downstream end of the Concord River MA82A-08 AU. Occasional issues with high turbidity and dense/very dense filamentous/film algae were noted during surveys in 2012, 2013, and/or 2016 (an Alert was carried forward on the Aesthetics Use in the 2024/2026 IR cycle). {W2227}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Concord River AU (MA82A-08) continues to be assessed as Not Supporting. The prior Mercury in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in this Concord River AU (MA82A-08) at station F0486 (PFAS Study ID 44) [west of Muldoon Park boat launch, Billerica] on 08/19/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. MA DPH issued a site-specific advisory for PFAS in the Concord River (referred to by MA DPH as ''Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)'' or ''Concord River'') in their May 2024 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing Mercury advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
F0486	MassDEP	Fish Toxics	Concord River	[west of Muldoon Park boat launch, Billerica]	42.625460	-71.295960

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5)

Summary
Fish toxics sampling was conducted in this Concord River AU (MA82A-08) at station F0486 (PFAS Study ID 44) [west of Muldoon Park boat launch, Billerica] on 08/19/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for the Concord River (referred to by MA DPH as Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)) in their May 2024 Freshwater Fish Consumption Advisory List. Additionally, MA DPH retained the existing site-specific fish consumption advisories for Mercury associated with the Concord River (referred to by MA DPH as Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for Mercury in Fish Tissue and PFAS in Fish Tissue for this Concord River AU (MA82A-08).

MassDEP 2022 PFAS in Fish Tissue Data for Massachusetts Surface Waters (MassDEP 2023b) (MassDEP Undated 5) (MA DPH 2023c)

[ng/g = ppb. All PFBA, PFBS, and HFPO-DA (Genx) concentrations <MDL. ND indicates that the PFAS analyte was not detected in any of the composite samples (i.e., it was <MDL). Means weighted by the number of fish in the contributing composites were calculated for any PFAS analyte – waterbody – species combination where an analyte was detected in at least one sample; if a sample did not have the analyte detected, the concentration for that sample was set to ½*MDL for the purposes of calculating a mean. Data are highlighted red per the fish consumption advisory thresholds summarized in Table 4.2 of MA DPH's 2023 Technical Support Document for the evaluation of PFAS in recreational waterbodies.]

[Species List: B = bluegill]

Station Code	PFAS Study ID	Sample Date	Species	Mean PFHxS ng/g	Mean PFNA ng/g	Mean PFOA ng/g	Mean PFOS ng/g	Analytes with ≥ 1 Sample Qualified
F0486	44	08/19/2022	B	ND	ND	ND	12.00	

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Aesthetics Use of this Concord River AU (MA82A-08) continues to be assessed as Not Supporting with the impairment for Trash being carried forward based on observations at sites sampled by MassDEP staff between 2011 and 2016. The prior Alerts identified for turbidity and algae are also being carried forward.

MassDEP staff recorded aesthetics observations in 2015 and 2016 as part of a special chloride study in this Concord River AU (MA82A-08) near the downstream end of the AU ~50 feet upstream from the mouth of River Meadow Brook, Lowell (W2549), and at a second location at Rogers Street, Lowell (W2227). Note that data were also collected from 2011-2013 at Rogers St (W2227) as part of the SMART monitoring project (some of which were presented in an earlier IR but are being described here for the sake of completeness). Generally, no odors, growths, or turbidity were noted at the upstream station W2549 in summer 2015 (n=3) and 2016 (n=6), however, observations of objectionable deposits (i.e., trash) were recorded for the majority of site visits (and the aesthetics impairment flag was marked for most of the observations of objectionable deposits). At the downstream station W2227, observations of objectionable deposits of trash were also recorded during site visits in summer 2011 (n=2 of 5), 2013 (n=3 of 5), 2015 (n=3 of 3), and 2016 (n=5 of 6). The Aesthetics impairment flag (which was not an option available to field staff during the earlier surveys) was marked during the 3 visits in 2013, 1 of the 2015 visits, and the 5 visits in 2016 when objectional deposits were noted. Moderate/high turbidity was noted for a few visits in 2012 and 2013, as was excessive algal growth on occasion (two observations of dense/very dense filamentous algae in 2013 and two observations of dense/very dense film algae in 2016; the aesthetics impairment flag was marked for these visits).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2227	MassDEP	Water Quality	Concord River	[Rogers Street, Lowell]	42.635950	-71.301487
W2549	MassDEP	Water Quality	Concord River	[approximately 50 feet upstream from mouth of River Meadow Brook, Lowell]	42.633818	-71.300533

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2227	2011	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2227 on Concord River (MA82A-08) during 5 site visits between Mar 2011 and Nov 2011. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=2).

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2227	2012	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2227 on Concord River (MA82A-08) during 5 site visits between Feb 2012 and Oct 2012. There were some objectionable conditions recorded, including high turbidity (n=2). These conditions are indicative of an Alert status.
W2227	2013	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2227 on Concord River (MA82A-08) during 5 site visits between Jan 2013 and Sep 2013. Field staff recorded the following objectionable conditions: an aesthetics impairment flag (n=3). Other objectionable conditions included dense/very dense filamentous algae (n=2). Field staff also noted objectionable deposits (n=3). These observations are indicative of an Aesthetics Use impairment.
W2227	2015	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2227 on Concord River (MA82A-08) during 3 site visits between Oct 2015 and Dec 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted an aesthetics impairment flag (n=1) and objectionable deposits (n=3).
W2227	2016	6	Aesthetic observations were made by MassDEP field sampling crews at Station W2227 on Concord River (MA82A-08) during 6 site visits between Jan 2016 and Sep 2016. Field staff recorded the following objectionable conditions: an aesthetics impairment flag (n=5). Field staff also noted objectionable deposits (n=5). These observations are indicative of an Aesthetics Use impairment.
W2549	2015	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2549 on Concord River (MA82A-08) during 3 site visits between Oct 2015 and Dec 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted an aesthetics impairment flag (n=1) and objectionable deposits (n=2).
W2549	2016	6	Aesthetic observations were made by MassDEP field sampling crews at Station W2549 on Concord River (MA82A-08) during 6 site visits between Jan 2016 and Sep 2016. Field staff recorded the following objectionable conditions: an aesthetics impairment flag (n=4). Field staff also noted objectionable deposits (n=5). These observations are indicative of an Aesthetics Use impairment.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2227	2011	5	2	0
W2227	2012	5	2	1
W2227	2013	5	3	2
W2227	2015	3	3	1
W2227	2016	6	4	2
W2549	2015	3	3	0
W2549	2016	6	2	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2227	Concord River	2011	Aquatic Plant Density, Overall	None	2	5
W2227	Concord River	2011	Aquatic Plant Density, Overall	Unobservable	3	5
W2227	Concord River	2011	Color	Light Yellow/Tan	2	5
W2227	Concord River	2011	Color	Reddish	3	5
W2227	Concord River	2011	Objectionable Deposits	Unobservable	3	5
W2227	Concord River	2011	Objectionable Deposits	Yes	2	5
W2227	Concord River	2011	Odor	Musty (Basement)	1	5
W2227	Concord River	2011	Odor	None	3	5
W2227	Concord River	2011	Odor	Other (Eutrophic)	1	5
W2227	Concord River	2011	Periphyton Density, Filamentous	None	2	5
W2227	Concord River	2011	Periphyton Density, Filamentous	Unobservable	3	5
W2227	Concord River	2011	Periphyton Density, Film	None	2	5
W2227	Concord River	2011	Periphyton Density, Film	Unobservable	3	5
W2227	Concord River	2011	Scum	Yes	5	5
W2227	Concord River	2011	Turbidity	Moderately Turbid	1	5
W2227	Concord River	2011	Turbidity	Slightly Turbid	1	5
W2227	Concord River	2011	Turbidity	Unobservable	3	5
W2227	Concord River	2012	Aquatic Plant Density, Overall	None	2	5
W2227	Concord River	2012	Aquatic Plant Density, Overall	Unobservable	3	5
W2227	Concord River	2012	Color	Brownish	1	5
W2227	Concord River	2012	Color	Light Yellow/Tan	2	5
W2227	Concord River	2012	Color	Reddish	1	5
W2227	Concord River	2012	Color	Rusty	1	5
W2227	Concord River	2012	Objectionable Deposits	Unobservable	5	5
W2227	Concord River	2012	Odor	Fishy	1	5
W2227	Concord River	2012	Odor	None	3	5
W2227	Concord River	2012	Odor	Other (Eutrophic)	1	5
W2227	Concord River	2012	Periphyton Density, Filamentous	None	1	5
W2227	Concord River	2012	Periphyton Density, Filamentous	Unobservable	3	5
W2227	Concord River	2012	Periphyton Density, Filamentous	Very Dense	1	5
W2227	Concord River	2012	Periphyton Density, Film	None	2	5
W2227	Concord River	2012	Periphyton Density, Film	Unobservable	3	5
W2227	Concord River	2012	Scum	No	5	5
W2227	Concord River	2012	Turbidity	Highly Turbid	2	5
W2227	Concord River	2012	Turbidity	Moderately Turbid	1	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2227	Concord River	2012	Turbidity	None	1	5
W2227	Concord River	2012	Turbidity	Unobservable	1	5
W2227	Concord River	2013	Aesthetics Impaired?	NR	2	5
W2227	Concord River	2013	Aesthetics Impaired?	Yes	3	5
W2227	Concord River	2013	Aquatic Plant Density, Overall	None	3	5
W2227	Concord River	2013	Aquatic Plant Density, Overall	Unobservable	2	5
W2227	Concord River	2013	Color	Brownish	1	5
W2227	Concord River	2013	Color	Light Yellow/Tan	1	5
W2227	Concord River	2013	Color	None	1	5
W2227	Concord River	2013	Color	Reddish	1	5
W2227	Concord River	2013	Color	Unobservable	1	5
W2227	Concord River	2013	Objectionable Deposits	Unobservable	2	5
W2227	Concord River	2013	Objectionable Deposits	Yes	3	5
W2227	Concord River	2013	Odor	Musty (Basement)	2	5
W2227	Concord River	2013	Odor	None	3	5
W2227	Concord River	2013	Periphyton Density, Filamentous	Dense	1	5
W2227	Concord River	2013	Periphyton Density, Filamentous	Moderate	1	5
W2227	Concord River	2013	Periphyton Density, Filamentous	Unobservable	2	5
W2227	Concord River	2013	Periphyton Density, Filamentous	Very Dense	1	5
W2227	Concord River	2013	Periphyton Density, Film	None	2	5
W2227	Concord River	2013	Periphyton Density, Film	NR	1	5
W2227	Concord River	2013	Periphyton Density, Film	Unobservable	2	5
W2227	Concord River	2013	Scum	No	1	5
W2227	Concord River	2013	Scum	Yes	4	5
W2227	Concord River	2013	Turbidity	Moderately Turbid	2	5
W2227	Concord River	2013	Turbidity	None	1	5
W2227	Concord River	2013	Turbidity	Slightly Turbid	1	5
W2227	Concord River	2013	Turbidity	Unobservable	1	5
W2227	Concord River	2015	Aesthetics Impaired?	No	2	3
W2227	Concord River	2015	Aesthetics Impaired?	Yes	1	3
W2227	Concord River	2015	Aquatic Plant Density, Overall	None	1	3
W2227	Concord River	2015	Aquatic Plant Density, Overall	Sparse	2	3
W2227	Concord River	2015	Color	None	3	3
W2227	Concord River	2015	Objectionable Deposits	Yes	3	3
W2227	Concord River	2015	Odor	Musty (Basement)	1	3
W2227	Concord River	2015	Odor	None	2	3

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2227	Concord River	2015	Periphyton Density, Filamentous	Dense	1	3
W2227	Concord River	2015	Periphyton Density, Filamentous	Moderate	1	3
W2227	Concord River	2015	Periphyton Density, Filamentous	None	1	3
W2227	Concord River	2015	Periphyton Density, Film	None	2	3
W2227	Concord River	2015	Periphyton Density, Film	Sparse	1	3
W2227	Concord River	2015	Scum	No	3	3
W2227	Concord River	2015	Turbidity	None	3	3
W2227	Concord River	2016	Aesthetics Impaired?	No	1	6
W2227	Concord River	2016	Aesthetics Impaired?	Yes	5	6
W2227	Concord River	2016	Aquatic Plant Density, Overall	Moderate	2	6
W2227	Concord River	2016	Aquatic Plant Density, Overall	None	1	6
W2227	Concord River	2016	Aquatic Plant Density, Overall	Sparse	1	6
W2227	Concord River	2016	Aquatic Plant Density, Overall	Unobservable	2	6
W2227	Concord River	2016	Color	Light Yellow/Tan	4	6
W2227	Concord River	2016	Color	None	2	6
W2227	Concord River	2016	Objectionable Deposits	No	1	6
W2227	Concord River	2016	Objectionable Deposits	Yes	5	6
W2227	Concord River	2016	Odor	None	3	6
W2227	Concord River	2016	Odor	Other (Unknown)	1	6
W2227	Concord River	2016	Odor	Unobservable	2	6
W2227	Concord River	2016	Periphyton Density, Filamentous	Moderate	1	6
W2227	Concord River	2016	Periphyton Density, Filamentous	None	2	6
W2227	Concord River	2016	Periphyton Density, Filamentous	NR	1	6
W2227	Concord River	2016	Periphyton Density, Filamentous	Unobservable	2	6
W2227	Concord River	2016	Periphyton Density, Film	Dense	1	6
W2227	Concord River	2016	Periphyton Density, Film	None	2	6
W2227	Concord River	2016	Periphyton Density, Film	Unobservable	2	6
W2227	Concord River	2016	Periphyton Density, Film	Very Dense	1	6
W2227	Concord River	2016	Scum	No	4	6
W2227	Concord River	2016	Scum	Yes	2	6
W2227	Concord River	2016	Turbidity	None	3	6
W2227	Concord River	2016	Turbidity	Slightly Turbid	3	6
W2549	Concord River	2015	Aesthetics Impaired?	No	2	3

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2549	Concord River	2015	Aesthetics Impaired?	Yes	1	3
W2549	Concord River	2015	Aquatic Plant Density, Overall	None	3	3
W2549	Concord River	2015	Color	None	3	3
W2549	Concord River	2015	Objectionable Deposits	No	1	3
W2549	Concord River	2015	Objectionable Deposits	Yes	2	3
W2549	Concord River	2015	Odor	None	3	3
W2549	Concord River	2015	Periphyton Density, Filamentous	None	3	3
W2549	Concord River	2015	Periphyton Density, Film	None	3	3
W2549	Concord River	2015	Scum	No	3	3
W2549	Concord River	2015	Turbidity	None	2	3
W2549	Concord River	2015	Turbidity	NR	1	3
W2549	Concord River	2016	Aesthetics Impaired?	No	2	6
W2549	Concord River	2016	Aesthetics Impaired?	Yes	4	6
W2549	Concord River	2016	Aquatic Plant Density, Overall	None	2	6
W2549	Concord River	2016	Aquatic Plant Density, Overall	Sparse	1	6
W2549	Concord River	2016	Aquatic Plant Density, Overall	Unobservable	3	6
W2549	Concord River	2016	Color	Light Yellow/Tan	4	6
W2549	Concord River	2016	Color	None	2	6
W2549	Concord River	2016	Objectionable Deposits	No	1	6
W2549	Concord River	2016	Objectionable Deposits	Yes	5	6
W2549	Concord River	2016	Odor	None	4	6
W2549	Concord River	2016	Odor	Other (Unknown)	1	6
W2549	Concord River	2016	Odor	Unobservable	1	6
W2549	Concord River	2016	Periphyton Density, Filamentous	None	2	6
W2549	Concord River	2016	Periphyton Density, Filamentous	Unobservable	4	6
W2549	Concord River	2016	Periphyton Density, Film	Moderate	1	6
W2549	Concord River	2016	Periphyton Density, Film	Sparse	1	6
W2549	Concord River	2016	Periphyton Density, Film	Unobservable	4	6
W2549	Concord River	2016	Scum	No	6	6
W2549	Concord River	2016	Turbidity	None	4	6
W2549	Concord River	2016	Turbidity	Slightly Turbid	1	6
W2549	Concord River	2016	Turbidity	Unobservable	1	6

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this middle Concord River AU (MA82A-08) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at the combined W2227 & OARS_CND-009 station. The prior Trash impairment (from the Aesthetics Use) is being carried forward. The prior Alerts for Turbidity and Algae are being removed from the recreational uses but continue to be maintained under the Aesthetics Use. MassDEP and OARS staff/volunteers collected sufficient *E. coli* bacteria samples in the middle Concord River AU (MA82A-08) from 2013-2022 at 3 stations. Samples were collected in the downstream quarter of the AU at the following stations/sample years from upstream to downstream: OARS_CND-017 [Muldoon Park, Lowell] from Jun-Jul 2020 (n=6), OARS_CND-012 [Centennial Island East, Lowell] from Jun-Jul 2020 (n=6), and the combined W2227 & OARS_CND-009 station [Rogers St, Lowell & Rogers St., Lowell] in 2013 (data from 2011 & 2012 were insufficient to evaluate per the 2024 CALM) and 2019-2022 (n=3-15/yr). Analysis of the single year limited frequency *E. coli* dataset from OARS_CND-017 indicated 33% of intervals had GMs >126 CFU/100mL, 1 sample exceeded the 410 CFU/100mL STV, and the seasonal GM was 104 CFU/100mL (data are inconclusive because this single year, limited frequency dataset included GMs below the threshold, an STV exceedance of the threshold, and a low seasonal GM). Analysis of the single year limited frequency *E. coli* dataset from OARS_CND-012 indicated 66% of intervals had GMs >126 CFU/100mL, 1 sample exceeded the 410 CFU/100mL STV, and the seasonal GM was 172 CFU/100mL (data meet 2024 CALM guidance). Analysis of the multi-year mixed frequency *E. coli* dataset from W2227 & OARS_CND-009 indicated that in 5 out of 5 sufficient data years >10%/20% of intervals had GMs >126 CFU/100mL (2013 and 2019-2022, 32-100%), only 2020 had violations of the 410 CFU/100mL STV condition (2020 % exceedances = 13%), and cumulatively across years 68% of intervals had GMs >126 CFU/100mL. While *E. coli* data from OARS_CND-012 meet 2024 CALM guidance, *E. coli* data from the combined W2227 & OARS_CND-009 station are indicative of an Escherichia Coli (E. Coli) impairment. Surface water sampling was conducted by the USGS upstream of the Billerica WWTF discharge on the Concord River (MA82A-08) at station USGS_423506071171401 and downstream of the Billerica WWTF discharge on the Concord River (MA82A-08) at station USGS_01099000 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study). Surface water sampling was conducted in this Concord River AU (MA82A-08) at station W3309 (PFAS Study ID 44) on 08/19/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2227	MassDEP	Water Quality	Concord River	[Rogers Street, Lowell]	42.635950	-71.301487
W3309	MassDEP	Water Quality	Concord River	[the default location representing co-located water/fish PFAS sampling, west of Muldoon Park boat launch, Billerica]	42.625460	-71.295960
OARS_CND-009	OARS	Water Quality	Concord River	Rogers St., Lowell	42.635909	-71.301809
OARS_CND-012	OARS	Water Quality	Concord River	Centennial Island East, Lowell	42.632793	-71.299590
OARS_CND-017	OARS	Water Quality	Concord River	Muldoon Park, Lowell	42.625878	-71.295905
USGS-01099000	USGS Massachusetts Water Science Center	Water Quality	Concord River	CONCORD RIVER AT LOWELL, MA; downstream of Billerica WWTF	42.628000	-71.298000
USGS-423506071171401	USGS Massachusetts Water Science Center	Water Quality	Concord River	CONCORD R POLLAND ST; upstream of Billerica WWTF	42.585000	-71.287000

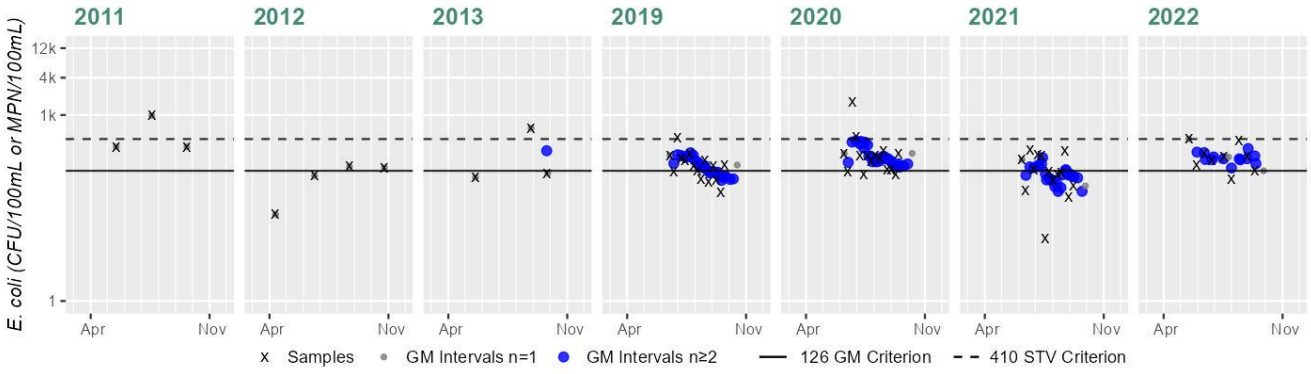
Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4) (OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2227	MassDEP	E. coli	05/17/11	09/21/11	3	308	980	453
W2227	MassDEP	E. coli	04/11/12	10/24/12	4	25	148	86
W2227	MassDEP	E. coli	05/20/13	09/25/13	3	99	613	191
OARS_CND-009	OARS	E. coli	06/17/19	09/23/19	15	56	432	146
OARS_CND-009	OARS	E. coli	06/08/20	09/14/20	15	110	1650	216
OARS_CND-009	OARS	E. coli	06/07/21	09/07/21	14	10	270	106
OARS_CND-009	OARS	E. coli	05/16/22	09/12/22	9	93	411	202
OARS_CND-012	OARS	E. coli	06/08/20	07/13/20	6	40	2650	172
OARS_CND-017	OARS	E. coli	06/08/20	07/13/20	6	60	580	104

Station MASSDEP_W2227 & OARS_CND-009 - Escherichia coli

Daily Maximum Samples & 30 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	453
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	4
SeasGM	86
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	3
SeasGM	191
#GMI	1
#GMI Ex	1
%GMI Ex	100%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	15
SeasGM	146
#GMI	27
#GMI Ex	15
%GMI Ex	55%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	15
SeasGM	216
#GMI	27
#GMI Ex	27
%GMI Ex	100%
n>STV	2
%n>STV	13%

Variable*	Result
Samples	14
SeasGM	106
#GMI	25
#GMI Ex	8
%GMI Ex	32%
n>STV	0
%n>STV	0%

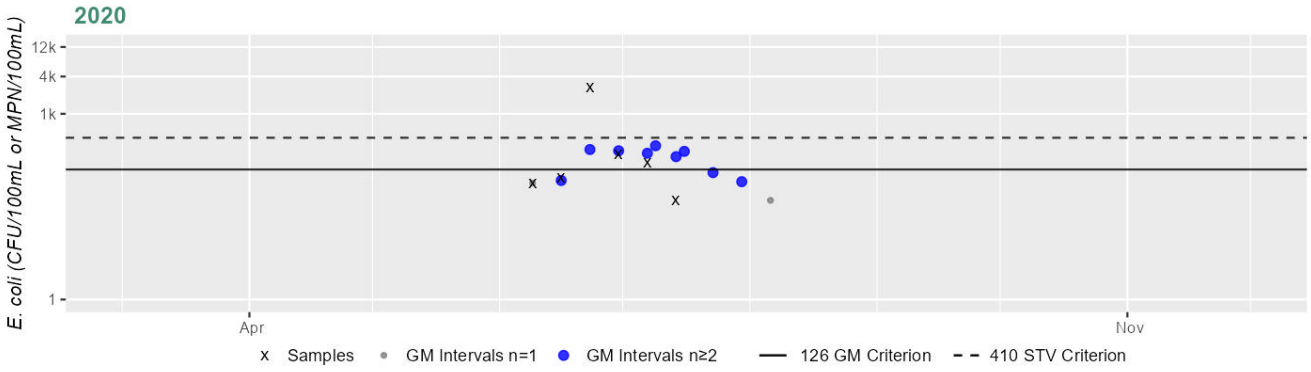
Variable*	Result
Samples	9
SeasGM	202
#GMI	13
#GMI Ex	13
%GMI Ex	100%
n>STV	1
%n>STV	11%

Cumulative %GMI Exceedance
Current (2011-2022)
68%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_CND-012 - Escherichia coli

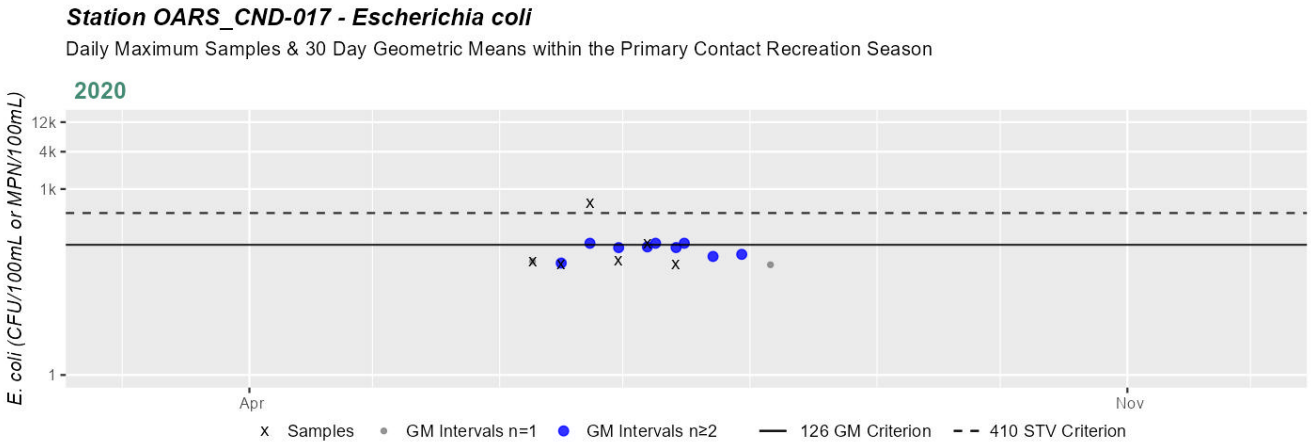
Daily Maximum Samples & 30 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	172
#GMI	9
#GMI Ex	6
%GMI Ex	66%
n>STV	1
%n>STV	16%

Cumulative %GMI Exceedance
Current (2011-2022)
66%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*



Variable*	Result
Samples	6
SeasGM	104
#GMI	9
#GMI Ex	3
%GMI Ex	33%
n>STV	1
%n>STV	16%

Cumulative %GMI Exceedance
Current (2011-2022)
33%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement(s) for MassDEP 2022 PFAS in Water Column Data (MassDEP 2023b) (MassDEP Undated 4)

Summary
Surface water sampling was conducted in this Concord River AU (MA82A-08) at station W3309 (PFAS Study ID 44) on 08/19/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

MassDEP 2022 PFAS in Water Column Data for Massachusetts Surface Waters (MassDEP 2023b) (MassDEP Undated 4)

[HFPO-DA is also known as GenX; the ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here); * indicates the ∑PFAS6 concentration was qualified since data for one or more individual PFAS6 analytes were qualified; b = blank contamination qualifier, d = qualifier indicating precision of field duplicates did not meet project data quality objectives; j = 'estimated' value qualifier; ## = censored data.]

Station Code	PFAS Study ID	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	HFPO-DA ng/L	∑PFAS6 ng/L
W3309	44	08/19/2022	10	11	2.7	3.4	7j	5.9	<2.2	32.0

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS downstream of the Billerica WWTF discharge on the Concord River (MA82A-08) at station USGS_01099000 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).
Surface water sampling was conducted by the USGS upstream of the Billerica WWTF discharge on the Concord River (MA82A-08) at station USGS_423506071171401 on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01099000	8/19/2020	8.82	8.73	2.23	3.41	6.63	4.38	27.6*
USGS-01099000	9/15/2020	8.1	E8.25	2.3	2.62	4.3	4.13	25.3*
USGS-01099000	10/28/2020	E8.46	E6.79	E1.76	V2.77	5.3	4.16	23.5*
USGS-423506071171401	8/19/2020	8.16	7.62	2.34	3.11	5.89	4.52	25.5*
USGS-423506071171401	9/15/2020	7.81	E8.35	2.32	2.95	5.22	4.02	25.4*
USGS-423506071171401	10/28/2020	E7.15	E6.26	E1.75	V2.5	4.84	3.87	21.3*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this middle Concord River AU (MA82A-08) continues to be assessed as Not Supporting. While *E. coli* data were indicative of good conditions, the prior Trash impairment (from the Aesthetics Use) is being carried forward. The prior Alerts for Turbidity and Algae are being removed from the recreational uses but continue to be maintained under the Aesthetics Use.

OARS staff/volunteers collected *E. coli* bacteria samples at 3 stations in the Concord River (MA82A-08) from 2013-2022 in the current IR window (2011-2022). Samples were collected in the downstream quarter of the AU at the following stations/sample years from upstream to downstream: OARS_CND-017 [Muldoon Park, Lowell] from Jun-Jul 2020 (n=6), OARS_CND-012 [Centennial Island East, Lowell] from Jun-Jul 2020 (n=6), and OARS_CND-009 [Rogers St, Lowell] from 2019-2022 (n=9-15/yr) (2011-2013 data from DEP's W2227 station which had originally been combined with this station were not actually of sufficient frequency to be evaluated according to the 2024 CALM). Analysis of the single year limited frequency *E. coli* dataset from OARS_CND-017 indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 104 CFU/100mL). Analysis of the single year limited frequency *E. coli* dataset from OARS_CND-012 indicated 42% of intervals had GMs >244 CFU/100mL, 1 sample exceeded the 794 CFU/100mL STV, and the overall GM was 172 CFU/100mL (data are inconclusive because this single year, limited frequency dataset included GMs below the threshold, an STV exceedance of the threshold, and a low seasonal GM). Analysis of the multi-year high/moderate frequency *E. coli* dataset from OARS_CND-009 indicated that in only 1 out of 4 sufficient data years >10%/20% of intervals had GMs >244 CFU/100mL (2020, 36%), only 1 sample among all 4 years exceeded the 794 CFU/100mL STV, and cumulatively across years 11% of intervals had GMs >244 CFU/100mL. *E. coli* data from OARS_CND-017 and OARS_CND-009 are indicative of good water quality conditions.

MassDEP also collected *E. coli* bacteria samples at 1 station in this MA82A-08 AU in the historic IR window (1997-2010). Samples were collected at the upstream end of the AU at W1486 [Pollard St bridge, (N Billerica) Billerica] from May-Sep 2006 (n=5). The data were similarly indicative of good water quality conditions (no GM or STV exceedances) but since they were collected prior to the current IR window, they cannot be used to positively assess the Secondary Contact Recreation Use of this Concord River AU (MA82A-08).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1486	MassDEP	Water Quality	Concord River	[Pollard Street bridge, (North Billerica) Billerica]	42.584824	-71.287186
W2227	MassDEP	Water Quality	Concord River	[Rogers Street, Lowell]	42.635950	-71.301487
OARS_CND-009	OARS	Water Quality	Concord River	Rogers St., Lowell	42.635909	-71.301809
OARS_CND-012	OARS	Water Quality	Concord River	Centennial Island East, Lowell	42.632793	-71.299590
OARS_CND-017	OARS	Water Quality	Concord River	Muldoon Park, Lowell	42.625878	-71.295905

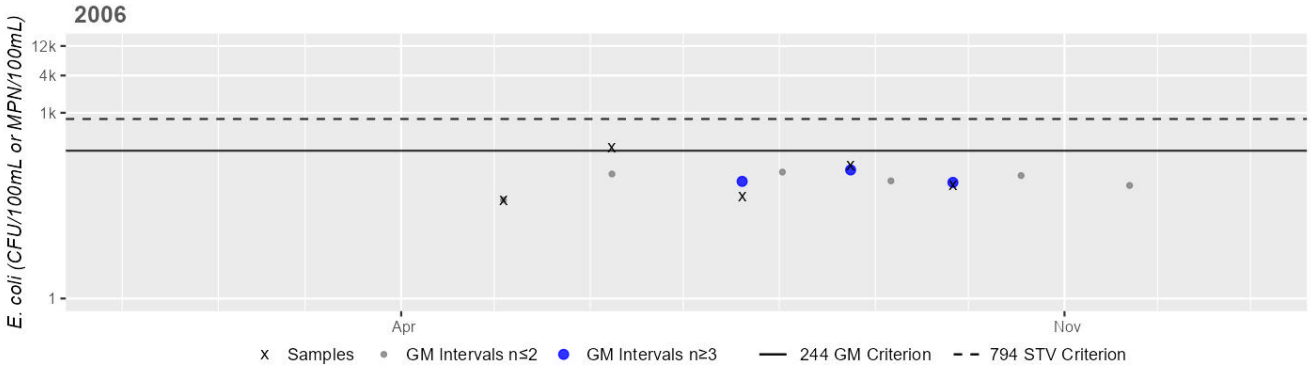
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1486	MassDEP	E. coli	05/04/06	09/26/06	5	39	270	85
W2227	MassDEP	E. coli	03/15/11	11/16/11	5	45	980	204
W2227	MassDEP	E. coli	02/22/12	10/24/12	5	25	148	73
W2227	MassDEP	E. coli	01/28/13	09/25/13	5	20	613	95
OARS_CND-009	OARS	E. coli	06/17/19	09/23/19	15	56	432	146
OARS_CND-009	OARS	E. coli	06/08/20	09/14/20	15	110	1650	216
OARS_CND-009	OARS	E. coli	06/07/21	09/07/21	14	10	270	106
OARS_CND-009	OARS	E. coli	05/16/22	09/12/22	9	93	411	202
OARS_CND-012	OARS	E. coli	06/08/20	07/13/20	6	40	2650	172
OARS_CND-017	OARS	E. coli	06/08/20	07/13/20	6	60	580	104

Station MASSDEP_W1486 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



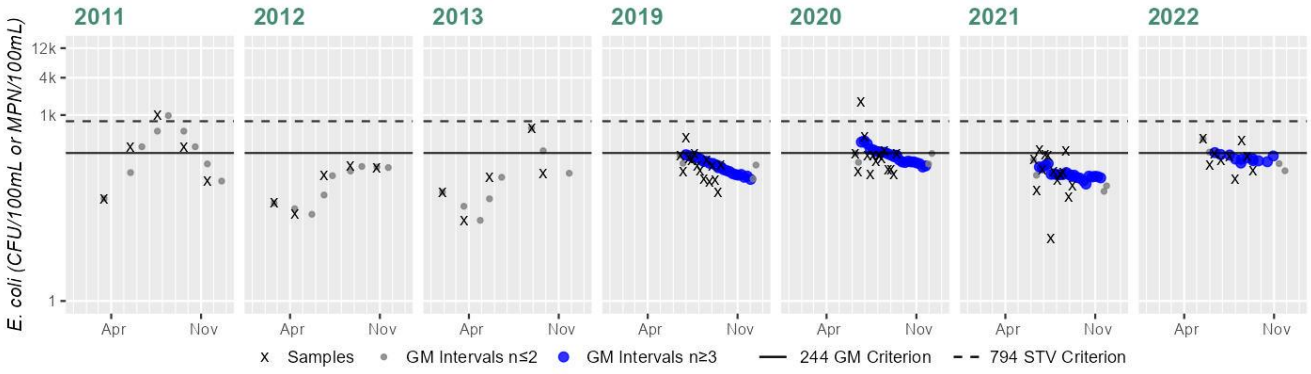
Variable*	Result
Samples	5
SeasGM	85
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2227 & OARS_CND-009 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	204
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	20%

Variable*	Result
Samples	5
SeasGM	73
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	95
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	146
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	216
#GMI	25
#GMI Ex	9
%GMI Ex	36%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	14
SeasGM	106
#GMI	23
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

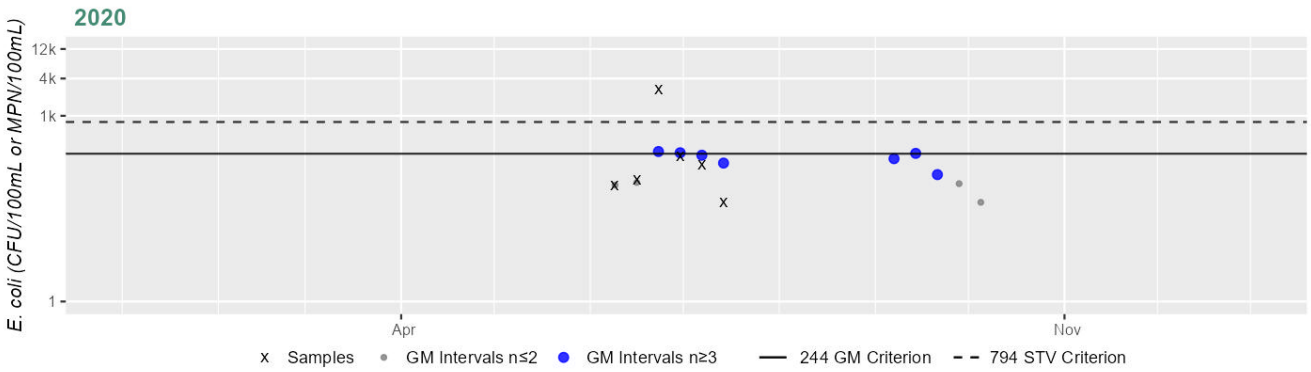
Variable*	Result
Samples	9
SeasGM	202
#GMI	12
#GMI Ex	1
%GMI Ex	8%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
11%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_CND-012 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



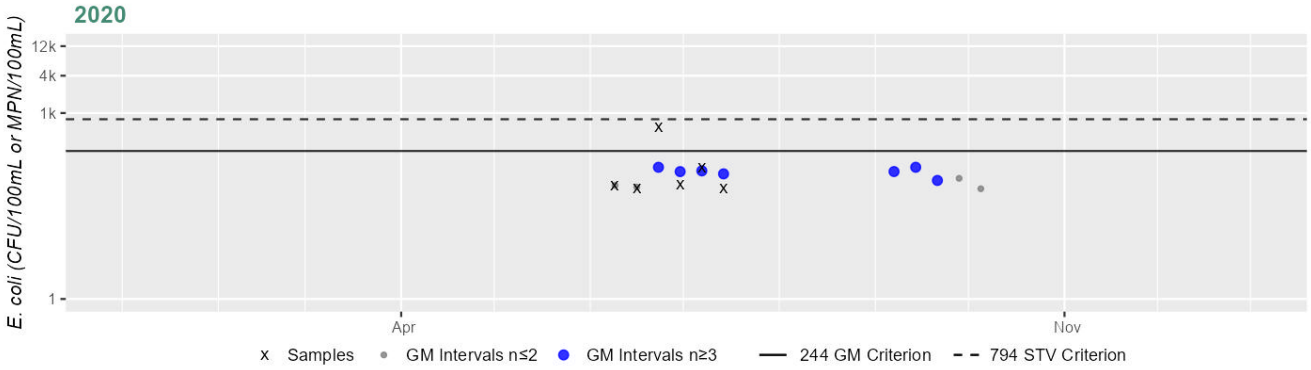
Variable*	Result
Samples	6
SeasGM	172
#GMI	7
#GMI Ex	3
%GMI Ex	42%
n>STV	1
%n>STV	16%

Cumulative %GMI Exceedance
Current (2011-2022)
42%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_CND-017 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	104
#GMI	7
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Concord River (MA82A-09)

Location:	From Rogers Street bridge, Lowell to mouth at confluence with the Merrimack River, Lowell.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B: WWF, CSO

Concord River (MA82A-09)

Watershed Area: 400.14 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	400.14	7.59	140.83	2.17
Agriculture	3.1%	0.1%	2.7%	0.3%
Developed	26.6%	61%	18.2%	43.7%
Natural	53.6%	28.3%	50.8%	32.2%
Wetland	16.8%	10.7%	28.3%	23.8%
Impervious	13.5%	40.2%	9.1%	30.3%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Debris*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Fecal Coliform	R1_MA_2024_04	Changed
5	5	Mercury in Fish Tissue	--	Unchanged
5	5	PFAS in Fish Tissue	--	Added
5	5	Trash	--	Unchanged
5	5	Turbidity	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Debris*)	Combined Sewer Overflows (N)	--	--	X	X	X
Algae	Combined Sewer Overflows (N)	--	--	X	X	X
Escherichia Coli (E. Coli)	Combined Sewer Overflows (N)	--	--	--	X	X
Fecal Coliform	Combined Sewer Overflows (N)	--	--	--	X	X
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--
Trash	Combined Sewer Overflows (N)	--	--	X	X	X
Turbidity	Source Unknown (N)	--	--	X	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this downstream Concord River AU (MA82A-09) continues to be assessed as Not Supporting. The prior Mercury in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in the immediate upstream Concord River AU (MA82A-08) at station F0486 (PFAS Study ID 44) [west of Muldoon Park boat launch, Billerica] on 08/19/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. MA DPH issued a site-specific advisory for PFAS in the Concord River (referred to by MA DPH as ''Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)'' or ''Concord River'') in their May 2024 Freshwater Fish Consumption Advisory List and MassDEP is applying the advisory to this downstream AU. Both the PFAS advisory and existing Mercury advisory were retained in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5)

Summary
Fish toxics sampling was conducted in the immediate upstream Concord River AU (MA82A-08) at station F0486 (PFAS Study ID 44) [west of Muldoon Park boat launch, Billerica] on 08/19/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for the Concord River (referred to by MA DPH as Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)) in their May 2024 Freshwater Fish Consumption Advisory List and MassDEP is applying them to this downstream Concord River AU. Additionally, MA DPH retained the existing site-specific fish consumption advisories for Mercury associated with the Concord River (referred to by MA DPH as Concord River (from confluence with Sudbury and Assabet Rivers to the Faulkner Dam in Billerica)) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for Mercury in Fish Tissue and PFAS in Fish Tissue for this Concord River AU (MA82A-09).

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this downstream Concord River AU (MA82A-09) continues to be assessed as Not Supporting, with the Trash, Debris, Algae and Turbidity impairments being carried forward. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Concord River AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this downstream Concord River AU (MA82A-09) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on the presence of CSOs in this AU. The prior Fecal Coliform impairment is being carried forward and the prior Algae, Debris, Trash, and Turbidity impairments (from the Aesthetics Use) are being carried forward. USGS staff collected *E. coli* bacteria samples at the upstream end of this Concord River AU (MA82A-09) at USGS-01099500 [Concord River below River Meadow Brook, at Lowell, MA] from 2021-2022 (n=4-7/yr). Analysis of the multi-year moderate/limited frequency *E. coli* dataset from USGS-01099500 indicated that in 1 out of 2 sufficient data years >20% of the intervals had GMs >126 CFU/100mL (2021, 66%), no years had ≥2 samples exceed the 410 CFU/100mL STV, and cumulatively across years 50% of intervals had GMs >126 CFU/100mL. Although bacteria data collected at USGS-01099500 meet 2024 CALM guidance, since the USGS data had an elevated cumulative GM, there is an active CSO (LOW020) present farther down in the AU, and historically, elevated bacteria data from multiple stations in the AU, this AU remains impaired for Escherichia Coli (E. Coli) and Fecal Coliform.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
USGS-01099500	USGS Massachusetts Water Science Center	Water Quality	Concord River	Concord R Below R Meadow Brook, At Lowell, MA	42.636758	-71.302005

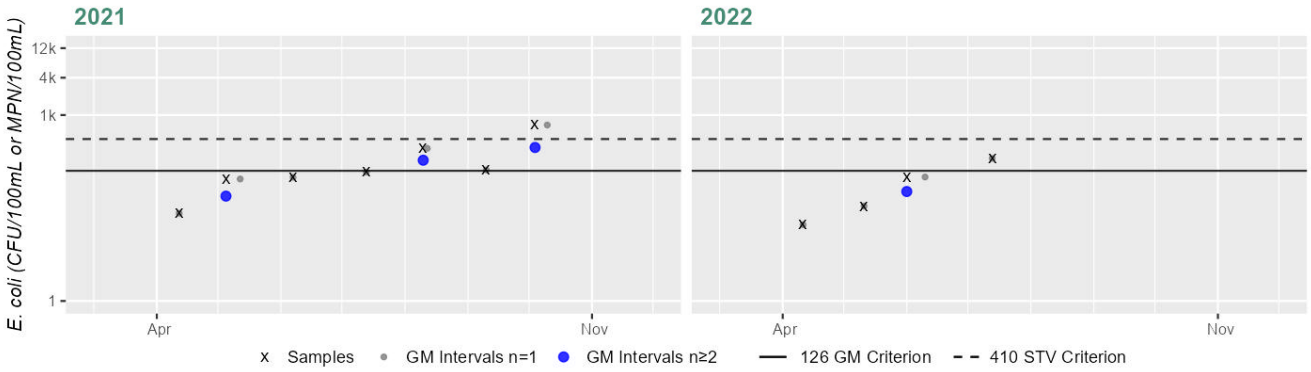
Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(USGS 2024) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
USGS-01099500	USGS Massachusetts Water Science Center	E. coli	04/12/21	10/04/21	7	26	690	133
USGS-01099500	USGS Massachusetts Water Science Center	E. coli	04/11/22	07/13/22	4	17	200	58

Station MASSDEP_W0679 & USGS-01099500 - Escherichia coli

Daily Maximum Samples & 30 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	7
SeasGM	133
#GMI	3
#GMI Ex	2
%GMI Ex	66%
n>STV	1
%n>STV	14%

Variable*	Result
Samples	4
SeasGM	58
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance

Current (2011-2022)

50%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this downstream Concord River AU (MA82A-09) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on the presence of CSOs in this AU and historical bacteria data not meeting the threshold at W1487. The prior Fecal Coliform impairment is being carried forward and the prior Algae, Debris, Trash, and Turbidity impairments (from the Aesthetics Use) are being carried forward.

MassDEP and USGS staff collected *E. coli* bacteria samples in both the historic (1997-2010) & the current IR window (2011-2022) in this Concord River AU (MA82A-09) from 2006-2022 at 2 stations. Samples were collected from the following stations/sample years from upstream to downstream: in the current IR window at the upstream end of the AU at USGS-01099500 station [Concord River below River Meadow Brook, at Lowell, MA; note that historical DEP data collected at the nearby W0679 station in 2007 which had originally been combined with this station were not actually of sufficient frequency to be evaluated according to the 2024 CALM] from 2021-2022 (current n=7-8/yr), and in the historic IR window at W1487 [Rt. 110 bridge, Lowell] from May-Sep 2006 (n=5) (note that additional data collected at this station from 2008-2010 were not of sufficient frequency to be evaluated). Analysis of the multi-year moderate frequency *E. coli* dataset from USGS-01099500 indicated that none of the 2 sufficient data years had >20% of the intervals with GMs >244 CFU/100mL, there were no exceedances of the 794 CFU/100mL STV, and cumulatively across years 7% of intervals had GMs >244 CFU/100mL. Analysis of the historic single year limited frequency *E. coli* dataset from W1487 indicated 100% of intervals had GMs >244 CFU/100mL, no samples exceeded the 794 CFU/100mL STV, and the overall GM was 260 CFU/100mL. While *E. coli* data from USGS-01099500 are indicative of good water quality conditions, the historic *E. coli* data from W1487 are indicative of an *E. coli* impairment, and no recent data are available to assess that location in the current IR window.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0679	MassDEP	Water Quality	Concord River	[at USGS flow gaging station #01099500 downstream of Rogers Street, Lowell]	42.636709	-71.301748
W1487	MassDEP	Water Quality	Concord River	[Route 110 bridge, Lowell]	42.641726	-71.302846
USGS-01099500	USGS Massachusetts Water Science Center	Water Quality	Concord River	Concord R Below R Meadow Brook, At Lowell, MA	42.636758	-71.302005

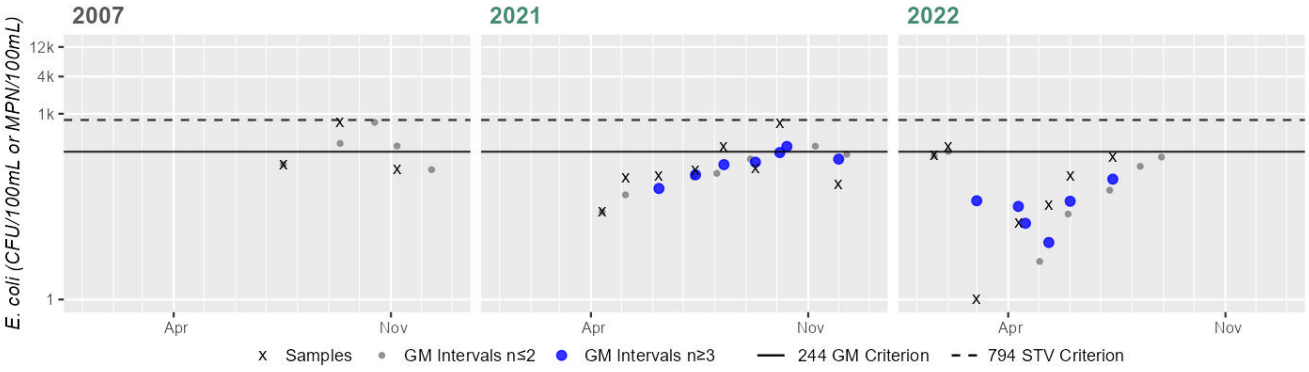
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (USGS 2024) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0679	MassDEP	E. coli	07/18/07	11/07/07	3	125	727	239
W1487	MassDEP	E. coli	05/04/06	09/26/06	5	110	510	260
W1487	MassDEP	E. coli	02/27/08	10/22/08	5	11	579	72
W1487	MassDEP	E. coli	03/18/09	11/17/09	5	6	727	103
W1487	MassDEP	E. coli	10/20/10	10/20/10	1	84	84	83
USGS-01099500	USGS Massachusetts Water Science Center	E. coli	04/12/21	12/01/21	8	26	690	123
USGS-01099500	USGS Massachusetts Water Science Center	E. coli	01/18/22	07/13/22	7	1	290	49

Station MASSDEP_W0679 & USGS-01099500 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	239
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	8
SeasGM	123
#GMI	7
#GMI Ex	1
%GMI Ex	14%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	7
SeasGM	49
#GMI	6
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

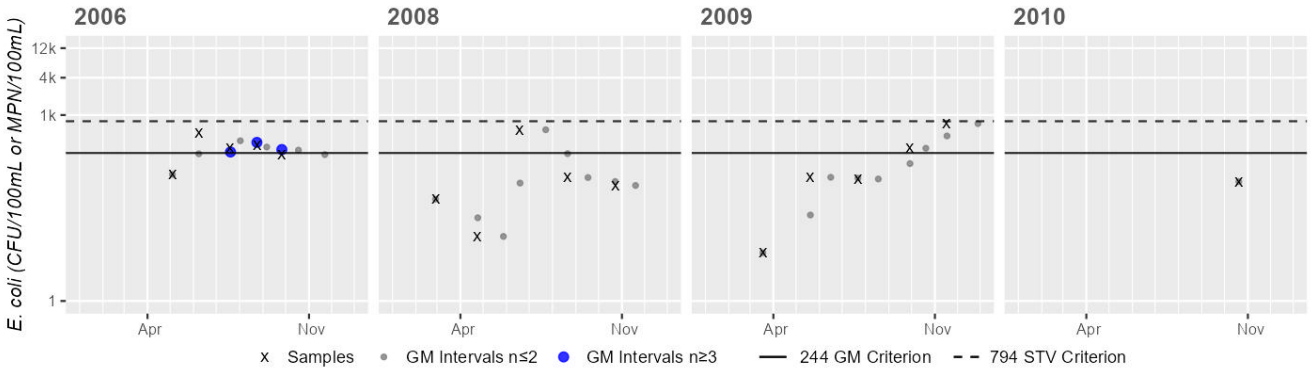
Cumulative %GMI Exceedance Historic (1997-2010)
0%

Cumulative %GMI Exceedance Current (2011-2022)
7%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1487 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	260
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	72
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	103
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	1
SeasGM	84
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Danforth Brook (MA82B-19)

Location:	Headwaters, confluence of Mill Brook and an unnamed tributary draining from Little Pond, Bolton to mouth at inlet of Bruces Pond, Hudson.
AU Type:	RIVER
AU Size:	2.4 MILES
Classification/Qualifier:	B

No usable data were available for Danforth Brook (MA82B-19) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Dean Park Pond (MA82026)

Location:	Shrewsbury.
AU Type:	FRESHWATER LAKE
AU Size:	7 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Harmful Algal Blooms	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Harmful Algal Blooms	Source Unknown (N)	--	--	X	X	X

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Dean Park Pond (MA82026), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Aesthetics Use for Dean Park Pond (MA82026) continues to be assessed as Not Supporting with the prior impairment for Harmful Algal Blooms being carried forward, since blooms were reported in 2021 & 2022.
During the period 2015 through 2022, C-HAB postings for Dean Park Pond were reported to MDPH based on visual observations for 22 days in 2021 and 171 days in 2022 and no blooms were reported in other years. Since blooms were reported in recent years, the prior Harmful Algal Blooms impairment is being carried forward.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Dean Park Pond (MA82026) were reported to MDPH based on visual observations for 22 days in 2021 and 171 days in 2022. No blooms were reported in other years. Since blooms were reported in recent years, a prior Harmful Algal Bloom impairment is being carried forward and the Aesthetics Use and Primary/Secondary Contact Recreational Uses continue to be assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)
[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Dean Park Pond	Shrewsbury							22	171

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for Dean Park Pond (MA82026) continues to be assessed as Not Supporting. The prior Harmful Algal Blooms impairment is being carried forward since C-HAB postings extended >20 days in 2021 & 2022. During the period 2015 through 2022, C-HAB postings for Dean Park Pond (MA82026) were reported to MDPH based on visual observations for 22 days in 2021 and 171 days in 2022. No blooms were reported in other years. Since blooms were reported in recent years, a prior Harmful Algal Blooms impairment is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Dean Park Pond (MA82026) continues to be assessed as Not Supporting. The prior Harmful Algal Blooms impairment is being carried forward since C-HAB postings extended >20 days in 2021 & 2022. During the period 2015 through 2022, C-HAB postings for Dean Park Pond (MA82026) were reported to MDPH based on visual observations for 22 days in 2021 and 171 days in 2022. No blooms were reported in other years. Since blooms were reported in recent years, a prior Harmful Algal Blooms impairment is being carried forward.

Denny Brook (MA82A-27)

Location:	Headwaters, perennial portion, outlet unnamed pond west of South Street, Westborough to mouth at confluence with Jackstraw Brook, Westborough.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	B: ORW

No usable data were available for Denny Brook (MA82A-27) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Dudley Pond (MA82029)

Location:	Wayland.
AU Type:	FRESHWATER LAKE
AU Size:	83 ACRES
Classification/Qualifier:	B

No usable data were available for Dudley Pond (MA82029) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Non-Native Fish/Shellfish/Zooplankton*)	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Turbidity	--	Unchanged

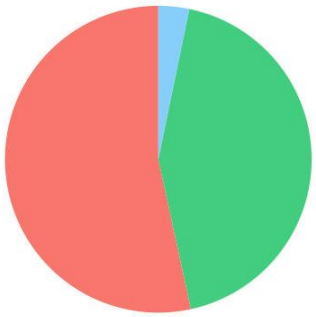
Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Fish/Shellfish/Zooplankton*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Turbidity	Source Unknown (N)	--	--	X	X	X

Eames Brook (MA82A-13)

Location:	Headwaters, outlet Farm Pond, Framingham to mouth at confluence with the Sudbury River, Framingham.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	B

Eames Brook (MA82A-13)

Watershed Area: 1.20 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	1.20	1.20	0.60	0.60
Agriculture	0%	0%	0%	0%
Developed	53.4%	53.4%	24.3%	24.3%
Natural	43.3%	43.3%	69.6%	69.6%
Wetland	3.2%	3.2%	6.1%	6.1%
Impervious	29.4%	29.4%	10.5%	10.5%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Debris*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Odor	--	Unchanged
5	5	Trash	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Debris*)	Source Unknown (N)	--	--	X	X	X
Algae	Source Unknown (N)	--	--	X	X	X
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Odor	Source Unknown (N)	--	--	X	X	X
Trash	Source Unknown (N)	--	--	X	X	X

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Eames Brook (MA82A-13), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No new aesthetics observation data are available for Eames Brook (MA82A-13) so the Aesthetics Use continues to be assessed as Not Supporting, with the Odor, Algae, Trash and Debris impairments being carried forward.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Eames Brook (MA82A-13) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Algae, Debris, Odor, and Trash impairments (from the Aesthetics Use) are being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert

Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Eames Brook (MA82A-13) continues to be assessed as Not Supporting. The prior Algae, Debris, Odor, and Trash impairments (from the Aesthetics Use) are being carried forward.

MassDEP staff collected historical *E. coli* bacteria samples in the downstream portion of Eames Brook (MA82A-13) at W0839 [footpath at end of Sherwin Terrace, Framingham] in Jul 2001 (n=2). Note the maximum concentration was 15 CFU/100mL. However, these data are too limited to assess according to the 2024 CALM and since they were collected prior to the current IR window (2011-2022), they cannot be used to positively assess the Secondary Contact Recreation Use of Eames Brook in any case.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0839	MassDEP	Water Quality	Eames Brook	[footpath at end of Sherwin Terrace, Framingham]	42.289714	-71.434372

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)

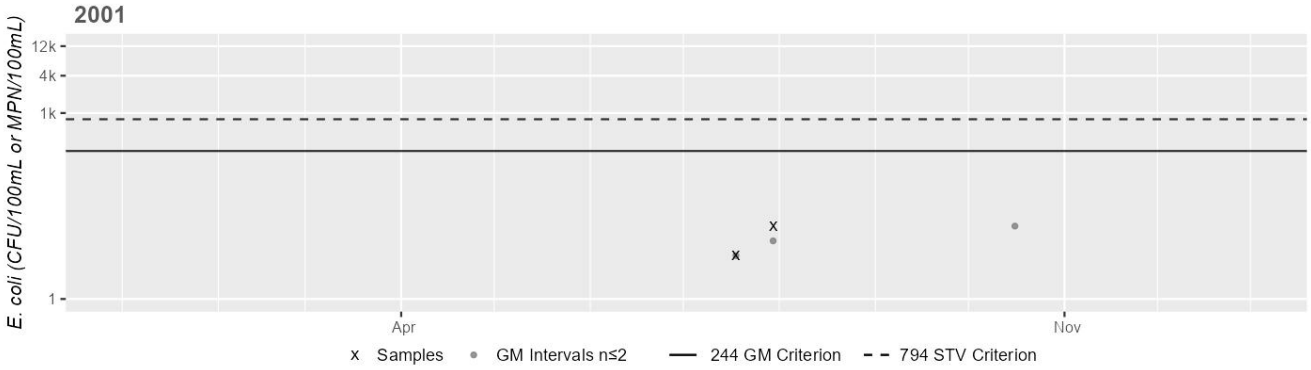
(MassDEP Undated 7) (MassDEP Undated 3)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0839	MassDEP	E. coli	07/18/01	07/30/01	2	5	15	8

Station MASSDEP_W0839 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	8
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

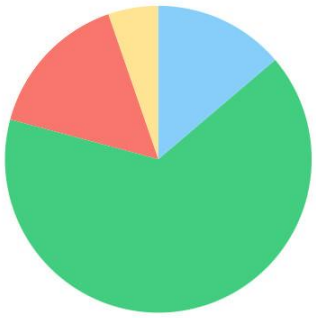
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Elizabeth Brook (MA82B-12)

Location:	From the outlet of an unnamed pond (Delaney Project on Stow/Harvard border) west of Harvard Road, Stow to mouth at inlet of Fletchers Pond, Stow.
AU Type:	RIVER
AU Size:	3.7 MILES
Classification/Qualifier:	B

Elizabeth Brook (MA82B-12)

Watershed Area: 17.87 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	17.87	5.59	6.26	2.03
Agriculture	5.3%	3.1%	4.2%	2.4%
Developed	15.5%	19%	12.5%	14.4%
Natural	65.4%	60.3%	56.4%	51.8%
Wetland	13.8%	17.6%	26.9%	31.4%
Impervious	6.5%	7.2%	5.5%	5.7%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	4a	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Elizabeth Brook (MA82B-12), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Elizabeth Brook (MA82B-12) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Elizabeth Brook (MA82B-12) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Elizabeth Brook (MA82B-12) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected historical *E. coli* bacteria samples in Elizabeth Brook (MA82B-12) in 2010 at 2 stations. Samples were collected from the following stations/sample years from upstream to downstream: in the upstream part of the AU at W2138 [~260 ft downstream of Delaney St, Stow] from May-Sep 2010 (n=6) and toward the downstream end of the AU at W2134 [Wheeler Rd, Stow] from May-Sep 2010 (n=6). While data from these two, single year, limited frequency *E. coli* datasets were indicative of good water quality conditions (0-14% of intervals had GMs >244 CFU/100mL, no samples exceeded the 794 CFU/100 mL STV, overall GMs ranged from 90-162 CFU/100 mL), since the data were collected prior to the current IR window (2011-2022), they cannot be used to positively assess the Secondary Contact Recreation Use of Elizabeth Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2134	MassDEP	Water Quality	Elizabeth Brook	[Wheeler Road, Stow]	42.429941	-71.515191
W2138	MassDEP	Water Quality	Elizabeth Brook	[approximately 260 feet downstream of Delaney Street, Stow]	42.440919	-71.546104

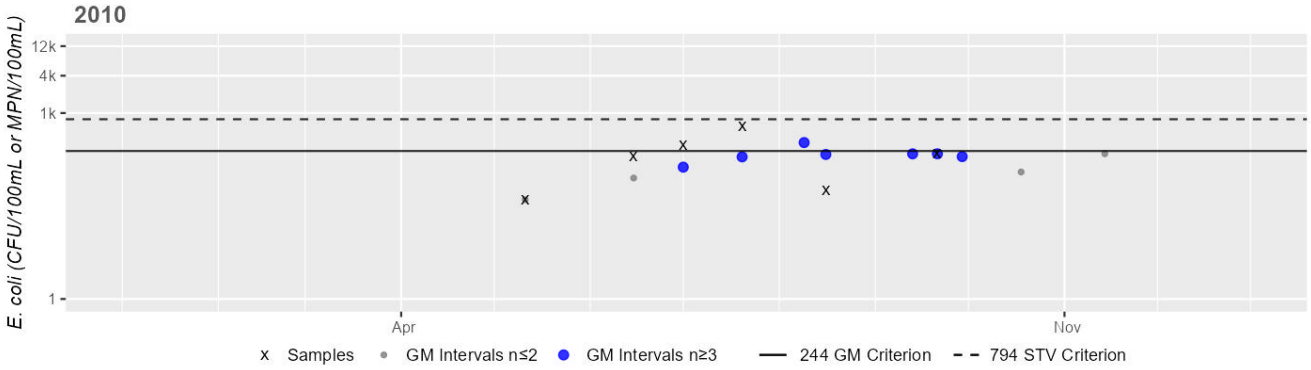
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2134	MassDEP	E. coli	05/11/10	09/21/10	6	40	620	162
W2138	MassDEP	E. coli	05/11/10	09/21/10	6	50	250	90

Station MASSDEP_W2134 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



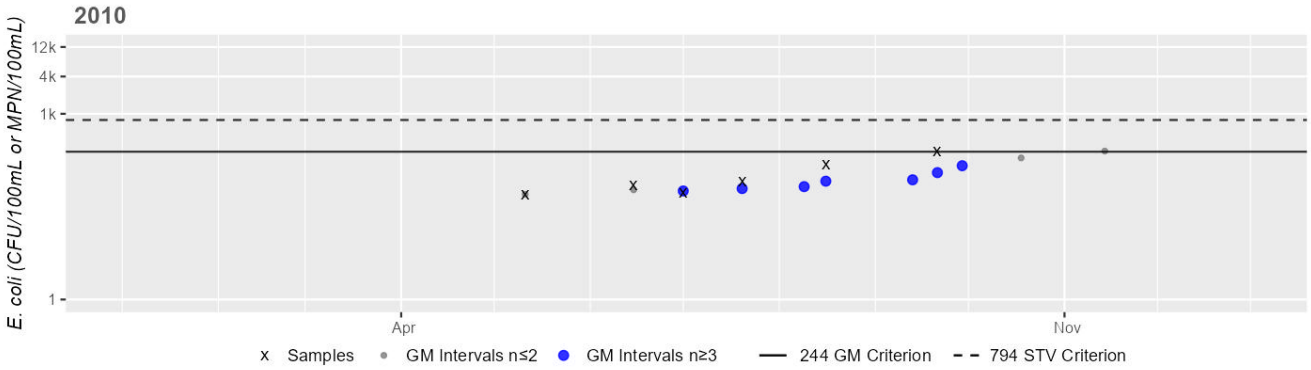
Variable*	Result
Samples	6
SeasGM	162
#GMI	7
#GMI Ex	1
%GMI Ex	14%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
14%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2138 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	90
#GMI	7
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Elm Street Pond (MA82032)

Location:	Chelmsford/Carlisle.
AU Type:	FRESHWATER LAKE
AU Size:	65 ACRES
Classification/Qualifier:	B

No usable data were available for Elm Street Pond (MA82032) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Farm Pond (MA82035)

Location:	Framingham.
AU Type:	FRESHWATER LAKE
AU Size:	139 ACRES
Classification/Qualifier:	B

No usable data were available for Farm Pond (MA82035) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Turbidity	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Source Unknown (N)	--	--	X	X	X
Turbidity	Source Unknown (N)	--	--	X	X	X

Farrar Pond (MA82036)

Location:	Lincoln.
AU Type:	FRESHWATER LAKE
AU Size:	83 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	Atmospheric Deposition (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Farrar Pond (MA82036) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Farrar Pond in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert

Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Farrar Pond (MA82036) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Farrar Pond (MA82036) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Farrar Pond (MA82036) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed.

Fisk Pond (MA82038)

Location:	Natick.
AU Type:	FRESHWATER LAKE
AU Size:	62 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged
4c	4c	(Water Chestnut*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [Harmful Algal Blooms, medium priority] Follow-up monitoring should be conducted in Fisk Pond (MA82038) to determine if Harmful Algal Blooms may be impairing the Recreational and Aesthetic uses (an Alert was identified in the 2024/2026 IR cycle based on a visual evidence report of a 97-day bloom in 2022). Monitoring should include observational data and collection of cyanobacteria cell count data, as well as continued reporting of harmful algal blooms to MDPH. {Fisk Pond (MA82038)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Fisk Pond (MA82038), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
Too limited data are available to assess the Aesthetics Use for Fisk Pond (MA82038), so it is assessed as having Insufficient Information. However, an Alert is being identified for Harmful Algal Blooms in this waterbody since C-HAB postings (blooms of >15 days in duration) were reported to MDPH for 2022. During the period 2015 through 2022, C-HAB postings for Fisk Pond were reported to MDPH based on visual observations for 97 days in 2022 and no blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for Harmful Algal Blooms and a recommendation for follow-up sampling will be made.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Fisk Pond (MA82038) were reported to MDPH based on visual observations for 97 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for C-HABs in this waterbody and a recommendation for follow-up sampling will be made.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Fisk Pond	Natick								97

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
No bacteria data are available to assess the Primary Contact Recreation Use for Fisk Pond (MA82038) and available other indicators for this AU did not result in any impairment, so it is assessed as having Insufficient Information. An Alert is being identified for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Fisk Pond (MA82038) were reported to MDPH based on visual observations for 97 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
No bacteria data are available to assess the Secondary Contact Recreation Use for Fisk Pond (MA82038) and available other indicators for this AU did not result in any impairment, so it is assessed as having Insufficient Information. An Alert is being identified for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Fisk Pond (MA82038) were reported to MDPH based on visual observations for 97 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

Fiske Street Pond (MA82037)

Location:	Carlisle/Chelmsford.
AU Type:	FRESHWATER LAKE
AU Size:	38 ACRES
Classification/Qualifier:	B

No usable data were available for Fiske Street Pond (MA82037) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Fort Meadow Brook (MA82B-11)

Location:	Headwaters, outlet Fort Meadow Reservoir, Marlborough/Hudson to mouth at confluence with Assabet River, Hudson.
AU Type:	RIVER
AU Size:	2.7 MILES
Classification/Qualifier:	B

No usable data were available for Fort Meadow Brook (MA82B-11) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Fort Meadow Reservoir (MA82042)

Location:	Marlborough/Hudson.
AU Type:	FRESHWATER LAKE
AU Size:	254 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	Chlordane in Fish Tissue	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Chlordane in Fish Tissue	Source Unknown (N)	--	X	--	--	--
Phosphorus, Total	Source Unknown (N)	X	--	--	--	--
Phosphorus, Total	Unspecified Urban Stormwater (N)	X	--	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [Harmful Algal Blooms, medium priority] Follow-up monitoring should be conducted in Fort Meadow Reservoir (MA82042) to determine if Harmful Algal Blooms may be impairing the Recreational and Aesthetic uses (note that an Alert was first identified for Harmful Algal Blooms in the 2016 IR cycle and a 20 day bloom occurred in 2017). Monitoring should include collection of cyanobacteria cell count data and observational data, as well as continued reporting of algal blooms to MDPH. {Fort Meadow Reservoir (MA82042)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Fort Meadow Reservoir (MA82042) continues to be assessed as Not Supporting and the prior Chlordane in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Fort Meadow Reservoir in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary

Too limited data are available to assess the Aesthetics Use for Fort Meadow Reservoir (MA82042), so it is assessed as having Insufficient Information. However, the Alert for Harmful Algal Blooms previously identified for this waterbody is being carried forward since C-HAB postings (blooms of >15 days in duration) were reported to MDPH for 2017.
MassDEP staff recorded aesthetics observations at one station on Fort Meadow Reservoir as part of the Cyanobacteria Monitoring Project during the summer of 2017, at the downstream end of the AU at the eastern end of the reservoir, Memorial Beach in Hudson/Marlborough (W2928, n=3). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.
During the period 2015 through 2022, C-HAB postings for Fort Meadow Reservoir were reported to MDPH based on visual observations for 20 days in 2017 and no blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, this data is reflective of the existing Alert identified for Harmful Algal Blooms in Fort Meadow Reservoir and a recommendation for follow-up sampling will be made.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2928	MassDEP	Water Quality	Fort Meadow Reservoir	[eastern end of reservoir, Memorial Beach, Hudson/Marlborough]	42.374539	-71.531724

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2928	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2928 on Fort Meadow Reservoir (MA82042) during 3 site visits between Jul 2017 and Oct 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2928	Fort Meadow Reservoir	2017	Aesthetics Impaired?	No	3	3
W2928	Fort Meadow Reservoir	2017	Color	Brownish	2	3

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2928	Fort Meadow Reservoir	2017	Color	None	1	3
W2928	Fort Meadow Reservoir	2017	Objectionable Deposits	No	2	3
W2928	Fort Meadow Reservoir	2017	Objectionable Deposits	Yes	1	3
W2928	Fort Meadow Reservoir	2017	Odor	None	3	3
W2928	Fort Meadow Reservoir	2017	Scum	No	3	3
W2928	Fort Meadow Reservoir	2017	Turbidity	None	2	3
W2928	Fort Meadow Reservoir	2017	Turbidity	Slightly Turbid	1	3

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Fort Meadow Reservoir (MA82042) were reported to MDPH based on visual observations for 20 days in 2017. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for C-HABs in this waterbody and a recommendation for follow-up sampling will be made.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Fort Meadow Reservoir	Hudson/Marlborough			20					

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
No bacteria data are available to assess the Primary Contact Recreation Use for Fort Meadow Reservoir (MA82042) and available other indicators and aesthetics observations for this AU did not result in any impairment, so it is assessed as having Insufficient Information. An Alert is being carried forward for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Fort Meadow Reservoir (MA82042) were reported to MDPH based on visual observations for 20 days in 2017. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
No bacteria data are available to assess the Secondary Contact Recreation Use for Fort Meadow Reservoir (MA82042) and available other indicators and aesthetics observations for this AU did not result in any impairment, so it is assessed as having Insufficient Information. An Alert is being carried forward for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Fort Meadow Reservoir (MA82042) were reported to MDPH based on visual observations for 20 days in 2017. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

Fort Pond (MA82043)

Location:	Littleton.
AU Type:	FRESHWATER LAKE
AU Size:	102 ACRES
Classification/Qualifier:	B

No usable data were available for Fort Pond (MA82043) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Fort Pond Brook (MA82B-13)

Location:	From source in a wetland just west of Fort Pond, Littleton to mouth at inlet Warners Pond, Concord.
AU Type:	RIVER
AU Size:	10.2 MILES
Classification/Qualifier:	B

No usable data were available for Fort Pond Brook (MA82B-13) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Framingham Reservoir #1 (MA82044)

Location:	Framingham.
AU Type:	FRESHWATER LAKE
AU Size:	117 ACRES
Classification/Qualifier:	B: WWF, HQW (impoundment on river designated B/WWF/HQW)

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Framingham Reservoir #1 (MA82044) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Framingham Reservoir #1 (referred to by MA DPH as ''Sudbury River (from Ashland to its confluence with the Assabet and Concord Rivers), Stern Reservoir, and Bracket Reservoir'' or ''Stern Reservoir (Framingham Reservoir #1)'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Framingham Reservoir #1 (MA82044) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Framingham Reservoir #1 (MA82044) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Framingham Reservoir #1 (MA82044) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed.

Framingham Reservoir #2 (MA82045)

Location:	Framingham/Ashland.
AU Type:	FRESHWATER LAKE
AU Size:	114 ACRES
Classification/Qualifier:	B: WWF, HQW (impoundment on river designated B/WWF/HQW)

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Mercury in Fish Tissue	--	Unchanged
5	5	Turbidity	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--
Turbidity	Source Unknown (N)	--	--	X	X	X

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Framingham Reservoir #2 (MA82045) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Framingham Reservoir #2 (referred to by MA DPH as ''Sudbury River (from Ashland to its confluence with the Assabet and Concord Rivers), Stern Reservoir, and Bracket Reservoir'' or ''Bracket Reservoir (Framingham Reservoir #2)'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Framingham Reservoir #2 (MA82045) continues to be assessed as Not Supporting, with the prior Turbidity impairment being carried forward. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Framingham Reservoir #2 AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Framingham Reservoir #2 (MA82045) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Turbidity impairment (from the Aesthetics Use) is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Framingham Reservoir #2 (MA82045) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use continues to be assessed as Not Supporting. The prior Turbidity impairment (from the Aesthetics Use) is being carried forward.

Framingham Reservoir #3 (MA82046)

Location:	Framingham.
AU Type:	FRESHWATER LAKE
AU Size:	222 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Framingham Reservoir #3 (MA82046) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (N)	X	--	--	--	--

Gates Pond (MA82047)

Location:	Berlin.
AU Type:	FRESHWATER LAKE
AU Size:	73 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Gates Pond (MA82047) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Gates Pond Brook (MA82B-10)

Location:	Headwaters, outlet Gates Pond, Berlin to mouth at confluence with the Assabet River, Berlin.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

No usable data were available for Gates Pond Brook (MA82B-10) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Gleasons Pond (MA82048)

Location:	Framingham.
AU Type:	FRESHWATER LAKE
AU Size:	11 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	4c	(Aquatic Plants (Macrophytes)*)	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Aquatic Plants (Macrophytes)*)	Source Unknown (N)	--	--	X	X	X

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Gleasons Pond (MA82048), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Gleasons Pond (MA82048) is assessed as Not Supporting based on the observations from the 2017 MassDEP MAP2 macrophyte mapping survey, with a non-pollutant Aquatic Plants (Macrophytes) impairment being added. MassDEP staff recorded aesthetics observations as part of the MAP2 lakes monitoring project in summer 2017 at two stations on Gleasons Pond in Framingham: at the eastern side of the lake opposite the Mansfield Street/Rt. 126 intersection (Gallagher Park) (W2669/MAP2L-127S, n=5) and at the deep hole index site (W2668/MAP2L-127, n=3). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, or littoral zone duckweed recorded in ten shoreline plots (n=1), though field staff noted minor trash deposits at the shoreline station on four occasions and green water color at the index site on one occasion. However, during the MAP2 macrophyte mapping survey in Jul 2017 (n=1), greater than 25% (96%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2668	MassDEP	Water Quality	Gleasons Pond	[index site, Framingham]	42.286542	-71.412718
W2669	MassDEP	Water Quality	Gleasons Pond	[eastern side of lake opposite the Mansfield Street/Route 126 intersection (Gallagher Park), Framingham]	42.286147	-71.412477

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2668	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2668 (MAP2L-127) on Gleasons Pond (MA82048) during 3 site visits between Jul 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted green water color (n=1). During the MAP2 macrophyte mapping survey (n=1) in Jul 2017, greater than 25% (96%) of the waterbody was determined to have an aquatic macrophyte biovolume >50% and the survey also noted an aesthetics impairment flag due to aquatic plants (macrophytes). The observations from the MAP2 survey are indicative of an Aesthetics Use impairment.
W2669	2017	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2669 (MAP2L-127S) on Gleasons Pond (MA82048) during 5 site visits between May 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=4). During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2668	Gleasons Pond	2017	Aesthetics Impaired?	No	3	3
W2668	Gleasons Pond	2017	Aquatic Plant Density, Overall	None	3	3
W2668	Gleasons Pond	2017	Aquatic Plant Density, Whole Lake	Unobservable	2	2
W2668	Gleasons Pond	2017	Color	Greenish	1	3
W2668	Gleasons Pond	2017	Color	Light Yellow/Tan	2	3
W2668	Gleasons Pond	2017	Duckweed Density, Whole Lake	Unobservable	2	2
W2668	Gleasons Pond	2017	Objectionable Deposits	No	2	3
W2668	Gleasons Pond	2017	Objectionable Deposits	Yes	1	3
W2668	Gleasons Pond	2017	Odor	None	3	3
W2668	Gleasons Pond	2017	Scum	No	3	3
W2668	Gleasons Pond	2017	Turbidity	None	2	3
W2668	Gleasons Pond	2017	Turbidity	Slightly Turbid	1	3
W2669	Gleasons Pond	2017	Aesthetics Impaired?	No	5	5
W2669	Gleasons Pond	2017	Color	Light Yellow/Tan	2	5
W2669	Gleasons Pond	2017	Color	None	3	5
W2669	Gleasons Pond	2017	Objectionable Deposits	No	1	5
W2669	Gleasons Pond	2017	Objectionable Deposits	Yes	4	5
W2669	Gleasons Pond	2017	Odor	None	5	5
W2669	Gleasons Pond	2017	Scum	No	5	5
W2669	Gleasons Pond	2017	Turbidity	None	5	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Gleasons Pond (MA82048) is assessed as Not Supporting. While bacteria data collected at W2669 in 2017 were indicative of good conditions, an Aquatic Plants (Macrophytes) impairment is being added (from the Aesthetics Use).
In Gleasons Pond (MA82048) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2668 [MAP2L-127, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2669 [MAP2L-127S, Shoreline]. At station W2668 (station depth=3.8 m) the Secchi depth measurements ranged from 2.05-2.86 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2669 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.
MassDEP staff also collected *E. coli* bacteria samples in Gleasons Pond (MA82048) at the shoreline station W2669 [eastern side of lake opposite the Mansfield St/Rt. 126 intersection (Gallagher Park), Framingham] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 59 CFU/100mL). These *E. coli* data are indicative of good water quality conditions.

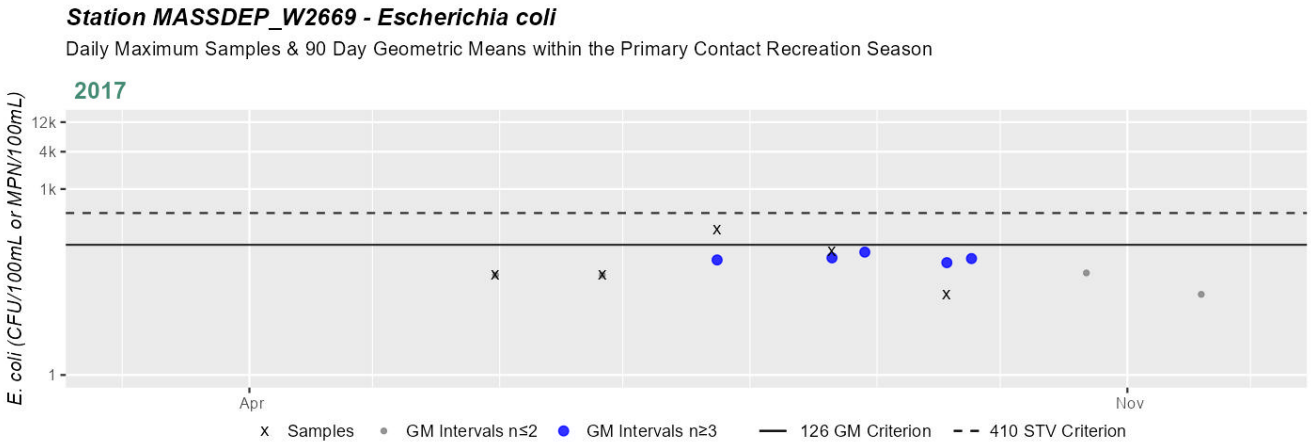
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2668	MassDEP	Water Quality	Gleasons Pond	[index site, Framingham]	42.286542	-71.412718
W2669	MassDEP	Water Quality	Gleasons Pond	[eastern side of lake opposite the Mansfield Street/Route 126 intersection (Gallagher Park), Framingham]	42.286147	-71.412477

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2669	MassDEP	E. coli	05/31/17	09/18/17	5	20	220	59



Variable*	Result
Samples	5
SeasGM	59
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Other Indicators

Summary Statement for 2011-2022 Cyanobacteria Cell Count and Cyanotoxin Data, and Secchi Depth Data (MassDEP Undated 7) (MassDEP Undated 4)

Data Year(s)	Summary
2017	In Gleasons Pond (MA82048) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2668 [MAP2L-127, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2669 [MAP2L-127S, Shoreline]. At station W2668 (station depth=3.8 m) the Secchi depth measurements ranged from 2.05-2.86 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2669 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP Cyanobacteria Cell Count Data Collected at Lakes and Impoundments (2016-2018) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2668	Gleasons Pond	Index	2017	3	0	NA
W2669	Gleasons Pond	Shoreline	2017	3	0	NA

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Gleasons Pond (MA82048) is assessed as Not Supporting. While bacteria data collected at W2669 in 2017 were indicative of good conditions, an Aquatic Plants (Macrophytes) impairment is being added (from the Aesthetics Use). In Gleasons Pond (MA82048) in 2017, MassDEP collected cyanobacteria cell count data at W2668 [MAP2L-127, Index-deep hole], and cyanobacteria cell count and cyanotoxins data at W2669 [MAP2L-127S, Shoreline]. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2669 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff also collected *E. coli* bacteria samples in Gleasons Pond (MA82048) at the shoreline station W2669 [eastern side of lake opposite the Mansfield St/Rt. 126 intersection (Gallagher Park), Framingham] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 59 CFU/100mL). These *E. coli* data are indicative of good water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2669	MassDEP	Water Quality	Gleasons Pond	[eastern side of lake opposite the Mansfield Street/Route 126 intersection (Gallagher Park), Framingham]	42.286147	-71.412477

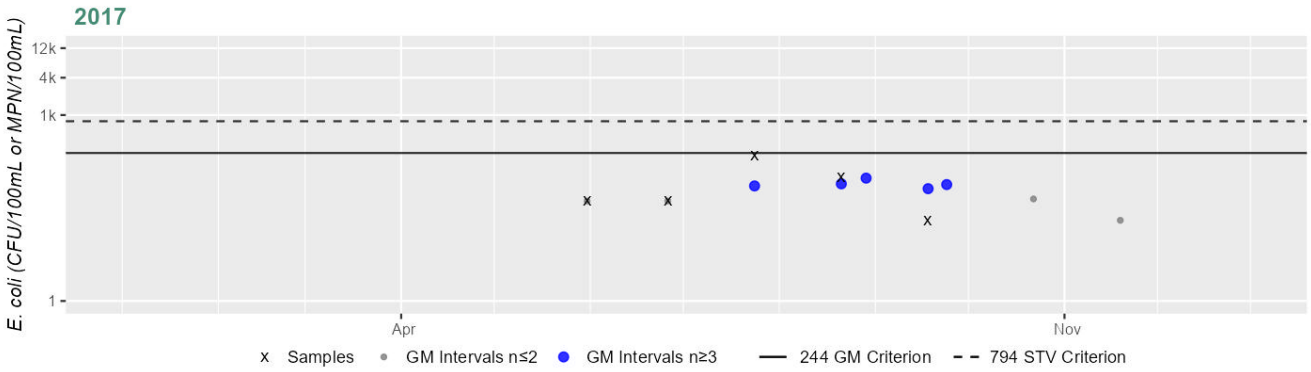
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2669	MassDEP	E. coli	05/31/17	09/18/17	5	20	220	59

Station MASSDEP_W2669 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	59
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance

Current (2011-2022)

0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Great Brook (MA82B-29)

Location:	Headwaters, perennial portion east of Harvard Road, Bolton to mouth at inlet Delaney Pond (impoundment of Elizabeth Brook), Stow.
AU Type:	RIVER
AU Size:	5.7 MILES
Classification/Qualifier:	B

Great Brook (MA82B-29)

Watershed Area: 8.00 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	8.00	6.93	2.86	2.54
Agriculture	5.6%	4.3%	4.3%	4.1%
Developed	13.9%	13.8%	12.3%	11.8%
Natural	66.7%	67.3%	56.8%	56.3%
Wetland	13.8%	14.6%	26.6%	27.7%
Impervious	6.1%	5.9%	5.5%	5.2%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Escherichia Coli (E. Coli)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--

Recommendations

2024/26 Recommendations
2024/2026 IR [E. coli, medium priority] Follow-up bacteria sampling should be conducted in Great Brook (MA82B-29) in the vicinity of W2525 since an Alert was identified for Escherichia Coli (E. Coli) in the 2024/2026 IR cycle based on data near the GM interval exceedance threshold (80%) for a single year, limited frequency dataset, an overall GM exceeding the threshold, and 1 STV exceedance. Note that this recommendation is to determine whether there is an impairment of the Secondary Contact Recreation Use and the Primary Contact Recreation Use already has an Escherichia Coli (E. Coli) impairment. {W2525}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Great Brook (MA82B-29), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use of Great Brook (MA82B-29) is assessed as Fully Supporting based on the lack of objectionable conditions observed by MassDEP staff during the summers of 2015 and/or 2016. MassDEP field crews recorded aesthetics observations at two stations in the downstream half of Great Brook: at the Rt 117 crossing nearest the Meadow Rd intersection in Bolton (W2525) during summer 2015 (n=5) and north of Rt 117, Bolton ~ 1400 ft upstream of the mouth at the inlet to Delaney Pond (impoundment of Elizabeth Brook in Stow) (W2541) in summer 2015 and 2016 (n=4/yr). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2525	MassDEP	Water Quality	Great Brook	[Route 117 crossing nearest the Meadow Road intersection, Bolton]	42.435696	-71.570410

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2541	MassDEP	Water Quality	Great Brook	[north of Route 117, Bolton approximately 1400 feet upstream of mouth at inlet of Delaney Pond, Stow]	42.444418	-71.551697

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2525	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2525 on Great Brook (MA82B-29) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.
W2541	2015	4	Aesthetic observations were made by MassDEP field sampling crews at Station W2541 on Great Brook (MA82B-29) during 4 site visits between May 2015 and Aug 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.
W2541	2016	4	Aesthetic observations were made by MassDEP field sampling crews at Station W2541 on Great Brook (MA82B-29) during 4 site visits between May 2016 and Aug 2016. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2525	2015	5	5	1
W2541	2015	4	4	0
W2541	2016	4	3	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2525	Great Brook	2015	Aesthetics Impaired?	No	5	5
W2525	Great Brook	2015	Aquatic Plant Density, Overall	None	3	5
W2525	Great Brook	2015	Aquatic Plant Density, Overall	Sparse	2	5
W2525	Great Brook	2015	Color	Light Yellow/Tan	5	5
W2525	Great Brook	2015	Objectionable Deposits	No	5	5
W2525	Great Brook	2015	Odor	None	4	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2525	Great Brook	2015	Odor	Petroleum	1	5
W2525	Great Brook	2015	Periphyton Density, Filamentous	None	4	5
W2525	Great Brook	2015	Periphyton Density, Filamentous	NR	1	5
W2525	Great Brook	2015	Periphyton Density, Film	Moderate	1	5
W2525	Great Brook	2015	Periphyton Density, Film	None	2	5
W2525	Great Brook	2015	Periphyton Density, Film	Sparse	1	5
W2525	Great Brook	2015	Periphyton Density, Film	Very Dense	1	5
W2525	Great Brook	2015	Scum	No	5	5
W2525	Great Brook	2015	Turbidity	None	3	5
W2525	Great Brook	2015	Turbidity	Slightly Turbid	2	5
W2541	Great Brook	2015	Aesthetics Impaired?	No	4	4
W2541	Great Brook	2015	Aquatic Plant Density, Overall	None	4	4
W2541	Great Brook	2015	Color	Light Yellow/Tan	2	4
W2541	Great Brook	2015	Color	None	2	4
W2541	Great Brook	2015	Objectionable Deposits	No	4	4
W2541	Great Brook	2015	Odor	None	4	4
W2541	Great Brook	2015	Periphyton Density, Filamentous	None	3	4
W2541	Great Brook	2015	Periphyton Density, Filamentous	NR	1	4
W2541	Great Brook	2015	Periphyton Density, Film	Moderate	1	4
W2541	Great Brook	2015	Periphyton Density, Film	None	3	4
W2541	Great Brook	2015	Scum	No	4	4
W2541	Great Brook	2015	Turbidity	None	4	4
W2541	Great Brook	2016	Aesthetics Impaired?	No	4	4
W2541	Great Brook	2016	Aquatic Plant Density, Overall	None	4	4
W2541	Great Brook	2016	Color	Brownish	1	4
W2541	Great Brook	2016	Color	Light Yellow/Tan	2	4
W2541	Great Brook	2016	Color	None	1	4
W2541	Great Brook	2016	Objectionable Deposits	No	4	4
W2541	Great Brook	2016	Odor	None	4	4
W2541	Great Brook	2016	Periphyton Density, Filamentous	None	2	4
W2541	Great Brook	2016	Periphyton Density, Filamentous	Sparse	1	4
W2541	Great Brook	2016	Periphyton Density, Filamentous	Unobservable	1	4
W2541	Great Brook	2016	Periphyton Density, Film	None	1	4
W2541	Great Brook	2016	Periphyton Density, Film	Sparse	2	4
W2541	Great Brook	2016	Periphyton Density, Film	Unobservable	1	4

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2541	Great Brook	2016	Scum	No	3	4
W2541	Great Brook	2016	Scum	Yes	1	4
W2541	Great Brook	2016	Turbidity	None	3	4
W2541	Great Brook	2016	Turbidity	Slightly Turbid	1	4

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Great Brook (MA82B-29) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W2525 in 2015.
MassDEP staff collected *E. coli* bacteria samples in the middle of the Great Brook AU (MA82B-29) at W2525 [Rt. 117 crossing nearest the Meadow Rd intersection, Bolton] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 100% of intervals had GMs >126 CFU/100mL and 1 sample exceeded the 410 CFU/100 mL STV (the seasonal GM was 351 CFU/100 mL). These data are indicative of an Escherichia Coli (E. Coli) impairment.

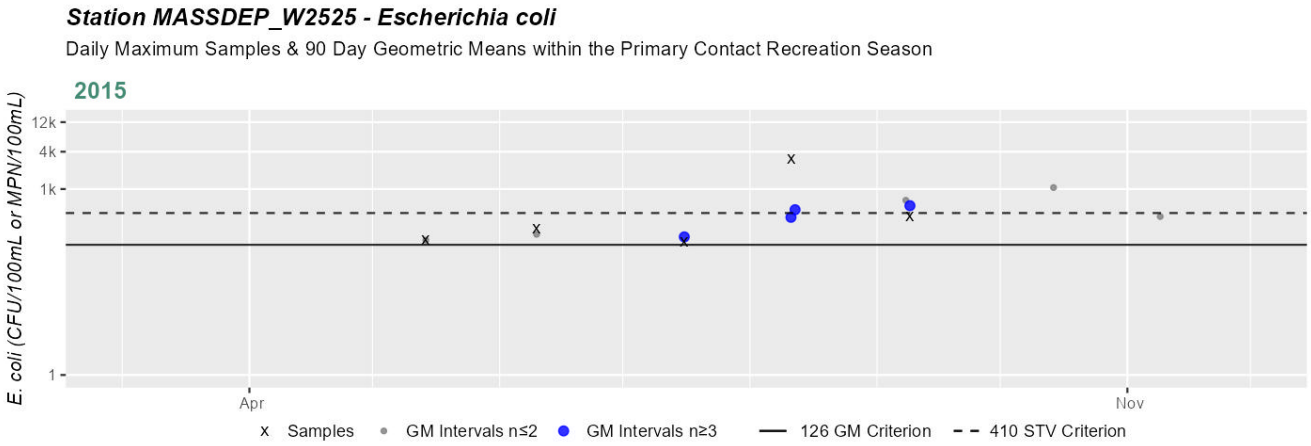
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2525	MassDEP	Water Quality	Great Brook	[Route 117 crossing nearest the Meadow Road intersection, Bolton]	42.435696	-71.570410

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2525	MassDEP	E. coli	05/14/15	09/09/15	5	140	3100	351



Variable*	Result
Samples	5
SeasGM	351
#GMI	4
#GMI Ex	4
%GMI Ex	100%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	YES

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Great Brook (MA82B-29) continues to be assessed as Fully Supporting, however, an Alert is being identified based on data collected at W2525 in 2015. A recommendation for follow-up sampling will be made. MassDEP staff collected *E. coli* bacteria samples in Great Brook (MA82B-29) at W2525 [Rt. 117 crossing nearest the Meadow Rd intersection, Bolton] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 75% of intervals had GMs >244 CFU/100mL, 1 sample exceeded the 794 CFU/100 mL STV, and the overall GM was 351 CFU/100 mL. *E. coli* data from W2525 meet 2024 CALM guidance, however, an Alert is being identified for Escherichia Coli (E. Coli) since data collected at W2525 were near the GM interval exceedance threshold (80%) for a single year, limited frequency dataset, the overall GM exceeded the threshold, and there was 1 STV exceedance.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2525	MassDEP	Water Quality	Great Brook	[Route 117 crossing nearest the Meadow Road intersection, Bolton]	42.435696	-71.570410

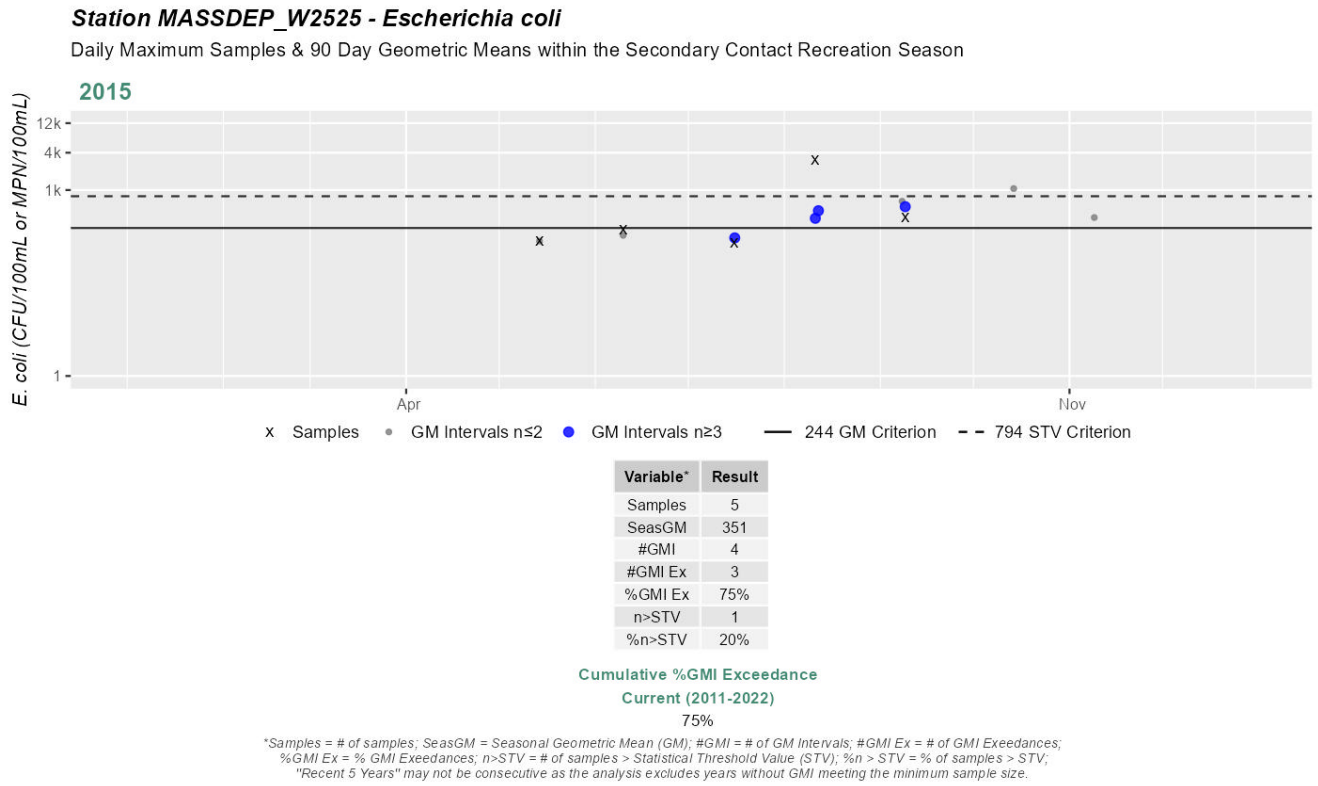
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)

(MassDEP Undated 7) (MassDEP Undated 3)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2525	MassDEP	E. coli	05/14/15	09/09/15	5	140	3100	351



Variable*	Result
Samples	5
SeasGM	351
#GMI	4
#GMI Ex	3
%GMI Ex	75%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Current (2011-2022)
75%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Great Meadows Pond #3 (MA82053)

Location:	Concord.
AU Type:	FRESHWATER LAKE
AU Size:	53 ACRES
Classification/Qualifier:	B

No usable data were available for Great Meadows Pond #3 (MA82053) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Water Chestnut*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Grist Mill Pond (MA82055)

Location:	Sudbury/Marlborough.
AU Type:	FRESHWATER LAKE
AU Size:	17 ACRES
Classification/Qualifier:	B

No usable data were available for Grist Mill Pond (MA82055) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Dissolved Oxygen Supersaturation	--	Unchanged
5	5	Fecal Coliform	--	Unchanged
5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Municipal Point Source Discharges (Y)	X	--	X	X	X
Algae	Source Unknown (N)	X	--	X	X	X

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen Supersaturation	Municipal Point Source Discharges (Y)	X	--	--	--	--
Dissolved Oxygen Supersaturation	Source Unknown (N)	X	--	--	--	--
Fecal Coliform	Municipal Point Source Discharges (Y)	--	--	--	X	X
Fecal Coliform	Source Unknown (N)	--	--	--	X	X
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X	--	X	X	X
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X	--	X	X	X
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Phosphorus, Total	Source Unknown (N)	X	--	--	--	--

Hager Pond (MA82056)

Location:	Marlborough.
AU Type:	FRESHWATER LAKE
AU Size:	30 ACRES
Classification/Qualifier:	B

No usable data were available for Hager Pond (MA82056) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Dissolved Oxygen Supersaturation	--	Unchanged
5	5	Fecal Coliform	--	Unchanged
5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged
5	5	Turbidity	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Municipal Point Source Discharges (Y)	X	--	X	X	X
Algae	Source Unknown (N)	X	--	X	X	X

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen Supersaturation	Municipal Point Source Discharges (Y)	X	--	--	--	--
Dissolved Oxygen Supersaturation	Source Unknown (N)	X	--	--	--	--
Fecal Coliform	Municipal Point Source Discharges (Y)	--	--	--	X	X
Fecal Coliform	Source Unknown (N)	--	--	--	X	X
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X	--	X	X	X
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X	--	X	X	X
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Phosphorus, Total	Source Unknown (N)	X	--	--	--	--
Turbidity	Municipal Point Source Discharges (Y)	--	--	X	X	X
Turbidity	Source Unknown (N)	--	--	X	X	X

Heard Pond (MA82058)

Location:	Wayland.
AU Type:	FRESHWATER LAKE
AU Size:	76 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged
5	5	Transparency / Clarity	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Source Unknown (N)	X	--	X	X	X
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--
Transparency / Clarity	Source Unknown (N)	--	--	--	X	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Heard Pond (MA82058) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Heard Pond in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Heard Pond (MA82058) continues to be assessed as Not Supporting, with the Algae impairment being carried forward. Since the Transparency/Clarity impairment was redundantly duplicated across multiple uses for this waterbody, the Transparency/Clarity impairment is being removed from the Aesthetics Use but will continue to be maintained under the Primary Contact Recreation Use. No new data are available to evaluate the Aesthetics Use for Heard Pond.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Heard Pond (MA82058) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Transparency / Clarity impairment is being carried forward and the prior Algae impairment (from the Aesthetics Use) is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

No bacteria or other indicator data for Heard Pond (MA82058) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use continues to be assessed as Not Supporting. The prior Algae impairment (from the Aesthetics Use) is being carried forward. Since the Transparency / Clarity impairment is being removed from the Aesthetics Use this cycle, this impairment is also being removed from the Secondary Contact Recreation Use.

Heart Pond (MA82059)

Location:	Chelmsford/Westford.
AU Type:	FRESHWATER LAKE
AU Size:	94 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Non-Native Fish/Shellfish/Zooplankton*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Escherichia Coli (E. Coli)	--	Unchanged
5	5	Harmful Algal Blooms	--	Added
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Fish/Shellfish/Zooplankton*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--
Escherichia Coli (E. Coli)	Waterfowl (Y)	--	--	--	X	--
Harmful Algal Blooms	Source Unknown (N)	--	--	--	X	X
Mercury in Fish Tissue	Atmospheric Deposition (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Heart Pond (MA82059) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Heart Pond in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Heart Pond (MA82059) is assessed as Fully Supporting based on the general lack of objectionable conditions observed by MassDEP staff during summer 2017. Aesthetic observations were made by MassDEP field sampling crews as part of the MAP2 lake monitoring project, during the summer of 2017 at two stations on Heart Pond in Chelmsford: at the index site in the western lobe (W2684/MAP2L-139, n=3) and at the northeastern edge of the pond, at the beach off Pond Street (W2685/MAP2L-139S, n=5). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded at either location, though field staff noted shoreline algal blooms on Jun 12 and Aug 07. During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots. During the MAP2 macrophyte mapping survey (n=1) in Jul 2017, less than 25% (8.9%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%. During the period 2015 through 2022, C-HAB postings for Heart Pond were reported to MDPH based on visual observations for 14 days in 2022 and no blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2684	MassDEP	Water Quality	Heart Pond	[index site, western lobe, Chelmsford]	42.566319	-71.388142
W2685	MassDEP	Water Quality	Heart Pond	[northeastern edge of pond, at beach off Pond Street, Chelmsford]	42.568375	-71.381987

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2684	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2684 (MAP2L-139) on Heart Pond (MA82059) during 3 site visits between Jun 2017 and Aug 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 macrophyte mapping survey (n=1) in Jul 2017, less than 25% (8.9%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%.
W2685	2017	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2685 (MAP2L-139S) on Heart Pond (MA82059) during 5 site visits between May 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted green water color (n=1). During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots. Shoreline algal blooms were noted by DEP field crews on Jun 12, 2017 and Aug 07, 2017.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2684	Heart Pond	2017	Aesthetics Impaired?	No	3	3
W2684	Heart Pond	2017	Aquatic Plant Density, Overall	Moderate	1	3
W2684	Heart Pond	2017	Aquatic Plant Density, Overall	None	1	3
W2684	Heart Pond	2017	Aquatic Plant Density, Overall	NR	1	3
W2684	Heart Pond	2017	Aquatic Plant Density, Whole Lake	Unobservable	1	1
W2684	Heart Pond	2017	Color	Brownish	2	3
W2684	Heart Pond	2017	Color	Light Yellow/Tan	1	3
W2684	Heart Pond	2017	Duckweed Density, Whole Lake	None	1	1
W2684	Heart Pond	2017	Objectionable Deposits	No	2	3
W2684	Heart Pond	2017	Objectionable Deposits	Yes	1	3
W2684	Heart Pond	2017	Odor	None	3	3
W2684	Heart Pond	2017	Scum	No	3	3
W2684	Heart Pond	2017	Turbidity	Slightly Turbid	3	3
W2685	Heart Pond	2017	Aesthetics Impaired?	No	5	5
W2685	Heart Pond	2017	Color	Greenish	1	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2685	Heart Pond	2017	Color	Light Yellow/Tan	3	5
W2685	Heart Pond	2017	Color	None	1	5
W2685	Heart Pond	2017	Objectionable Deposits	No	5	5
W2685	Heart Pond	2017	Odor	Musty (Basement)	1	5
W2685	Heart Pond	2017	Odor	None	4	5
W2685	Heart Pond	2017	Scum	No	1	5
W2685	Heart Pond	2017	Scum	Yes	4	5
W2685	Heart Pond	2017	Turbidity	None	2	5
W2685	Heart Pond	2017	Turbidity	Slightly Turbid	3	5

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Heart Pond (MA82059) were reported to MDPH based on visual observations for 14 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Heart Pond	Chelmsford								14

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Heart Pond (MA82059) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward and a Harmful Algal Blooms impairment is being added due to cyanobacteria cell count data not meeting the threshold at W2684 in 2017.
MassDEP staff collected *E. coli* bacteria samples in Heart Pond (MA82059) at W2685 [northeastern edge of pond, at beach off Pond St, Chelmsford] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 13 CFU/100mL). *E. coli* data from W2685 meet 2024 CALM guidance, however, since the Concord 2001 Water Quality Assessment Report mentions that the original Pathogens impairment was triggered by "weekly *E. coli* bacteria sampling... at the semi-public beach owned by the South Chelmsford Improvement Association" (O'Brien-Clayton 2005), additional data are needed to determine whether the Escherichia Coli (E. Coli) impairment is still needed or it can be removed.
In Heart Pond (MA82059) in 2017, MassDEP also collected Secchi and cyanobacteria cell count data at W2684 [MAP2L-139, Index-deep hole], and cyanobacteria cell count and cyanotoxins data at W2685 [MAP2L-139S, Shoreline]. Secchi depth data indicated water clarity meeting the 1.2m (4ft) threshold at W2684 (n=3, 1.5-1.95m). The cyanobacteria cell count exceeded 70,000 cells/mL on Aug 07 and Sep 06, 2017 indicating a cyanobacteria bloom estimated to have extended at least 30 days (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2685 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.
During the period 2015 through 2022, C-HAB postings for Heart Pond (MA82059) were reported to MDPH based on visual observations for 14 days in 2022. No blooms were reported in other years.

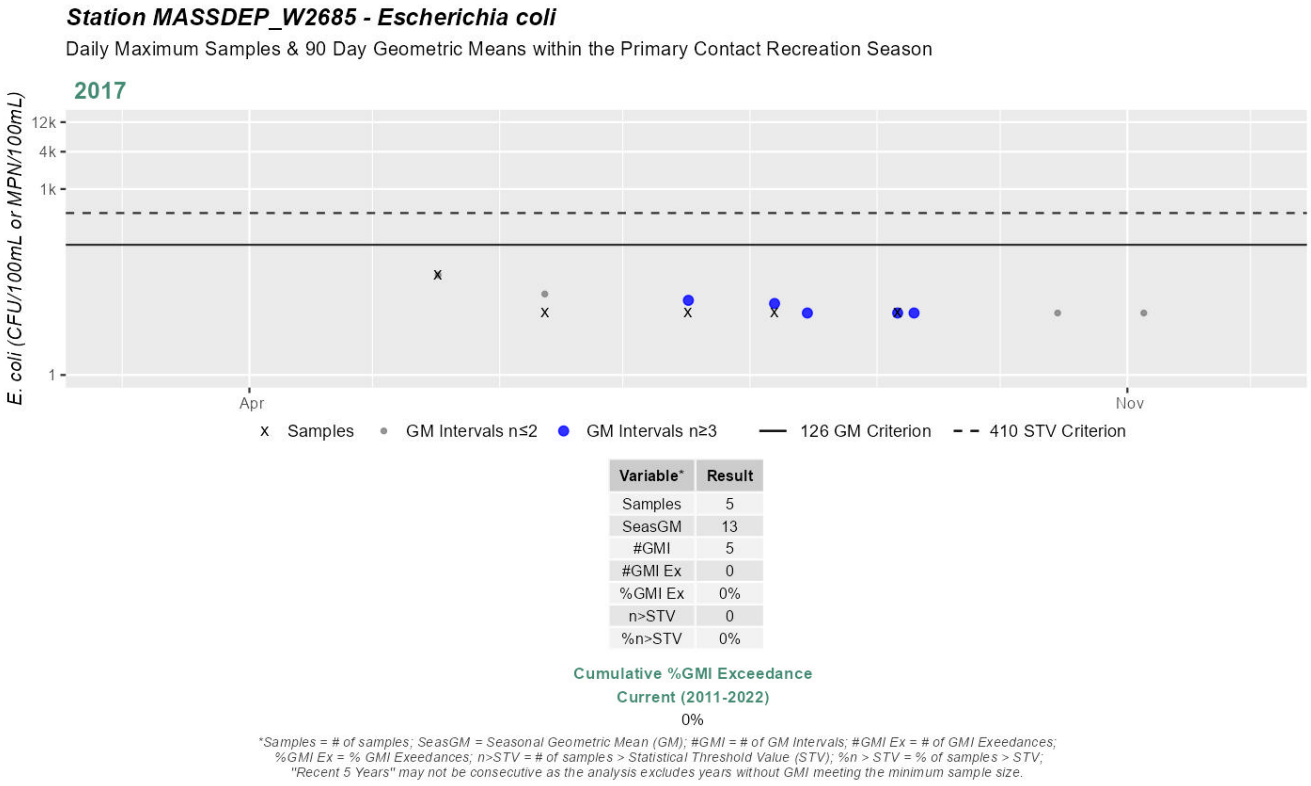
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2684	MassDEP	Water Quality	Heart Pond	[index site, western lobe, Chelmsford]	42.566319	-71.388142
W2685	MassDEP	Water Quality	Heart Pond	[northeastern edge of pond, at beach off Pond Street, Chelmsford]	42.568375	-71.381987

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2685	MassDEP	E. coli	05/17/17	09/06/17	5	10	41	13



Other Indicators

Summary Statement for 2011-2022 Cyanobacteria Cell Count and Cyanotoxin Data, and Secchi Depth Data (MassDEP Undated 7) (MassDEP Undated 4)

Data Year(s)	Summary
2017	In Heart Pond (MA82059) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2684 [MAP2L-139, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2685 [MAP2L-139S, Shoreline]. At station W2684 (station depth=6.6 m) the Secchi depth measurements ranged from 1.5-1.95 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count exceeded 70,000 cells/mL on Aug 07, 2017 and Sep 06, 2017 at the shoreline station W2685 indicating a cyanobacteria bloom estimated to have extended at least 30 days (n=6 both stations). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2685 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP Cyanobacteria Cell Count Data Collected at Lakes and Impoundments (2016-2018) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2684	Heart Pond	Index	2017	3	0	NA
W2685	Heart Pond	Shoreline	2017	3	2	8/7/2017; 9/6/2017

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Heart Pond (MA82059) is assessed as Not Supporting. While *E. coli* data at W2685 were indicative of good conditions, a Harmful Algal Blooms impairment is being added due to cyanobacteria cell count data not meeting the threshold at W2684 in 2017.

MassDEP staff collected *E. coli* bacteria samples in Heart Pond (MA82059) at W2685 [northeastern edge of pond, at beach off Pond St, Chelmsford] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 13 CFU/100mL). *E. coli* data from W2685 are indicative of good water quality conditions.

In Heart Pond (MA82059) in 2017, MassDEP also collected cyanobacteria cell count data at W2684 [MAP2L-139, Index-deep hole], and cyanobacteria cell count and cyanotoxins data at W2685 [MAP2L-139S, Shoreline]. The cyanobacteria cell count exceeded 70,000 cells/mL on Aug 07 and Sep 06, 2017 indicating a cyanobacteria bloom estimated to have extended at least 30 days (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2685 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

During the period 2015 through 2022, C-HAB postings for Heart Pond (MA82059) were reported to MDPH based on visual observations for 14 days in 2022. No blooms were reported in other years.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2685	MassDEP	Water Quality	Heart Pond	[northeastern edge of pond, at beach off Pond Street, Chelmsford]	42.568375	-71.381987

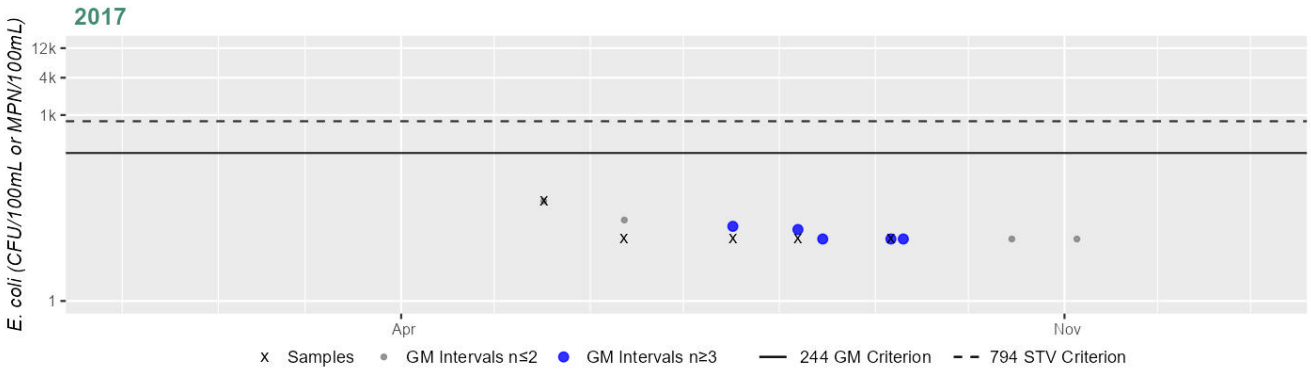
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2685	MassDEP	E. coli	05/17/17	09/06/17	5	10	41	13

Station MASSDEP_W2685 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	13
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Hocomonco Pond (MA82060)

Location:	Westborough.
AU Type:	FRESHWATER LAKE
AU Size:	27 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems), high priority] Fish toxics monitoring should be conducted in Hocomonco Pond (MA82060) for PAHs in fish tissue, in particular. Hocomonco Pond is listed for Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems) and based on information in the Concord basin 2001 Water Quality Assessment Report (O'Brien-Clayton 2005) it is not clear whether the original impairment was based on actual fish tissue data or whether it was precautionary in nature (Pg 433, 436-437) due to the presence of the Hocomonco Pond Superfund Site which has since been remediated (EPA 2025). {Hocomonco Pond (MA82060)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Hocomonco Pond (MA82060) continues to be assessed as Not Supporting and the prior Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems) impairment is being carried forward. MDPH included a site-specific advisory for PAHs in Hocomonco Pond in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. A recommendation is being made to conduct fish toxics monitoring in Hocomonco Pond, as it is not clear whether the original advisory was based on actual fish tissue data or was precautionary in nature (O'Brien-Clayton 2005) due to the presence of the Hocomonco Pond Superfund Site which has since been remediated (EPA 2025).

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Hocomonco Pond (MA82060) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert

Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Hocomonco Pond (MA82060) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

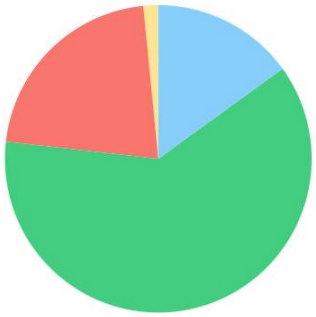
2024/26 Use Attainment Summary
No bacteria or other indicator data for Hocomonco Pond (MA82060) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed.

Hop Brook (MA82A-05)

Location:	Headwaters, outlet Carding Mill Pond, Sudbury to confluence with Allowance Brook, Sudbury (through former 2014 segment: Stearns Mill Pond MA82104) (prior to 1987, USGS topographic quadrangles depicted Allowance Brook as Landham Brook) (prior to 1998 this segment included waters between Marlborough East WWTP and Carding Mill Pond outlet).
AU Type:	RIVER
AU Size:	6.7 MILES
Classification/Qualifier:	B: WWF

Hop Brook (MA82A-05)

Watershed Area: 15.58 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	15.58	7.68	4.63	2.43
Agriculture	1.6%	2.4%	1.4%	2.4%
Developed	21.7%	24.7%	17%	18.1%
Natural	61.8%	59%	55.1%	52.4%
Wetland	15%	13.9%	26.5%	27.1%
Impervious	11.3%	13.2%	9.3%	10.1%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Water Chestnut*)	--	Unchanged
5	5	Algae	--	Unchanged
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Dissolved Oxygen Supersaturation	--	Unchanged
5	5	Escherichia Coli (E. Coli)	--	Removed
5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged
5	5	Turbidity	--	Unchanged

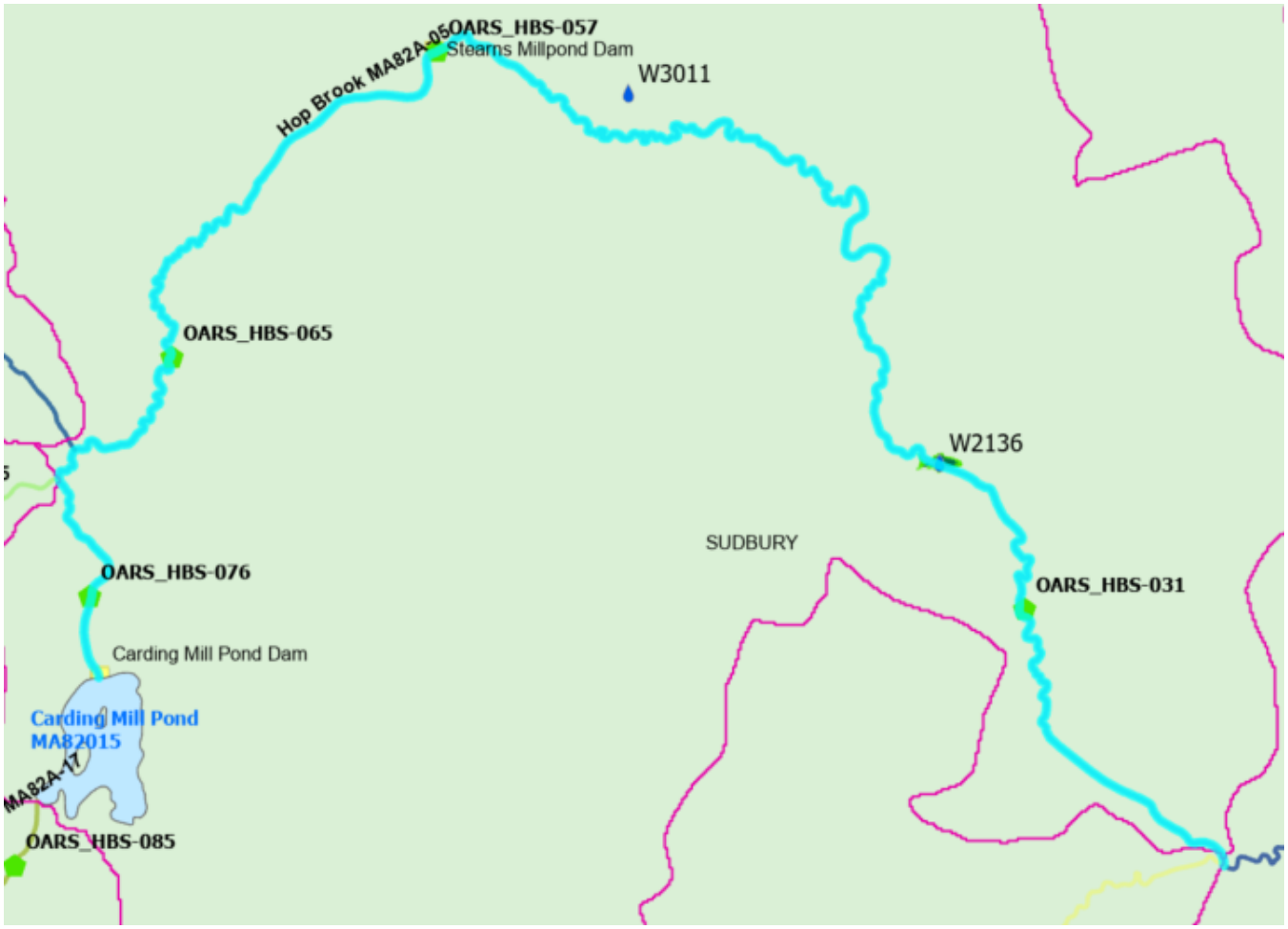
Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Algae	Municipal Point Source Discharges (Y)	X	--	X	X	X
Algae	Source Unknown (N)	X	--	X	X	X
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Dissolved Oxygen	Dam or Impoundment (Y)	X	--	--	--	--
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Dissolved Oxygen Supersaturation	Dam or Impoundment (Y)	X	--	--	--	--
Dissolved Oxygen Supersaturation	Municipal Point Source Discharges (Y)	X	--	--	--	--
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X	--	--	--	--
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X	--	--	--	--
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Turbidity	Municipal Point Source Discharges (Y)	--	--	X	X	X
Turbidity	Source Unknown (N)	--	--	X	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	Applicable WQS attained; based on new data	This Hop Brook AU (MA82A-05) was first listed for Escherichia Coli (E. Coli) in the 2016 IR cycle (MassDEP 2024) based on *E. coli* data collected by MassDEP staff in the downstream half of the AU at W2136 [approximately 2800 feet downstream of Peakham Road, Sudbury (approximately 25 feet upstream of the confluence of the unnamed tributary from Blandford Pond)] from May-Sep 2010. The six samples had a seasonal geometric mean of 256 CFU/100mL. Subsequently, OARS staff/volunteers collected *E. coli* bacteria samples in 2021 at four stations in this Hop Brook AU (MA82A-05). Samples were collected from the following stations/sample years from upstream to downstream: OARS_HBS-076 [French Rd, Sudbury] from Jun-Aug 2021 (n=3), OARS_HBS-065 [Hop Brook, Memorial Forest, Sudbury] from Jun-Aug 2021 (n=3), OARS_HBS-057 [Stearns Pond spillway, Sudbury] from Jun-Aug 2021 (n=3), and OARS_HBS-031 [Union Ave/Codjer Lane bridge] from Jun-Aug 2021 (n=3). Note that this downstream station was a little over a 0.5 mile downstream of W2136. Analysis of these recent single year limited frequency *E. coli* datasets indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV at any of the stations. The seasonal GMs ranged from 29-85 CFU/100mL. *E. coli* data from OARS_HBS-076, OARS_HBS-065, OARS_HBS-057, and OARS_HBS-031 are indicative of good water quality conditions. Based on these *E. coli* data from the four OARS stations bracketing the original station triggering the impairment, and discharge data from the nearby Sudbury River at Saxonville, MA USGS gage (#01098530) indicate generally similar hydrologic conditions in 2010 and 2021, the Escherichia Coli (E. Coli) impairment for this Hop Brook AU (MA82A-05) is being delisted.

Escherichia Coli (E. Coli)

Locations of 2010 station (W2136) and 2021 stations (OARS_HBS-076, OARS_HBS-065, OARS_HBS-057, and OARS_HBS-031) (MassDEP Undated 7)



MassDEP Watershed Planning Program 2010 Bacteria Data for W2136 (MassDEP Undated 6)

UniqueID	Year	Date First Sample	Date Last Sample	Sample Count	Geometric Mean	Bacteria Type
W2136	2010	05/04/10	09/13/10	6	256	E. coli

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Hop Brook AU (MA82A-05), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Hop Brook AU (MA82A-05) continues to be assessed as Not Supporting, with the prior impairments for Algae and Turbidity being carried forward. Since the prior Alert identified for high Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the Aesthetics Use but will continue to be maintained as an impairment under the Aquatic Life Use. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Hop Brook AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Hop Brook AU (MA82A-05) continues to be assessed as Not Supporting. The prior Algae and Turbidity impairments (from the Aesthetics Use) are being carried forward, but the prior Escherichia Coli (E. Coli) impairment is being delisted based on data collected by OARS in 2021 at four stations. Since the prior Alert identified for high Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the recreational uses but will continue to be maintained as an impairment under the Aquatic Life Use. OARS staff/volunteers collected *E. coli* bacteria samples in 2021 at four stations in this Hop Brook AU (MA82A-05). Samples were collected from the following stations/sample years from upstream to downstream: OARS_HBS-076 [French Rd, Sudbury] from Jun-Aug 2021 (n=3), OARS_HBS-065 [Hop Brook, Memorial Forest, Sudbury] from Jun-Aug 2021 (n=3), OARS_HBS-057 [Stearns Pond spillway, Sudbury] from Jun-Aug 2021 (n=3), and OARS_HBS-031 [Union Ave/Codjer Lane bridge] from Jun-Aug 2021 (n=3). Analysis of these single year limited frequency *E. coli* datasets indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV at any of the stations. The seasonal GMs ranged from 29-85 CFU/100mL. *E. coli* data from OARS_HBS-076, OARS_HBS-065, OARS_HBS-057, and OARS_HBS-031 are indicative of good water quality.

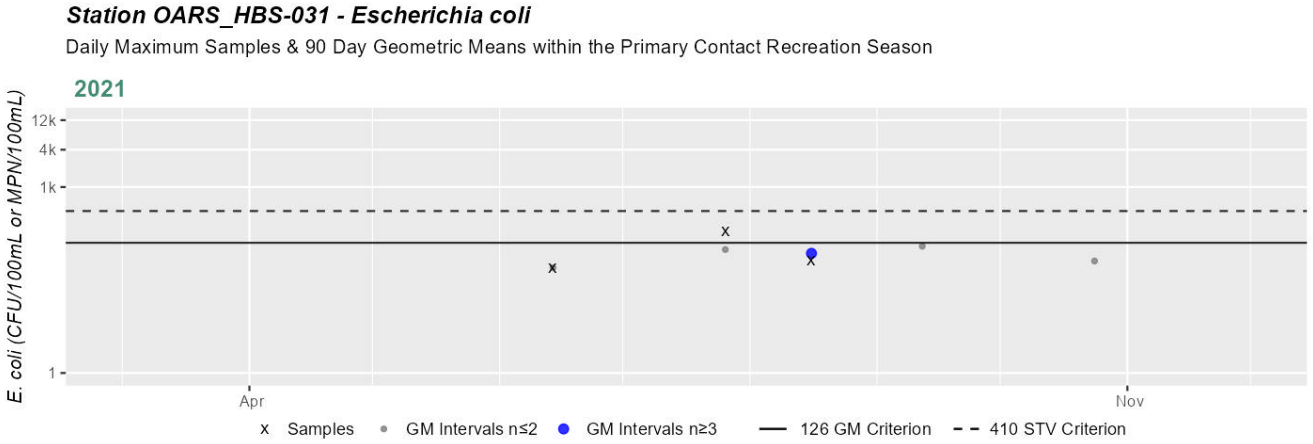
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_HBS-031	OARS	Water Quality	Hop Brook	Union Ave/Codjer Lane bridge	42.367118	-71.420134
OARS_HBS-057	OARS	Water Quality	Hop Brook	Stearns Pond spillway, Sudbury	42.387619	-71.449214
OARS_HBS-065	OARS	Water Quality	Hop Brook	Hop Brook, Memorial Forest, Sudbury	42.376385	-71.462370
OARS_HBS-076	OARS	Water Quality	Hop Brook	French Rd, Sudbury	42.367614	-71.466445

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_HBS-031	OARS	E. coli	06/14/21	08/16/21	3	50	192	85
OARS_HBS-057	OARS	E. coli	06/14/21	08/16/21	3	10	92	36
OARS_HBS-065	OARS	E. coli	06/14/21	08/16/21	3	44	116	79
OARS_HBS-076	OARS	E. coli	06/14/21	08/16/21	3	8	110	29



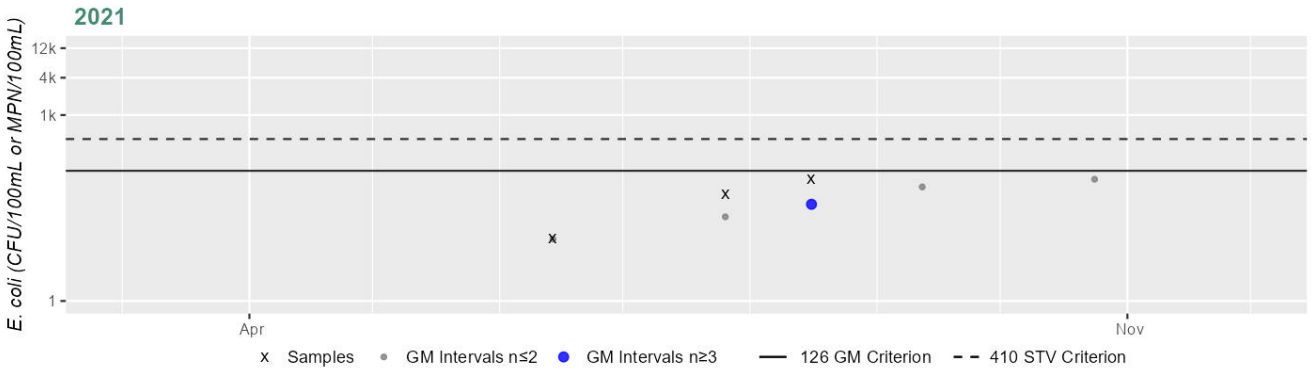
Variable*	Result
Samples	3
SeasGM	85
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Station OARS_HBS-057 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



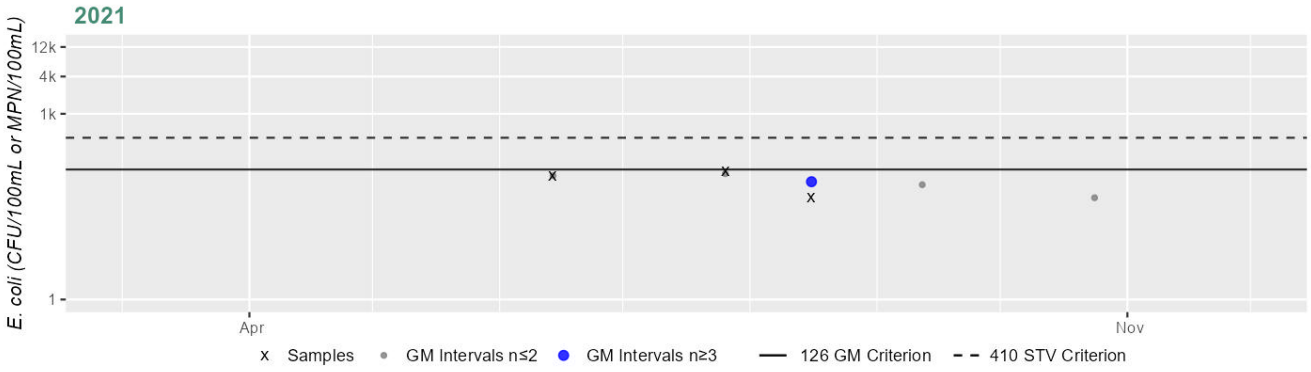
Variable*	Result
Samples	3
SeasGM	36
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_HBS-065 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



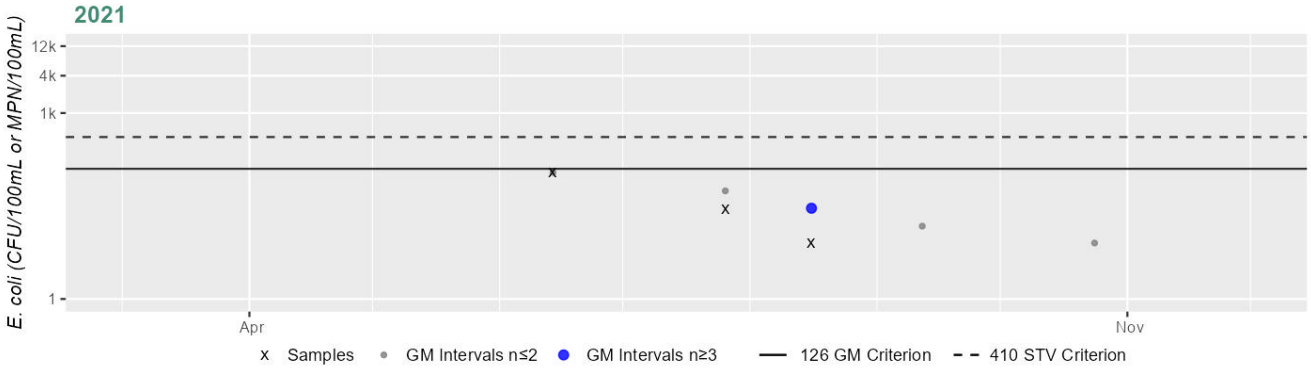
Variable*	Result
Samples	3
SeasGM	79
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_HBS-076 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	29
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Hop Brook AU (MA82A-05) continues to be assessed as Not Supporting. The prior Algae and Turbidity impairments (from the Aesthetics Use) are being carried forward. Since the prior Alert identified for high Phosphorus concentrations was redundantly duplicated across multiple uses for this waterbody, it is being removed from the recreational uses but will continue to be maintained as an impairment under the Aquatic Life Use.

OARS staff/volunteers collected *E. coli* bacteria samples in 2021 at four stations in this Hop Brook AU (MA82A-05). Samples were collected from the following stations/sample years from upstream to downstream: OARS_HBS-076 [French Rd, Sudbury] from Jun-Aug 2021 (n=3), OARS_HBS-065 [Hop Brook, Memorial Forest, Sudbury] from Jun-Aug 2021 (n=3), OARS_HBS-057 [Stearns Pond spillway, Sudbury] from Jun-Aug 2021 (n=3), and OARS_HBS-031 [Union Ave/Codjer Lane bridge] from Jun-Aug 2021 (n=3). Analysis of these single year limited frequency *E. coli* datasets indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV at any of the stations. The overall GMs ranged from 29-85 CFU/100mL. *E. coli* data from OARS_HBS-076, OARS_HBS-065, OARS_HBS-057, and OARS_HBS-031 are indicative of good water quality.

MassDEP staff also collected *E. coli* samples in the historic IR window (1997-2010) in the middle of this Hop Brook AU (MA82A-05), a little more than a half-mile upstream of OARS_HBS-031, at W2136 [~2800 ft downstream of Peakham Rd, Sudbury (~25 ft upstream of the confluence of the unnamed tributary from Blandford Pond)] from May-Sep 2010 (n=6). These data met 2024 CALM guidance, but since they were collected prior to the current IR window, they cannot be used to assess the Secondary Contact Recreation Use of this Hop Brook AU (MA82A-05).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2136	MassDEP	Water Quality	Hop Brook	[approximately 2800 feet downstream of Peakham Road, Sudbury (approximately 25 feet upstream of the confluence of the unnamed tributary from Blandford Pond)]	42.372459	-71.424343
OARS_HBS-031	OARS	Water Quality	Hop Brook	Union Ave/Codjer Lane bridge	42.367118	-71.420134
OARS_HBS-057	OARS	Water Quality	Hop Brook	Stearns Pond spillway, Sudbury	42.387619	-71.449214
OARS_HBS-065	OARS	Water Quality	Hop Brook	Hop Brook, Memorial Forest, Sudbury	42.376385	-71.462370
OARS_HBS-076	OARS	Water Quality	Hop Brook	French Rd, Sudbury	42.367614	-71.466445

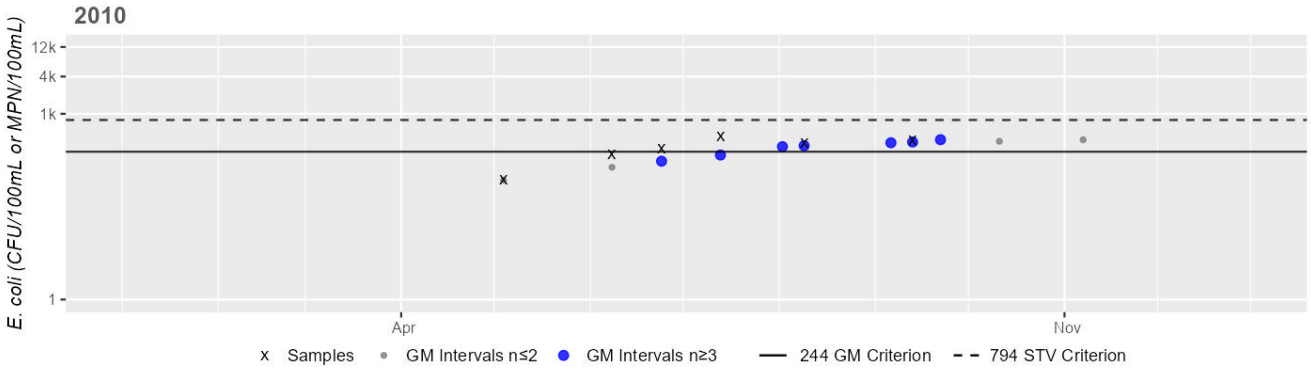
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2136	MassDEP	E. coli	05/04/10	09/13/10	6	85	430	255
OARS_HBS-031	OARS	E. coli	06/14/21	08/16/21	3	50	192	85
OARS_HBS-057	OARS	E. coli	06/14/21	08/16/21	3	10	92	36
OARS_HBS-065	OARS	E. coli	06/14/21	08/16/21	3	44	116	79
OARS_HBS-076	OARS	E. coli	06/14/21	08/16/21	3	8	110	29

Station MASSDEP_W2136 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



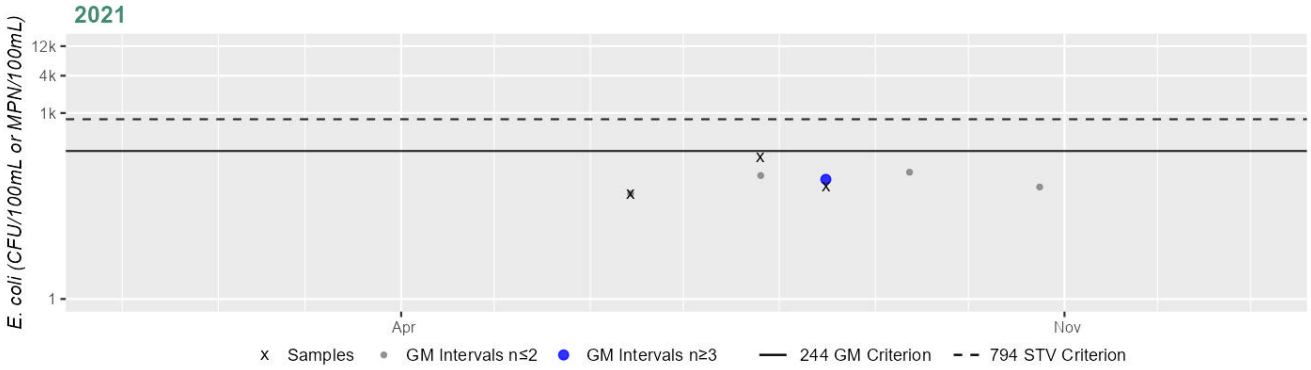
Variable*	Result
Samples	6
SeasGM	255
#GMI	7
#GMI Ex	5
%GMI Ex	71%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
71%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_HBS-031 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



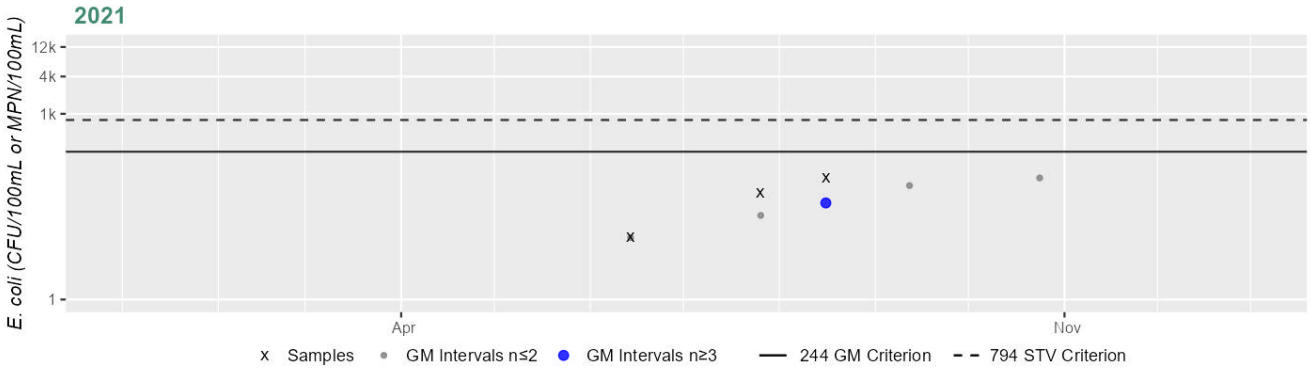
Variable*	Result
Samples	3
SeasGM	85
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_HBS-057 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



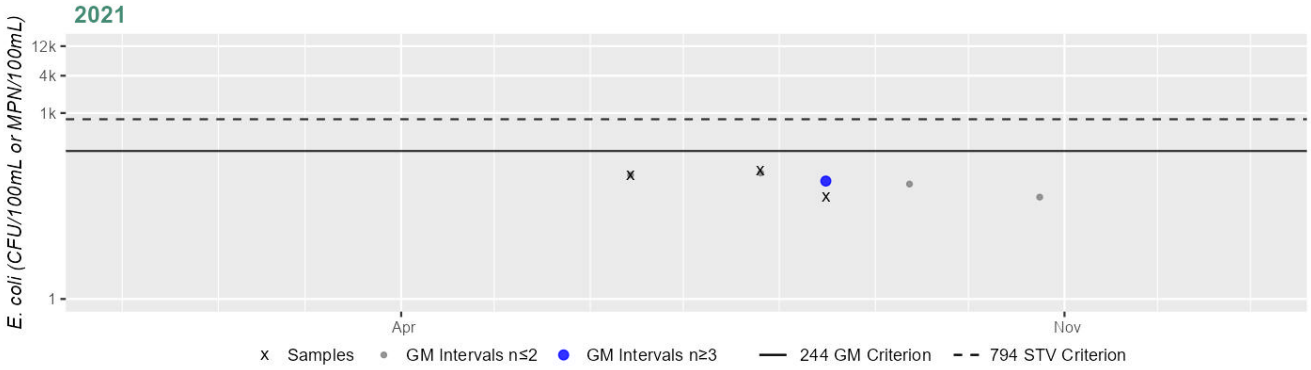
Variable*	Result
Samples	3
SeasGM	36
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_HBS-065 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



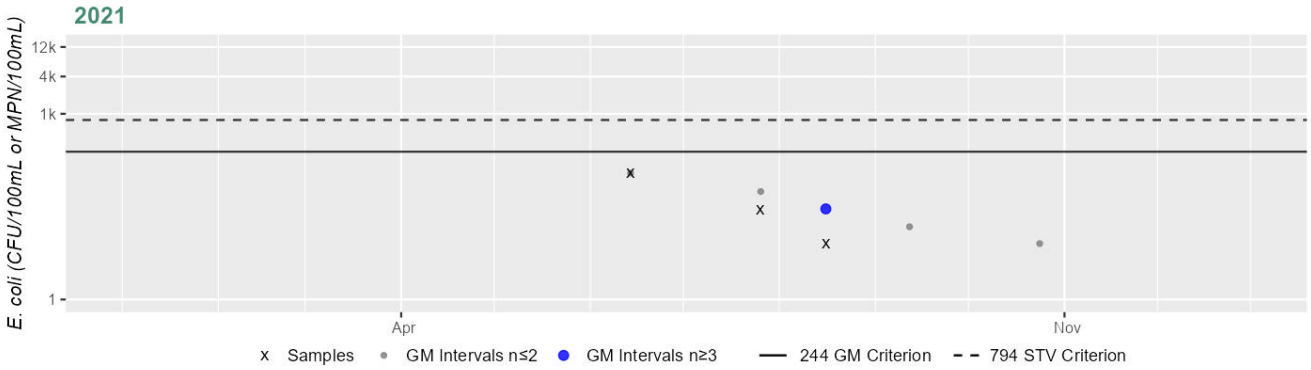
Variable*	Result
Samples	3
SeasGM	79
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_HBS-076 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	29
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

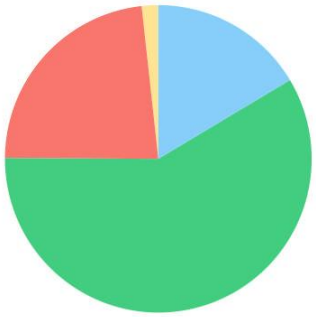
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Hop Brook (MA82A-06)

Location:	From the confluence of Allowance Brook, Sudbury to mouth at confluence with the Sudbury River, Wayland (MA82A-06 changed from Wash Brook to Hop Brook in 2006: prior to 1987 USGS topographic quadrangles depicted this stretch of river as Wash Brook and Allowance Brook as Landham Brook).
AU Type:	RIVER
AU Size:	3 MILES
Classification/Qualifier:	B: WWF

Hop Brook (MA82A-06)

Watershed Area: 22.03 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	22.03	5.43	6.58	1.82
Agriculture	1.7%	3.5%	1.9%	3.5%
Developed	23.2%	28.2%	17%	16.1%
Natural	58.7%	44.4%	50.1%	32.6%
Wetland	16.4%	23.8%	31%	47.9%
Impervious	12%	15.6%	9.2%	9.9%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Dissolved Oxygen	--	Unchanged
5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen	Dam or Impoundment (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	--	--	X	X	X
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	--	--	X	X	X
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Hop Brook AU (MA82A-06), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Hop Brook AU (MA82A-06) continues to be assessed as Not Supporting, with the prior Nutrient/Eutrophication Biological Indicators impairment being carried forward. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Hop Brook AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Hop Brook AU (MA82A-06) continues to be assessed as Not Supporting. The prior Nutrient/Eutrophication Biological Indicators impairment (from the Aesthetics Use) is being carried forward. OARS staff/volunteers collected limited *E. coli* bacteria samples in an upstream reach of Hop Brook (MA82A-06) at OARS_HBS-016 [Landham Rd, Sudbury] from Jun-Aug 2021 (n=3). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 41 CFU/100mL). These *E. coli* data meet 2024 CALM guidance.

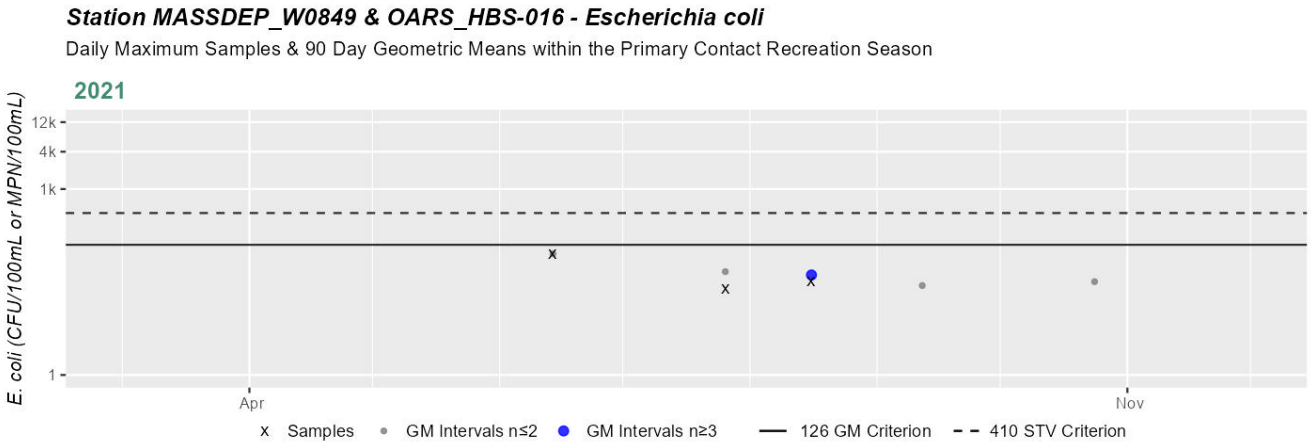
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_HBS-016	OARS	Water Quality	Hop Brook	Landham Road, Sudbury	42.357210	-71.403131

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_HBS-016	OARS	E. coli	06/14/21	08/16/21	3	24	90	41



Variable*	Result
Samples	3
SeasGM	41
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Hop Brook AU (MA82A-06) continues to be assessed as Not Supporting. The prior Nutrient/Eutrophication Biological Indicators impairment (from the Aesthetics Use) is being carried forward. MassDEP and OARS staff/volunteers collected limited *E. coli* bacteria samples in both the historic (1997-2010) & the current IR window (2011-2022) in an upstream reach of Hop Brook (MA82A-06) at the combined W0849 & OARS_HBS-016 station [Landham Rd bridge, Sudbury (formerly reported as Wash Brook) & Landham Rd, Sudbury] in 2001 and 2006 (historic n=2-5/yr), and from Jun-Aug 2021 (current n=3). Note that while the 2001 and 2006 samples were either of insufficient frequency to evaluate or were indicative of good conditions, since they were collected prior to the current IR window, they cannot be used to assess the Secondary Contact Recreation Use. Analysis of the 2021 limited frequency *E. coli* dataset from W0849 & OARS_HBS-016 indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 41 CFU/100mL). These *E. coli* data from the combined W0849 & OARS_HBS-016 station meet 2024 CALM guidance.

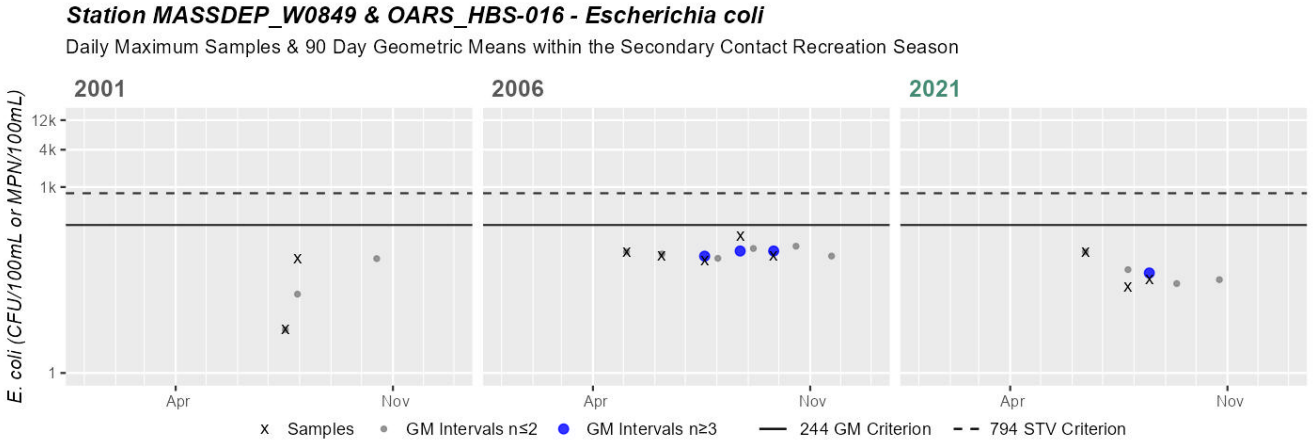
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0849	MassDEP	Water Quality	Hop Brook	[Landham Road bridge, Sudbury (formerly reported as Wash Brook)]	42.357086	-71.403137
OARS_HBS-016	OARS	Water Quality	Hop Brook	Landham Road, Sudbury	42.357210	-71.403131

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0849	MassDEP	E. coli	07/18/01	07/30/01	2	5	70	18
W0849	MassDEP	E. coli	05/04/06	09/26/06	5	65	160	88
OARS_HBS-016	OARS	E. coli	06/14/21	08/16/21	3	24	90	41



Variable*	Result
Samples	2
SeasGM	18
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	88
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	3
SeasGM	41
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance Historic (1997-2010)
0%

Cumulative %GMI Exceedance Current (2011-2022)
0%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Hop Brook (MA82B-20)

Location:	Outlet Smith Pond, Northborough to mouth at confluence with the Assabet River, Northborough.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

Hop Brook (MA82B-20)

Watershed Area: 7.91 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	7.91	6.63	2.68	2.43
Agriculture	2.9%	3.4%	3%	3.3%
Developed	41.4%	38.9%	30.9%	29.9%
Natural	43.5%	44.2%	42.6%	42.6%
Wetland	12.2%	13.6%	23.5%	24.2%
Impervious	20%	19%	14.1%	13.7%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Chloride	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Chloride	Highway/Road/Bridge Runoff (Non-construction Related) (Y)	X	--	--	--	--
Chloride	Impervious Surface/Parking Lot Runoff (Y)	X	--	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [E. coli, medium priority] Higher frequency *E. coli* sampling is recommended for this Hop Brook AU (MA82B-20) to determine whether an impairment of the Primary Contact Recreation Use is warranted- an Alert was identified for Escherichia Coli (E. Coli) in the 2024/2026 IR cycle since bacteria data collected at W2531 had a seasonal GM which exceeded the threshold and there was one STV exceedance. {W2531}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Hop Brook AU (MA82B-20), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use of this Hop Brook AU (MA82B-20) is assessed as Fully Supporting based on the lack of objectionable conditions observed by MassDEP staff during the summer of 2015. MassDEP field crews recorded aesthetics observations at one station halfway down this Hop Brook AU at a location east of Otis Street, Northborough ~2900 feet upstream of the confluence with the Assabet River (W2531/MAP2-703) during the summer of 2015 (n=5). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2531	MassDEP	Water Quality	Hop Brook	[east of Otis Street, Northborough approximately 2900 feet upstream of mouth at confluence with Assabet River, Northborough]	42.287132	-71.651289

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2531	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2531 on Hop Brook (MA82B-20) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2531	2015	5	4	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2531	Hop Brook	2015	Aesthetics Impaired?	No	5	5
W2531	Hop Brook	2015	Aquatic Plant Density, Overall	None	3	5
W2531	Hop Brook	2015	Aquatic Plant Density, Overall	Sparse	2	5
W2531	Hop Brook	2015	Color	Light Yellow/Tan	4	5
W2531	Hop Brook	2015	Color	None	1	5
W2531	Hop Brook	2015	Objectionable Deposits	No	5	5
W2531	Hop Brook	2015	Odor	None	5	5
W2531	Hop Brook	2015	Periphyton Density, Filamentous	None	4	5
W2531	Hop Brook	2015	Periphyton Density, Filamentous	NR	1	5
W2531	Hop Brook	2015	Periphyton Density, Film	None	4	5
W2531	Hop Brook	2015	Periphyton Density, Film	NR	1	5
W2531	Hop Brook	2015	Scum	No	5	5
W2531	Hop Brook	2015	Turbidity	None	4	5
W2531	Hop Brook	2015	Turbidity	Slightly Turbid	1	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	YES

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Hop Brook AU (MA82B-20) continues to be assessed as Fully Supporting but an Alert is being identified based on bacteria data collected at W2531 in 2015.
MassDEP staff collected *E. coli* bacteria samples in this Hop Brook AU (MA82B-20) at W2531 [E of Otis St, Northborough ~2900 ft upstream of mouth at confluence with Assabet River, Northborough] from May-Sep 2015 (n=5). Analysis of the limited frequency *E. coli* dataset indicated 25% of intervals had GMs >126 CFU/100mL, 1 sample exceeded the 410 CFU/100mL STV, and the seasonal GM was 133 CFU/100mL. *E. coli* data from W2531 meet 2024 CALM guidance. However, an Alert is being identified for Escherichia Coli (E. Coli) at W2531 since the seasonal GM exceeded the threshold and there was one STV exceedance. A recommendation for follow-up monitoring will be made.

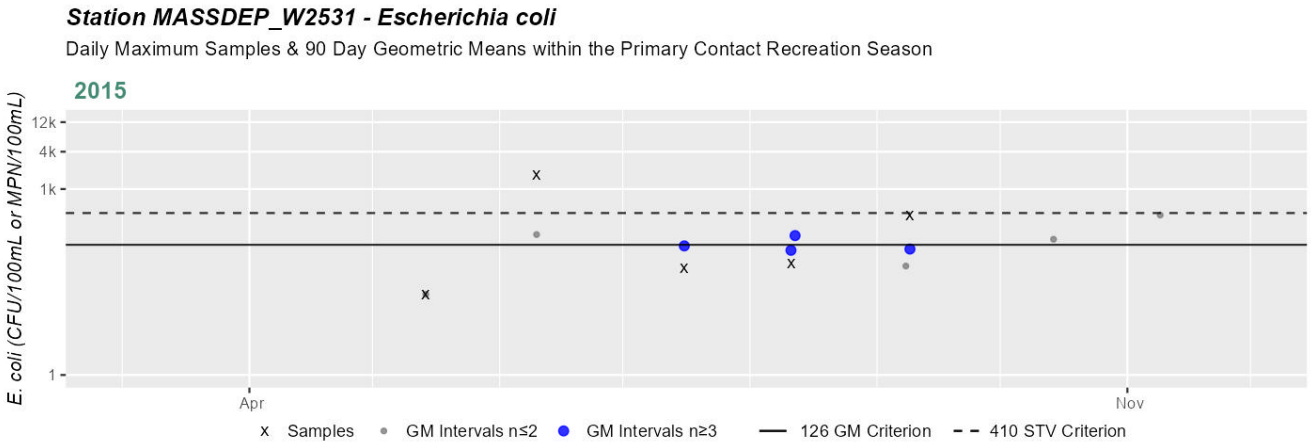
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2531	MassDEP	Water Quality	Hop Brook	[east of Otis Street, Northborough approximately 2900 feet upstream of mouth at confluence with Assabet River, Northborough]	42.287132	-71.651289

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2531	MassDEP	E. coli	05/14/15	09/09/15	5	20	1700	133



Variable*	Result
Samples	5
SeasGM	133
#GMI	4
#GMI Ex	1
%GMI Ex	25%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Current (2011-2022)
25%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
Bacteria data for this Hop Brook AU (MA82B-20) were inconclusive and available aesthetics observations for this AU did not result in any impairment so there is Insufficient Information to assess the Secondary Contact Recreation Use. MassDEP staff collected *E. coli* bacteria samples in this Hop Brook AU (MA82B-20) at W2531 [E of Otis St, Northborough ~2900 ft upstream of mouth at confluence with Assabet River, Northborough] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL, 1 sample exceeded the 794 CFU/100mL STV, and the overall GM was 133 CFU/100mL. *E. coli* data from W2531 are inconclusive according to the 2024 CALM because this single year, limited frequency dataset included both GMs below the threshold and an STV exceedance of the threshold.

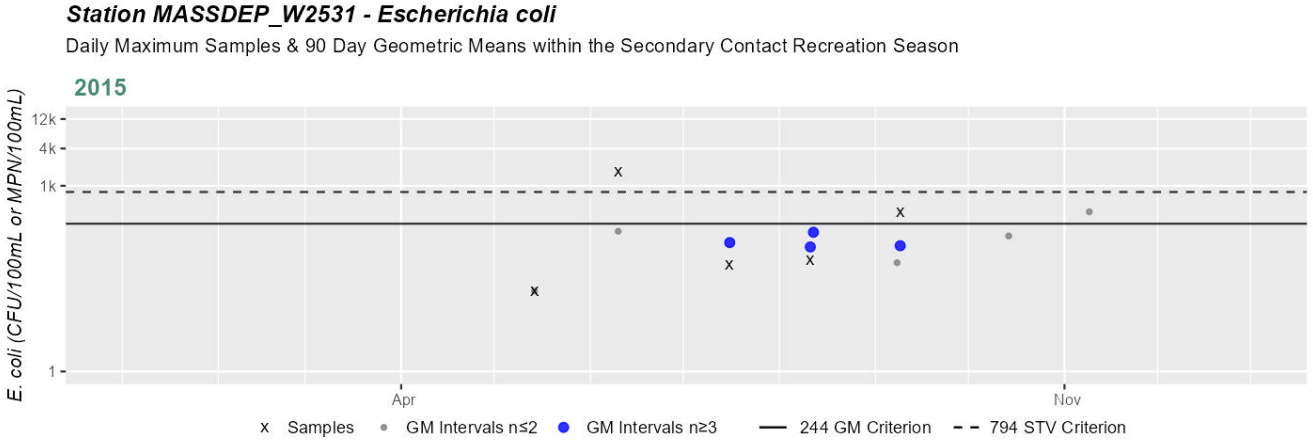
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2531	MassDEP	Water Quality	Hop Brook	[east of Otis Street, Northborough approximately 2900 feet upstream of mouth at confluence with Assabet River, Northborough]	42.287132	-71.651289

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2531	MassDEP	E. coli	05/14/15	09/09/15	5	20	1700	133



Variable*	Result
Samples	5
SeasGM	133
#GMI	4
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Hopkinton Reservoir (MA82061)

Location:	Hopkinton/Ashland.
AU Type:	FRESHWATER LAKE
AU Size:	161 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Enterococcus	--	Added
5	5	Harmful Algal Blooms	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Enterococcus	Source Unknown (N)	--	--	--	X	--
Enterococcus	Waterfowl (N)	--	--	--	X	--
Harmful Algal Blooms	Source Unknown (N)	--	--	X	X	X

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Hopkinton Reservoir (MA82061), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Hopkinton Reservoir (MA82061) continues to be assessed as Not Supporting, with the prior impairment for Harmful Algal Blooms being carried forward since extended blooms (>20 days in length) were reported in 2019 & 2021. During the period 2015 through 2022, C-HAB postings for Hopkinton Reservoir were reported to MDPH by DCR for 37 days in 2019 and 33 days in 2021 and no blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, this is reflective of the existing Harmful Algal Blooms impairment for Hopkinton Reservoir.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Hopkinton Reservoir (MA82061) were reported to MDPH by DCR for 37 days in 2019 and 33 days in 2021. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the Aesthetics Use and Primary/Secondary Contact Recreational Uses continue to be assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Hopkinton Reservoir	Ashland/Hopkinton					37		33	

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Hopkinton Reservoir (MA82061) continues to be assessed as Not Supporting. The prior Harmful Algal Blooms impairment is being carried forward based on the occurrence of C-HAB postings extending >20 days in 2 recent years. An Enterococcus impairment is being added due to DPH beach closure data not meeting the threshold at DCR's Hopkinton Reservoir-Upper Beach [Beach ID: 4935] (since an impairment has now been identified, the prior Alert is being removed).
Hopkinton Reservoir (MA82061) has a beach with DPH beach closure data: DCR's Hopkinton Reservoir-Upper Beach [Beach ID: 4935] in Ashland. The beach was posted for >10% of the swimming season in 2020 (11%) and 2022 (26%) indicating an Enterococcus impairment. During the period 2015 through 2022, C-HAB postings for Hopkinton Reservoir (MA82061) were reported to MDPH by DCR for 37 days in 2019 and 33 days in 2021. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data continues to be indicative of a Harmful Algal Bloom impairment.

Beach Postings

MA DPH Beach Posting Data Summary (% Bathing Season Posted 2014-2022) (Bailey, Logan Feb. 2, 2021) (Bailey Sept. 10, 2023) (MassDEP Undated 2)

Beach ID	Beach Name/ Town	Left Border (Lat., Long.)	Right Border (Lat., Long.)	2014	2015	2016	2017	2018	2019	2020	2021	2022	# years >10%
4935	Hopkinton Reservoir-Upper Beach (DCR)/ Ashland	42.25839, -71.51670	42.25854, -71.51540	0%	0%	1%	12%	1%	9%	11%	6%	26%	3

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Hopkinton Reservoir (MA82061) continues to be assessed as Not Supporting. The prior Harmful Algal Blooms impairment is being carried forward based on the occurrence of C-HAB postings extending >20 days in 2 recent years. During the period 2015 through 2022, C-HAB postings for Hopkinton Reservoir (MA82061) were reported to MDPH by DCR for 37 days in 2019 and 33 days in 2021. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data continues to be indicative of a Harmful Algal Bloom impairment. Available DPH beach closure data for DCR's Hopkinton Reservoir-Upper Beach [Beach ID: 4935] in Ashland cannot be used to positively assess the Secondary Contact Recreation Use of Hopkinton Reservoir (MA82061) since beaches were posted for >10% of the swimming season in 2020 and 2022.

Howard Brook (MA82B-26)

Location:	Headwaters, perennial portion east of Green Street, Northborough to mouth at confluence with Assabet River, Northborough.
AU Type:	RIVER
AU Size:	3.5 MILES
Classification/Qualifier:	B

No usable data were available for Howard Brook (MA82B-26) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Indian Brook (MA82A-23)

Location:	Headwaters, outlet Icehouse Pond, Hopkinton to the inlet of Hopkinton Reservoir, Hopkinton (formerly part of 2004 segment: Indian Brook MA82A-12).
AU Type:	RIVER
AU Size:	2.3 MILES
Classification/Qualifier:	B

No usable data were available for Indian Brook (MA82A-23) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

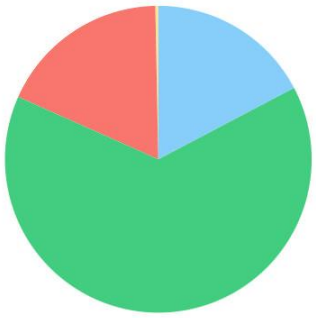
AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Indian Brook (MA82A-24)

Location:	Outlet of Hopkinton Reservoir, Ashland to mouth at confluence with the Sudbury River, Ashland (formerly part of 2004 segment: Indian Brook MA82A-12).
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B

Indian Brook (MA82A-24)

Watershed Area: 7.57 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	7.57	4.62	2.86	1.49
Agriculture	0.3%	0.4%	0.2%	0.4%
Developed	18%	15.2%	12.8%	9.1%
Natural	64.4%	68.7%	59.6%	64.8%
Wetland	17.3%	15.6%	27.4%	25.7%
Impervious	8.8%	7.4%	6.5%	4.1%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Indian Brook AU (MA82A-24), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available for this Indian Brook AU (MA82A-24), so the Aesthetics Use is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data are available for this Indian Brook AU (MA82A-24), so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this Indian Brook AU (MA82A-24) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected historical *E. coli* bacteria samples in Indian Brook (MA82A-24) in 2001 at 2 stations. Samples were collected from the following stations/sample years from upstream to downstream: W0853 in the middle of the AU [Cross St bridge in Ashland] in Jul 2001 (n=1), and W0836 in the downstream ¼ of the AU [Indian Brook Rd bridge in Ashland] in Jul 2001 (n=1). The historic *E. coli* data from both stations are too limited to assess according to the 2024 CALM and since the data were collected prior to the current IR window (2011-2022), this is another reason they cannot be used to assess the Secondary Contact Recreation Use of this Indian Brook AU (MA82A-24).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0836	MassDEP	Water Quality	Indian Brook	[Indian Brook Road bridge, Ashland]	42.261499	-71.497118
W0853	MassDEP	Water Quality	Indian Brook	[Cross Street bridge, Ashland]	42.256066	-71.502448

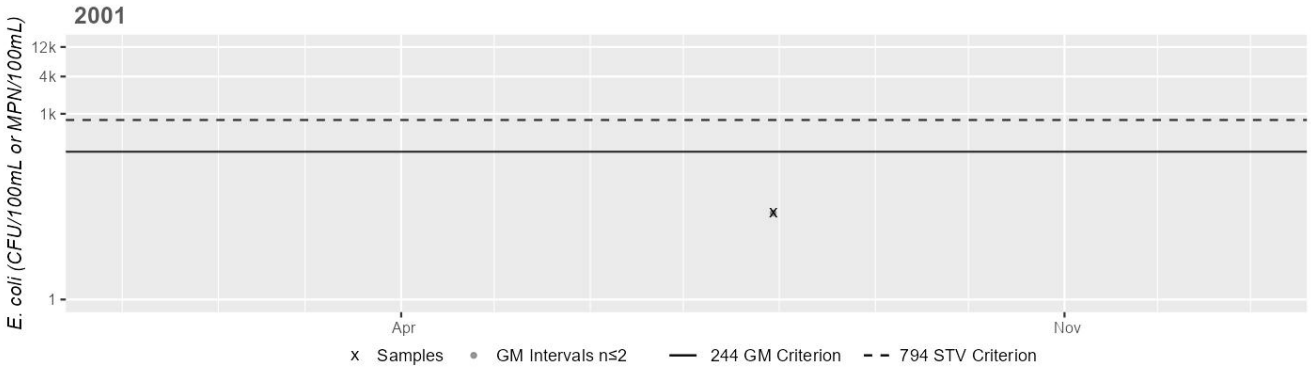
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0836	MassDEP	E. coli	07/30/01	07/30/01	1	25	25	24
W0853	MassDEP	E. coli	07/18/01	07/18/01	1	70	70	70

Station MASSDEP_W0836 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



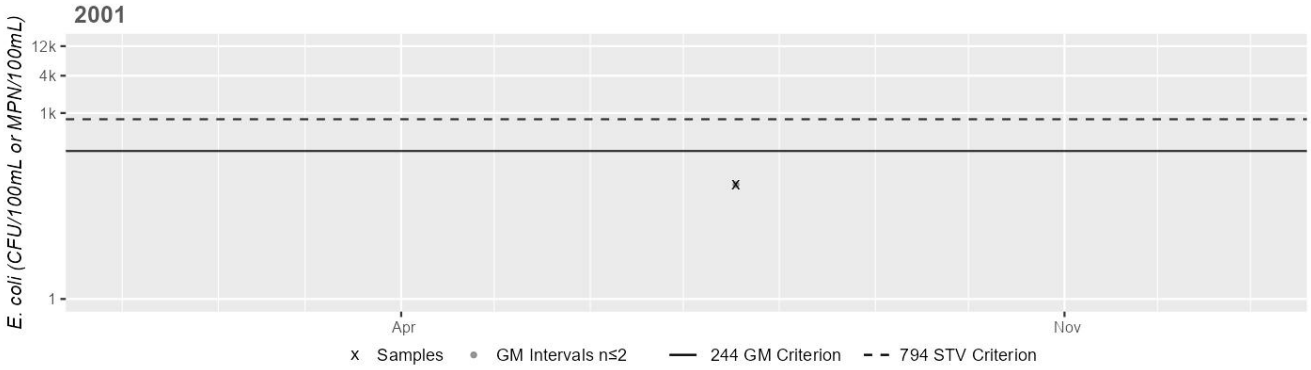
Variable*	Result
Samples	1
SeasGM	25
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0853 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	1
SeasGM	70
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Jackstraw Brook (MA82A-28)

Location:	From the most downstream crossing of Upton Road (first crossing south of Hopkinton Road), Westborough to mouth at inlet of Cedar Swamp Pond, Westborough.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B: ORW

No usable data were available for Jackstraw Brook (MA82A-28) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Jackstraw Brook (MA82A-32)

Location:	Headwaters, perennial portion west of Upton Road, Westborough to the most downstream crossing of Upton Road (first crossing south of Hopkinton Road), Westborough.
AU Type:	RIVER
AU Size:	0.4 MILES
Classification/Qualifier:	B: ORW, CWF

No usable data were available for Jackstraw Brook (MA82A-32) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Lake Cochituate (MA82020)

Location:	[North Basin] Natick/Framingham/Wayland.
AU Type:	FRESHWATER LAKE
AU Size:	196 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Harmful Algal Blooms	--	Added
5	5	PCBs in Fish Tissue	--	Unchanged
5	5	PFAS in Fish Tissue	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Harmful Algal Blooms	Source Unknown (N)	--	--	X	X	X
PCBs in Fish Tissue	Source Unknown (N)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert

Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Lake Cochituate [North Basin] AU (MA82020) continues to be assessed as Not Supporting. The prior PCBs in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in the Lake Cochituate [Middle Basin] AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted in Lake Cochituate (MA82125) in Framingham, Natick, Wayland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. DPH issued a site-specific advisory for PFAS in Lake Cochituate (referred to by MA DPH as ''Cochituate, Lake (including Middle, North, South, and Carling Basins)'') in their February 2023 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing PCBs advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5) (MA DPH 2023b)

Summary
Fish toxics sampling was conducted in the Lake Cochituate [Middle Basin] AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted in Lake Cochituate (MA82125) in Framingham, Natick, Wayland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their February 2023 Freshwater Fish Consumption Advisory List. Additionally, MA DPH retained the existing site-specific fish consumption advisories for PCBs associated with Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for PFAS in Fish Tissue and PCBs in Fish Tissue for this Lake Cochituate [North Basin] AU (MA82020).

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Aesthetics Use for this Lake Cochituate [North Basin] AU (MA82020) is assessed as Not Supporting with an impairment for Harmful Algal Blooms being added, since extended blooms (>20 days in length) were reported in 2020 and 2021. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment.
During the period 2015 through 2022, C-HAB postings for Lake Cochituate [North Basin] were reported to MDPH by DCR for 15 days in 2019, 44 days in 2020, 111 days in 2021, and 16 days in 2022 and no blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Lake Cochituate [North Basin] (MA82020) were reported to MDPH by DCR for 15 days in 2019, 44 days in 2020, 111 days in 2021, and 16 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the Aesthetics Use and Primary/Secondary Contact Recreational Uses are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)
[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Lake Cochituate	Framingham/Wayland					15	44	111	16

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Lake Cochituate [North Basin] AU (MA82020) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 2020 and 2021. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment.
During the period 2015 through 2022, C-HAB postings for Lake Cochituate [North Basin] (MA82020) were reported to MDPH by DCR for 15 days in 2019, 44 days in 2020, 111 days in 2021, and 16 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Lake Cochituate [North Basin] AU (MA82020) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 2020 and 2021. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [North Basin] (MA82020) were reported to MDPH by DCR for 15 days in 2019, 44 days in 2020, 111 days in 2021, and 16 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Lake Cochituate (MA82125)

Location:	[Middle Basin] Natick/Wayland.
AU Type:	FRESHWATER LAKE
AU Size:	134 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Asian Clam*)	--	Unchanged
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Harmful Algal Blooms	--	Added
5	5	PCBs in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Asian Clam*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Harmful Algal Blooms	Source Unknown (N)	--	--	X	X	X
PCBs in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Lake Cochituate [Middle Basin] AU (MA82125) continues to be assessed as Not Supporting. The prior PCBs in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in this Lake Cochituate AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted in this Lake Cochituate AU (MA82125) as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. DPH issued a site-specific advisory for PFAS in Lake Cochituate (referred to by MA DPH as ''Cochituate, Lake (including Middle, North, South, and Carling Basins)'') in their February 2023 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing PCBs advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
F0475	MassDEP	Fish Toxics	Lake Cochituate	[[Middle Basin], Natick/Wayland]	42.304996	-71.370912

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5) (MA DPH 2023b)

Summary
Fish toxics sampling was conducted in this Lake Cochituate [Middle Basin] AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted in this Lake Cochituate AU (MA82125) in Framingham, Natick, Wayland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their February 2023 Freshwater Fish Consumption Advisory List. Additionally, MA DPH retained the existing site-specific fish consumption advisories for PCBs associated with Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for PFAS in Fish Tissue and PCBs in Fish Tissue for Lake Cochituate (MA82125).

MassDEP 2022 PFAS in Fish Tissue Data for Massachusetts Surface Waters (MassDEP 2023b) (MassDEP Undated 5) (MA DPH 2023c)

[ng/g = ppb. All PFBA, PFBS, and HFPO-DA (Genx) concentrations <MDL. ND indicates that the PFAS analyte was not detected in any of the composite samples (i.e., it was <MDL). Means weighted by the number of fish in the contributing composites were calculated for any PFAS analyte – waterbody – species combination where an analyte was detected in at least one sample; if a sample did not have the analyte detected, the concentration for that sample was set to ½*MDL for the purposes of calculating a mean. Data are highlighted red per the fish consumption advisory thresholds summarized in Table 4.2 of MA DPH's 2023 Technical Support Document for the evaluation of PFAS in recreational waterbodies.]

[Species List: BC = black crappie, LMB = largemouth bass, YP = yellow perch]

Station Code	PFAS Study ID	Sample Date	Species	Mean PFHxS ng/g	Mean PFNA ng/g	Mean PFOA ng/g	Mean PFOS ng/g	Analytes with ≥ 1 Sample Qualified
F0475	17	07/20/2022	BC	0.14	0.41	ND	28.00	PFHxS & PFNA
F0475	17	07/20/2022	LMB	ND	ND	ND	23.00	
F0475	17	07/20/2022	YP	ND	0.26	ND	27.50	PFNA

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Lake Cochituate [Middle Basin] AU (MA82125) is assessed as Not Supporting with a Harmful Algal Blooms impairment being added, since extended blooms were reported in 2021. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Middle Basin] were reported to MDPH by DCR for 15 days in 2019, 111 days in 2021, and 12 days in 2022 and no blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Middle Basin] (MA82125) were reported to MDPH by DCR for 15 days in 2019, 111 days in 2021, and 12 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the Aesthetics Use and Primary/Secondary Contact Recreational Uses are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Lake Cochituate	Framingham/Natick/Wayland					15		111	12

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Lake Cochituate [Middle Basin] AU (MA82125) is assessed as Not Supporting. Although beach posting data were indicative of good water quality conditions, a Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 2021. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment.
Lake Cochituate (MA82125) has a beach with MDPH Beach Closure data: DCR's Cochituate Lake-North Beach [Beach ID: 4745] in Natick. The beach was rarely, if at all, posted for swimming from 2018-2022 (maximum postings 4% in 2020). Beach posting data meet 2024 CALM guidance. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Middle Basin] (MA82125) were reported to MDPH by DCR for 15 days in 2019, 111 days in 2021, and 12 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.
As part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters, surface water sampling was conducted in Lake Cochituate [Middle Basin] (MA82125) at station W3278 (PFAS Study ID 17 - a default location representing co-located water/fish PFAS sampling) and station W3279 (PFAS Study ID 17B - the beach on the northwestern edge of the lake) on 07/20/2022. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W3278	MassDEP	Water Quality	Lake Cochituate	[the default location representing co-located water/fish PFAS sampling, (Middle Basin) Natick/Wayland]	42.304996	-71.370912
W3279	MassDEP	Water Quality	Lake Cochituate	[beach on northwestern edge of pond, south of Commonwealth Road (Route 30), Natick]	42.308453	-71.376691

Beach Postings

MA DPH Beach Posting Data Summary (% Bathing Season Posted 2014-2022) (Bailey, Logan Feb. 2, 2021) (Bailey Sept. 10, 2023) (MassDEP Undated 2)

Beach ID	Beach Name/ Town	Left Border (Lat., Long.)	Right Border (Lat., Long.)	2014	2015	2016	2017	2018	2019	2020	2021	2022	# years >10%
4745	Cochituate Lake-North Beach (DCR)/ Natick	42.30798, -71.37700	42.30901, -71.37670	2%	0%	0%	0%	0%	2%	4%	2%	0%	0

Other Indicators

Summary Statement(s) for MassDEP 2022 PFAS in Water Column Data (MassDEP 2023b) (MassDEP Undated 4)

Summary
Surface water sampling was conducted in Lake Cochituate (MA82125) at station W3278 (PFAS Study ID 17) on 07/20/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.
Surface water sampling was conducted in Lake Cochituate (Middle Basin) (MA82125) at station W3279 (PFAS Study ID 17B), the beach on the northwestern edge of the lake, on 07/20/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

MassDEP 2022 PFAS in Water Column Data for Massachusetts Surface Waters (MassDEP 2023b) (MassDEP Undated 4)

[HFPO-DA is also known as GenX; the ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here); * indicates the ∑PFAS6 concentration was qualified since data for one or more individual PFAS6 analytes were qualified; b = blank contamination qualifier, d = qualifier indicating precision of field duplicates did not meet project data quality objectives; j = 'estimated' value qualifier; ## = censored data.]

Station Code	PFAS Study ID	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	HFPO-DA ng/L	∑PFAS6 ng/L
W3278	17	07/20/2022	8.8	8.5	1.4j	4.1	4.2j	4.1	<2.1	27.7*
W3279	17B	07/20/2022	8.3	8.4	1j	3.8	5j	3.9	<2.1	25.8*

Summary of MA DPH 2021 and 2022 PFAS in Water Column Data (MA DPH 2023a, MA DPH 2023b)

Surface water sampling was conducted at Cochituate State Park Beach on Lake Cochituate [Middle Basin] (MA82125) in Natick/Wayland as part of a May 2022 MA DPH study assessing 40 PFAS analytes in surface water and fish tissue samples collected from waterbodies in state parks. The average concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value (maximum average 7.1 ng/L PFOS).

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Lake Cochituate [Middle Basin] AU (MA82125) is assessed as Not Supporting. Although beach posting data were indicative of good water quality conditions, a Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 2021. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment.

Lake Cochituate (MA82125) has a beach with MDPH Beach Closure data: DCR's Cochituate Lake-North Beach [Beach ID: 4745] in Natick. The beach was rarely, if at all, posted for swimming from 2018-2022 (maximum postings 4% in 2020). Beach posting data meet 2024 CALM guidance. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Middle Basin] (MA82125) were reported to MDPH by DCR for 15 days in 2019, 111 days in 2021, and 12 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Lake Cochituate (MA82126)

Location:	[Carling Basin] Natick.
AU Type:	FRESHWATER LAKE
AU Size:	14 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Asian Clam*)	--	Unchanged
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Harmful Algal Blooms	--	Added
5	5	PCBs in Fish Tissue	--	Unchanged
5	5	PFAS in Fish Tissue	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Asian Clam*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Harmful Algal Blooms	Source Unknown (N)	--	--	X	X	X
PCBs in Fish Tissue	Source Unknown (N)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Lake Cochituate [Carling Basin] AU (MA82126) continues to be assessed as Not Supporting. The prior PCBs in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in the Lake Cochituate [Middle Basin] AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted at Lake Cochituate (MA82125) in Framingham, Natick, Wayland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. DPH issued a site-specific advisory for PFAS in Lake Cochituate (referred to by MA DPH as ''Cochituate, Lake (including Middle, North, South, and Carling Basins)'') in their February 2023 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing PCBs advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5) (MA DPH 2023b)

Summary
Fish toxics sampling was conducted in the Lake Cochituate [Middle Basin] AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted in Lake Cochituate (MA82125) in Framingham, Natick, Wayland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their February 2023 Freshwater Fish Consumption Advisory List. Additionally, MA DPH retained the existing site-specific fish consumption advisories for PCBs associated with Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for PFAS in Fish Tissue and PCBs in Fish Tissue for this Lake Cochituate [Carling Basin] AU (MA82126).

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Lake Cochituate [Carling Basin] AU (MA82126) is being assessed as Not Supporting with a Harmful Algal Blooms impairment being added, since extended blooms were reported in 2020, 2021, and 2022. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Carling Basin] were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Carling Basin] (MA82126) were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the Aesthetics Use and Primary/Secondary Contact Recreational Uses are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Lake Cochituate	Framingham/Natick/Wayland					15	49	111	56

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Lake Cochituate [Carling Basin] AU (MA82126) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 3 recent years. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Carling Basin] (MA82126) were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Lake Cochituate [Carling Basin] AU (MA82126) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 3 recent years. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [Carling Basin] (MA82126) were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Lake Cochituate (MA82127)

Location:	[South Basin] Natick.
AU Type:	FRESHWATER LAKE
AU Size:	239 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Harmful Algal Blooms	--	Added
5	5	PCBs in Fish Tissue	--	Unchanged
5	5	PFAS in Fish Tissue	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Harmful Algal Blooms	Source Unknown (N)	--	--	X	X	X
PCBs in Fish Tissue	Source Unknown (N)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Lake Cochituate [South Basin] AU (MA82127) continues to be assessed as Not Supporting. The prior PCBs in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted in the Lake Cochituate [Middle Basin] AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted in Lake Cochituate (MA82125) in Framingham, Natick, Wayland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. DPH issued a site-specific advisory for PFAS in Lake Cochituate (referred to by MA DPH as ''Cochituate, Lake (including Middle, North, South, and Carling Basins)'') in their February 2023 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing PCBs advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Fish Tissue Data

Summary of Fish Tissue Data and Resulting Fish Consumption Advisories (MA DPH 2025) (MassDEP 2023b) (MassDEP Undated 5) (MA DPH 2023b)

Summary
Fish toxics sampling was conducted in the Lake Cochituate [Middle Basin] AU (MA82125) at station F0475 (PFAS Study ID 17) on 07/20/2022 as part of a MassDEP-funded project evaluating 40 PFAS analytes in selected fresh waters. Additionally, fish toxics sampling was conducted in Lake Cochituate (MA82125) in Framingham, Natick, Wayland as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their February 2023 Freshwater Fish Consumption Advisory List. Additionally, MA DPH retained the existing site-specific fish consumption advisories for PCBs associated with Lake Cochituate (referred to by MA DPH as Cochituate, Lake (including Middle, North, South, and Carling Basins)) in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for PFAS in Fish Tissue and PCBs in Fish Tissue for Lake Cochituate (MA82127).

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Lake Cochituate [South Basin] AU (MA82127) is being assessed as Not Supporting with a Harmful Algal Blooms impairment being added, since extended blooms were reported in 2020, 2021 & 2022. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [South Basin] were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Lake Cochituate [South Basin] (MA82127) were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the Aesthetics Use and Primary/Secondary Contact Recreational Uses are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Lake Cochituate	Natick					15	49	111	56

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Lake Cochituate [South Basin] AU (MA82127) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 3 recent years. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [South Basin] (MA82127) were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Lake Cochituate [South Basin] AU (MA82127) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added due to the occurrence of C-HAB postings extending >20 days in 3 recent years. The Alert previously identified for Harmful Algal Blooms is being removed in light of the new impairment. During the period 2015 through 2022, C-HAB postings for Lake Cochituate [South Basin] (MA82127) were reported to MDPH by DCR for 15 days in 2019, 49 days in 2020, 111 days in 2021, and 56 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) were reported in recent years, the C-HAB data are indicative of a Harmful Algal Blooms impairment.

Learned Pond (MA82069)

Location:	Framingham.
AU Type:	FRESHWATER LAKE
AU Size:	34 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Recommendations

2024/26 Recommendations
2024/2026 IR [Harmful Algal Blooms, high priority] Follow-up monitoring should be conducted in Learned Pond (MA82069) to determine if Harmful Algal Blooms may be impairing the Recreational and Aesthetic uses. Monitoring should include observational data and collection of cyanobacteria cell count data, as well as continued reporting of algal blooms to MDPH including available cyanobacteria cell count data (a 42-day bloom was reported to MDPH in 2022 but without cell count data, so an Alert was identified in the 2024/26 IR). {Learned Pond (MA82069)}; <2016 [E. coli, medium priority] Any available beach monitoring bacteria data for Learned Pond (MA82069) should be acquired from the Framingham Parks and Recreational Dept. in preparation for the next IR based on the following quote from MassDEP's 2001 Water Quality Assessment Report for the SuAsCo (Concord) watershed (O'Brien-Clayton 2005): "In 1996 DWM a synoptic survey of Learned Pond (Appendix C, Table C1). Learned Pond is on the 2002 Integrated List of Waters in Category 2 (MA DEP 2003a). There is a public bathing beach on Learned Pond that is managed by the Framingham Parks and Recreation Department. The Board of Health collects weekly samples for E. coli testing. Sources of bacteria include geese and storm water. There is an outfall that discharges to the beach (Cooper 2004). Information on the number of closures was not readily available so the Primary Contact Use is not assessed but is identified with an Alert Status." { Learned Pond (MA82069)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Insufficient Information	No

2024/26 Use Attainment Summary
There is Insufficient Information to assess the Fish Consumption Use for Learned Pond (MA82069). Fish toxics sampling for metals (mercury, arsenic, cadmium, and selenium) was performed by MassDEP WPP biologists in Learned Pond (MA82069) at station F0497 in 2022 as part of the MassDEP WPP targeted assessment monitoring (TAM). However, no site-specific fish consumption advisory was issued by MA DPH.

Fish Consumption Advisories

Summary of Fish Toxics Sampling and Resulting Fish Consumption Advisories (MassDEP Undated 5)

Summary Statement
Fish toxics sampling for metals (mercury, arsenic, cadmium, and selenium) was performed by MassDEP WPP biologists in Learned Pond (MA82069) at station F0497 in 2022 as part of the MassDEP WPP targeted assessment monitoring (TAM). No site-specific fish consumption advisory was issued by MA DPH.

Aesthetic

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
Too limited data are available to assess the Aesthetics Use for Learned Pond (MA82069), so it is assessed as having Insufficient Information. However, an Alert is being identified for Harmful Algal Blooms in this waterbody since C-HAB postings (blooms of >15 days in duration) were reported to MDPH for 2022. During the period 2015 through 2022, C-HAB postings for Learned Pond were reported to MDPH based on cell count data for 42 days in 2022 (but cell count concentration was not reported to MDPH) and no blooms were reported in other years. Since an extended bloom (>20 days in duration) was reported without cell count concentration data in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for Harmful Algal Blooms and a recommendation for follow-up sampling will be made.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Learned Pond (MA82069) were reported to MDPH based on cell count data for 42 days in 2022 (but cell count concentration was not reported to MDPH). No blooms were reported in other years. Since an extended bloom (>20 days in duration) was reported without cell count concentration data in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for C-HABs in this waterbody and a recommendation for follow-up sampling will be made.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Learned Pond	Framingham								42

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
No bacteria data are available to assess the Primary Contact Recreation Use for Learned Pond (MA82069) and available other indicators for this AU did not result in any impairment, so it is assessed as having Insufficient Information. An Alert is being identified for Harmful Algal Blooms and additional sampling is recommended for this AU. The prior Alert for *E. coli* is also being carried forward (based on the following quote from MassDEP's 2001 Water Quality Assessment Report for the SuAsCo (Concord) watershed (O'Brien-Clayton 2005): "In 1996 DWM a synoptic survey of Learned Pond (Appendix C, Table C1). Learned Pond is on the 2002 Integrated List of Waters in Category 2 (MA DEP 2003a). There is a public bathing beach on Learned Pond that is managed by the Framingham Parks and Recreation Department. The Board of Health collects weekly samples for E. coli testing. Sources of bacteria include geese and storm water. There is an outfall that discharges to the beach (Cooper 2004). Information on the number of closures was not readily available so the Primary Contact Use is not assessed but is identified with an Alert Status.") During the period 2015 through 2022, C-HAB postings for Learned Pond (MA82069) were reported to MDPH based on cell count data for 42 days in 2022 (but cell count concentration was not reported to MDPH). No blooms were reported in other years. Since an extended bloom (>20 days in duration) was reported without cell count concentration data in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
No bacteria data are available to assess the Secondary Contact Recreation Use for Learned Pond (MA82069) and available other indicators for this AU did not result in any impairment, so it is assessed as having Insufficient Information. An Alert is being identified for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Learned Pond (MA82069) were reported to MDPH based on cell count data for 42 days in 2022 (but cell count concentration was not reported to MDPH). No blooms were reported in other years. Since an extended bloom (>20 days in duration) was reported without cell count concentration data in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

Little Chauncy Pond (MA82070)

Location:	Northborough.
AU Type:	FRESHWATER LAKE
AU Size:	43 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Aquatic Plants (Macrophytes)*)	--	Added
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Aquatic Plants (Macrophytes)*)	Golf Courses (N)	--	--	X	X	X
(Aquatic Plants (Macrophytes)*)	Source Unknown (N)	--	--	X	X	X
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Mercury in Fish Tissue	Atmospheric Deposition (N)	--	X	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [*E. coli*, high priority] Higher frequency *E. coli* bacteria monitoring is recommended at W2691 in Little Chauncy Pond (MA82070) since bacteria samples collected in 2017 yielded inconclusive findings for the 2024/2026 IR cycle- an Alert was identified because this single year, limited frequency dataset included GMs below the threshold, 2 STV exceedances (for the PCR use and 1 STV exceedance for the SCR use), and a seasonal GM below the threshold. {W2691}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Little Chauncy Pond (MA82070) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Little Chauncy Pond in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Little Chauncy Pond (MA82070) is assessed as Not Supporting based on the observations from the 2017 MassDEP MAP2 macrophyte mapping survey, with an Aquatic Plants (Macrophytes) non-pollutant impairment being added. MassDEP staff recorded aesthetics observations as part of both the MAP2 lake and cyanobacteria monitoring projects in summer 2017, at two stations on Little Chauncy Pond in Northborough; at the eastern shore, near boat launch off of Lyman Street (W2691/MAP2L-146S, n=6) and at the deep hole index site (W2690/MAP2L-146, n=3). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, or littoral zone duckweed recorded in ten shoreline plots (n=1), though field staff noted minor trash deposits at the shoreline station on three occasions and green water color at the index site on one occasion. However, during the MAP2 macrophyte mapping survey in Jul 2017 (n=1), greater than 25% (41.9%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%. This is indicative of an Aquatic Plants (Macrophytes) impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2690	MassDEP	Water Quality	Little Chauncy Pond	[index site, Northborough]	42.305934	-71.617209
W2691	MassDEP	Water Quality	Little Chauncy Pond	[eastern shore, near boat launch off of Lyman Street, Northborough]	42.305204	-71.614797

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2690	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2690 (MAP2L-146) on Little Chauncy Pond (MA82070) during 3 site visits between Jun 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted green water color (n=1). During the MAP2 macrophyte mapping survey (n=1) in Jul 2017, greater than 25% (41.9%) of the waterbody was determined to have an aquatic macrophyte biovolume >50%. The observations from the MAP2 survey are indicative of an Aesthetics Use impairment.
W2691	2017	6	Aesthetic observations were made by MassDEP field sampling crews at Station W2691 (MAP2L-146S) on Little Chauncy Pond (MA82070) during 6 site visits between May 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=3). During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2690	Little Chauncy Pond	2017	Aesthetics Impaired?	No	3	3
W2690	Little Chauncy Pond	2017	Aquatic Plant Density, Overall	Dense	1	3
W2690	Little Chauncy Pond	2017	Aquatic Plant Density, Overall	None	1	3
W2690	Little Chauncy Pond	2017	Aquatic Plant Density, Overall	Unobservable	1	3
W2690	Little Chauncy Pond	2017	Aquatic Plant Density, Whole Lake	Unobservable	2	2

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2690	Little Chauncy Pond	2017	Color	Greenish	1	3
W2690	Little Chauncy Pond	2017	Color	Light Yellow/Tan	2	3
W2690	Little Chauncy Pond	2017	Duckweed Density, Whole Lake	NR	1	2
W2690	Little Chauncy Pond	2017	Duckweed Density, Whole Lake	Unobservable	1	2
W2690	Little Chauncy Pond	2017	Objectionable Deposits	No	2	3
W2690	Little Chauncy Pond	2017	Objectionable Deposits	Yes	1	3
W2690	Little Chauncy Pond	2017	Odor	None	3	3
W2690	Little Chauncy Pond	2017	Scum	No	2	3
W2690	Little Chauncy Pond	2017	Scum	Yes	1	3
W2690	Little Chauncy Pond	2017	Turbidity	None	1	3
W2690	Little Chauncy Pond	2017	Turbidity	Slightly Turbid	2	3
W2691	Little Chauncy Pond	2017	Aesthetics Impaired?	No	6	6
W2691	Little Chauncy Pond	2017	Color	Brownish	1	6
W2691	Little Chauncy Pond	2017	Color	Light Yellow/Tan	2	6
W2691	Little Chauncy Pond	2017	Color	None	3	6
W2691	Little Chauncy Pond	2017	Objectionable Deposits	No	3	6
W2691	Little Chauncy Pond	2017	Objectionable Deposits	Yes	3	6
W2691	Little Chauncy Pond	2017	Odor	None	6	6
W2691	Little Chauncy Pond	2017	Scum	No	6	6
W2691	Little Chauncy Pond	2017	Turbidity	None	5	6
W2691	Little Chauncy Pond	2017	Turbidity	Slightly Turbid	1	6

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for Little Chauncy Pond (MA82070) is assessed as Not Supporting. An Aquatic Plants (Macrophytes) impairment is being added (from the Aesthetics Use). An Alert is being identified for Escherichia coli (E. coli) and additional sampling is recommended for this AU. In Little Chauncy Pond (MA82070) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2690 [MAP2L-146, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2691 [MAP2L-146S, Shoreline]. At station W2690 (station depth=5.1 m) the Secchi depth measurements ranged from 1.8-3.84 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2691 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff also collected *E. coli* bacteria samples in Little Chauncy Pond (MA82070) at W2691 [eastern shore, near boat launch off of Lyman St, Northborough] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset from W2691 indicated 40% of intervals had GMs >126 CFU/100mL, 2 samples exceeded the 410 CFU/100mL STV, and the seasonal GM was 69 CFU/100mL. These *E. coli* data from W2691 are inconclusive according to the 2024 CALM because this single year, limited frequency dataset included GMs below the threshold, STV exceedances, and a seasonal GM below the threshold. An Alert is being identified for Escherichia Coli (E. Coli) due to the 2 STV exceedances at W2691 and follow-up monitoring is recommended.

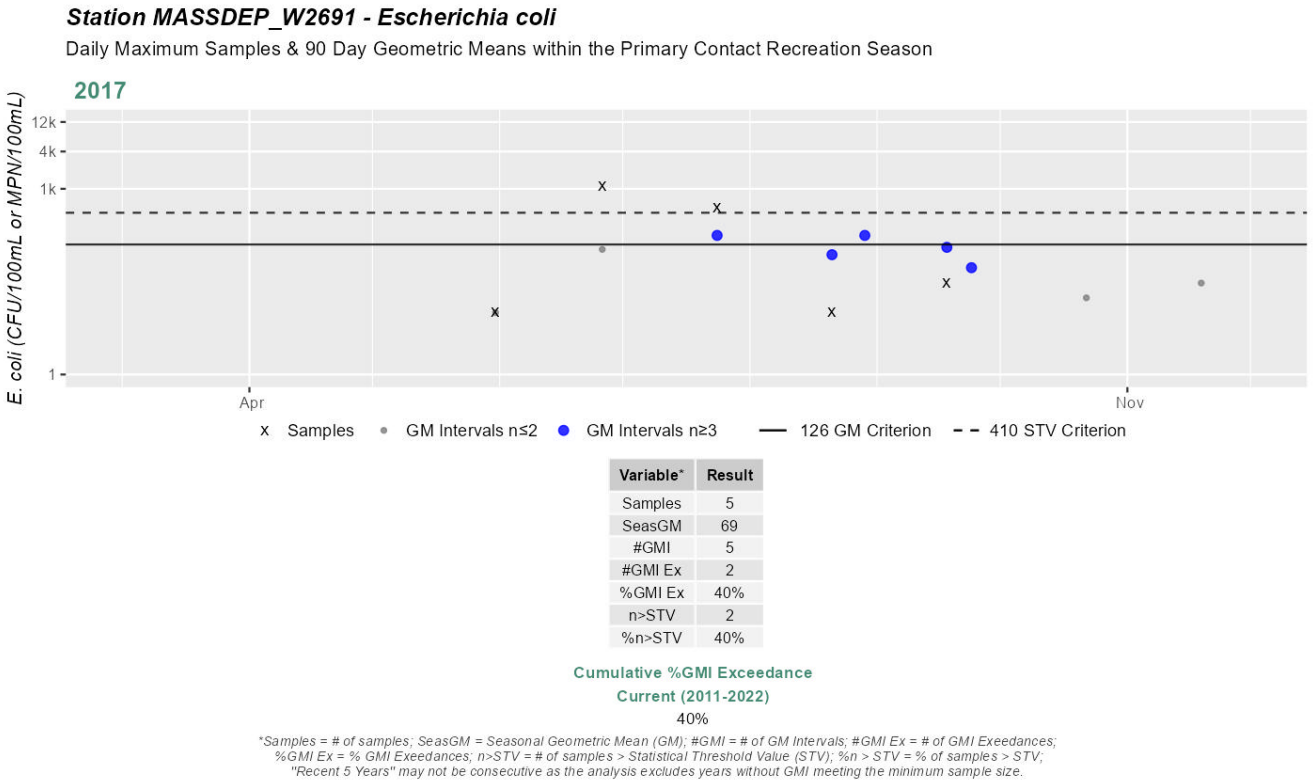
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2690	MassDEP	Water Quality	Little Chauncy Pond	[index site, Northborough]	42.305934	-71.617209
W2691	MassDEP	Water Quality	Little Chauncy Pond	[eastern shore, near boat launch off of Lyman Street, Northborough]	42.305204	-71.614797

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2691	MassDEP	E. coli	05/31/17	09/18/17	5	10	1100	69



Other Indicators

Summary Statement for 2011-2022 Cyanobacteria Cell Count and Cyanotoxin Data, and Secchi Depth Data (MassDEP Undated 7) (MassDEP Undated 4)

Data Year(s)	Summary
2017	In Little Chauncy Pond (MA82070) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2690 [MAP2L-146, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2691 [MAP2L-146S, Shoreline]. At station W2690 (station depth=5.1 m) the Secchi depth measurements ranged from 1.8-3.84 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2691 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP Cyanobacteria Cell Count Data Collected at Lakes and Impoundments (2016-2018) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2690	Little Chauncy Pond	Index	2017	3	0	NA

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2691	Little Chauncy Pond	Shoreline	2017	3	0	NA

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Little Chauncy Pond (MA82070) is assessed as Not Supporting. An Aquatic Plants (Macrophytes) impairment is being added (from the Aesthetics Use). In Little Chauncy Pond (MA82070) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2690 [MAP2L-146, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2691 [MAP2L-146S, Shoreline]. At station W2690 (station depth=5.1 m) the Secchi depth measurements ranged from 1.8-3.84 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2691 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L. MassDEP staff collected *E. coli* bacteria samples in Little Chauncy Pond (MA82070) at W2691 [eastern shore, near boat launch off of Lyman St, Northborough] from May-Sep 2017 (n=5). Analysis of the single year limited frequency *E. coli* dataset from W2691 indicated no intervals had GMs >244 CFU/100mL, 1 sample exceeded the 794 CFU/100mL STV, and the overall GM was 69 CFU/100mL. These *E. coli* data from W2691 are inconclusive according to the 2024 CALM because this single year, limited frequency dataset included GMs below the threshold, 1 STV exceedance, and a seasonal GM below the threshold. An Alert is being identified for Escherichia Coli (E. Coli) due to the STV exceedance at W2691 and follow-up monitoring is recommended.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2691	MassDEP	Water Quality	Little Chauncy Pond	[eastern shore, near boat launch off of Lyman Street, Northborough]	42.305204	-71.614797

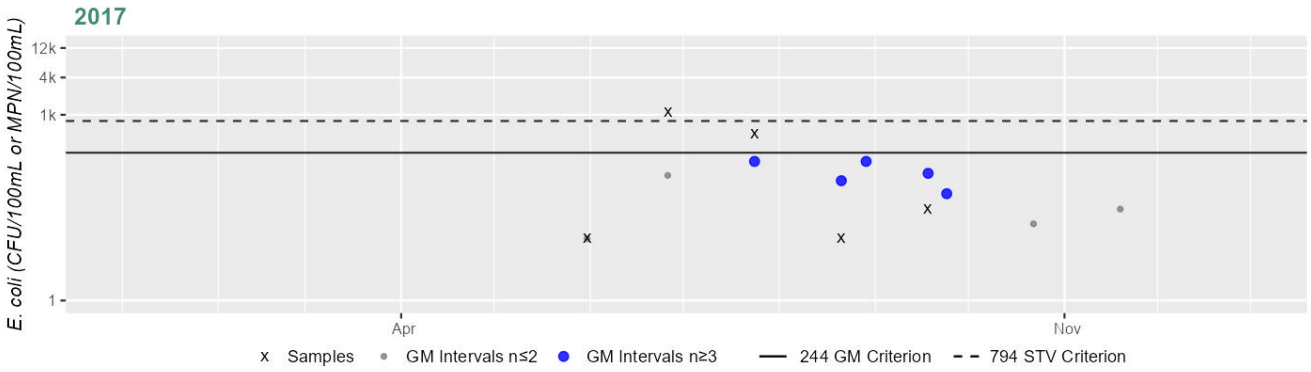
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2691	MassDEP	E. coli	05/31/17	09/18/17	5	10	1100	69

Station MASSDEP_W2691 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	69
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance

Current (2011-2022)

0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Long Pond (MA82072)

Location:	Littleton.
AU Type:	FRESHWATER LAKE
AU Size:	102 ACRES
Classification/Qualifier:	B

No usable data were available for Long Pond (MA82072) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Algae	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Algae	Source Unknown (N)	X	--	--	--	--
Algae	Unspecified Urban Stormwater (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Dissolved Oxygen	Unspecified Urban Stormwater (Y)	X	--	--	--	--
Phosphorus, Total	Source Unknown (N)	X	--	--	--	--
Phosphorus, Total	Unspecified Urban Stormwater (Y)	X	--	--	--	--

Meadow Pond (MA82129)

Location:	Carlisle.
AU Type:	FRESHWATER LAKE
AU Size:	12 ACRES
Classification/Qualifier:	B

No usable data were available for Meadow Pond (MA82129) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Milham Reservoir (MA82077)

Location:	Marlborough.
AU Type:	FRESHWATER LAKE
AU Size:	67 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Milham Reservoir (MA82077) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Mill Brook (MA82A-20)

Location:	Headwaters, outlet Crosby Pond, Concord to mouth at confluence with the Concord River, Concord.
AU Type:	RIVER
AU Size:	2.7 MILES
Classification/Qualifier:	B

Mill Brook (MA82A-20)

Watershed Area: 3.24 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	3.24	3.24	0.96	0.96
Agriculture	7.5%	7.5%	7.4%	7.4%
Developed	26.2%	26.2%	16.4%	16.4%
Natural	46.5%	46.5%	38.9%	38.9%
Wetland	19.8%	19.8%	37.3%	37.3%
Impervious	14%	14%	9.9%	9.9%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Habitat Assessment*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Habitat Assessment*)	Unspecified Urban Stormwater (Y)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Mill Brook (MA82A-20), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Mill Brook (MA82A-20) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Mill Brook (MA82A-20) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Mill Brook (MA82A-20) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected historical *E. coli* bacteria samples in Mill Brook (MA82A-20) at W0845 [Lowell Rd bridge, Concord] in Jul 2001 (n=2). These data are too limited to assess, according to the 2024 CALM, and also cannot be used for assessment purposes since they were collected prior to the current IR window.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0845	MassDEP	Water Quality	Mill Brook	[Lowell Road bridge, Concord]	42.462748	-71.351319

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)

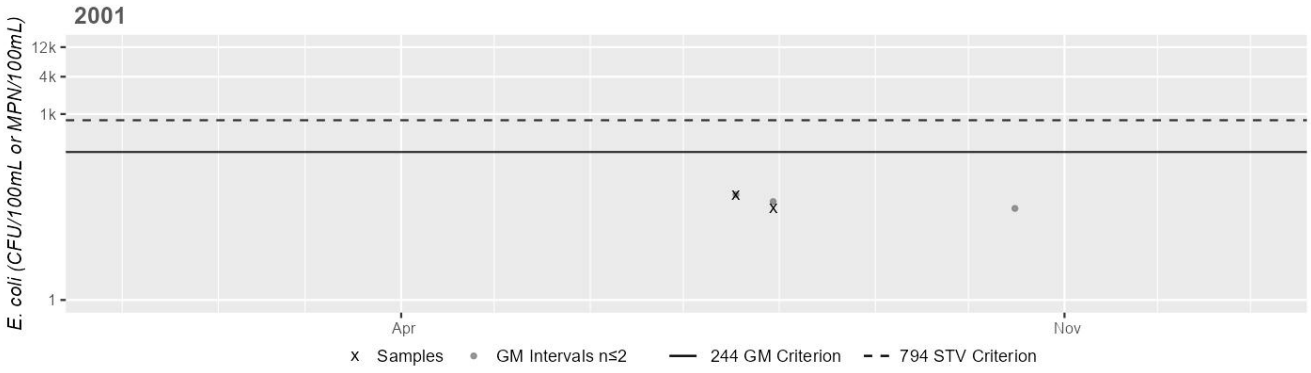
(MassDEP Undated 7) (MassDEP Undated 3)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0845	MassDEP	E. coli	07/18/01	07/30/01	2	30	50	38

Station MASSDEP_W0845 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	38
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Nagog Pond (MA82082)

Location:	Littleton/Acton.
AU Type:	FRESHWATER LAKE
AU Size:	278 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Nagog Pond (MA82082) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

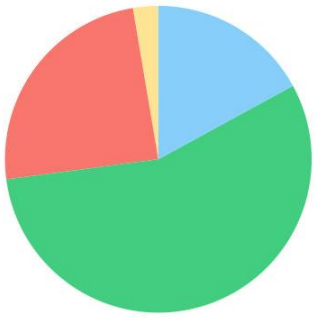
AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Nashoba Brook (MA82B-14)

Location:	From source just south of Route 110, Westford to mouth at confluence with Fort Pond Brook, Concord (through former 2014 segment: Ice House Pond MA82066).
AU Type:	RIVER
AU Size:	9.4 MILES
Classification/Qualifier:	B

Nashoba Brook (MA82B-14)

Watershed Area: 21.12 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	21.12	6.97	7.82	2.32
Agriculture	2.7%	1.6%	2.3%	1.4%
Developed	24.4%	25.2%	17.8%	19.5%
Natural	55.8%	56%	50.7%	48%
Wetland	17.1%	17.2%	29.2%	31%
Impervious	11.3%	12.8%	8.1%	10.1%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Dewatering*)	--	Unchanged
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Temperature	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Dewatering*)	Baseflow Depletion from Groundwater Withdrawals (N)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Dewatering*)	Source Unknown (N)	X	--	--	--	--
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Escherichia Coli (E. Coli)	Sanitary Sewer Overflows (Collection System Failures) (N)	--	--	--	X	--
Temperature	Source Unknown (N)	X	--	--	--	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Nashoba Brook (MA82B-14), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Aesthetics Use for Nashoba Brook (MA82B-14) is assessed as Fully Supporting based on the general lack of objectionable conditions between 2011 and 2015 at two sampling stations. MassDEP field crews recorded aesthetics observations at two stations halfway down this Nashoba Brook AU: ~4000 ft upstream/west of Main St (Rt 27) in Acton (W2527) during summer 2015 (n=5) as well as roughly every other month from 2011-2013 (n= 5-6/yr) as part of the SMART monitoring program near a footbridge and USGS flow gaging station #01097300 in Nashoba Brook Conservation Area southeast of Wheeler Lane, Acton (W0698). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded in any year at either site.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0698	MassDEP	Water Quality	Nashoba Brook	[near footbridge and USGS flow gaging station #01097300 in Nashoba Brook Conservation Area southeast of Wheeler Lane, Acton]	42.512275	-71.404586
W2527	MassDEP	Water Quality	Nashoba Brook	[approximately 4000 feet upstream/west of Main Street (Route 27), Acton]	42.526779	-71.413421

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0698	2011	6	Aesthetic observations were made by MassDEP field sampling crews at Station W0698 on Nashoba Brook (MA82B-14) during 6 site visits between Jan 2011 and Nov 2011. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted petroleum odor (n=2).
W0698	2012	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0698 on Nashoba Brook (MA82B-14) during 5 site visits between Feb 2012 and Oct 2012. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted petroleum odor (n=2).
W0698	2013	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0698 on Nashoba Brook (MA82B-14) during 5 site visits between Jan 2013 and Sep 2013. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.
W2527	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2527 on Nashoba Brook (MA82B-14) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0698	2011	6	5	0
W0698	2012	5	3	0
W0698	2013	5	2	0
W2527	2015	5	2	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0698	Nashoba Brook	2011	Aquatic Plant Density, Overall	None	5	6
W0698	Nashoba Brook	2011	Aquatic Plant Density, Overall	Unobservable	1	6
W0698	Nashoba Brook	2011	Color	None	1	6
W0698	Nashoba Brook	2011	Color	Reddish	5	6
W0698	Nashoba Brook	2011	Objectionable Deposits	No	5	6
W0698	Nashoba Brook	2011	Objectionable Deposits	Unobservable	1	6
W0698	Nashoba Brook	2011	Odor	None	4	6
W0698	Nashoba Brook	2011	Odor	Petroleum	2	6
W0698	Nashoba Brook	2011	Periphyton Density, Filamentous	None	5	6
W0698	Nashoba Brook	2011	Periphyton Density, Filamentous	Unobservable	1	6
W0698	Nashoba Brook	2011	Periphyton Density, Film	None	5	6
W0698	Nashoba Brook	2011	Periphyton Density, Film	Unobservable	1	6
W0698	Nashoba Brook	2011	Scum	No	4	6
W0698	Nashoba Brook	2011	Scum	Yes	2	6
W0698	Nashoba Brook	2011	Turbidity	None	3	6
W0698	Nashoba Brook	2011	Turbidity	Slightly Turbid	2	6
W0698	Nashoba Brook	2011	Turbidity	Unobservable	1	6
W0698	Nashoba Brook	2012	Aquatic Plant Density, Overall	None	3	5
W0698	Nashoba Brook	2012	Aquatic Plant Density, Overall	Unobservable	2	5
W0698	Nashoba Brook	2012	Color	Reddish	5	5
W0698	Nashoba Brook	2012	Objectionable Deposits	No	3	5
W0698	Nashoba Brook	2012	Objectionable Deposits	Unobservable	2	5
W0698	Nashoba Brook	2012	Odor	Musty (Basement)	1	5
W0698	Nashoba Brook	2012	Odor	None	2	5
W0698	Nashoba Brook	2012	Odor	Petroleum	2	5
W0698	Nashoba Brook	2012	Periphyton Density, Filamentous	None	3	5
W0698	Nashoba Brook	2012	Periphyton Density, Filamentous	Unobservable	2	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0698	Nashoba Brook	2012	Periphyton Density, Film	None	3	5
W0698	Nashoba Brook	2012	Periphyton Density, Film	Unobservable	2	5
W0698	Nashoba Brook	2012	Scum	No	2	5
W0698	Nashoba Brook	2012	Scum	Yes	3	5
W0698	Nashoba Brook	2012	Turbidity	Moderately Turbid	1	5
W0698	Nashoba Brook	2012	Turbidity	None	3	5
W0698	Nashoba Brook	2012	Turbidity	Unobservable	1	5
W0698	Nashoba Brook	2013	Aesthetics Impaired?	No	3	5
W0698	Nashoba Brook	2013	Aesthetics Impaired?	NR	2	5
W0698	Nashoba Brook	2013	Aquatic Plant Density, Overall	None	2	5
W0698	Nashoba Brook	2013	Aquatic Plant Density, Overall	Unobservable	3	5
W0698	Nashoba Brook	2013	Color	Reddish	5	5
W0698	Nashoba Brook	2013	Objectionable Deposits	No	2	5
W0698	Nashoba Brook	2013	Objectionable Deposits	Unobservable	3	5
W0698	Nashoba Brook	2013	Odor	Musty (Basement)	2	5
W0698	Nashoba Brook	2013	Odor	None	3	5
W0698	Nashoba Brook	2013	Periphyton Density, Filamentous	None	2	5
W0698	Nashoba Brook	2013	Periphyton Density, Filamentous	Unobservable	3	5
W0698	Nashoba Brook	2013	Periphyton Density, Film	None	2	5
W0698	Nashoba Brook	2013	Periphyton Density, Film	Unobservable	3	5
W0698	Nashoba Brook	2013	Scum	No	3	5
W0698	Nashoba Brook	2013	Scum	Yes	2	5
W0698	Nashoba Brook	2013	Turbidity	None	4	5
W0698	Nashoba Brook	2013	Turbidity	Slightly Turbid	1	5
W2527	Nashoba Brook	2015	Aesthetics Impaired?	No	5	5
W2527	Nashoba Brook	2015	Aquatic Plant Density, Overall	None	1	5
W2527	Nashoba Brook	2015	Aquatic Plant Density, Overall	NR	1	5
W2527	Nashoba Brook	2015	Aquatic Plant Density, Overall	Sparse	1	5
W2527	Nashoba Brook	2015	Aquatic Plant Density, Overall	Unobservable	2	5
W2527	Nashoba Brook	2015	Color	Light Yellow/Tan	4	5
W2527	Nashoba Brook	2015	Color	Unobservable	1	5
W2527	Nashoba Brook	2015	Objectionable Deposits	No	5	5
W2527	Nashoba Brook	2015	Odor	None	5	5
W2527	Nashoba Brook	2015	Periphyton Density, Filamentous	NR	1	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2527	Nashoba Brook	2015	Periphyton Density, Filamentous	Sparse	2	5
W2527	Nashoba Brook	2015	Periphyton Density, Filamentous	Unobservable	2	5
W2527	Nashoba Brook	2015	Periphyton Density, Film	None	2	5
W2527	Nashoba Brook	2015	Periphyton Density, Film	NR	1	5
W2527	Nashoba Brook	2015	Periphyton Density, Film	Unobservable	2	5
W2527	Nashoba Brook	2015	Scum	No	5	5
W2527	Nashoba Brook	2015	Turbidity	Moderately Turbid	2	5
W2527	Nashoba Brook	2015	Turbidity	Slightly Turbid	3	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Nashoba Brook (MA82B-14) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W2527.
MassDEP staff collected *E. coli* bacteria samples from 2011-2015 at 2 stations in the middle of Nashoba Brook (MA82B-14). Samples were collected from the following stations/sample years from upstream to downstream: W2527 [~4000 ft upstream/W of Main St (Rt. 27), Acton] from May-Aug 2015 (n=4) and W0698 [near footbridge and USGS flow gaging station #01097300 in Nashoba Brook Conservation Area SE of Wheeler Lane, Acton] from 2011-2013 (n=3-4/yr). Analysis of the single year limited frequency *E. coli* dataset from W2527 indicated 100% of intervals had GMs >126 CFU/100mL and 1 sample exceeded the 410 CFU/100mL STV (the seasonal GM was 281 CFU/100mL). *E. coli* data from W2527 are reflective of the existing Escherichia Coli (E. Coli) impairment. The available *E. coli* data from W0698 are too limited to assess according to the 2024 CALM; note that 1 sample exceeded the 410 CFU/100mL STV in 2011.

Monitoring Stations

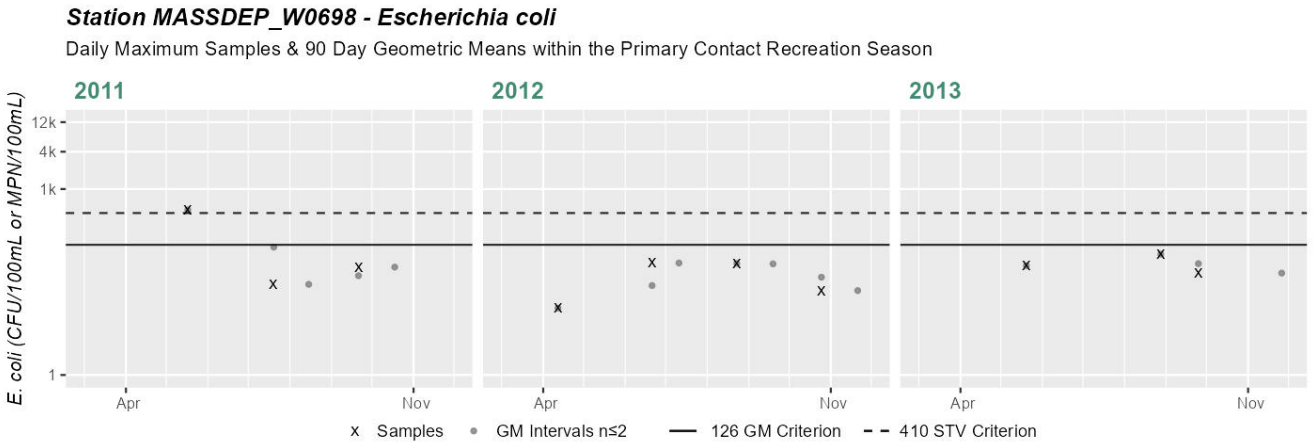
Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0698	MassDEP	Water Quality	Nashoba Brook	[near footbridge and USGS flow gaging station #01097300 in Nashoba Brook Conservation Area southeast of Wheeler Lane, Acton]	42.512275	-71.404586

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2527	MassDEP	Water Quality	Nashoba Brook	[approximately 4000 feet upstream/west of Main Street (Route 27), Acton]	42.526779	-71.413421

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0698	MassDEP	E. coli	05/17/11	09/21/11	3	29	461	90
W0698	MassDEP	E. coli	04/11/12	10/24/12	4	12	64	32
W0698	MassDEP	E. coli	05/20/13	09/25/13	3	44	89	61
W2527	MassDEP	E. coli	05/14/15	08/11/15	4	140	670	281



Variable*	Result
Samples	3
SeasGM	90
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	4
SeasGM	32
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

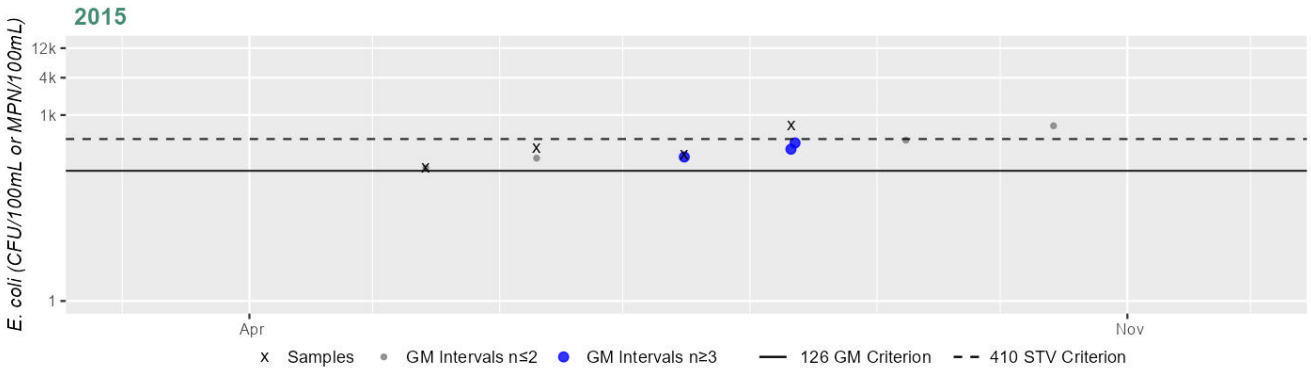
Variable*	Result
Samples	3
SeasGM	61
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2527 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	4
SeasGM	281
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	1
%n>STV	25%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Nashoba Brook (MA82B-14) continues to be assessed as Fully Supporting.
MassDEP staff collected *E. coli* bacteria samples in the current IR window (2011-2022) from 2011-2015 at 2 stations in the middle of Nashoba Brook (MA82B-14). Samples were collected from the following stations/sample years from upstream to downstream: W2527 [~4000 ft upstream/W of Main St (Rt. 27), Acton] from May-Aug 2015 (n=4) and W0698 [near footbridge and USGS flow gaging station #01097300 in Nashoba Brook Conservation Area SE of Wheeler Lane, Acton] from 2011-2013 (current n=5-6/yr). Analysis of the single year limited frequency *E. coli* dataset from W2527 indicated 66% of intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 281 CFU/100mL). *E. coli* data from W2527 meet 2024 CALM guidance. The available *E. coli* data from W0698 are too limited to assess according to the 2024 CALM.
MassDEP staff also collected *E. coli* bacteria samples in the historic IR window (1997-2010) at W0698 from 2007-2010 (historic n=3-6/yr) and a little way downstream at W2133 [~2500 ft upstream from Rt. 2A/119, Acton (~900 ft downstream from railroad crossing)] from May-Sep 2010 (n=6). These data were similarly either too limited to evaluate (W0698) or met 2024 CALM guidance (W2133).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0698	MassDEP	Water Quality	Nashoba Brook	[near footbridge and USGS flow gaging station #01097300 in Nashoba Brook Conservation Area southeast of Wheeler Lane, Acton]	42.512275	-71.404586
W2133	MassDEP	Water Quality	Nashoba Brook	[approximately 2500 feet upstream from Route 2A/119, Acton (approximately 900 feet downstream from railroad crossing)]	42.504131	-71.415511
W2527	MassDEP	Water Quality	Nashoba Brook	[approximately 4000 feet upstream/west of Main Street (Route 27), Acton]	42.526779	-71.413421

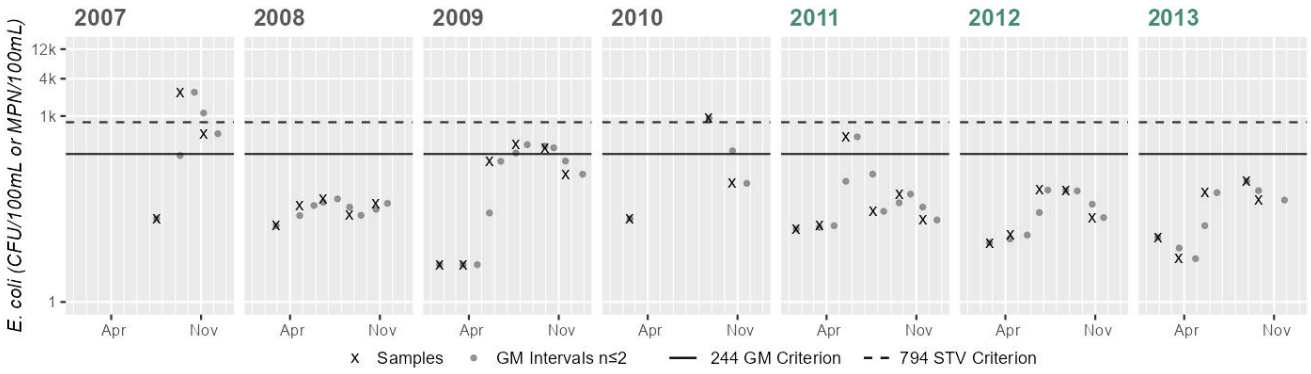
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0698	MassDEP	E. coli	07/18/07	11/07/07	3	22	2419	301
W0698	MassDEP	E. coli	02/27/08	10/22/08	5	17	46	30
W0698	MassDEP	E. coli	01/21/09	11/17/09	6	4	345	57
W0698	MassDEP	E. coli	02/18/10	10/20/10	3	22	921	118
W0698	MassDEP	E. coli	01/19/11	11/16/11	6	15	461	39
W0698	MassDEP	E. coli	02/22/12	10/24/12	5	9	64	25
W0698	MassDEP	E. coli	01/28/13	09/25/13	5	5	89	26
W2133	MassDEP	E. coli	05/11/10	09/21/10	6	52	410	156
W2527	MassDEP	E. coli	05/14/15	08/11/15	4	140	670	281

Station MASSDEP_W0698 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	301
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	5
SeasGM	30
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	6
SeasGM	57
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	3
SeasGM	118
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	6
SeasGM	39
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	25
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	26
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

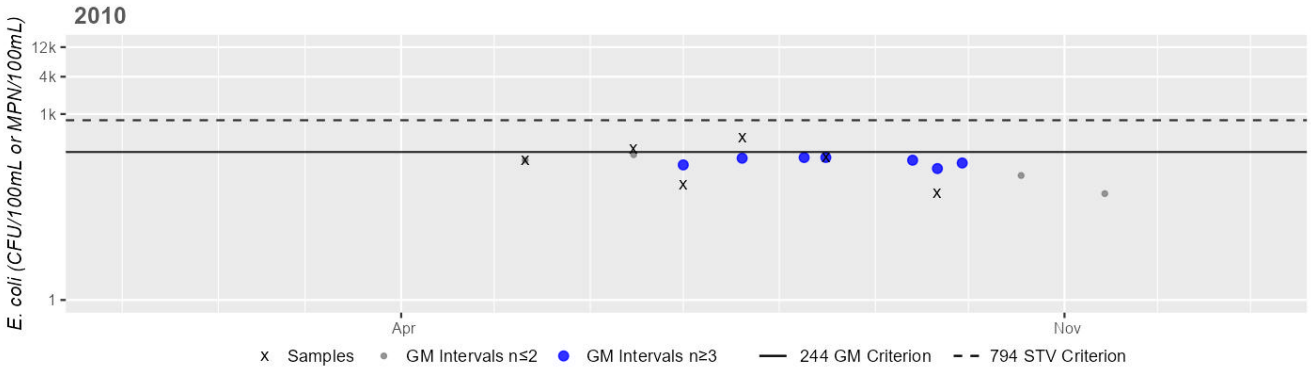
Cumulative %GMI Exceedance Historic (1997-2010)
0%

Cumulative %GMI Exceedance Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2133 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



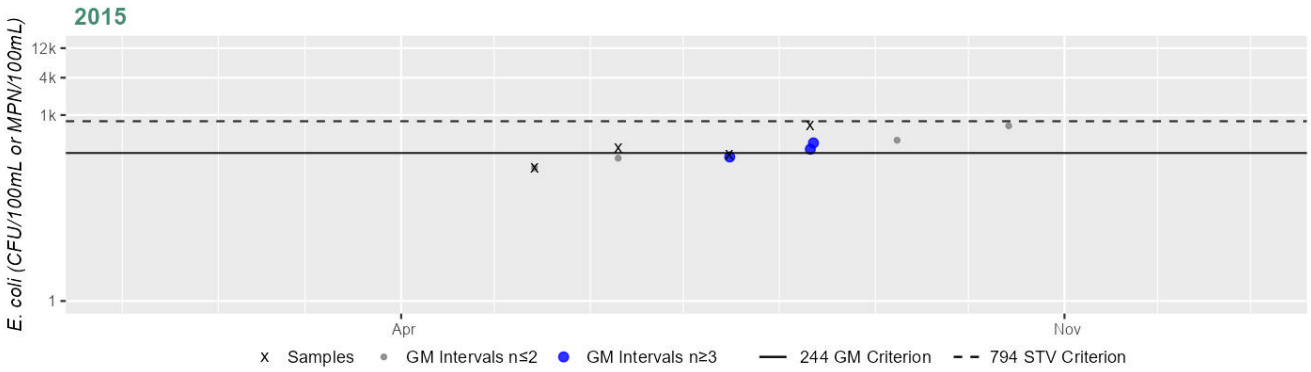
Variable*	Result
Samples	6
SeasGM	156
#GMI	7
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2527 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	4
SeasGM	281
#GMI	3
#GMI Ex	2
%GMI Ex	66%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
66%

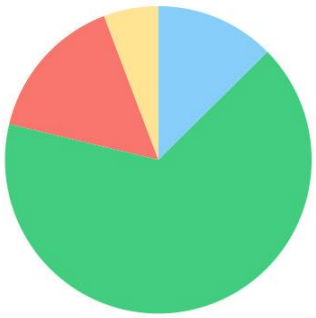
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

North Brook (MA82B-21)

Location:	Headwaters, east of Ballville Road and north of Wataquadock Hill Road, Bolton to mouth at confluence with the Assabet River, Berlin (excluding the approximately 0.1 mile through Wataquatic Pond (locally 'Fyfeshire Pond'), Bolton).
AU Type:	RIVER
AU Size:	7.6 MILES
Classification/Qualifier:	B

North Brook (MA82B-21)

Watershed Area: 16.87 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	16.87	9.70	6.48	3.54
Agriculture	5.8%	6.9%	5.7%	6.7%
Developed	15.5%	17.7%	12.2%	15.9%
Natural	66.1%	63.4%	57.9%	53.7%
Wetland	12.6%	12%	24.2%	23.7%
Impervious	6.7%	8%	5.1%	6.6%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	Temperature	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Temperature	Dam or Impoundment (Y)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in North Brook (MA82B-21), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use of North Brook (MA82B-21) is assessed as Fully Supporting based on the general lack of objectionable conditions observed by MassDEP staff during the summers of 2015 and 2016. MassDEP field crews recorded aesthetics observations at one station (W2544) a third of the way down this North Brook AU, ~2400 ft upstream/north of Randall Rd, Berlin, during the summers of 2015 and 2016 (n=4/yr). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2544	MassDEP	Water Quality	North Brook	[approximately 2400 feet upstream/north of Randall Road, Berlin]	42.398058	-71.658249

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2544	2015	4	Aesthetic observations were made by MassDEP field sampling crews at Station W2544 on North Brook (MA82B-21) during 4 site visits between May 2015 and Aug 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2544	2016	4	Aesthetic observations were made by MassDEP field sampling crews at Station W2544 on North Brook (MA82B-21) during 4 site visits between May 2016 and Aug 2016. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2544	2015	4	4	0
W2544	2016	4	4	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2544	North Brook	2015	Aesthetics Impaired?	No	4	4
W2544	North Brook	2015	Aquatic Plant Density, Overall	None	4	4
W2544	North Brook	2015	Color	Light Yellow/Tan	1	4
W2544	North Brook	2015	Color	None	2	4
W2544	North Brook	2015	Color	NR	1	4
W2544	North Brook	2015	Objectionable Deposits	No	4	4
W2544	North Brook	2015	Odor	None	4	4
W2544	North Brook	2015	Periphyton Density, Filamentous	None	4	4
W2544	North Brook	2015	Periphyton Density, Film	None	3	4
W2544	North Brook	2015	Periphyton Density, Film	Sparse	1	4
W2544	North Brook	2015	Scum	No	4	4
W2544	North Brook	2015	Turbidity	None	4	4
W2544	North Brook	2016	Aesthetics Impaired?	No	4	4
W2544	North Brook	2016	Aquatic Plant Density, Overall	None	4	4
W2544	North Brook	2016	Color	Light Yellow/Tan	2	4
W2544	North Brook	2016	Color	None	2	4
W2544	North Brook	2016	Objectionable Deposits	No	4	4
W2544	North Brook	2016	Odor	None	4	4
W2544	North Brook	2016	Periphyton Density, Filamentous	None	3	4
W2544	North Brook	2016	Periphyton Density, Filamentous	Sparse	1	4
W2544	North Brook	2016	Periphyton Density, Film	None	3	4
W2544	North Brook	2016	Periphyton Density, Film	Sparse	1	4
W2544	North Brook	2016	Scum	No	3	4
W2544	North Brook	2016	Scum	Yes	1	4

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2544	North Brook	2016	Turbidity	None	4	4

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No bacteria data are available to assess the Primary Contact Recreation Use for North Brook (MA82B-21) and available aesthetics observations for this AU did not result in any impairment, so it is assessed as having Insufficient Information.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No bacteria data are available to assess the Secondary Contact Recreation Use for North Brook (MA82B-21) and available aesthetics observations for this AU did not result in any impairment, so it is assessed as having Insufficient Information. MassDEP staff collected historical *E. coli* bacteria samples at the upstream end of North Brook (MA82B-21) at W2131 [~195 ft downstream of Collins Rd, Berlin] from May-Jul 2010 (n=4). Analysis of this limited frequency *E. coli* dataset from W2131 indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 117 CFU/100mL). Historic *E. coli* data from W2131 meet 2024 CALM guidance. However, since these data were collected prior to the current IR window (2011-2022) they cannot be used to positively assess the Secondary Contact Recreation Use.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2131	MassDEP	Water Quality	North Brook	[approximately 195 feet downstream of Collins Road, Berlin]	42.412294	-71.650556

Bacteria Data

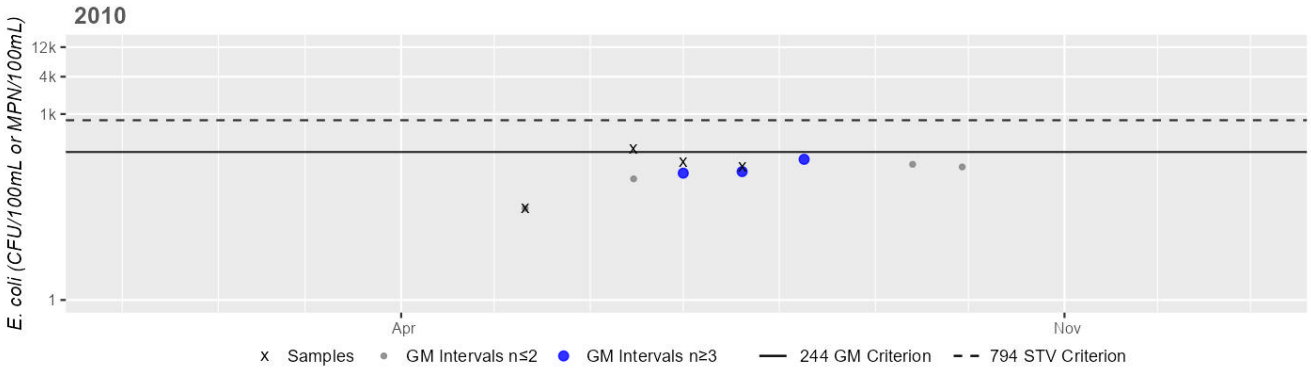
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2131	MassDEP	E. coli	05/11/10	07/20/10	4	30	270	117

Station MASSDEP_W2131 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	4
SeasGM	117
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

North Great Meadows (MA82084)

Location:	Concord.
AU Type:	FRESHWATER LAKE
AU Size:	73 ACRES
Classification/Qualifier:	B

No usable data were available for North Great Meadows (MA82084) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Water Chestnut*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Nutting Lake (MA82088)

Location:	[East Basin] Billerica.
AU Type:	FRESHWATER LAKE
AU Size:	30 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Water Chestnut*)	--	Unchanged
5	5	Escherichia Coli (E. Coli)	--	Unchanged
5	5	Mercury in Fish Tissue	33880	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary

The Fish Consumption Use for this Nutting Lake AU (MA82088) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Nutting Lake in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Nutting Lake AU (MA82088) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this Nutting Lake AU (MA82088) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this Nutting Lake AU (MA82088) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed.

Nutting Lake (MA82124)

Location:	[West Basin] Billerica.
AU Type:	FRESHWATER LAKE
AU Size:	51 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Mercury in Fish Tissue	33880	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Nutting Lake AU (MA82124) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Nutting Lake in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Nutting Lake AU (MA82124) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No bacteria data are available to assess the Primary Contact Recreation Use for this Nutting Lake AU (MA82124) so it is assessed as having Insufficient Information. Surface water sampling was conducted in Nutting Lake (MA82124) at station W3291 (PFAS Study ID 29) on 08/31/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W3291	MassDEP	Water Quality	Nutting Lake	[the default location representing co-located water/fish PFAS sampling, (West Basin) Billerica]	42.535619	-71.271009

Other Indicators

Summary Statement(s) for MassDEP 2022 PFAS in Water Column Data (MassDEP 2023b) (MassDEP Undated 4)

Summary
Surface water sampling was conducted in Nutting Lake (MA82124) at station W3291 (PFAS Study ID 29) on 08/31/2022 as part of a 2022 MassDEP funded project with ERG evaluating 40 PFAS analytes in selected fresh waters. The concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value.

MassDEP 2022 PFAS in Water Column Data for Massachusetts Surface Waters (MassDEP 2023b) (MassDEP Undated 4)

[HFPO-DA is also known as GenX; the ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here); * indicates the ∑PFAS6 concentration was qualified since data for one or more individual PFAS6 analytes were qualified; b = blank contamination qualifier, d = qualifier indicating precision of field duplicates did not meet project data quality objectives; j = 'estimated' value qualifier; ## = censored data.]

Station Code	PFAS Study ID	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	HFPO-DA ng/L	∑PFAS6 ng/L
W3291	29	08/31/2022	9	5.9j	1.2j	1.9j	9	4.5	<2	23.7*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

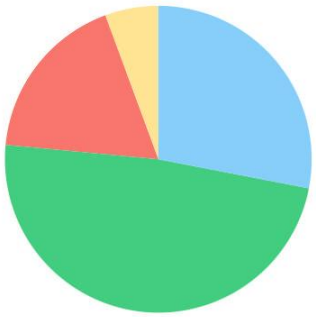
2024/26 Use Attainment Summary
No bacteria or other indicator data for this Nutting Lake AU (MA82124) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed.

Pantry Brook (MA82A-19)

Location:	From source west of Haynes Road, Sudbury to mouth at confluence with the Sudbury River, Sudbury.
AU Type:	RIVER
AU Size:	3.1 MILES
Classification/Qualifier:	B

Pantry Brook (MA82A-19)

Watershed Area: 6.01 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	6.01	6.01	2.23	2.23
Agriculture	5.6%	5.6%	5.4%	5.4%
Developed	17.9%	17.9%	9.9%	9.9%
Natural	48.5%	48.5%	42.6%	42.6%
Wetland	28%	28%	42.1%	42.1%
Impervious	7.3%	7.3%	4.2%	4.2%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	4a	Fecal Coliform	R1_MA_2024_04	Changed

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Fecal Coliform	Source Unknown (N)	--	--	--	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Pantry Brook (MA82A-19), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Pantry Brook (MA82A-19) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Pantry Brook (MA82A-19) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Fecal Coliform impairment is being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Pantry Brook (MA82A-19) continues to be assessed as Not Supporting. The prior Fecal Coliform impairment is being carried forward. MassDEP staff collected historic *E. coli* bacteria samples in Pantry Brook (MA82A-19) at W0846 [Concord Rd bridge, Sudbury] in Jul 2001 (n=2). These data are too limited to evaluate, according to the 2024 CALM, and since they were collected prior to the current IR window (2011-2022) they cannot be used to assess the Secondary Contact Recreation Use of Pantry Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0846	MassDEP	Water Quality	Pantry Brook	[Concord Road bridge, Sudbury]	42.405498	-71.404199

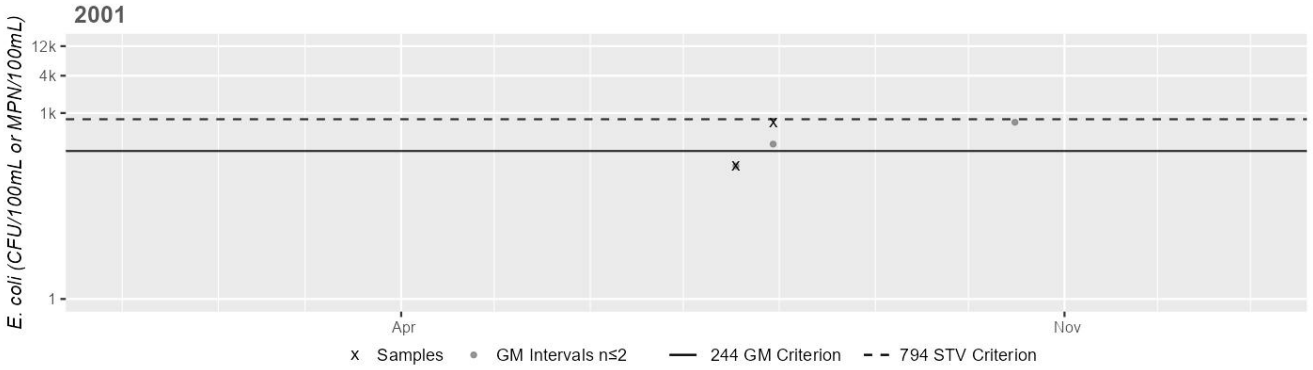
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0846	MassDEP	E. coli	07/18/01	07/30/01	2	140	710	315

Station MASSDEP_W0846 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	315
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Piccadilly Brook (MA82A-30)

Location:	Headwaters, outlet Westboro Reservoir, Westborough to mouth at inlet to Cedar Swamp Pond, Westborough.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B: ORW

No usable data were available for Piccadilly Brook (MA82A-30) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Fish Bioassessments	--	Unchanged
5	5	Temperature	--	Unchanged

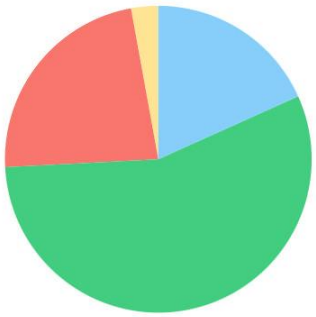
Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Fish Bioassessments	Dam or Impoundment (Y)	X	--	--	--	--
Fish Bioassessments	Erosion and Sedimentation (N)	X	--	--	--	--
Temperature	Dam or Impoundment (Y)	X	--	--	--	--

Pine Brook (MA82A-14)

Location:	Headwaters, south of Route 20, just east of the Weston/Wayland border to mouth at confluence with the Sudbury River, Wayland.
AU Type:	RIVER
AU Size:	2.5 MILES
Classification/Qualifier:	B: CWF

Pine Brook (MA82A-14)

Watershed Area: 5.63 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	5.63	5.62	1.96	1.96
Agriculture	2.9%	2.9%	1.1%	1.1%
Developed	23%	23%	16.3%	16.3%
Natural	55.9%	55.9%	45.5%	45.5%
Wetland	18.3%	18.2%	37.2%	37.1%
Impervious	11%	11%	8.3%	8.3%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Recommendations

2024/26 Recommendations
<2016 [Fecal Coliform, medium priority] Follow-up bacteria monitoring should be conducted in Pine Brook (MA82A-14) in the vicinity of Pine Brook Road bridge in Wayland (W0851). The Recreational uses were first identified with an Alert Status in the 2001 Water Quality Assessment Report (O'Brien-Clayton 2005) due to elevated fecal coliform bacteria counts documented in 2002 and 2003 at ENSR station T07 (similar location as W0851). {W0851}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Pine Brook (MA82A-14), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Pine Brook (MA82A-14) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	YES

2024/26 Use Attainment Summary
No bacteria or other indicator data for Pine Brook (MA82A-14) are available, so the Primary Contact Recreation Use is Not Assessed. The Recreational uses were previously identified with an Alert Status due to elevated fecal coliform bacteria counts documented by ENSR at Pine Brook Rd in Wayland in the 2001 Water Quality Assessment Report (O'Brien-Clayton 2005) and the Alert is being carried forward. A recommendation is being made for follow-up sampling.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	YES

2024/26 Use Attainment Summary
No bacteria or other indicator data for Pine Brook (MA82A-14) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. The Recreational uses were previously identified with an Alert Status due to elevated fecal coliform bacteria counts documented by ENSR at Pine Brook Rd in Wayland in the 2001 Water Quality Assessment Report (O'Brien-Clayton 2005) and the Alert is being carried forward. A recommendation is being made for follow-up sampling MassDEP staff collected historical *E. coli* bacteria samples in the upstream half of Pine Brook (MA82A-14) at W0851 [Pine Brook Rd bridge, Wayland] in Jul 2001 (n=2). These historical *E. coli* data are too limited to assess according to the 2024 CALM, and furthermore, were not collected during the current IR window (2011-2022), so they cannot be used for assessment purposes.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0851	MassDEP	Water Quality	Pine Brook	[Pine Brook Road bridge, Wayland]	42.359586	-71.343472

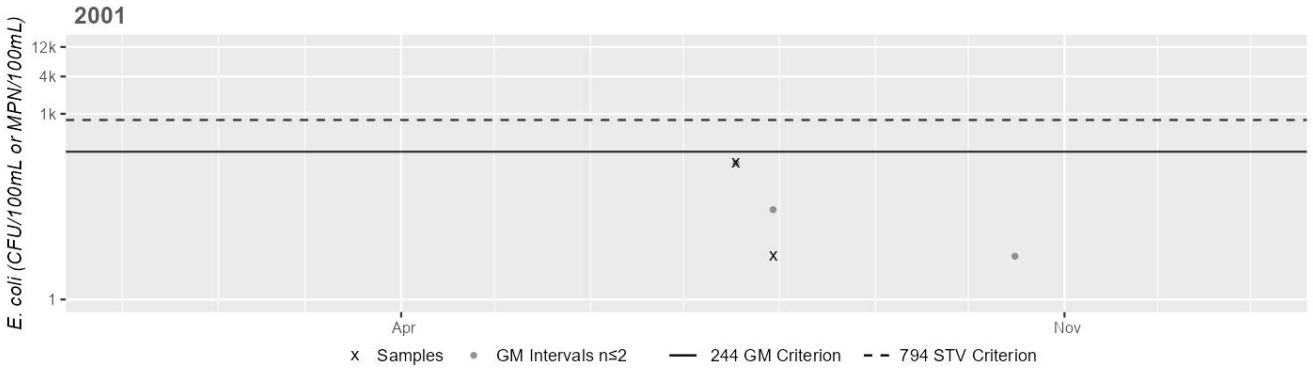
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0851	MassDEP	E. coli	07/18/01	07/30/01	2	5	160	28

Station MASSDEP_W0851 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	28
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Puffers Pond (MA82092)

Location:	Maynard/Sudbury.
AU Type:	FRESHWATER LAKE
AU Size:	28 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Puffers Pond (MA82092) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Puffers Pond (referred to by MA DPH as ''Puffer Pond'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Puffers Pond (MA82092) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Puffers Pond (MA82092) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Puffers Pond (MA82092) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed.

River Meadow Brook (MA82A-10)

Location:	Headwaters, outlet Russell Mill Pond, Chelmsford to mouth at confluence with the Concord River, Lowell.
AU Type:	RIVER
AU Size:	6.4 MILES
Classification/Qualifier:	B

River Meadow Brook (MA82A-10)

Watershed Area: 26.87 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	26.87	5.83	7.98	1.72
Agriculture	2.4%	0%	3.8%	0%
Developed	35.5%	60.7%	24.5%	43%
Natural	45.1%	27.3%	40.6%	30.8%
Wetland	17.1%	12%	31%	26.2%
Impervious	19.6%	40.3%	14.4%	31.1%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Debris*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Chloride	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Fecal Coliform	R1_MA_2024_04	Changed
5	5	Temperature	--	Unchanged
5	5	Trash	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Debris*)	Municipal (Urbanized High Density Area) (Y)	--	--	X	X	X
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Chloride	Highway/Road/Bridge Runoff (Non-construction Related) (Y)	X	--	--	--	--
Chloride	Impervious Surface/Parking Lot Runoff (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Fecal Coliform	Source Unknown (N)	--	--	--	X	--
Temperature	Dam or Impoundment (Y)	X	--	--	--	--
Trash	Municipal (Urbanized High Density Area) (Y)	--	--	X	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)
Fecal Coliform	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in River Meadow Brook (MA82A-10), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for River Meadow Brook (MA82A-10) continues to be assessed as Not Supporting with the prior Debris and Trash impairments being carried forward. MassDEP staff recorded aesthetics observations for River Meadow Brook in 2015 and 2016 at multiple stations from upstream to downstream as follows: the upstream end of the AU at Mill Rd bridge, Chelmsford (W1488; 2015 n=3; 2016 n=6); ~1400 ft upstream/south of Turnpike Rd, Chelmsford (W2507; 2015 n=5); Industrial Ave, Chelmsford (W2548; 2015 n=3; 2016 n=6); and near the downstream end of the AU at apartment complex roadway bridge near mouth of river, east of Lawrence St, Lowell (W1489; 2015 n=3; 2016 n=6). There were generally no persistent odors, growths, or turbidity noted at any of the sites. However, objectionable deposits (i.e., trash) were recorded during field surveys at the two downstream stations: W2548 in 2015 (n=1 of 3, along with 1 aesthetics impairment flag) and 2016 (n=5 of 6, along with 5 aesthetics impairment flags), and at station W1489 in summer 2015 (n=2 of 3, once with an aesthetics impairment flag) and 2016 (n=5 of 6; one of the field notes from later in 2016 describes “major trash” (MassDEP Undated 7).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1488	MassDEP	Water Quality	River Meadow Brook	[Mill Road bridge, Chelmsford]	42.578262	-71.332530
W1489	MassDEP	Water Quality	River Meadow Brook	[apartment complex roadway bridge near mouth of river, east of Lawrence Street, Lowell]	42.633801	-71.301197
W2507	MassDEP	Water Quality	River Meadow Brook	[approximately 1400 feet upstream/south of Turnpike Road, Chelmsford]	42.594356	-71.340670
W2548	MassDEP	Water Quality	River Meadow Brook	[Industrial Avenue, Chelmsford]	42.614582	-71.322564

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W1488	2015	3	Aesthetic observations were made by MassDEP field sampling crews at Station W1488 on River Meadow Brook (MA82A-10) during 3 site visits between Oct 2015 and Dec 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.
W1488	2016	6	Aesthetic observations were made by MassDEP field sampling crews at Station W1488 on River Meadow Brook (MA82A-10) during 6 site visits between Jan 2016 and Sep 2016. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted high turbidity (n=1).
W1489	2015	3	Aesthetic observations were made by MassDEP field sampling crews at Station W1489 on River Meadow Brook (MA82A-10) during 3 site visits between Oct 2015 and Dec 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted an aesthetics impairment flag (n=1) and objectionable deposits (n=2).
W1489	2016	6	Aesthetic observations were made by MassDEP field sampling crews at Station W1489 on River Meadow Brook (MA82A-10) during 6 site visits between Jan 2016 and Sep 2016. Field staff recorded the following objectionable conditions: an aesthetics impairment flag (n=5). Field staff also noted objectionable deposits (n=5) and abundant trash (n=1). These observations are indicative of an Aesthetics Use impairment.
W2507	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2507 on River Meadow Brook (MA82A-10) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted dense/very dense aquatic plants (n=2).
W2548	2015	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2548 on River Meadow Brook (MA82A-10) during 3 site visits between Oct 2015 and Dec 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted an aesthetics impairment flag (n=1).
W2548	2016	6	Aesthetic observations were made by MassDEP field sampling crews at Station W2548 on River Meadow Brook (MA82A-10) during 6 site visits between Jan 2016 and Sep 2016. Field staff recorded the following objectionable conditions: an aesthetics impairment flag (n=5). Field staff also noted grey water color (n=1), high turbidity (n=1), and objectionable deposits (n=5). These observations are indicative of an Aesthetics Use impairment.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W1488	2015	3	3	0
W1488	2016	6	3	0
W1489	2015	3	3	0
W1489	2016	6	5	2

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2507	2015	5	5	0
W2548	2015	3	3	0
W2548	2016	6	6	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W1488	River Meadow Brook	2015	Aesthetics Impaired?	No	3	3
W1488	River Meadow Brook	2015	Aquatic Plant Density, Overall	NR	1	3
W1488	River Meadow Brook	2015	Aquatic Plant Density, Overall	Sparse	2	3
W1488	River Meadow Brook	2015	Color	None	2	3
W1488	River Meadow Brook	2015	Color	Unobservable	1	3
W1488	River Meadow Brook	2015	Objectionable Deposits	No	3	3
W1488	River Meadow Brook	2015	Odor	None	3	3
W1488	River Meadow Brook	2015	Periphyton Density, Filamentous	None	3	3
W1488	River Meadow Brook	2015	Periphyton Density, Film	None	1	3
W1488	River Meadow Brook	2015	Periphyton Density, Film	NR	1	3
W1488	River Meadow Brook	2015	Periphyton Density, Film	Sparse	1	3
W1488	River Meadow Brook	2015	Scum	No	1	3
W1488	River Meadow Brook	2015	Scum	Yes	2	3
W1488	River Meadow Brook	2015	Turbidity	None	1	3
W1488	River Meadow Brook	2015	Turbidity	Slightly Turbid	2	3
W1488	River Meadow Brook	2016	Aesthetics Impaired?	No	6	6
W1488	River Meadow Brook	2016	Aquatic Plant Density, Overall	Moderate	3	6
W1488	River Meadow Brook	2016	Aquatic Plant Density, Overall	Sparse	2	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W1488	River Meadow Brook	2016	Aquatic Plant Density, Overall	Unobservable	1	6
W1488	River Meadow Brook	2016	Color	Brownish	1	6
W1488	River Meadow Brook	2016	Color	Light Yellow/Tan	3	6
W1488	River Meadow Brook	2016	Color	None	2	6
W1488	River Meadow Brook	2016	Objectionable Deposits	No	4	6
W1488	River Meadow Brook	2016	Objectionable Deposits	Unobservable	2	6
W1488	River Meadow Brook	2016	Odor	None	5	6
W1488	River Meadow Brook	2016	Odor	Unobservable	1	6
W1488	River Meadow Brook	2016	Periphyton Density, Filamentous	Moderate	1	6
W1488	River Meadow Brook	2016	Periphyton Density, Filamentous	None	2	6
W1488	River Meadow Brook	2016	Periphyton Density, Filamentous	Unobservable	3	6
W1488	River Meadow Brook	2016	Periphyton Density, Film	Moderate	1	6
W1488	River Meadow Brook	2016	Periphyton Density, Film	None	2	6
W1488	River Meadow Brook	2016	Periphyton Density, Film	Unobservable	3	6
W1488	River Meadow Brook	2016	Scum	No	3	6
W1488	River Meadow Brook	2016	Scum	Yes	3	6
W1488	River Meadow Brook	2016	Turbidity	Highly Turbid	1	6
W1488	River Meadow Brook	2016	Turbidity	None	3	6
W1488	River Meadow Brook	2016	Turbidity	Slightly Turbid	2	6
W1489	River Meadow Brook	2015	Aesthetics Impaired?	No	2	3
W1489	River Meadow Brook	2015	Aesthetics Impaired?	Yes	1	3
W1489	River Meadow Brook	2015	Aquatic Plant Density, Overall	None	3	3

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W1489	River Meadow Brook	2015	Color	None	3	3
W1489	River Meadow Brook	2015	Objectionable Deposits	No	1	3
W1489	River Meadow Brook	2015	Objectionable Deposits	Yes	2	3
W1489	River Meadow Brook	2015	Odor	None	3	3
W1489	River Meadow Brook	2015	Periphyton Density, Filamentous	None	3	3
W1489	River Meadow Brook	2015	Periphyton Density, Film	None	3	3
W1489	River Meadow Brook	2015	Scum	No	2	3
W1489	River Meadow Brook	2015	Scum	NR	1	3
W1489	River Meadow Brook	2015	Turbidity	None	3	3
W1489	River Meadow Brook	2016	Aesthetics Impaired?	No	1	6
W1489	River Meadow Brook	2016	Aesthetics Impaired?	Yes	5	6
W1489	River Meadow Brook	2016	Aquatic Plant Density, Overall	None	4	6
W1489	River Meadow Brook	2016	Aquatic Plant Density, Overall	Sparse	1	6
W1489	River Meadow Brook	2016	Aquatic Plant Density, Overall	Unobservable	1	6
W1489	River Meadow Brook	2016	Color	Light Yellow/Tan	3	6
W1489	River Meadow Brook	2016	Color	None	3	6
W1489	River Meadow Brook	2016	Objectionable Deposits	No	1	6
W1489	River Meadow Brook	2016	Objectionable Deposits	Yes	5	6
W1489	River Meadow Brook	2016	Odor	None	3	6
W1489	River Meadow Brook	2016	Odor	Other (Unknown)	1	6
W1489	River Meadow Brook	2016	Odor	Unobservable	2	6
W1489	River Meadow Brook	2016	Periphyton Density, Filamentous	Dense	1	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W1489	River Meadow Brook	2016	Periphyton Density, Filamentous	Moderate	1	6
W1489	River Meadow Brook	2016	Periphyton Density, Filamentous	None	3	6
W1489	River Meadow Brook	2016	Periphyton Density, Filamentous	Unobservable	1	6
W1489	River Meadow Brook	2016	Periphyton Density, Film	Dense	2	6
W1489	River Meadow Brook	2016	Periphyton Density, Film	None	3	6
W1489	River Meadow Brook	2016	Periphyton Density, Film	Unobservable	1	6
W1489	River Meadow Brook	2016	Scum	No	5	6
W1489	River Meadow Brook	2016	Scum	Yes	1	6
W1489	River Meadow Brook	2016	Turbidity	None	3	6
W1489	River Meadow Brook	2016	Turbidity	Slightly Turbid	3	6
W2507	River Meadow Brook	2015	Aesthetics Impaired?	No	5	5
W2507	River Meadow Brook	2015	Aquatic Plant Density, Overall	Dense	2	5
W2507	River Meadow Brook	2015	Aquatic Plant Density, Overall	Moderate	2	5
W2507	River Meadow Brook	2015	Aquatic Plant Density, Overall	None	1	5
W2507	River Meadow Brook	2015	Color	Brownish	1	5
W2507	River Meadow Brook	2015	Color	Light Yellow/Tan	3	5
W2507	River Meadow Brook	2015	Color	None	1	5
W2507	River Meadow Brook	2015	Objectionable Deposits	No	4	5
W2507	River Meadow Brook	2015	Objectionable Deposits	Yes	1	5
W2507	River Meadow Brook	2015	Odor	None	5	5
W2507	River Meadow Brook	2015	Periphyton Density, Filamentous	Moderate	1	5
W2507	River Meadow Brook	2015	Periphyton Density, Filamentous	None	4	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2507	River Meadow Brook	2015	Periphyton Density, Film	None	4	5
W2507	River Meadow Brook	2015	Periphyton Density, Film	Sparse	1	5
W2507	River Meadow Brook	2015	Scum	No	5	5
W2507	River Meadow Brook	2015	Turbidity	None	4	5
W2507	River Meadow Brook	2015	Turbidity	Slightly Turbid	1	5
W2548	River Meadow Brook	2015	Aesthetics Impaired?	No	2	3
W2548	River Meadow Brook	2015	Aesthetics Impaired?	Yes	1	3
W2548	River Meadow Brook	2015	Aquatic Plant Density, Overall	Moderate	1	3
W2548	River Meadow Brook	2015	Aquatic Plant Density, Overall	Sparse	2	3
W2548	River Meadow Brook	2015	Color	None	3	3
W2548	River Meadow Brook	2015	Objectionable Deposits	No	2	3
W2548	River Meadow Brook	2015	Objectionable Deposits	Yes	1	3
W2548	River Meadow Brook	2015	Odor	None	3	3
W2548	River Meadow Brook	2015	Periphyton Density, Filamentous	Moderate	1	3
W2548	River Meadow Brook	2015	Periphyton Density, Filamentous	None	2	3
W2548	River Meadow Brook	2015	Periphyton Density, Film	None	2	3
W2548	River Meadow Brook	2015	Periphyton Density, Film	Sparse	1	3
W2548	River Meadow Brook	2015	Scum	No	3	3
W2548	River Meadow Brook	2015	Turbidity	None	2	3
W2548	River Meadow Brook	2015	Turbidity	Slightly Turbid	1	3
W2548	River Meadow Brook	2016	Aesthetics Impaired?	No	1	6
W2548	River Meadow Brook	2016	Aesthetics Impaired?	Yes	5	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2548	River Meadow Brook	2016	Aquatic Plant Density, Overall	None	6	6
W2548	River Meadow Brook	2016	Color	Brownish	1	6
W2548	River Meadow Brook	2016	Color	Greyish	1	6
W2548	River Meadow Brook	2016	Color	Light Yellow/Tan	2	6
W2548	River Meadow Brook	2016	Color	None	2	6
W2548	River Meadow Brook	2016	Objectionable Deposits	No	1	6
W2548	River Meadow Brook	2016	Objectionable Deposits	Yes	5	6
W2548	River Meadow Brook	2016	Odor	Musty (Basement)	1	6
W2548	River Meadow Brook	2016	Odor	None	4	6
W2548	River Meadow Brook	2016	Odor	Unobservable	1	6
W2548	River Meadow Brook	2016	Periphyton Density, Filamentous	None	4	6
W2548	River Meadow Brook	2016	Periphyton Density, Filamentous	Sparse	2	6
W2548	River Meadow Brook	2016	Periphyton Density, Film	Moderate	2	6
W2548	River Meadow Brook	2016	Periphyton Density, Film	None	2	6
W2548	River Meadow Brook	2016	Periphyton Density, Film	Sparse	2	6
W2548	River Meadow Brook	2016	Scum	No	4	6
W2548	River Meadow Brook	2016	Scum	Unobservable	1	6
W2548	River Meadow Brook	2016	Scum	Yes	1	6
W2548	River Meadow Brook	2016	Turbidity	Highly Turbid	1	6
W2548	River Meadow Brook	2016	Turbidity	Moderately Turbid	1	6
W2548	River Meadow Brook	2016	Turbidity	None	3	6
W2548	River Meadow Brook	2016	Turbidity	Slightly Turbid	1	6

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for River Meadow Brook (MA82A-10) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W2507, OARS_RVM-027, OARS_RVM-022, OARS_RVM-018, OARS_RVM-012, OARS_RVM-005, OARS_RVM-004, OARS_RVM-002, and OARS_RVM-001. The prior Fecal Coliform impairment is being carried forward, as well as the prior Debris and Trash impairments (from the Aesthetics Use). MassDEP and OARS staff/volunteers collected *E. coli* bacteria samples in River Meadow Brook (MA82A-10) from 2015-2022 at 11 stations throughout the AU. Sufficient samples for analysis were collected from the following stations/sample years from up to downstream at MassDEP station W2507 [~1400 ft upstream/S of Turnpike Rd] from May-Sep 2015 (n=5) & OARS_RVM-027 [Glen Ave] from Jun-Aug 2021 (n=5) both in Chelmsford. In Lowell, stations are as follows: OARS_RVM-022 [Industrial Ave at Crosspoint tower] from 2020-2021 (n=3-6/yr), OARS_RVM-018 [Industrial Ave. (behind Marshalls)] from Jul-Aug 2020 (n=6), OARS_RVM-012 [Lincoln St] from July-Aug 2020 (n=6), 2 samples at OARS_RVM-008 [Howard St] too limited, OARS_RVM-005 [Thorndike St & Chambers St] from 2020-2021 (n=9-15/yr), OARS_RVM-004 [Newhall St] from Jun-Aug 2021 (n=5), OARS_RVM-002 [Industrial Tool] from Jun-Sep 2021 (n=7), 2 samples at OARS_RVM-0015 [UMACO] too limited, OARS_RVM-001 [649 Lawrence St] from 2020-2022 (n=9-15/yr). Analysis of the single year limited frequency *E. coli* dataset from W2507 indicated 100% of intervals had GMs >126 CFU/100mL, 2 samples exceeded the 410 CFU/100mL STV, and the seasonal GM was 578 CFU/100mL. Analysis of the single year limited frequency *E. coli* dataset from OARS_RVM-027 indicated 100% of intervals had GMs >126 CFU/100mL, no samples exceeded the 410 CFU/100mL STV, and the seasonal GM was 240 CFU/100mL. Analysis of the multi-year limited frequency *E. coli* dataset from OARS_RVM-022 indicated 2 out of 2 sufficient data yrs had intervals where >20% of the GMs were >126 CFU/100mL (2020 and 2021, 100 & 100%), 0 yrs had ≥2 samples exceed the 410 CFU/100mL STV, and cumulatively across years 100% of intervals had GMs >126 CFU/100mL. Analysis of the single year limited frequency *E. coli* dataset from OARS_RVM-018 indicated 100% of intervals had GMs >126 CFU/100mL, no samples exceeded the 410 CFU/100mL STV, and the seasonal GM was 206 CFU/100mL. Analysis of the single year limited frequency *E. coli* dataset from OARS_RVM-012 indicated 100% of intervals had GMs >126 CFU/100mL, no samples exceeded the 410 CFU/100mL STV, and the seasonal GM was 230 CFU/100mL. Analysis of the multi-year high/moderate frequency *E. coli* dataset from OARS_RVM-005 indicated 2 out of 2 sufficient data yrs had intervals where >10/20% of the GMs were >126 CFU/100mL (2020 & 2021, 96% & 100%), only high frequency 2020 counted as a violation of the 410 CFU/100mL STV (20% exceedances), and cumulatively across years 97% of intervals had GMs >126 CFU/100mL. Analysis of the single year limited frequency *E. coli* dataset from OARS_RVM-004 indicated 100% of intervals had GMs >126 CFU/100mL, 1 sample exceeded the 410 CFU/100mL STV, and the seasonal GM was 202 CFU/100mL. Analysis of the single year moderate frequency *E. coli* dataset from OARS_RVM-002 indicated 66% of intervals had GMs >126 CFU/100mL and 1 sample exceeded the 410 CFU/100mL STV. Analysis of the multi-year high/moderate frequency *E. coli* dataset from OARS_RVM-001 indicated 3 out of 3 sufficient data yrs had intervals where

>10/20% of the GMs were >126 CFU/100mL (2020-2022, 100%), all 3 yrs had violations of the 410 CFU/100mL STV (2020-2022, n=3-7 or 26-77%), and cumulatively across years 100% of intervals had GMs >126 CFU/100mL. *E. coli* data from W2507, OARS_RVM-027, OARS_RVM-022, OARS_RVM-018, OARS_RVM-012, OARS_RVM-005, OARS_RVM-004, OARS_RVM-002, and OARS_RVM-001 are indicative of an *E. coli* impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2507	MassDEP	Water Quality	River Meadow Brook	[approximately 1400 feet upstream/south of Turnpike Road, Chelmsford]	42.594356	-71.340670
OARS_RVM-001	OARS	Water Quality	River Meadow Brook	649 Lawrence St., Lowell	42.633278	-71.303113
OARS_RVM-0015	OARS	Water Quality	River Meadow Brook	UMACO, Lowell	42.632741	-71.303577
OARS_RVM-002	OARS	Water Quality	River Meadow Brook	Industrial Tool, Lowell	42.631878	-71.303969
OARS_RVM-004	OARS	Water Quality	River Meadow Brook	Newhall St., Lowell	42.631250	-71.306048
OARS_RVM-005	OARS	Water Quality	River Meadow Brook	Thorndike Street and Chambers Street, Lowell	42.631816	-71.308547
OARS_RVM-008	OARS	Water Quality	River Meadow Brook	Howard St., Lowell	42.632453	-71.313522
OARS_RVM-012	OARS	Water Quality	River Meadow Brook	Lincoln St., Lowell	42.628175	-71.317949
OARS_RVM-018	OARS	Water Quality	River Meadow Brook	Industrial Ave. (behind Marshalls), Lowell	42.619696	-71.318965
OARS_RVM-022	OARS	Water Quality	River Meadow Brook	Industrial Ave. at Crosspoint tower, Lowell	42.614641	-71.322688
OARS_RVM-027	OARS	Water Quality	River Meadow Brook	Glen Ave., Chelmsford	42.610395	-71.330474

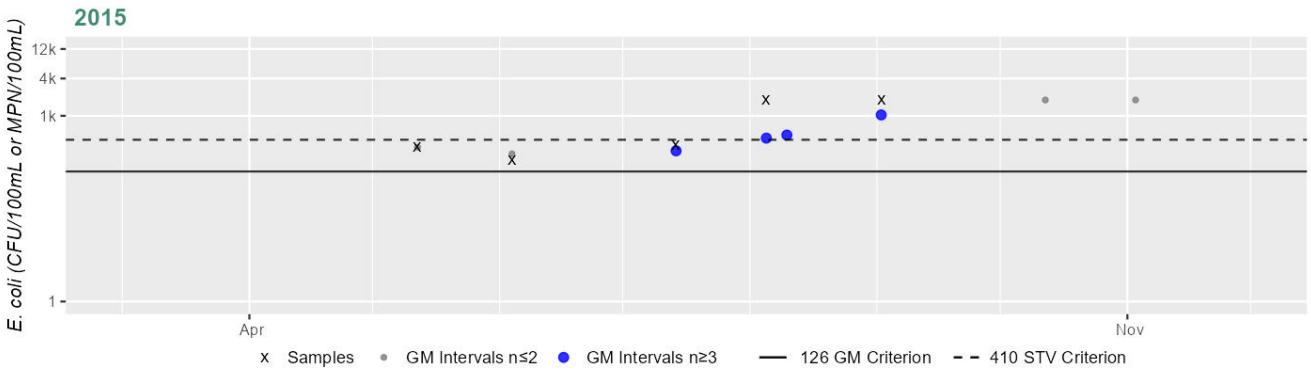
Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4) (OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2507	MassDEP	E. coli	05/12/15	09/02/15	5	190	1800	578
OARS_RVM-001	OARS	E. coli	06/08/20	09/14/20	15	164	3040	427
OARS_RVM-001	OARS	E. coli	06/07/21	09/07/21	9	10	890	236
OARS_RVM-001	OARS	E. coli	05/16/22	09/12/22	9	272	1127	504
OARS_RVM-0015	OARS	E. coli	08/30/21	09/07/21	2	248	320	281
OARS_RVM-002	OARS	E. coli	06/21/21	09/07/21	7	10	810	155
OARS_RVM-004	OARS	E. coli	06/21/21	08/16/21	5	90	660	202
OARS_RVM-005	OARS	E. coli	06/08/20	09/14/20	15	60	3360	303
OARS_RVM-005	OARS	E. coli	06/07/21	09/07/21	9	50	860	234
OARS_RVM-008	OARS	E. coli	08/30/21	09/07/21	2	168	212	188
OARS_RVM-012	OARS	E. coli	07/20/20	08/24/20	6	110	380	230
OARS_RVM-012	OARS	E. coli	08/30/21	09/07/21	2	124	224	166
OARS_RVM-018	OARS	E. coli	07/20/20	08/24/20	6	100	380	206
OARS_RVM-022	OARS	E. coli	08/31/20	09/14/20	3	130	880	338
OARS_RVM-022	OARS	E. coli	06/07/21	08/09/21	6	156	330	221
OARS_RVM-027	OARS	E. coli	06/14/21	08/24/21	5	144	384	240

Station MASSDEP_W2507 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	578
#GMI	4
#GMI Ex	4
%GMI Ex	100%
n>STV	2
%n>STV	40%

Cumulative %GMI Exceedance

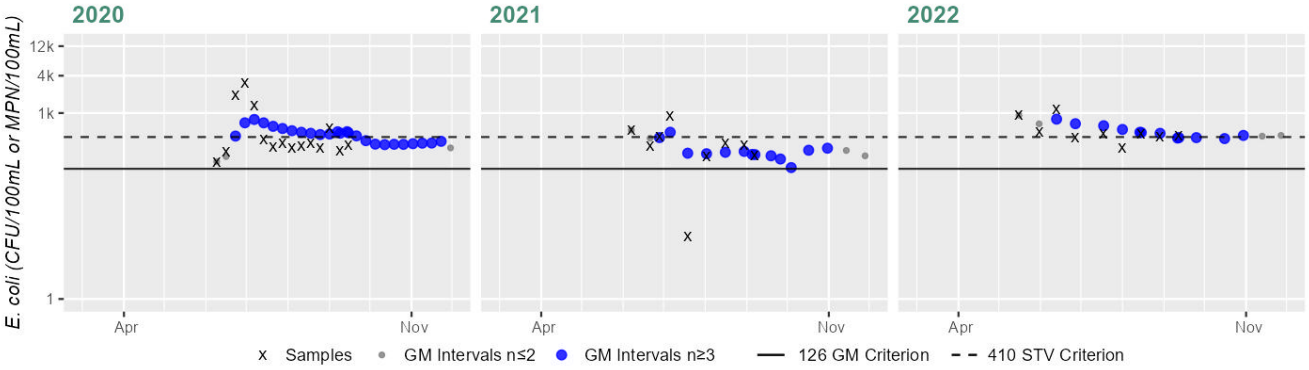
Current (2011-2022)

100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-001 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	427
#GMI	25
#GMI Ex	25
%GMI Ex	100%
n>STV	4
%n>STV	26%

Variable*	Result
Samples	9
SeasGM	236
#GMI	13
#GMI Ex	13
%GMI Ex	100%
n>STV	3
%n>STV	33%

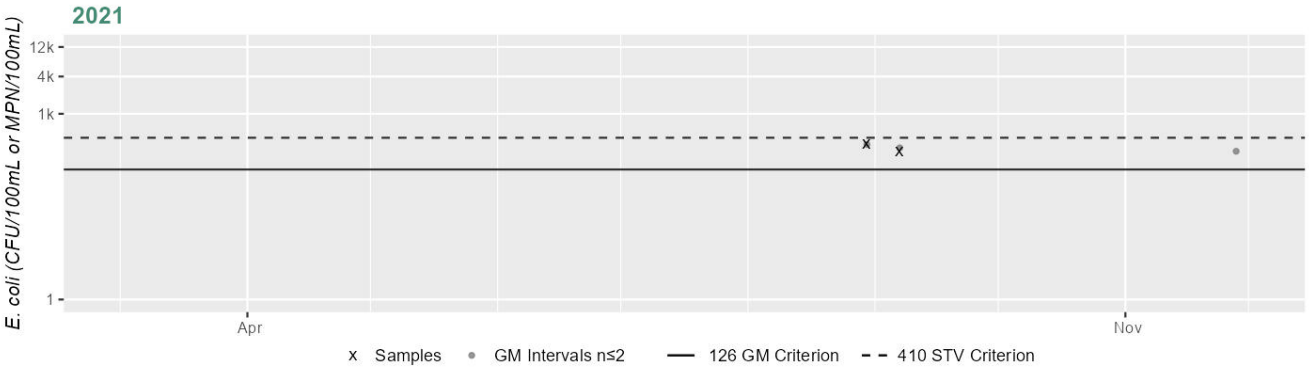
Variable*	Result
Samples	9
SeasGM	504
#GMI	12
#GMI Ex	12
%GMI Ex	100%
n>STV	7
%n>STV	77%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-0015 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



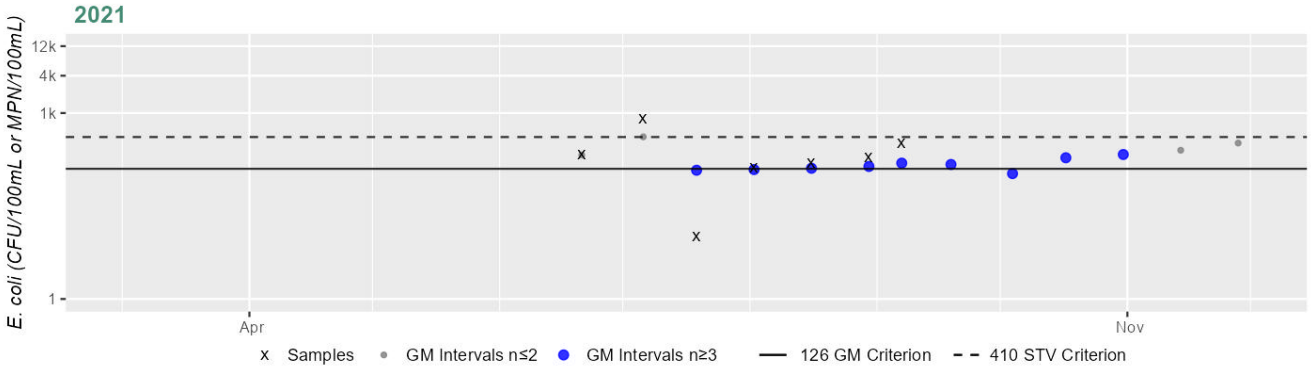
Variable*	Result
Samples	2
SeasGM	281
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-002 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



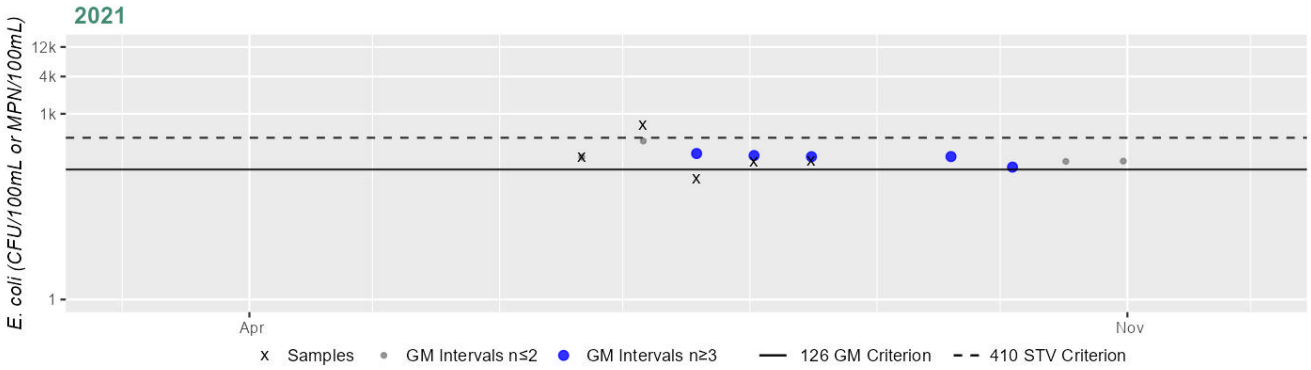
Variable*	Result
Samples	7
SeasGM	155
#GMI	9
#GMI Ex	6
%GMI Ex	66%
n>STV	1
%n>STV	14%

Cumulative %GMI Exceedance
Current (2011-2022)
66%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-004 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



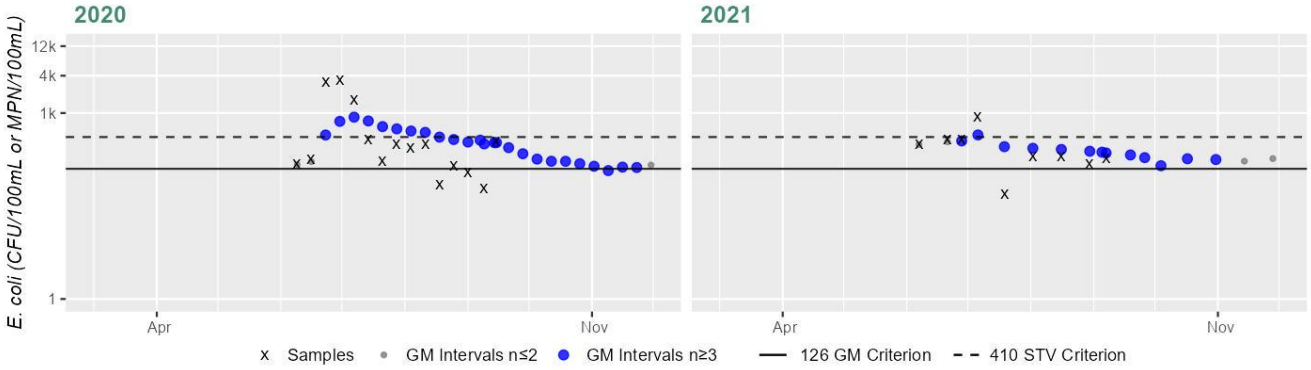
Variable*	Result
Samples	5
SeasGM	202
#GMI	5
#GMI Ex	5
%GMI Ex	100%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-005 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	303
#GMI	25
#GMI Ex	24
%GMI Ex	96%
n>STV	3
%n>STV	20%

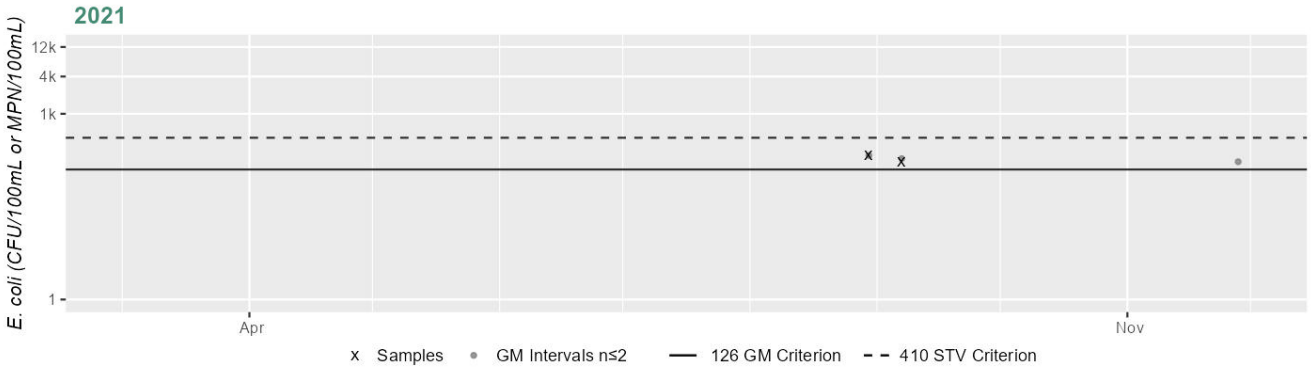
Variable*	Result
Samples	9
SeasGM	234
#GMI	13
#GMI Ex	13
%GMI Ex	100%
n>STV	1
%n>STV	11%

Cumulative %GMI Exceedance
Current (2011-2022)
97%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-008 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



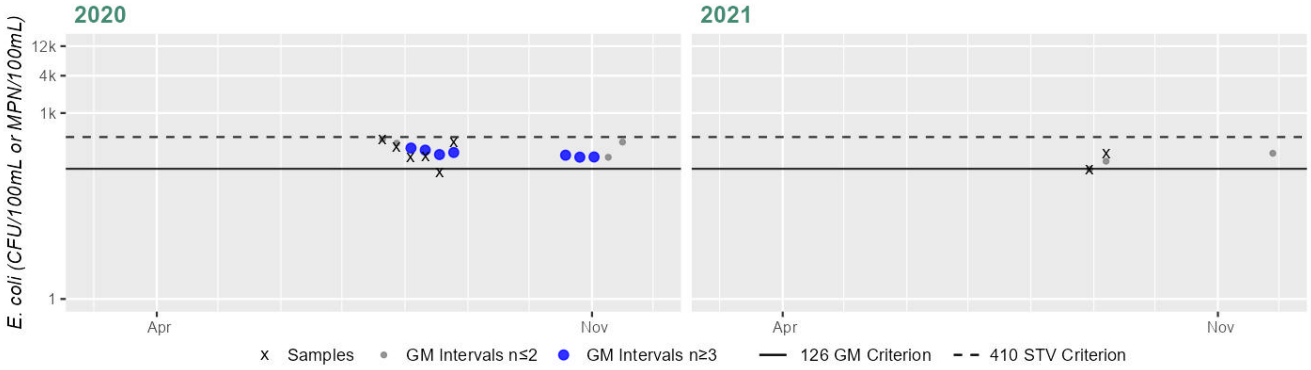
Variable*	Result
Samples	2
SeasGM	188
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-012 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	230
#GMI	7
#GMI Ex	7
%GMI Ex	100%
n>STV	0
%n>STV	0%

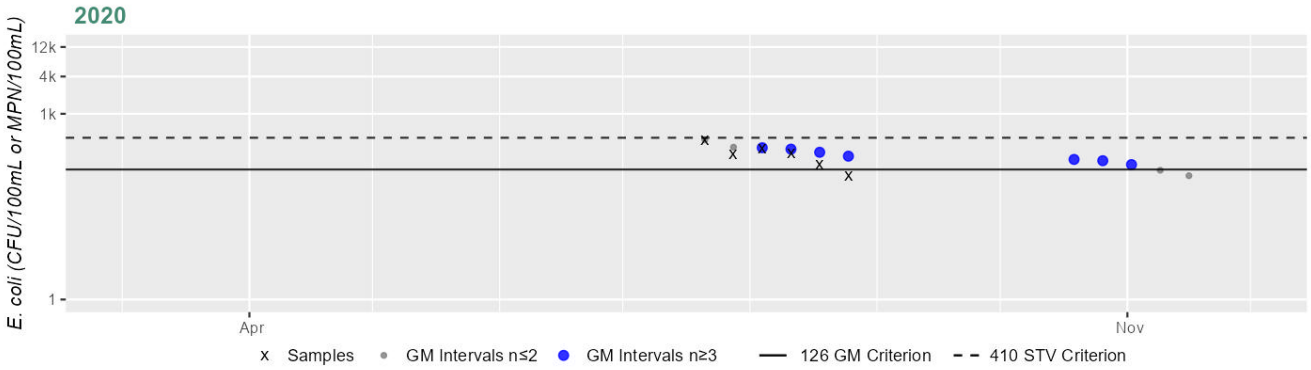
Variable*	Result
Samples	2
SeasGM	166
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-018 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



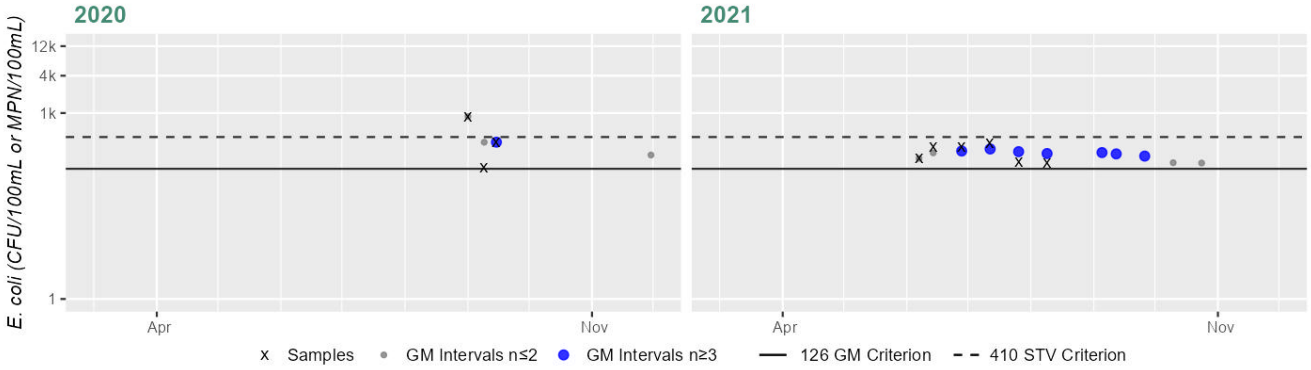
Variable*	Result
Samples	6
SeasGM	206
#GMI	7
#GMI Ex	7
%GMI Ex	100%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-022 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	338
#GMI	1
#GMI Ex	1
%GMI Ex	100%
n>STV	1
%n>STV	33%

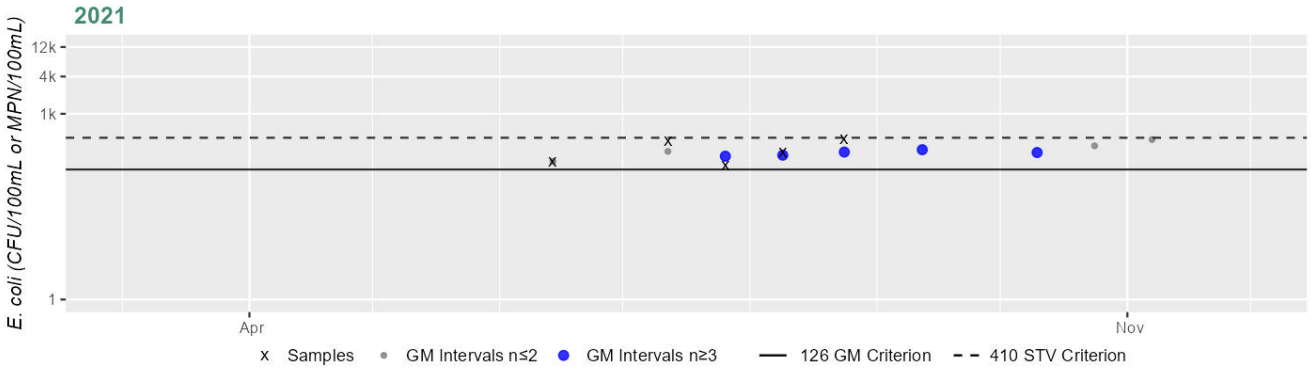
Variable*	Result
Samples	6
SeasGM	221
#GMI	7
#GMI Ex	7
%GMI Ex	100%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-027 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	240
#GMI	5
#GMI Ex	5
%GMI Ex	100%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for River Meadow Brook (MA82A-10) continues to be assessed as Not Supporting. The prior Debris and Trash impairments (from the Aesthetics Use) are being carried forward. An Escherichia Coli (E. Coli) impairment is being added due to bacteria data not meeting the threshold at W2507, OARS_RVM-005, and OARS_RVM-001. MassDEP and OARS staff/volunteers collected *E. coli* bacteria samples in River Meadow Brook from 2015-2022 (during the current IR window, 2011-2022) at 11 stations throughout the AU. Samples were collected from the following stations/sample years from up to downstream at MassDEP station W2507 [~1400 ft upstream/S of Turnpike Rd] from May-Sep 2015 (n=5) & OARS_RVM-027 [Glen Ave] from Jun-Aug 2021 (n=5) both in Chelmsford. In Lowell, stations are as follows: OARS_RVM-022 [Industrial Ave at Crosspoint tower] from 2020-2021 (n=3-6/yr), OARS_RVM-018 [Industrial Ave. (behind Marshalls)] from Jul-Aug 2020 (n=6), OARS_RVM-012 [Lincoln St] from July-Aug 2020 (n=6), 2 samples at OARS_RVM-008 [Howard St] too limited, OARS_RVM-005 [Thorndike St & Chambers St] from 2020-2021 (n=9-15/yr), OARS_RVM-004 [Newhall St] from Jun-Aug 2021 (n=5), OARS_RVM-002 [Industrial Tool] from Jun-Sep 2021 (n=7), 2 samples at OARS_RVM-0015 [UMACO] too limited, OARS_RVM-001 [649 Lawrence St] from 2020-2022 (n=9-15/yr). Analysis of the single year limited frequency dataset from W2507 is indicative of an impairment: 100% of intervals had GMs >244 CFU/100mL & 2 samples exceeded the 794 CFU/100mL STV (overall GM was 578 CFU/100mL). The single year limited frequency dataset from OARS_RVM-027 had 20% of intervals with GMs >244 CFU/100mL & no samples exceeded the 794 CFU/100mL STV (overall GM was 240 CFU/100mL). In the multi-year limited frequency dataset from OARS_RVM-022 only 1 of 2 sufficient data yrs had intervals where >20% of the GMs were >244 CFU/100mL (2020, 100%), 0 yrs had ≥2 samples exceed the 794 CFU/100mL STV, and cumulatively across years 25% of intervals had GMs >244 CFU/100mL. The single year limited frequency dataset from OARS_RVM-018 had 28% of intervals with GMs >244 CFU/100mL & no samples exceeded the 794 CFU/100mL STV (overall GM was 206 CFU/100mL). The single year limited frequency dataset from OARS_RVM-012 had 28% of intervals with GMs >244 CFU/100mL & no samples exceeded the 794 CFU/100mL STV (overall GM was 230 CFU/100mL). Analysis of the multi-year high/moderate frequency dataset from OARS_RVM-005 is indicative of an impairment: 2 out of 2 sufficient data yrs had intervals where >10/20% of the GMs were >244 CFU/100mL (2020 and 2021, 64% & 38%), only high frequency 2020 counted as a violation of the 794 CFU/100mL STV (20% exceedances), and cumulatively across years 55% of intervals had GMs >244 CFU/100mL. The single year limited frequency dataset from OARS_RVM-004 had no intervals with GMs >244 CFU/100mL & no samples exceeded the 794 CFU/100mL STV (overall GM was 202 CFU/100mL). The single year moderate frequency dataset from OARS_RVM-002 had no intervals with GMs >244 CFU/100mL & only 1 sample exceeded the 794 CFU/100mL STV. Analysis of the multi-year high/moderate frequency dataset from OARS_RVM-001 is indicative of an impairment: 3 out of 3 sufficient data yrs had intervals where >10/20% of the GMs were >244 CFU/100mL (2020-2022, 30-100%), 2 yrs had violations of the 794 CFU/100mL STV (2020 and 2022, %n= 20% & n=2), and cumulatively across years 82% of intervals had GMs >244 CFU/100mL. While *E. coli* data from OARS_RVM-027, OARS_RVM-022, OARS_RVM-018, OARS_RVM-012, OARS_RVM-004, and OARS_RVM-002 meet 2024 CALM guidance, *E. coli* data from W2507, OARS_RVM-005, and OARS_RVM-001 are indicative of an Escherichia Coli (E. Coli) impairment so an impairment is being added.

Historical data were also collected at W1488 & W1489, but they do not change the outcome of the addition of an impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1488	MassDEP	Water Quality	River Meadow Brook	[Mill Road bridge, Chelmsford]	42.578262	-71.332530
W1489	MassDEP	Water Quality	River Meadow Brook	[apartment complex roadway bridge near mouth of river, east of Lawrence Street, Lowell]	42.633801	-71.301197
W2507	MassDEP	Water Quality	River Meadow Brook	[approximately 1400 feet upstream/south of Turnpike Road, Chelmsford]	42.594356	-71.340670
OARS_RVM-001	OARS	Water Quality	River Meadow Brook	649 Lawrence St., Lowell	42.633278	-71.303113
OARS_RVM-0015	OARS	Water Quality	River Meadow Brook	UMACO, Lowell	42.632741	-71.303577
OARS_RVM-002	OARS	Water Quality	River Meadow Brook	Industrial Tool, Lowell	42.631878	-71.303969
OARS_RVM-004	OARS	Water Quality	River Meadow Brook	Newhall St., Lowell	42.631250	-71.306048
OARS_RVM-005	OARS	Water Quality	River Meadow Brook	Thorndike Street and Chambers Street, Lowell	42.631816	-71.308547
OARS_RVM-008	OARS	Water Quality	River Meadow Brook	Howard St., Lowell	42.632453	-71.313522
OARS_RVM-012	OARS	Water Quality	River Meadow Brook	Lincoln St., Lowell	42.628175	-71.317949
OARS_RVM-018	OARS	Water Quality	River Meadow Brook	Industrial Ave. (behind Marshalls), Lowell	42.619696	-71.318965
OARS_RVM-022	OARS	Water Quality	River Meadow Brook	Industrial Ave. at Crosspoint tower, Lowell	42.614641	-71.322688
OARS_RVM-027	OARS	Water Quality	River Meadow Brook	Glen Ave., Chelmsford	42.610395	-71.330474

Bacteria Data

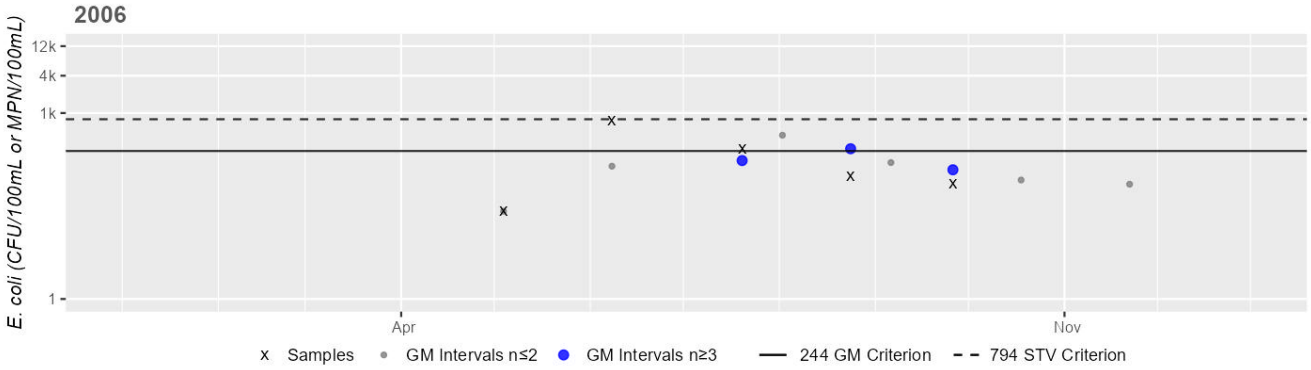
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1488	MassDEP	E. coli	05/04/06	09/26/06	5	26	740	128
W1489	MassDEP	E. coli	05/04/06	09/26/06	5	290	8400	1323
W2507	MassDEP	E. coli	05/12/15	09/02/15	5	190	1800	578
OARS_RVM-001	OARS	E. coli	06/08/20	09/14/20	15	164	3040	427
OARS_RVM-001	OARS	E. coli	06/07/21	09/07/21	9	10	890	236
OARS_RVM-001	OARS	E. coli	05/16/22	09/12/22	9	272	1127	504
OARS_RVM-0015	OARS	E. coli	08/30/21	09/07/21	2	248	320	281
OARS_RVM-002	OARS	E. coli	06/21/21	09/07/21	7	10	810	155
OARS_RVM-004	OARS	E. coli	06/21/21	08/16/21	5	90	660	202
OARS_RVM-005	OARS	E. coli	06/08/20	09/14/20	15	60	3360	303
OARS_RVM-005	OARS	E. coli	06/07/21	09/07/21	9	50	860	234
OARS_RVM-008	OARS	E. coli	08/30/21	09/07/21	2	168	212	188
OARS_RVM-012	OARS	E. coli	07/20/20	08/24/20	6	110	380	230
OARS_RVM-012	OARS	E. coli	08/30/21	09/07/21	2	124	224	166
OARS_RVM-018	OARS	E. coli	07/20/20	08/24/20	6	100	380	206
OARS_RVM-022	OARS	E. coli	08/31/20	09/14/20	3	130	880	338
OARS_RVM-022	OARS	E. coli	06/07/21	08/09/21	6	156	330	221
OARS_RVM-027	OARS	E. coli	06/14/21	08/24/21	5	144	384	240

Station MASSDEP_W1488 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



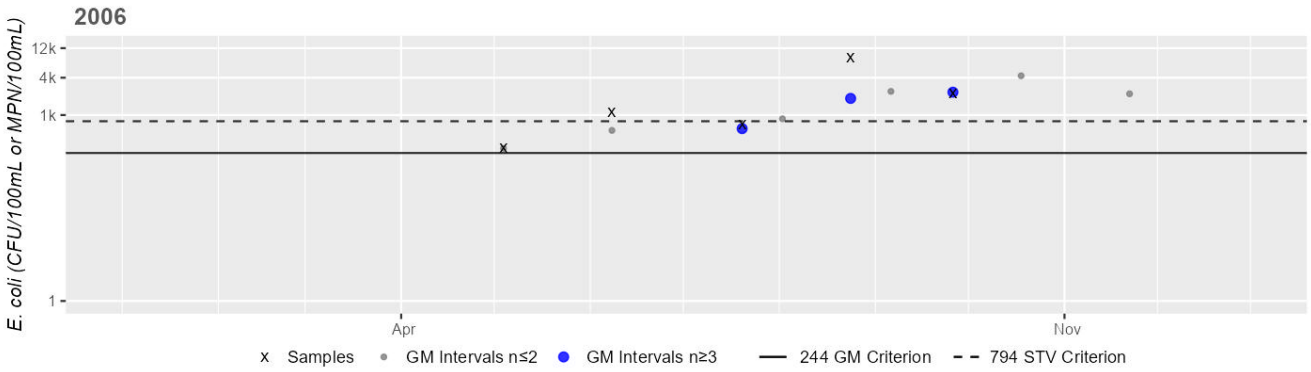
Variable*	Result
Samples	5
SeasGM	128
#GMI	3
#GMI Ex	1
%GMI Ex	33%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
33%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1489 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



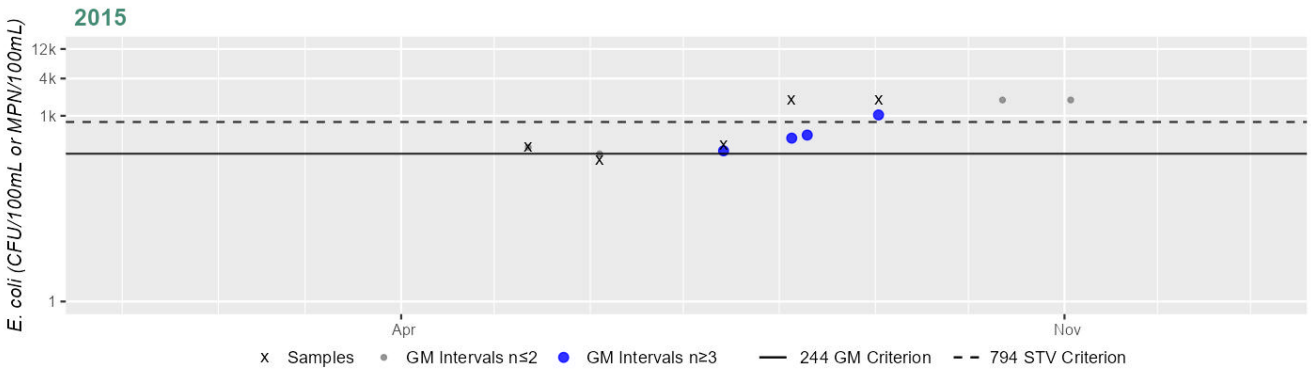
Variable*	Result
Samples	5
SeasGM	1323
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	3
%n>STV	60%

Cumulative %GMI Exceedance
Historic (1997-2010)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2507 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



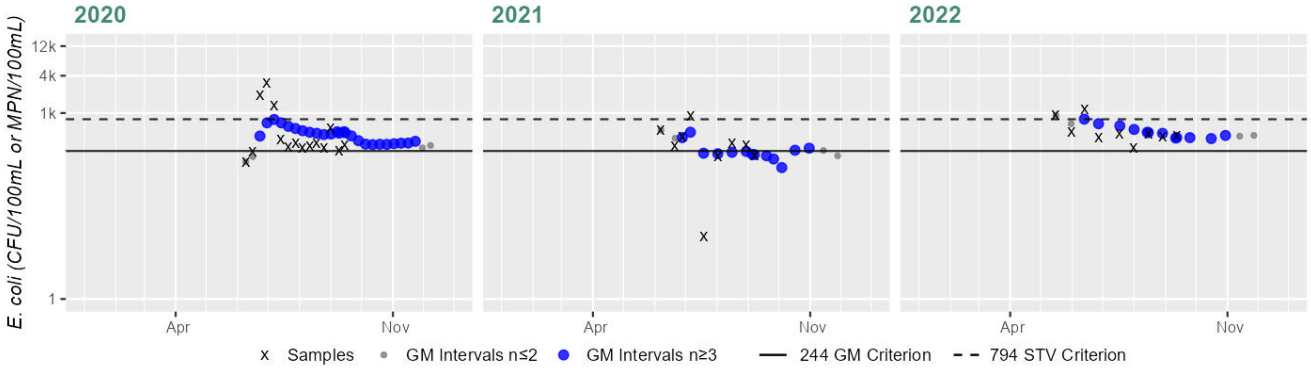
Variable*	Result
Samples	5
SeasGM	578
#GMI	4
#GMI Ex	4
%GMI Ex	100%
n>STV	2
%n>STV	40%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-001 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	427
#GMI	25
#GMI Ex	25
%GMI Ex	100%
n>STV	3
%n>STV	20%

Variable*	Result
Samples	9
SeasGM	236
#GMI	13
#GMI Ex	4
%GMI Ex	30%
n>STV	1
%n>STV	11%

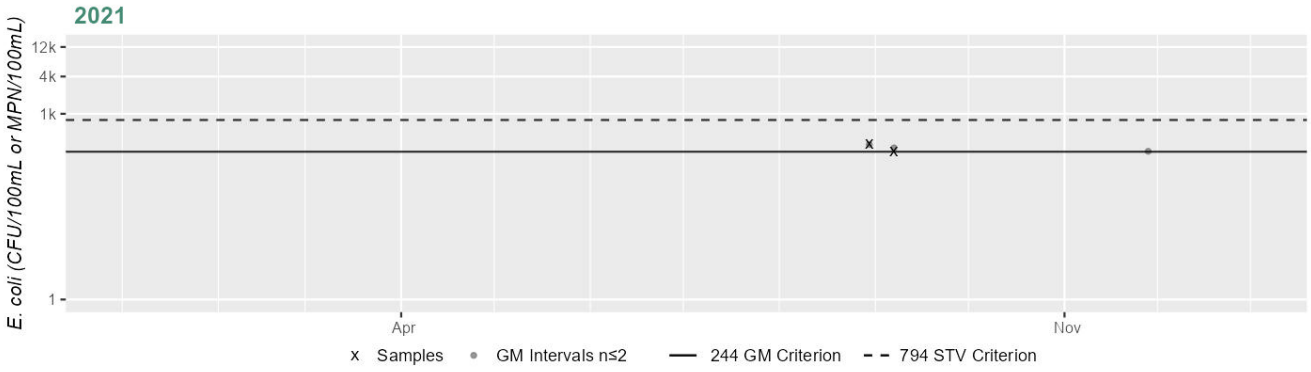
Variable*	Result
Samples	9
SeasGM	504
#GMI	12
#GMI Ex	12
%GMI Ex	100%
n>STV	2
%n>STV	22%

Cumulative %GMI Exceedance
Current (2011-2022)
82%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-0015 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



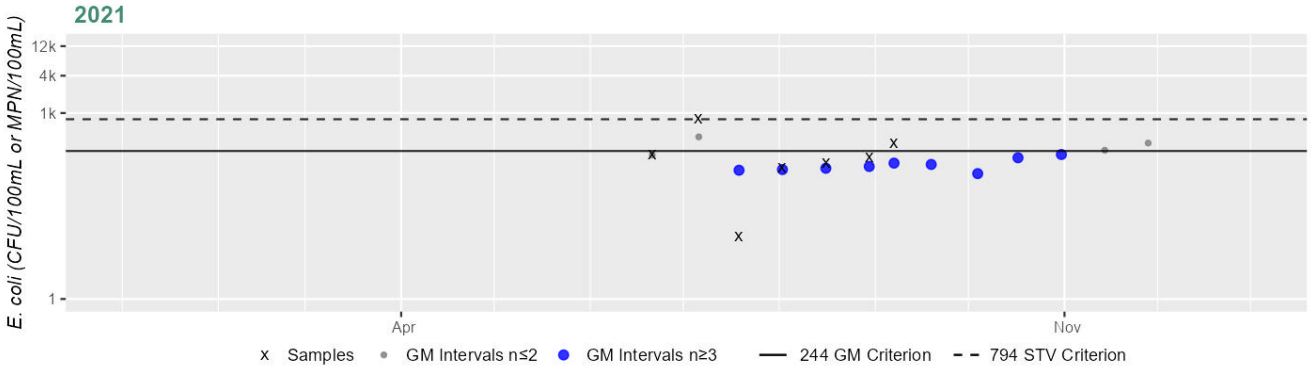
Variable*	Result
Samples	2
SeasGM	281
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-002 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



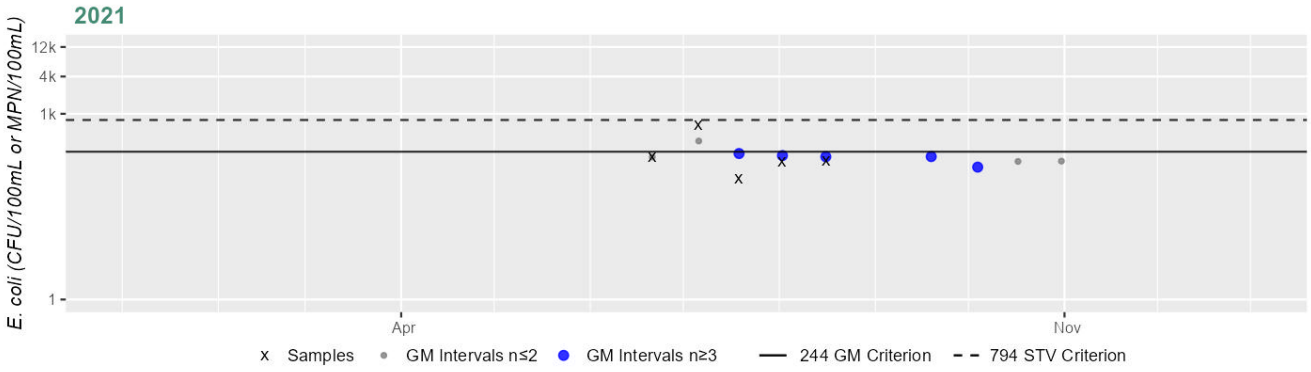
Variable*	Result
Samples	7
SeasGM	155
#GMI	9
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	14%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-004 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



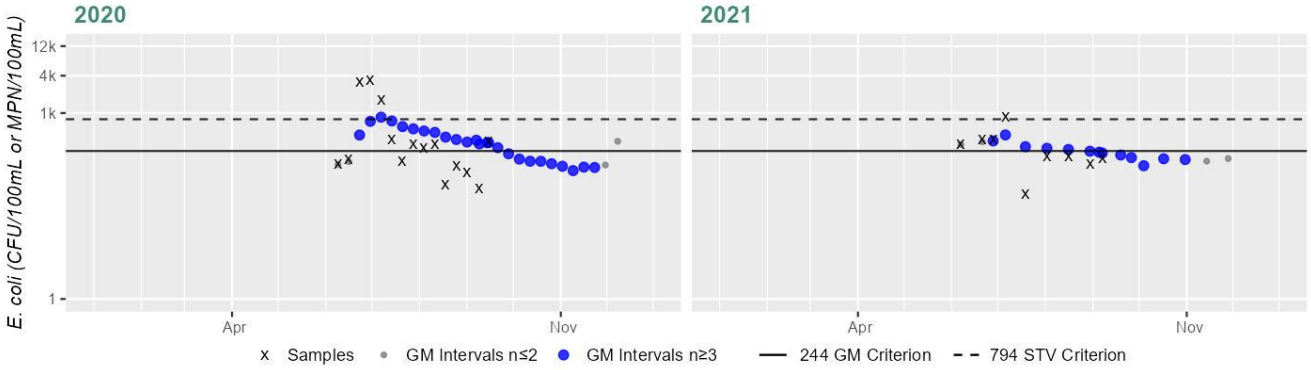
Variable*	Result
Samples	5
SeasGM	202
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-005 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	303
#GMI	25
#GMI Ex	16
%GMI Ex	64%
n>STV	3
%n>STV	20%

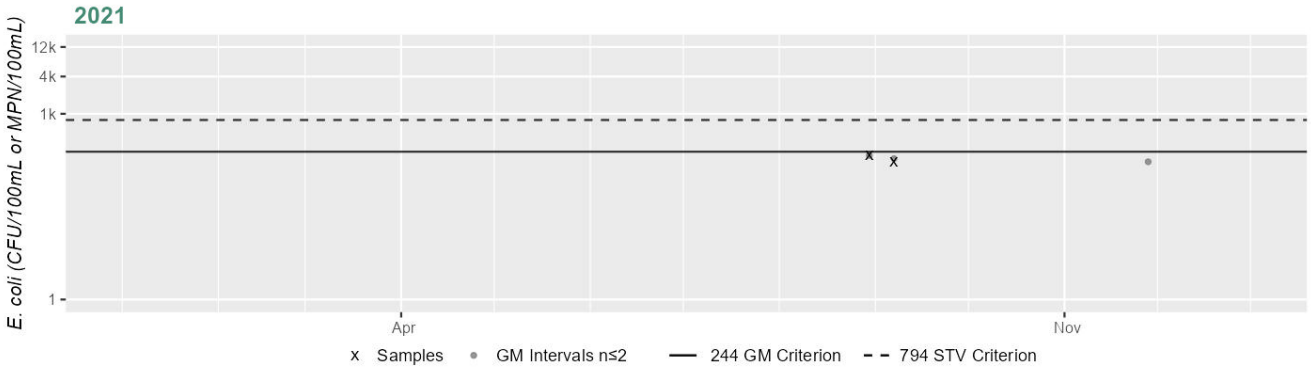
Variable*	Result
Samples	9
SeasGM	234
#GMI	13
#GMI Ex	5
%GMI Ex	38%
n>STV	1
%n>STV	11%

Cumulative %GMI Exceedance
Current (2011-2022)
55%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-008 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



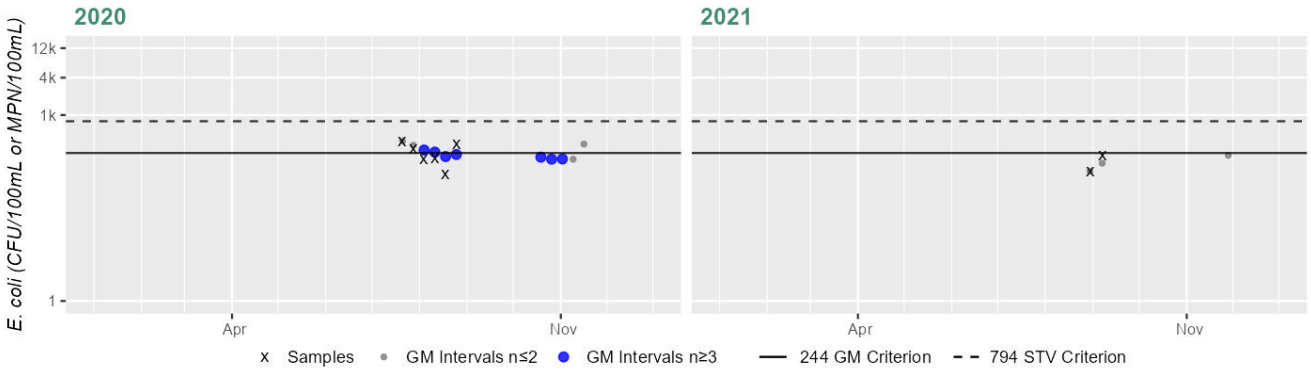
Variable*	Result
Samples	2
SeasGM	188
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-012 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	230
#GMI	7
#GMI Ex	2
%GMI Ex	28%
n>STV	0
%n>STV	0%

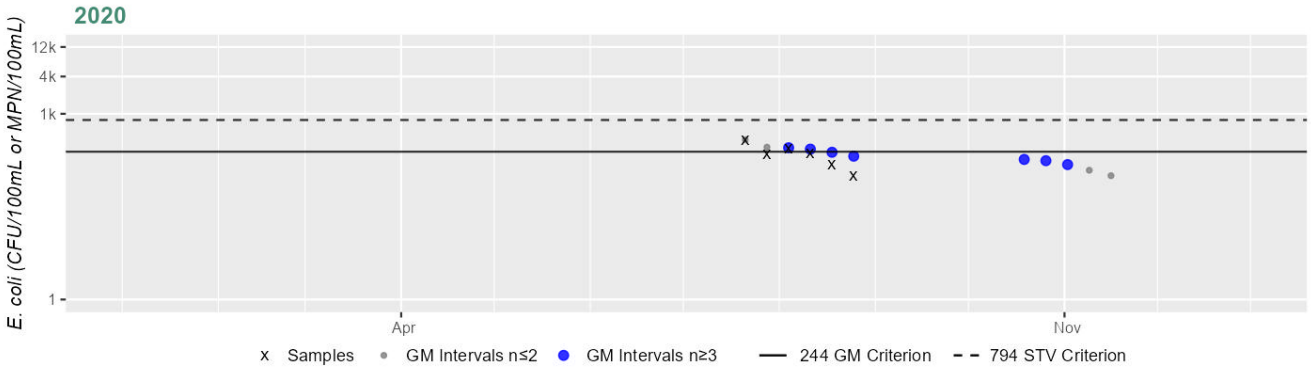
Variable*	Result
Samples	2
SeasGM	166
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
28%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-018 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



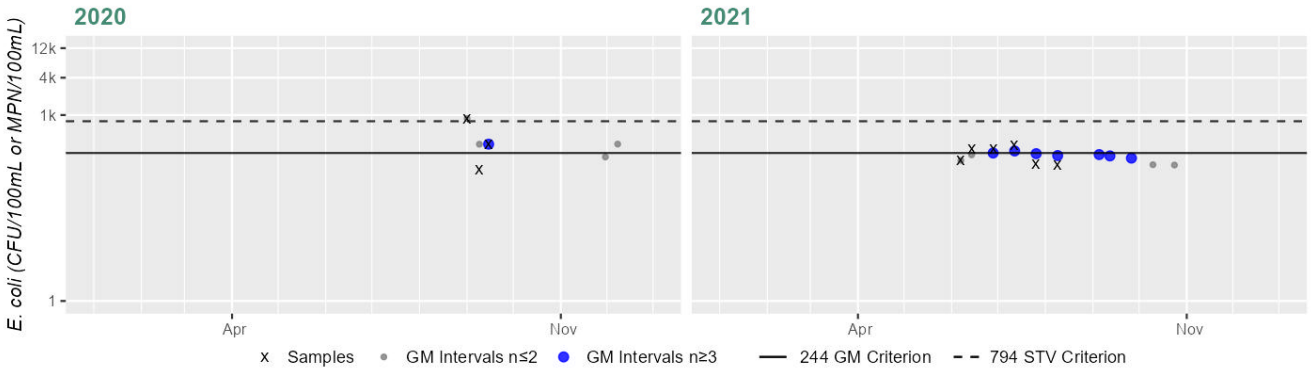
Variable*	Result
Samples	6
SeasGM	206
#GMI	7
#GMI Ex	2
%GMI Ex	28%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
28%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-022 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	338
#GMI	1
#GMI Ex	1
%GMI Ex	100%
n>STV	1
%n>STV	33%

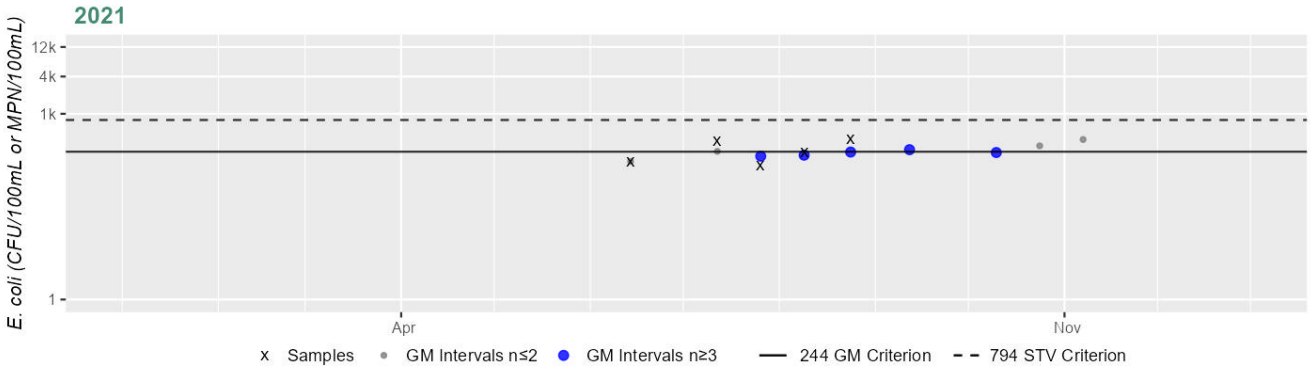
Variable*	Result
Samples	6
SeasGM	221
#GMI	7
#GMI Ex	1
%GMI Ex	14%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
25%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_RVM-027 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	240
#GMI	5
#GMI Ex	1
%GMI Ex	20%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
20%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Rocky Pond (MA82095)

Location:	Boylston.
AU Type:	FRESHWATER LAKE
AU Size:	62 ACRES
Classification/Qualifier:	B

No usable data were available for Rocky Pond (MA82095) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Rutters Brook (MA82A-29)

Location:	From headwaters near Robin Road, Westborough to mouth at confluence with Jackstraw Brook, Westborough.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B: ORW

No usable data were available for Rutters Brook (MA82A-29) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Saxonville Pond (MA82097)

Location:	Framingham.
AU Type:	FRESHWATER LAKE
AU Size:	59 ACRES
Classification/Qualifier:	B: WWF, HQW (impoundment on river designated B/WWF/HQW)

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Aquatic Plants (Macrophytes)*)	--	Unchanged
5	5	(European Water Clover*)	--	Unchanged
5	5	(Fanwort*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged
5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Aquatic Plants (Macrophytes)*)	Source Unknown (N)	--	--	X	X	X
(European Water Clover*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	--	--	X	X	X

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Saxonville Pond (MA82097) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Saxonville Pond (referred to by MA DPH as ''Sudbury River (from Ashland to its confluence with the Assabet and Concord Rivers), Stern Reservoir, and Bracket Reservoir'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for Saxonville Pond (MA82097) continues to be assessed as Not Supporting, with the Nutrient/Eutrophication Biological Indicators and Aquatic Plants (Macrophytes) impairments being carried forward. No new aesthetics observation data are available to evaluate the Aesthetics Use for Saxonville Pond.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

No bacteria or other indicator data for Saxonville Pond (MA82097) are available, so the Primary Contact Recreation Use continues to be assessed as Not Supporting. The prior Aquatic Plants (Macrophytes) and Nutrient/Eutrophication Biological Indicators impairments (from the Aesthetics Use) are being carried forward.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Saxonville Pond (MA82097) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use continues to be assessed as Not Supporting. The prior Aquatic Plants (Macrophytes) and Nutrient/Eutrophication Biological Indicators impairments (from the Aesthetics Use) are being carried forward.

Second Division Brook (MA82B-09)

Location:	Headwaters, outlet small unnamed pond north of Waltham Street, Maynard to mouth at confluence with the Assabet River, Concord.
AU Type:	RIVER
AU Size:	2.9 MILES
Classification/Qualifier:	B

No usable data were available for Second Division Brook (MA82B-09) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Sheep Fall Brook (MA82B-25)

Location:	Headwaters, perennial portion north of Ash Street, Marlborough to mouth at confluence with Flagg Brook, Marlborough.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Sheep Fall Brook (MA82B-25) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Smith Pond (MA82099)

Location:	Northborough.
AU Type:	FRESHWATER LAKE
AU Size:	16 ACRES
Classification/Qualifier:	B

No usable data were available for Smith Pond (MA82099) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Solomon Pond (MA82100)

Location:	Northborough.
AU Type:	FRESHWATER LAKE
AU Size:	21 ACRES
Classification/Qualifier:	B

No usable data were available for Solomon Pond (MA82100) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Spencer Brook (MA82B-15)

Location:	From the outlet of an unnamed pond north of Bellows Hill, Carlisle to mouth at inlet Angiers Pond, Concord.
AU Type:	RIVER
AU Size:	3.8 MILES
Classification/Qualifier:	B

No usable data were available for Spencer Brook (MA82B-15) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Stony Brook (MA82A-33)

Location:	Headwaters, outlet Sudbury Reservoir, Southborough to mouth at inlet Framingham Reservoir #3, Framingham.
AU Type:	RIVER
AU Size:	0.4 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

Stony Brook (MA82A-33)

Watershed Area: 22.84 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	22.84	9.51	8.72	4.61
Agriculture	2.4%	1.6%	1.9%	1%
Developed	32.4%	22.6%	19.5%	11.7%
Natural	52.8%	67.2%	61.6%	77.7%
Wetland	12.4%	8.6%	17.1%	9.6%
Impervious	16.8%	9.9%	9.4%	4.9%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Stony Brook (MA82A-33), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Stony Brook (MA82A-33) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Stony Brook (MA82A-33) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Stony Brook (MA82A-33) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected historical *E. coli* bacteria samples in the downstream 1/3 of the short Stony Brook AU (MA82A-33) at W2140 [~450 ft upstream of Pleasant St (Rt. 30) in Framingham] from May-Sep 2010 (n=6). Analysis of this historic limited frequency *E. coli* dataset indicated none of the intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 52 CFU/100mL). Historic *E. coli* data from W2140 are indicative of good water quality, however, since they were collected prior to the current IR window (2011-2022), they cannot be used to positively assess the Secondary Contact Recreation Use of Stony Brook (MA82A-33).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2140	MassDEP	Water Quality	Stony Brook	[approximately 450 feet upstream of Pleasant Street (Route 30), Framingham]	42.304872	-71.489025

Bacteria Data

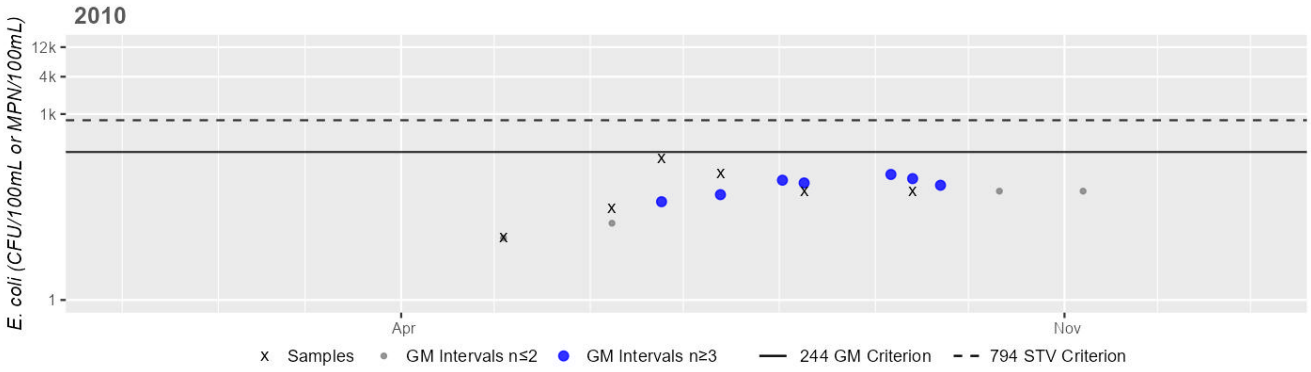
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2140	MassDEP	E. coli	05/04/10	09/13/10	6	10	190	52

Station MASSDEP_W2140 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	6
SeasGM	52
#GMI	7
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Sudbury Reservoir (MA82106)

Location:	Southborough/Marlborough.
AU Type:	FRESHWATER LAKE
AU Size:	1181 ACRES
Classification/Qualifier:	A: PWS, ORW

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
4a	4a	(Water Chestnut*)	--	Unchanged
4a	4a	Mercury in Fish Tissue	33880	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (N)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (N)	X	--	--	--	--
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for the Sudbury Reservoir (MA82106) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for the Sudbury Reservoir in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for the Sudbury Reservoir (MA82106) is assessed as Fully Supporting. MassDEP staff recorded aesthetics observations in the Sudbury Reservoir as part of the MAP2 lake monitoring project in summer 2017, at two stations in Southborough; northwestern lobe, east of Acre Bridge Road (just north of the 9/11 Memorial Field) (W2683/MAP2L-138S, n=5) and the index site, in the portion of the reservoir south of Rt. 30 and north of the rail crossing (W2682/MAP2L-138, n=3). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, or littoral zone duckweed recorded in ten shoreline plots (n=1). During the MAP2 macrophyte mapping survey in Sep 2017 (n=1), 25.1% of the waterbody was determined to have an aquatic macrophyte biovolume >50%.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2682	MassDEP	Water Quality	Sudbury Reservoir	[index site, in portion of reservoir south of Route 30 and north of the rail crossing, Southborough]	42.301947	-71.512870
W2683	MassDEP	Water Quality	Sudbury Reservoir	[northwestern lobe, east of Acre Bridge Road (just north of the 9/11 Memorial Field), Southborough]	42.327677	-71.529172

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2682	2017	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2682 (MAP2L-138) on Sudbury Reservoir (MA82106) during 3 site visits between Jul 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 macrophyte mapping survey (n=1) in Sep 2017, 25.1% of the waterbody was determined to have an aquatic macrophyte biovolume >50%.
W2683	2017	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2683 (MAP2L-138S) on Sudbury Reservoir (MA82106) during 5 site visits between May 2017 and Sep 2017. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded. During the MAP2 littoral survey (n=1), duckweed was not noted in any of the 10 shoreline plots.

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2682	Sudbury Reservoir	2017	Aesthetics Impaired?	No	3	3
W2682	Sudbury Reservoir	2017	Aquatic Plant Density, Overall	None	3	3
W2682	Sudbury Reservoir	2017	Aquatic Plant Density, Whole Lake	Unobservable	2	2
W2682	Sudbury Reservoir	2017	Color	Light Yellow/Tan	3	3
W2682	Sudbury Reservoir	2017	Duckweed Density, Whole Lake	Unobservable	2	2
W2682	Sudbury Reservoir	2017	Objectionable Deposits	No	3	3
W2682	Sudbury Reservoir	2017	Odor	None	3	3
W2682	Sudbury Reservoir	2017	Scum	No	3	3
W2682	Sudbury Reservoir	2017	Turbidity	None	3	3
W2683	Sudbury Reservoir	2017	Aesthetics Impaired?	No	5	5
W2683	Sudbury Reservoir	2017	Color	Light Yellow/Tan	1	5
W2683	Sudbury Reservoir	2017	Color	None	4	5
W2683	Sudbury Reservoir	2017	Objectionable Deposits	No	4	5
W2683	Sudbury Reservoir	2017	Objectionable Deposits	Yes	1	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2683	Sudbury Reservoir	2017	Odor	None	5	5
W2683	Sudbury Reservoir	2017	Scum	No	5	5
W2683	Sudbury Reservoir	2017	Turbidity	None	5	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for the Sudbury Reservoir (MA82106) is assessed as Fully Supporting.

In the Sudbury Reservoir (MA82106) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2682 [MAP2L-138, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2683 [MAP2L-138S, Shoreline]. At station W2682 (station depth=18.3 m) the Secchi depth measurements ranged from 4.82-6.17 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2683 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP staff also collected *E. coli* bacteria samples from May-Sep 2017 (n=5) in the Sudbury Reservoir (MA82106) at the shoreline station W2683 [northwestern lobe, E of Acre Bridge Rd (just N of the 9/11 Memorial Field), Southborough]. Analysis of this limited frequency *E. coli* dataset indicated none of the intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 11 CFU/100mL). *E. coli* data from W2683 are indicative of good water quality conditions.

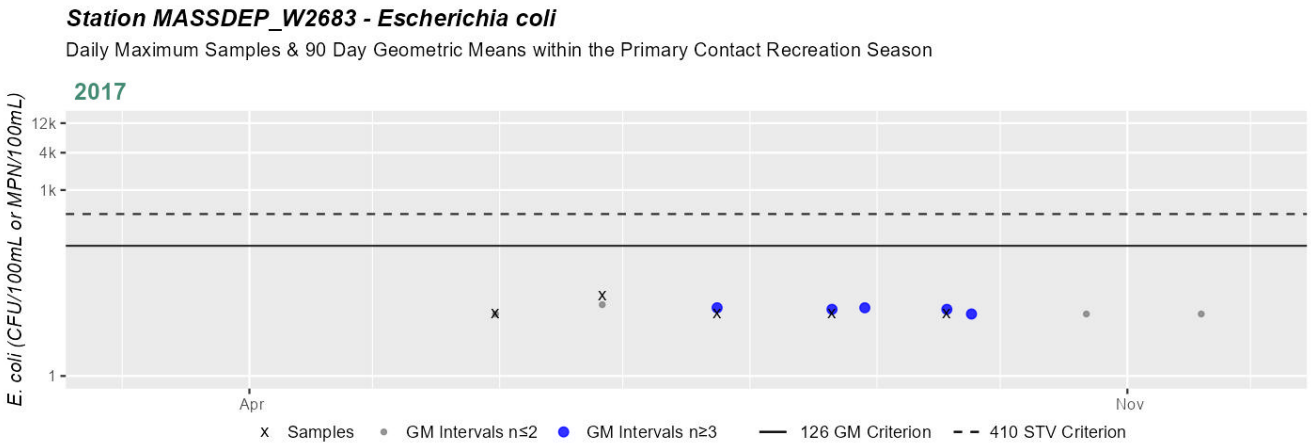
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2682	MassDEP	Water Quality	Sudbury Reservoir	[index site, in portion of reservoir south of Route 30 and north of the rail crossing, Southborough]	42.301947	-71.512870
W2683	MassDEP	Water Quality	Sudbury Reservoir	[northwestern lobe, east of Acre Bridge Road (just north of the 9/11 Memorial Field), Southborough]	42.327677	-71.529172

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2683	MassDEP	E. coli	05/31/17	09/18/17	5	10	20	11



Variable*	Result
Samples	5
SeasGM	11
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement for 2011-2022 Cyanobacteria Cell Count and Cyanotoxin Data, and Secchi Depth Data
(MassDEP Undated 7) (MassDEP Undated 4)

Data Year(s)	Summary
2017	In the Sudbury Reservoir (MA82106) in 2017, MassDEP collected Secchi and cyanobacteria cell count data at W2682 [MAP2L-138, Index-deep hole], and cyanobacteria cell count and cyanotoxin data at W2683 [MAP2L-138S, Shoreline]. At station W2682 (station depth=18.3 m) the Secchi depth measurements ranged from 4.82-6.17 m (n=3) indicating water clarity meeting the 1.2 m (4 ft) threshold. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2683 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP Cyanobacteria Cell Count Data Collected at Lakes and Impoundments (2016-2018) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Waterbody	Station Type	Data Year	Sample Count	Count >70,000 cells/mL	Exceedance Date(s)
W2682	Sudbury Reservoir	Index	2017	3	0	NA
W2683	Sudbury Reservoir	Shoreline	2017	3	0	NA

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for the Sudbury Reservoir (MA82106) is assessed as Fully Supporting.

In the Sudbury Reservoir (MA82106) in 2017, MassDEP collected cyanobacteria cell count data at W2682 [MAP2L-138, Index-deep hole], and cyanobacteria cell count and cyanotoxins data at W2683 [MAP2L-138S, Shoreline]. The cyanobacteria cell count did not exceed 70,000 cells/mL in any of the water samples (n=6). Analysis of microcystins and cylindrospermopsin samples from the shoreline station W2683 (n=6) indicated that the cyanotoxin concentrations did not exceed their respective thresholds of 8 µg/L and 15 µg/L.

MassDEP staff also collected *E. coli* bacteria samples in the Sudbury Reservoir (MA82106) at the shoreline station W2683 [northwestern lobe, E of Acre Bridge Rd (just N of the 9/11 Memorial Field), Southborough] from May-Sep 2017 (n=5). Analysis of this limited frequency *E. coli* dataset indicated none of the intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 11 CFU/100mL). *E. coli* data from W2683 are indicative of good water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2683	MassDEP	Water Quality	Sudbury Reservoir	[northwestern lobe, east of Acre Bridge Road (just north of the 9/11 Memorial Field), Southborough]	42.327677	-71.529172

Bacteria Data

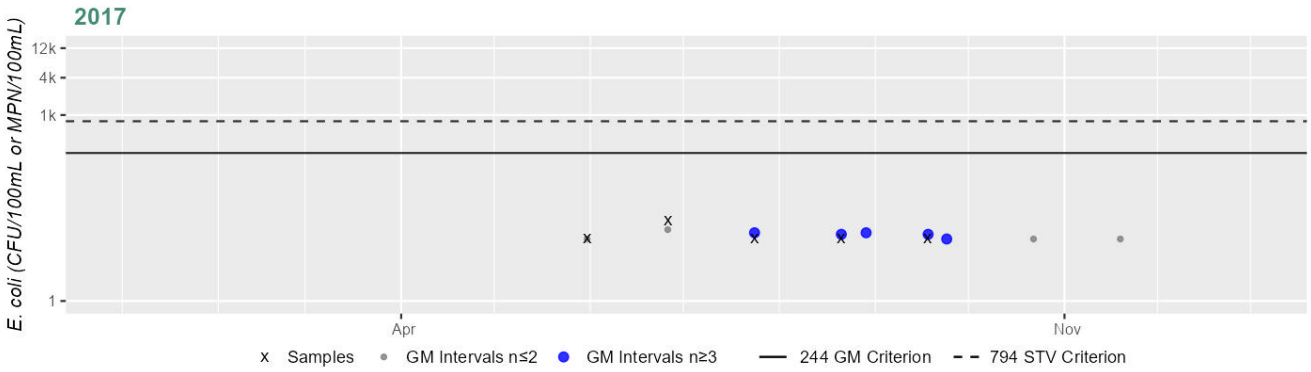
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 3)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2683	MassDEP	E. coli	05/31/17	09/18/17	5	10	20	11

Station MASSDEP_W2683 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	11
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

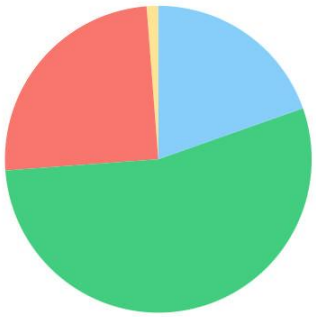
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Sudbury River (MA82A-01)

Location:	Headwaters, outlet Cedar Swamp Pond, Westborough to the Fruit Street bridge, Hopkinton/Westborough.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B: ORW, WWF

Sudbury River (MA82A-01)

Watershed Area: 19.01 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	19.01	11.84	8.40	5.13
Agriculture	1.2%	1.7%	1%	1.5%
Developed	24.9%	24.7%	19.3%	18.8%
Natural	54.2%	49.5%	53.2%	48.1%
Wetland	19.6%	24.1%	26.5%	31.6%
Impervious	12.4%	12.5%	9.9%	10%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Sudbury River AU (MA82A-01), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Sudbury River AU (MA82A-01) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this Sudbury River AU (MA82A-01) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this Sudbury River AU (MA82A-01) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. MassDEP staff collected historical *E. coli* bacteria samples at the downstream end of this Sudbury River AU (MA82A-01) at W0832 [Fruit St bridge, Hopkinton/Westborough] in 2001 and 2006 (n=1-5/yr). Note that only 1 sample was collected in 2001, which is not enough to consider according to the 2024 CALM. While the limited frequency data collected in 2006 were indicative of good water quality conditions (no GM or STV exceedances), since they were collected prior to the current IR window (2011-2022), they cannot be used to positively assess the Secondary Contact Recreation Use of this Sudbury River AU (MA82A-01).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0832	MassDEP	Water Quality	Sudbury River	[Fruit Street bridge, Hopkinton/Westborough]	42.267645	-71.552764

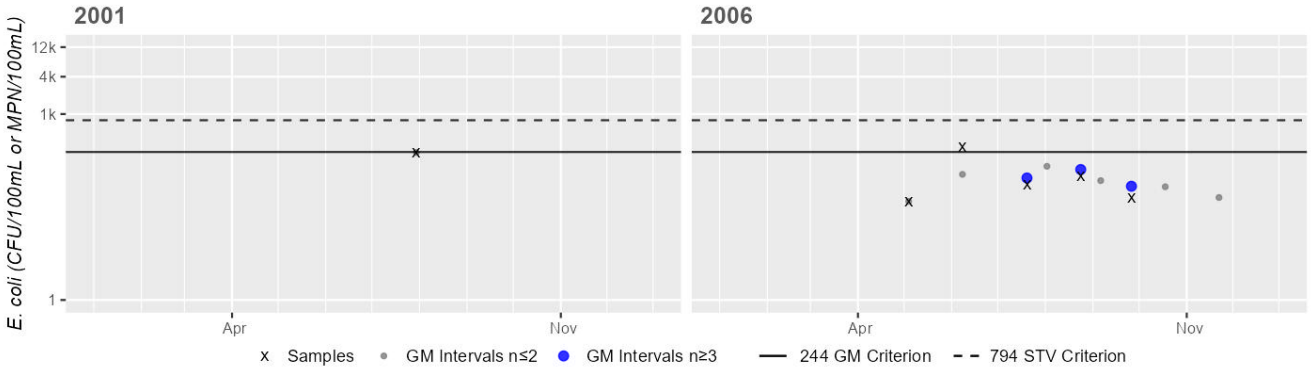
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0832	MassDEP	E. coli	07/30/01	07/30/01	1	240	240	239
W0832	MassDEP	E. coli	05/04/06	09/26/06	5	39	290	81

Station MASSDEP_W0832 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	1
SeasGM	240
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	81
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Sudbury River (MA82A-03)

Location:	Outlet Saxonville Pond, Framingham to confluence with Hop Brook (the lower portion of Hop Brook was identified as Wash Brook on USGS quads prior to 1987), Wayland.
AU Type:	RIVER
AU Size:	5.5 MILES
Classification/Qualifier:	B: AQL, HQW

Sudbury River (MA82A-03)

Watershed Area: 116.27 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	116.27	14.01	42.28	4.96
Agriculture	1.6%	2.3%	1.3%	1%
Developed	30.9%	26.1%	20.4%	15%
Natural	52.9%	54%	54.7%	48.4%
Wetland	14.6%	17.6%	23.6%	35.6%
Impervious	16.5%	13%	10.5%	8.3%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Asian Clam*)	--	Unchanged
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
5	5	(Water Chestnut*)	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Fish Bioassessments	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Asian Clam*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--
Fish Bioassessments	Source Unknown (N)	X	--	--	--	--
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Recommendations

2024/26 Recommendations
2022 IR [Trash, low priority] Follow-up monitoring should be conducted in the vicinity of MassDEP station W0696 close to the upstream end of this Sudbury River AU (MA82A-03) at Danforth Street bridge in Framingham where staff noted moderate amounts of trash on most site visits during the SMART monitoring site visits in 2011, 2012 and 2013. {W0696}; 2024/2026 IR [E. coli, high priority] High frequency *E. coli* data should be collected in this Sudbury River AU (MA82A-03) in the vicinity of MassDEP stations W0696 and W0850. This data could help determine whether *E. coli* may be delisted from the Primary Contact Recreation Use or in fact an impairment of the Secondary Contact Recreation Use is warranted (an Alert was identified for the Secondary Contact Recreation Use in the 2024/2026 IR cycle based on elevated cumulative GM exceedances at the combined W0696 & USGS-01098530 station. This occurred because 1 of 2 sufficient data years had elevated *E. coli* concentrations prior to the recreational season beginning). {W0696 and W0850}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Sudbury River AU (MA82A-03) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for the Sudbury River (referred to by MA DPH as ''Sudbury River (from Ashland to its confluence with the Assabet and Concord Rivers), Stern Reservoir, and Bracket Reservoir'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	YES

2024/26 Use Attainment Summary

The Aesthetics Use for this Sudbury River AU (MA82A-03) is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summers of 2011-2013. However, the prior Alert for moderate amounts of trash is being retained. MassDEP staff recorded aesthetics observations in 2011, 2012 and 2013 as part of the SMART monitoring program, at one station close to the upstream end of this Sudbury River AU at Danforth Street bridge, Framingham (W0696, n=5-6/yr). No persistent objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during any of the surveys, though field staff noted moderate amounts of trash on most site visits.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0696	MassDEP	Water Quality	Sudbury River	[Danforth Street bridge, Framingham]	42.325435	-71.397364

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0696	2011	6	Aesthetic observations were made by MassDEP field sampling crews at Station W0696 on Sudbury River (MA82A-03) during 6 site visits between Jan 2011 and Nov 2011. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=6).
W0696	2012	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0696 on Sudbury River (MA82A-03) during 5 site visits between Feb 2012 and Oct 2012. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted objectionable deposits (n=4).
W0696	2013	5	Aesthetic observations were made by MassDEP field sampling crews at Station W0696 on Sudbury River (MA82A-03) during 5 site visits between Jan 2013 and Sep 2013. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted an aesthetics impairment flag (n=1) and objectionable deposits (n=5).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0696	2011	6	6	0
W0696	2012	5	4	0
W0696	2013	5	5	2

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0696	Sudbury River	2011	Aquatic Plant Density, Overall	None	3	6
W0696	Sudbury River	2011	Aquatic Plant Density, Overall	Sparse	2	6
W0696	Sudbury River	2011	Aquatic Plant Density, Overall	Unobservable	1	6
W0696	Sudbury River	2011	Color	Brownish	1	6
W0696	Sudbury River	2011	Color	Light Yellow/Tan	3	6
W0696	Sudbury River	2011	Color	None	1	6
W0696	Sudbury River	2011	Color	Reddish	1	6
W0696	Sudbury River	2011	Objectionable Deposits	Yes	6	6
W0696	Sudbury River	2011	Odor	Musty (Basement)	2	6
W0696	Sudbury River	2011	Odor	None	4	6
W0696	Sudbury River	2011	Periphyton Density, Filamentous	None	6	6
W0696	Sudbury River	2011	Periphyton Density, Film	None	6	6
W0696	Sudbury River	2011	Scum	No	4	6
W0696	Sudbury River	2011	Scum	Yes	2	6
W0696	Sudbury River	2011	Turbidity	Moderately Turbid	1	6
W0696	Sudbury River	2011	Turbidity	None	4	6
W0696	Sudbury River	2011	Turbidity	Slightly Turbid	1	6
W0696	Sudbury River	2012	Aquatic Plant Density, Overall	None	3	5
W0696	Sudbury River	2012	Aquatic Plant Density, Overall	Sparse	1	5
W0696	Sudbury River	2012	Aquatic Plant Density, Overall	Unobservable	1	5
W0696	Sudbury River	2012	Color	Light Yellow/Tan	3	5
W0696	Sudbury River	2012	Color	None	2	5
W0696	Sudbury River	2012	Objectionable Deposits	Unobservable	1	5
W0696	Sudbury River	2012	Objectionable Deposits	Yes	4	5
W0696	Sudbury River	2012	Odor	Musty (Basement)	1	5
W0696	Sudbury River	2012	Odor	None	4	5
W0696	Sudbury River	2012	Periphyton Density, Filamentous	Moderate	1	5
W0696	Sudbury River	2012	Periphyton Density, Filamentous	None	3	5
W0696	Sudbury River	2012	Periphyton Density, Filamentous	Unobservable	1	5
W0696	Sudbury River	2012	Periphyton Density, Film	None	3	5
W0696	Sudbury River	2012	Periphyton Density, Film	Sparse	1	5
W0696	Sudbury River	2012	Periphyton Density, Film	Unobservable	1	5
W0696	Sudbury River	2012	Scum	No	4	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0696	Sudbury River	2012	Scum	Yes	1	5
W0696	Sudbury River	2012	Turbidity	None	3	5
W0696	Sudbury River	2012	Turbidity	Slightly Turbid	1	5
W0696	Sudbury River	2012	Turbidity	Unobservable	1	5
W0696	Sudbury River	2013	Aesthetics Impaired?	No	2	5
W0696	Sudbury River	2013	Aesthetics Impaired?	NR	2	5
W0696	Sudbury River	2013	Aesthetics Impaired?	Yes	1	5
W0696	Sudbury River	2013	Aquatic Plant Density, Overall	None	4	5
W0696	Sudbury River	2013	Aquatic Plant Density, Overall	Sparse	1	5
W0696	Sudbury River	2013	Color	None	5	5
W0696	Sudbury River	2013	Objectionable Deposits	Yes	5	5
W0696	Sudbury River	2013	Odor	None	5	5
W0696	Sudbury River	2013	Periphyton Density, Filamentous	Dense	1	5
W0696	Sudbury River	2013	Periphyton Density, Filamentous	None	3	5
W0696	Sudbury River	2013	Periphyton Density, Filamentous	Sparse	1	5
W0696	Sudbury River	2013	Periphyton Density, Film	None	4	5
W0696	Sudbury River	2013	Periphyton Density, Film	Very Dense	1	5
W0696	Sudbury River	2013	Scum	No	5	5
W0696	Sudbury River	2013	Turbidity	None	5	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Sudbury River AU (MA82A-03) is assessed as Not Supporting and the prior Escherichia Coli (E. Coli) impairment is being retained. The prior Alert for Trash is being removed from the recreational uses but continues to be maintained under the Aesthetics Use.
MassDEP/USGS and OARS staff/volunteers collected *E. coli* bacteria samples at 2 stations in the upstream third of this Sudbury River AU (MA82A-03) from 2011-2022. Samples were collected from the following stations/sample years from upstream to downstream: the combined W0696 & USGS-01098530 station [Danforth St bridge, Framingham & Sudbury River at Saxonville, MA] from 2011-2013 and 2021-2022 (n=3-7/yr), and almost a mile downstream at OARS_SUD-137 [Little Farms Rd, Framingham] from May-Sep 2022 (n=9). Only the data collected in 2021 (n=7) from the combined DEP/USGS station W0696 & USGS-01098530 were of sufficient frequency for assessment purposes according to the 2024 CALM, so it is effectively a single year dataset. Analysis of the single year moderate frequency *E. coli* dataset from W0696 & USGS-01098530 indicated 50% of intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV. Analysis of the single year moderate frequency *E. coli* dataset from OARS_SUD-137 indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV. While *E. coli* data from W0696 & USGS-01098530 and OARS_SUD-137 meet 2024 CALM guidance for the Primary Contact Recreation Use, there was insufficient information to remove the existing *E. coli* impairment. Higher frequency bacteria sampling during the summer season in the vicinity of W0696 & USGS-01098530 is recommended

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0696	MassDEP	Water Quality	Sudbury River	[Danforth Street bridge, Framingham]	42.325435	-71.397364
OARS_SUD-137	OARS	Water Quality	Sudbury River	Little Farms Rd, Framingham	42.335008	-71.394505
USGS-01098530	USGS Massachusetts Water Science Center	Water Quality	Sudbury River	Sudbury River At Saxonville, MA	42.325373	-71.397561

Bacteria Data

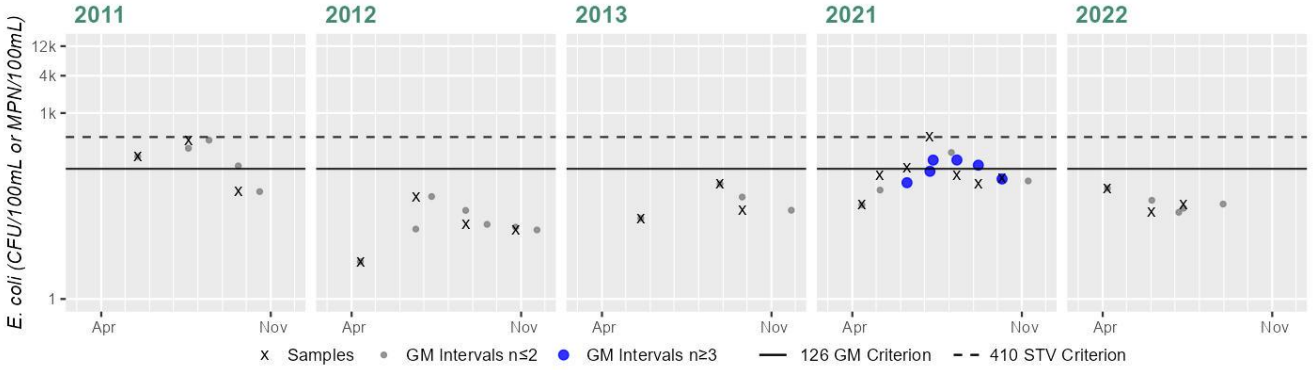
Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4) (OARS 2023) (MassDEP Undated 2) (USGS 2024) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0696	MassDEP	E. coli	05/17/11	09/21/11	3	54	365	157
W0696	MassDEP	E. coli	04/11/12	10/24/12	4	4	45	13
W0696	MassDEP	E. coli	05/20/13	09/25/13	3	20	72	33
OARS_SUD-137	OARS	E. coli	05/16/22	09/12/22	9	78	201	101

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
USGS-01098530	USGS Massachusetts Water Science Center	E. coli	04/13/21	10/07/21	7	33	410	101
USGS-01098530	USGS Massachusetts Water Science Center	E. coli	04/07/22	07/12/22	3	25	61	37

Station MASSDEP_W0696 & USGS-01098530 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	157
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	4
SeasGM	13
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	3
SeasGM	33
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	7
SeasGM	101
#GMI	6
#GMI Ex	3
%GMI Ex	50%
n>STV	0
%n>STV	0%

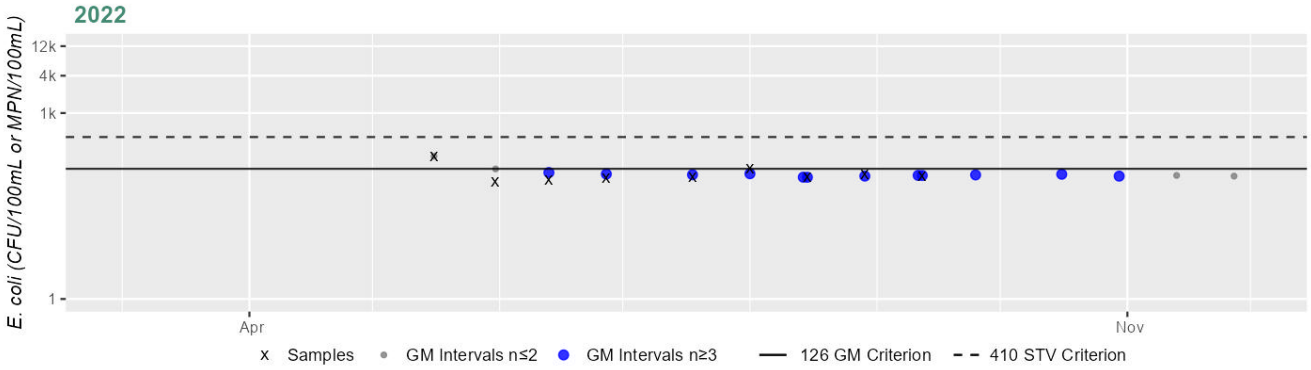
Variable*	Result
Samples	3
SeasGM	37
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
50%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_SUD-137 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	9
SeasGM	101
#GMI	12
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	YES

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Sudbury River AU (MA82A-03) is assessed as Fully Supporting but a new Alert is being identified for Escherichia Coli (E. Coli) based on data collected at the combined W0696 & USGS-01098530 station in 2022.
MassDEP, OARS, and USGS staff/volunteers collected *E. coli* bacteria samples in the upstream third of this Sudbury River AU (MA82A-03) in the current IR window (2011-2022) at 2 stations. Samples were collected from the following stations/sample years from upstream to downstream: the combined W0696 & USGS-01098530 station [Danforth St bridge, Framingham & SUDBURY RIVER AT SAXONVILLE, MA] from 2011-2013 and 2021-2022 (current n=5-9/yr), and almost a mile downstream at OARS_SUD-137 [Little Farms Rd, Framingham] from May-Sep 2022 (n=9). Analysis of the multi-year moderate/low frequency *E. coli* dataset from the combined W0696 & USGS-01098530 station indicated 1 out of 2 sufficient data yrs (2021 & 2022) had intervals where >20% of the GMs were >244 CFU/100mL (2022, 100%), 1 yr had ≥2 samples exceed the 794 CFU/100mL STV (2022, n=2), and cumulatively across years 25% of intervals had GMs >244 CFU/100mL. Analysis of the single year moderate frequency *E. coli* dataset from OARS_SUD-137 indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV. *E. coli* data from W0696 & USGS-01098530, and OARS_SUD-137 meet 2024 CALM guidance. However, an Alert is being identified for Escherichia Coli (E. Coli) at the combined W0696 & USGS-01098530 station because the cumulative exceedance of GMs across sufficient data years was >20%.
DEP staff also collected *E. coli* data in the historic IR window (1997-2010) in this Sudbury River AU at 3 stations from upstream to downstream: the combined W0696 & USGS-01098530 station [Danforth St bridge, Framingham & SUDBURY RIVER AT SAXONVILLE, MA] in 2001 and from 2006-2010 (historic n=2-6/yr), in the middle of the AU at W1480 [Stonebridge Rd/Potter Rd bridge, Wayland/Framingham] from May-Sep 2006 (n=5), and near the downstream end of the AU at W0850 [Pelham Island Rd bridge, Wayland] in 2001 and 2006 (n=2-5/yr). Although the historical *E. coli* data meet 2024 CALM guidance, since they were not collected in the current IR window (2011-2022), they cannot be used to assess the Secondary Contact Recreation Use of this Sudbury River AU (MA82A-03).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0696	MassDEP	Water Quality	Sudbury River	[Danforth Street bridge, Framingham]	42.325435	-71.397364
W0850	MassDEP	Water Quality	Sudbury River	[Pelham Island Road bridge, Wayland]	42.359265	-71.368833
W1480	MassDEP	Water Quality	Sudbury River	[Stonebridge Road/Potter Road bridge, Wayland/Framingham]	42.338646	-71.394984
OARS_SUD-137	OARS	Water Quality	Sudbury River	Little Farms Rd, Framingham	42.335008	-71.394505
USGS-01098530	USGS Massachusetts Water Science Center	Water Quality	Sudbury River	Sudbury River At Saxonville, MA	42.325373	-71.397561

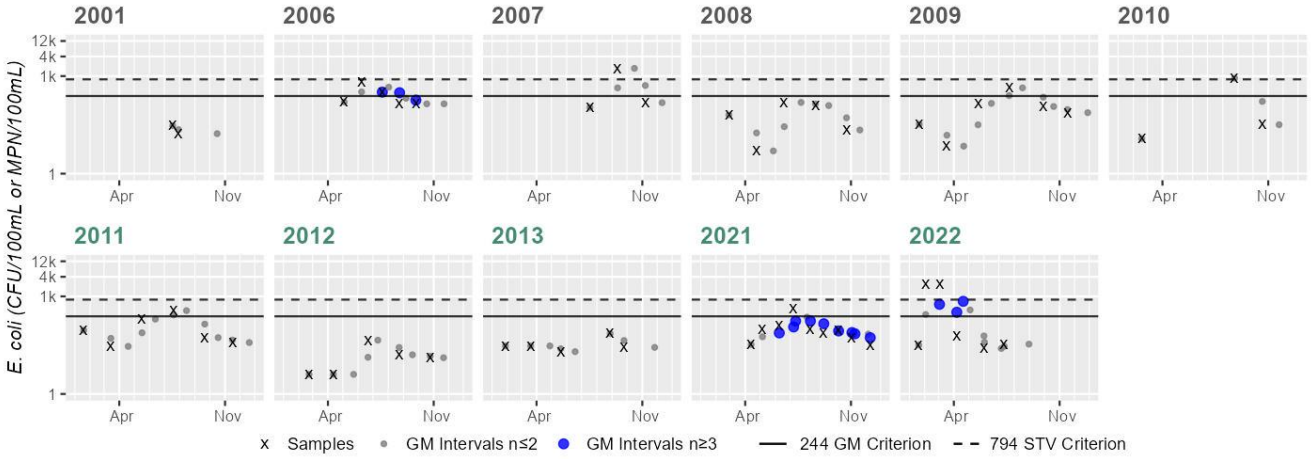
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1) (USGS 2024) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0696	MassDEP	E. coli	07/18/01	07/30/01	2	17	30	22
W0696	MassDEP	E. coli	05/04/06	09/26/06	5	140	670	230
W0696	MassDEP	E. coli	07/18/07	11/07/07	3	109	1730	306
W0696	MassDEP	E. coli	02/27/08	10/22/08	5	5	155	42
W0696	MassDEP	E. coli	01/21/09	11/17/09	6	7	435	70
W0696	MassDEP	E. coli	02/18/10	10/20/10	3	12	866	69
W0696	MassDEP	E. coli	01/19/11	11/16/11	6	29	365	85
W0696	MassDEP	E. coli	02/22/12	10/24/12	5	4	45	10
W0696	MassDEP	E. coli	01/28/13	09/25/13	5	20	72	32
W0850	MassDEP	E. coli	07/18/01	07/30/01	2	15	60	29
W0850	MassDEP	E. coli	05/04/06	09/26/06	5	100	760	241
W1480	MassDEP	E. coli	05/04/06	09/26/06	5	65	610	134
OARS_SUD-137	OARS	E. coli	05/16/22	09/12/22	9	78	201	101
USGS-01098530	USGS Massachusetts Water Science Center	E. coli	04/13/21	12/10/21	9	32	410	83
USGS-01098530	USGS Massachusetts Water Science Center	E. coli	01/20/22	07/12/22	6	25	2400	145

Station MASSDEP_W0696 & USGS-01098530 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	22
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	230
#GMI	3
#GMI Ex	2
%GMI Ex	66%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	3
SeasGM	306
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	5
SeasGM	42
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	6
SeasGM	70
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	3
SeasGM	69
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Variable*	Result
Samples	6
SeasGM	85
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	10
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	32
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	9
SeasGM	83
#GMI	9
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	6
SeasGM	145
#GMI	3
#GMI Ex	3
%GMI Ex	100%
n>STV	2
%n>STV	33%

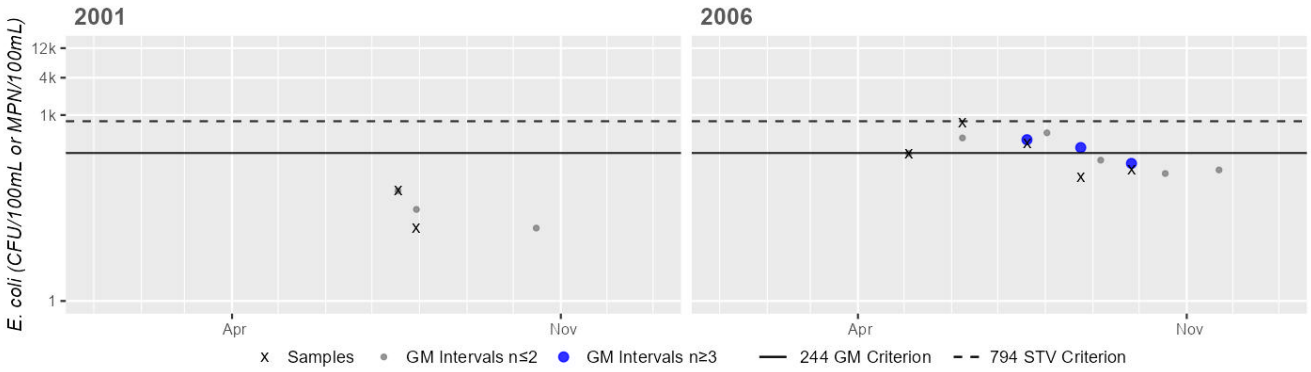
Cumulative %GMI Exceedance
Historic (1997-2010)
66%

Cumulative %GMI Exceedance
Current (2011-2022)
25%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0850 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	30
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

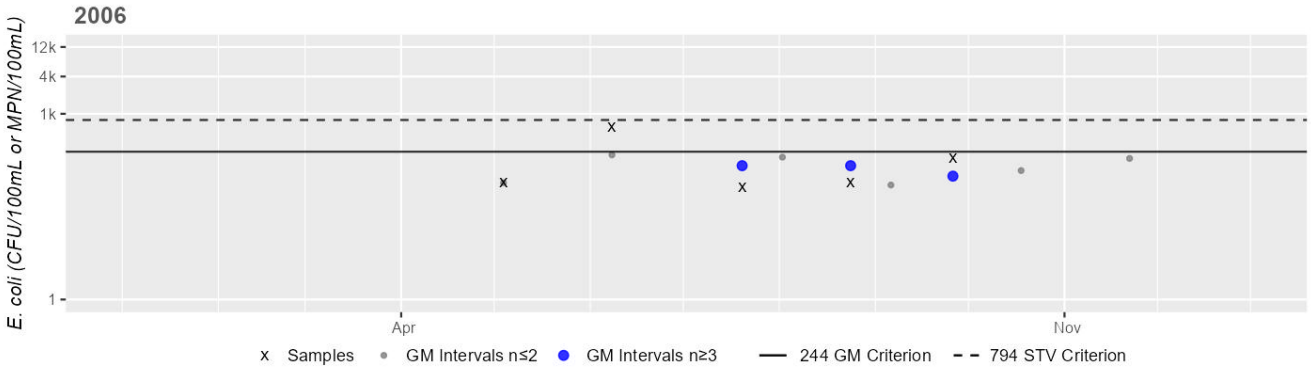
Variable*	Result
Samples	5
SeasGM	241
#GMI	3
#GMI Ex	2
%GMI Ex	66%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
66%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1480 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



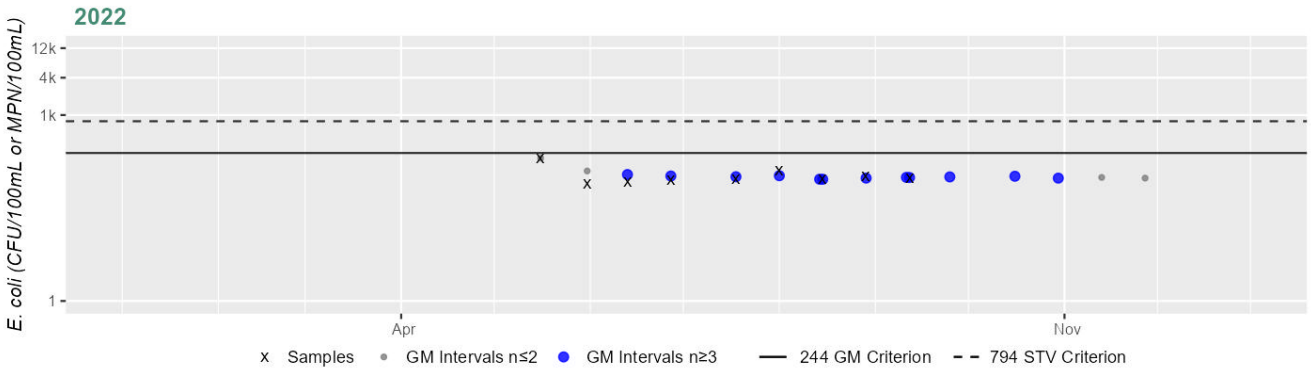
Variable*	Result
Samples	5
SeasGM	134
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_SUD-137 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	9
SeasGM	101
#GMI	12
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance

Current (2011-2022)

0%

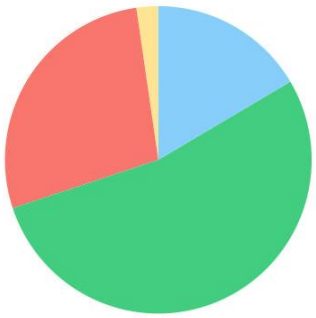
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Sudbury River (MA82A-04)

Location:	Confluence with Hop Brook (the lower portion of Hop Brook was identified as Wash Brook on USGS topographic quadrangles prior to 1987), Wayland to confluence with Assabet River (forming headwaters Concord River), Concord.
AU Type:	RIVER
AU Size:	11.7 MILES
Classification/Qualifier:	B: AQL

Sudbury River (MA82A-04)

Watershed Area: 162.09 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	162.09	7.85	57.53	2.60
Agriculture	2.3%	7.7%	2%	7.5%
Developed	27.8%	18.2%	18.3%	9.5%
Natural	53.4%	58.6%	52.4%	51.2%
Wetland	16.5%	15.5%	27.3%	31.8%
Impervious	14.5%	7.8%	9.3%	3.6%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Water Chestnut*)	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Sudbury River AU (MA82A-04) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for the Sudbury River (referred to by MA DPH as ''Sudbury River (from Ashland to its confluence with the Assabet and Concord Rivers), Stern Reservoir, and Bracket Reservoir'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No recent aesthetics observation data are available, so the Aesthetics Use of this Sudbury River AU (MA82A-04) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this downstream Sudbury River AU (MA82A-04) continues to be assessed as Fully Supporting based on *E. coli* data collected at OARS_SUD-096 from 2019-2021.
OARS staff/volunteers collected *E. coli* bacteria samples at the upstream end of this Sudbury River AU (MA82A-04) at OARS_SUD-096 [Rt. 20 boat ramp, Wayland] from 2019-2021 (n=13-15/yr). Analysis of this multi-year high/moderate frequency *E. coli* dataset indicated only 2020 had >10% of the GMs exceed 126 CFU/100mL (29%), none of the years had >10% of samples exceed the 410 CFU/100mL STV, and cumulatively across years 10% of intervals had GMs >126 CFU/100mL. *E. coli* data from OARS_SUD-096 meet 2024 CALM guidance.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_SUD-096	OARS	Water Quality	Sudbury River	Rt. 20 boat ramp, Wayland	42.363441	-71.374828

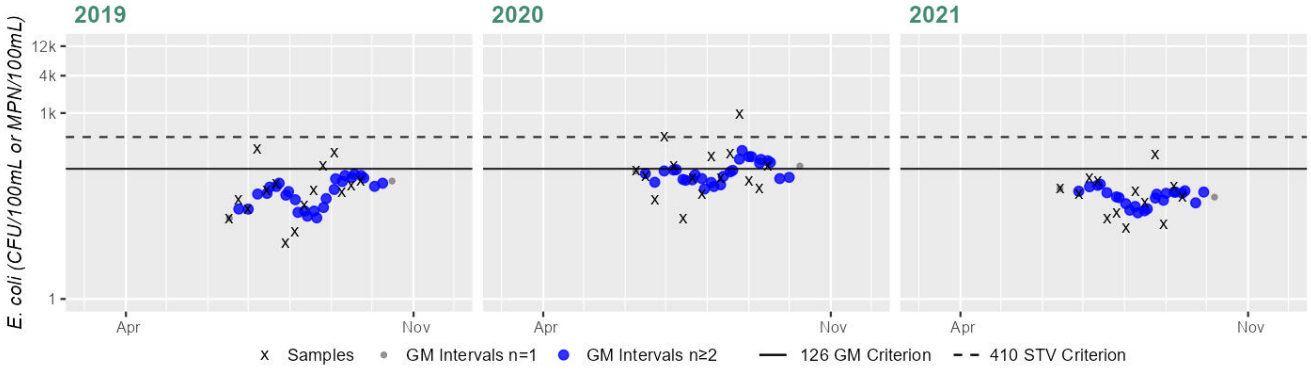
Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_SUD-096	OARS	E. coli	06/17/19	09/23/19	15	8	264	50
OARS_SUD-096	OARS	E. coli	06/08/20	09/14/20	15	20	960	112
OARS_SUD-096	OARS	E. coli	06/14/21	09/13/21	13	14	212	44

Station OARS_SUD-096 - Escherichia coli

Daily Maximum Samples & 30 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	50
#GMI	27
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	112
#GMI	27
#GMI Ex	8
%GMI Ex	29%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	13
SeasGM	44
#GMI	23
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
10%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this downstream Sudbury River AU (MA82A-04) continues to be assessed as Fully Supporting.
OARS staff/volunteers collected *E. coli* bacteria samples in the current IR window (2011-2022) at the upstream end of this Sudbury River AU (MA82A-04) at OARS_SUD-096 [Rt. 20 boat ramp, Wayland] from 2019-2021 (n=13-15/yr). Analysis of this multi-year high/moderate frequency *E. coli* dataset indicated none of the years had intervals where >10% of the GMs were >244 CFU/100mL, none of the years had >10% of samples exceed the 794 CFU/100mL STV, and cumulatively across years 0% of intervals had GMs >244 CFU/100mL. *E. coli* data from OARS_SUD-096 are indicative of good water quality conditions.
MassDEP staff collected *E. coli* samples in the historic (1997-2010) IR window at 4 stations downstream of OARS_SUD-096. From upstream to downstream, samples were collected from the following stations/sample years: in the upstream part of the AU at W0848 [Rt. 27 bridge, Wayland] in Jul 2001 (n=2), in the middle of the AU at W0847 [Shermans Bridge Rd/Lincoln Rd, Wayland/Sudbury] in 2001 and 2006 (n=2-5/yr) and at W1481 [Sudbury Rd bridge, Concord] from May-Sep 2006 (n=5), and in the downstream part of the AU at W0844 [Nashawtuc Rd bridge, Concord] in 2001 and 2006 (n=2-4/yr). While data from these stations were either insufficient to evaluate according to the 2024 CALM, or were indicative of good water quality conditions, since they were collected prior to the current IR window, they ultimately cannot be used to assess the Secondary Contact Recreation Use of this Sudbury River AU (MA82A-04)

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0844	MassDEP	Water Quality	Sudbury River	[Nashawtuc Road bridge, Concord]	42.459749	-71.359359
W0847	MassDEP	Water Quality	Sudbury River	[Shermans Bridge Road/Lincoln Road, Wayland/Sudbury]	42.396351	-71.364671
W0848	MassDEP	Water Quality	Sudbury River	[Route 27 bridge, Wayland]	42.374167	-71.381639
W1481	MassDEP	Water Quality	Sudbury River	[Sudbury Road bridge, Concord]	42.441114	-71.368056
OARS_SUD-096	OARS	Water Quality	Sudbury River	Rt. 20 boat ramp, Wayland	42.363441	-71.374828

Bacteria Data

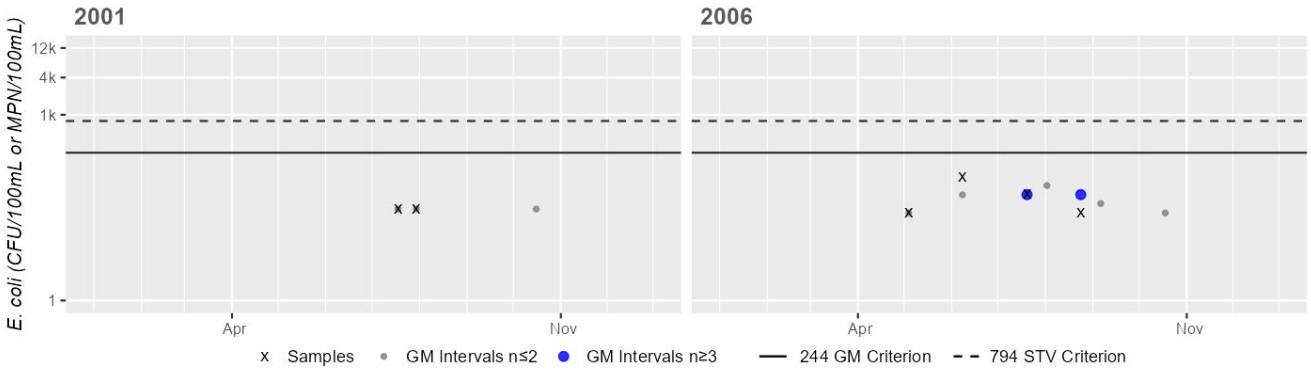
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0844	MassDEP	E. coli	07/18/01	07/30/01	2	30	30	30
W0844	MassDEP	E. coli	05/04/06	08/24/06	4	26	100	43
W0847	MassDEP	E. coli	07/18/01	07/30/01	2	10	40	20
W0847	MassDEP	E. coli	05/04/06	09/26/06	5	19	420	79
W0848	MassDEP	E. coli	07/18/01	07/30/01	2	5	54	16

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W1481	MassDEP	E. coli	05/04/06	09/26/06	5	6	130	19
OARS_SUD-096	OARS	E. coli	06/17/19	09/23/19	15	8	264	50
OARS_SUD-096	OARS	E. coli	06/08/20	09/14/20	15	20	960	112
OARS_SUD-096	OARS	E. coli	06/14/21	09/13/21	13	14	212	44

Station MASSDEP_W0844 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	30
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

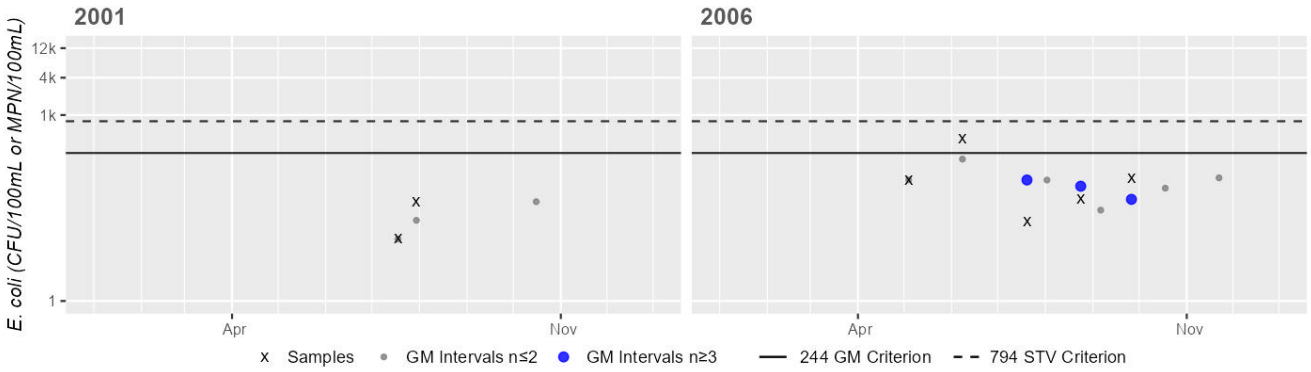
Variable*	Result
Samples	4
SeasGM	43
#GMI	2
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0847 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	20
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

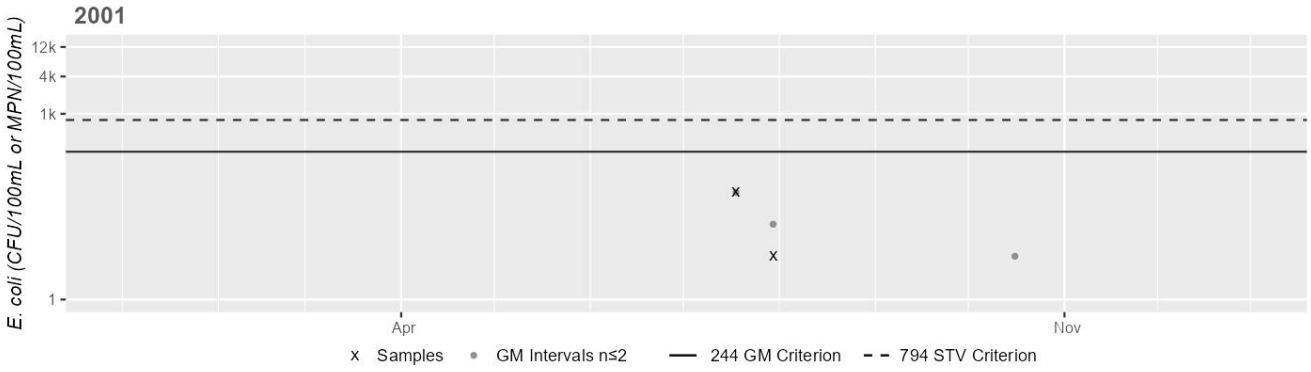
Variable*	Result
Samples	5
SeasGM	79
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0848 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



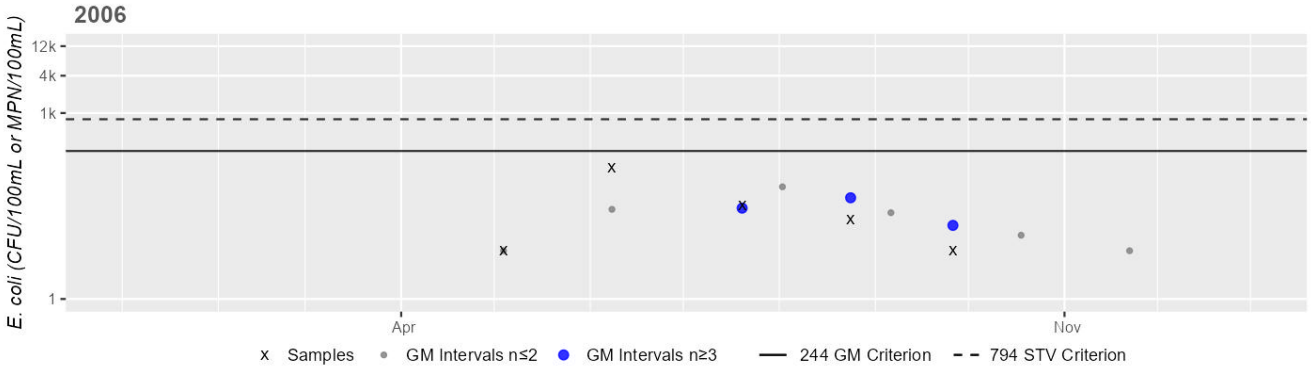
Variable*	Result
Samples	2
SeasGM	16
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W1481 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



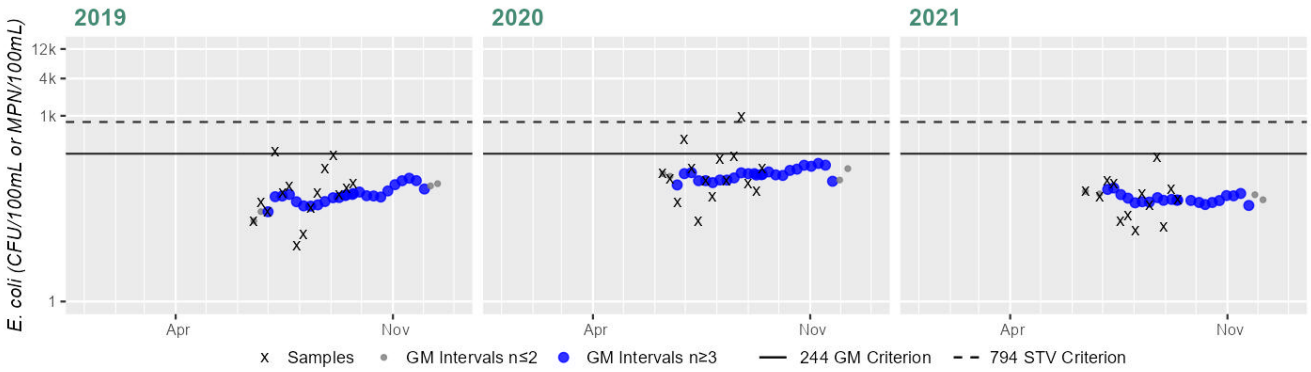
Variable*	Result
Samples	5
SeasGM	19
#GMI	3
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_SUD-096 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	50
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	112
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	13
SeasGM	44
#GMI	21
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

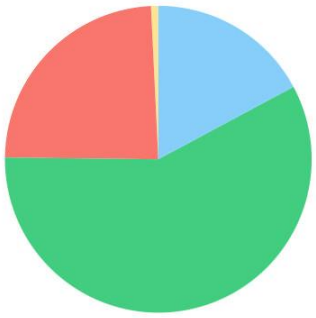
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Sudbury River (MA82A-25)

Location:	From the Fruit Street bridge Hopkinton/Westborough to the inlet of Framingham Reservoir #2, Ashland (formerly part of 2004 segment: Sudbury River MA82A-02).
AU Type:	RIVER
AU Size:	6.3 MILES
Classification/Qualifier:	B: WWF, HQW

Sudbury River (MA82A-25)

Watershed Area: 43.17 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	43.17	10.57	17.12	3.92
Agriculture	0.8%	0.6%	0.7%	0.4%
Developed	24.1%	26%	18.3%	20.5%
Natural	58%	60.7%	54.4%	57.9%
Wetland	17.2%	12.7%	26.7%	21.3%
Impervious	11.5%	12.2%	9.1%	9.9%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Water Chestnut*)	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)	--	--	--	X	X
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	X
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Sudbury River AU (MA82A-25) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. DPH included a site-specific advisory for the Sudbury River (referred to by MA DPH as ''Sudbury River (from Ashland to its confluence with the Assabet and Concord Rivers), Stern Reservoir, and Bracket Reservoir'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert

Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for this Sudbury River AU (MA82A-25) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Sudbury River AU (MA82A-25) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on 2019-2022 bacteria data not meeting the threshold at OARS_SUD-237 and OARS_SUD-236. OARS staff/volunteers collected *E. coli* bacteria samples at 2 stations near the downstream end of this Sudbury River AU (MA82A-25) from 2019-2022. Samples were collected from the following stations/sample years from upstream to downstream: OARS_SUD-237 [Rt 135, Ashland] from Jun-Sep 2019 (n=15) and a short way downstream at OARS_SUD-236 [Chestnut St., Ashland] from 2020-2022 (n= 8-15/yr). Analysis of the single year high frequency *E. coli* dataset from OARS_SUD-237 indicated 84% of intervals had GMs >126 CFU/100mL and 6% of samples exceeded the 410 CFU/100mL STV. Analysis of the multi-year high/moderate frequency *E. coli* dataset from OARS_SUD-236 indicated 3 out of 3 sufficient data yrs had intervals where >10% of the GMs (>20% for the 1 moderate frequency year) were >126 CFU/100mL (2020-2022, 90-100%), 1 yr had >10% of samples exceed the 410 CFU/100mL STV (2020, 33%), and cumulatively across years 96% of intervals had GMs >126 CFU/100mL. *E. coli* data from both OARS_SUD-237 and OARS_ SUD-236 are indicative of an Escherichia Coli (E. Coli) impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_SUD-236	OARS	Water Quality	Sudbury River	Chestnut St., Ashland	42.257609	-71.454952
OARS_SUD-237	OARS	Water Quality	Sudbury River	Rt 135, Ashland	42.258498	-71.455472

Bacteria Data

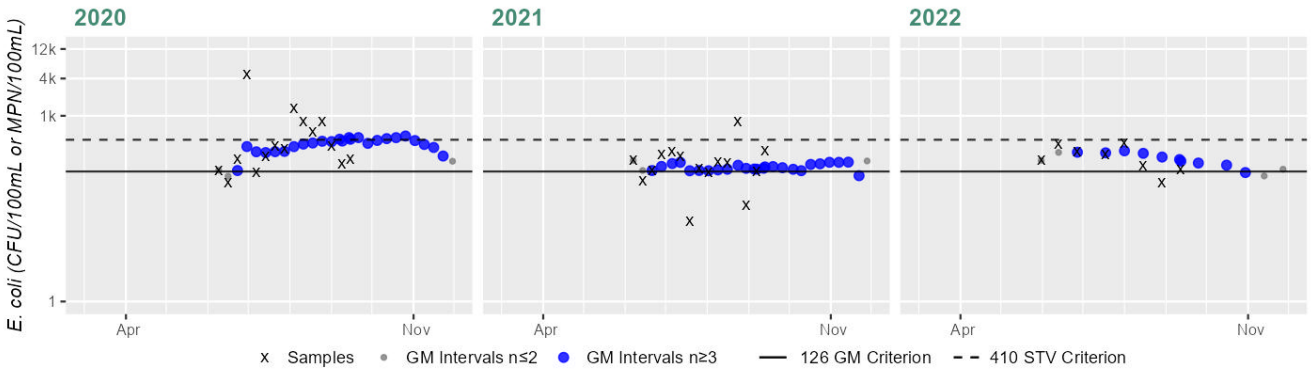
Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_SUD-236	OARS	E. coli	06/08/20	09/14/20	15	84	4640	347

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_SUD-236	OARS	E. coli	06/07/21	09/13/21	15	20	808	146
OARS_SUD-236	OARS	E. coli	05/31/22	09/12/22	8	83	365	200
OARS_SUD-237	OARS	E. coli	06/17/19	09/23/19	15	64	532	151

Station OARS_SUD-236 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	347
#GMI	25
#GMI Ex	25
%GMI Ex	100%
n>STV	5
%n>STV	33%

Variable*	Result
Samples	15
SeasGM	146
#GMI	25
#GMI Ex	24
%GMI Ex	96%
n>STV	1
%n>STV	6%

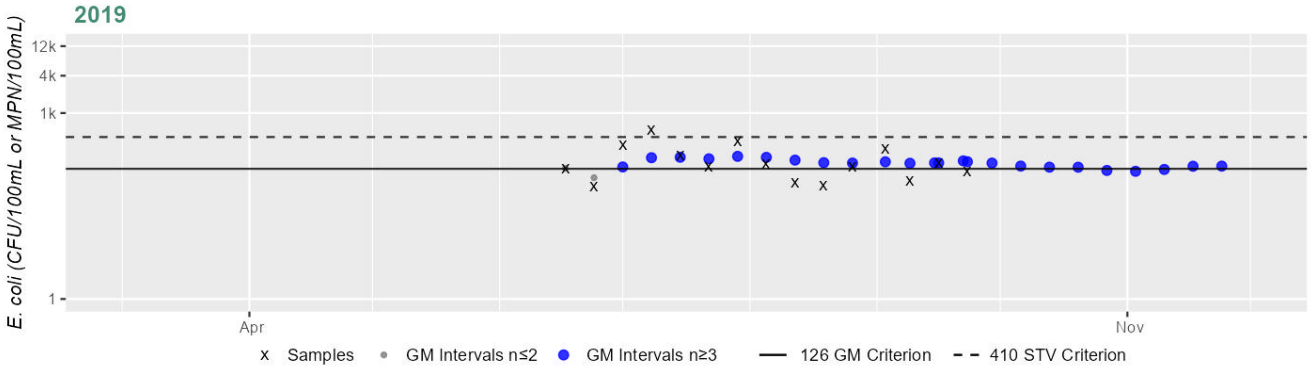
Variable*	Result
Samples	8
SeasGM	200
#GMI	10
#GMI Ex	9
%GMI Ex	90%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
96%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0838 & OARS_SUD-237 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	151
#GMI	25
#GMI Ex	21
%GMI Ex	84%
n>STV	1
%n>STV	6%

Cumulative %GMI Exceedance

Current (2011-2022)

84%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Sudbury River AU (MA82A-25) is assessed as Not Supporting. An Escherichia Coli (E. Coli) impairment is being added based on 2020-2022 bacteria data not meeting the threshold at OARS_SUD-236.
OARS staff/volunteers collected *E. coli* bacteria samples in the current IR window (2011-2022) at 2 stations near the downstream end of this Sudbury River AU (MA82A-25) from 2019-2022. Samples were collected from the following stations/sample years from upstream to downstream: OARS_SUD-237 [Rt 135, Ashland] from Jun-Sep 2019 (n=15) and a short distance downstream at OARS_SUD-236 [Chestnut St., Ashland] from 2020-2022 (n=8-15/yr). Analysis of the single year high frequency *E. coli* dataset from OARS_SUD-237 indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV. Analysis of the multi-year high/moderate frequency *E. coli* dataset from OARS_SUD-236 indicated 2 out of 3 sufficient data yrs had intervals where >10% (or >20% for the 1 moderate frequency year, 2022) of the GMs were >244 CFU/100mL (2020 and 2022, 92% & 40% respectively), 1 yr had >10% of samples exceed the 794 CFU/100mL STV (2020, 26%), and cumulatively across years 45% of intervals had GMs >244 CFU/100mL. While the single year of *E. coli* data from OARS_SUD-237 meets 2024 CALM guidance, the multi-year *E. coli* data from OARS_SUD-236 are indicative of an *E. coli* impairment.
MassDEP staff also collected *E. coli* bacteria samples in the historic IR window (1997-2010) in this Sudbury River AU (MA82A-25) at W0834 [Cedar St extension/Bridge St bridge, Hopkinton/Southborough] in Jul 2001 (n=2), at W0835 [Rt. 85 bridge, Hopkinton/Southborough] in Jul 2001 (n=2), and in the vicinity of OARS_SUD-237 at W0838 [Rt. 135 bridge upstream of Cold Spring Brook confluence, Ashland] in 2001 and 2006 (n=2 &5/yr). Only the 2006 data from W0838 were sufficient to evaluate, according to the 2024 CALM (33% GM exceedances, no STV exceedances), and even then, because they were collected prior to the current IR window (2011-2022), they cannot be used to assess the Secondary Contact Recreation Use of this Sudbury River AU (MA82A-25).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0834	MassDEP	Water Quality	Sudbury River	[Cedar Street extension/Bridge Street bridge, Hopkinton/Southborough]	42.264897	-71.536365
W0835	MassDEP	Water Quality	Sudbury River	[Route 85 bridge, Hopkinton/Southborough]	42.266412	-71.522495
W0838	MassDEP	Water Quality	Sudbury River	[Route 135 bridge upstream of Cold Spring Brook confluence, Ashland]	42.258498	-71.455472
OARS_SUD-236	OARS	Water Quality	Sudbury River	Chestnut St., Ashland	42.257609	-71.454952
OARS_SUD-237	OARS	Water Quality	Sudbury River	Rt 135, Ashland	42.258498	-71.455472

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)

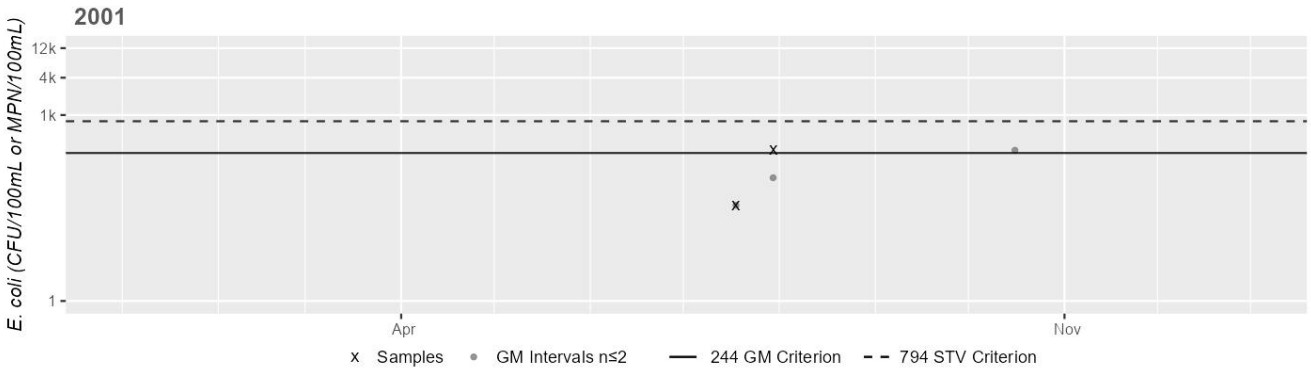
(MassDEP Undated 7) (MassDEP Undated 3) (OARS 2023) (MassDEP Undated 1)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0834	MassDEP	E. coli	07/18/01	07/30/01	2	35	270	97
W0835	MassDEP	E. coli	07/18/01	07/30/01	2	15	110	40
W0838	MassDEP	E. coli	07/18/01	07/30/01	2	130	170	148
W0838	MassDEP	E. coli	05/04/06	09/26/06	5	90	540	201
OARS_SUD-236	OARS	E. coli	06/08/20	09/14/20	15	84	4640	347
OARS_SUD-236	OARS	E. coli	06/07/21	09/13/21	15	20	808	146
OARS_SUD-236	OARS	E. coli	05/31/22	09/12/22	8	83	365	200
OARS_SUD-237	OARS	E. coli	06/17/19	09/23/19	15	64	532	151

Station MASSDEP_W0834 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



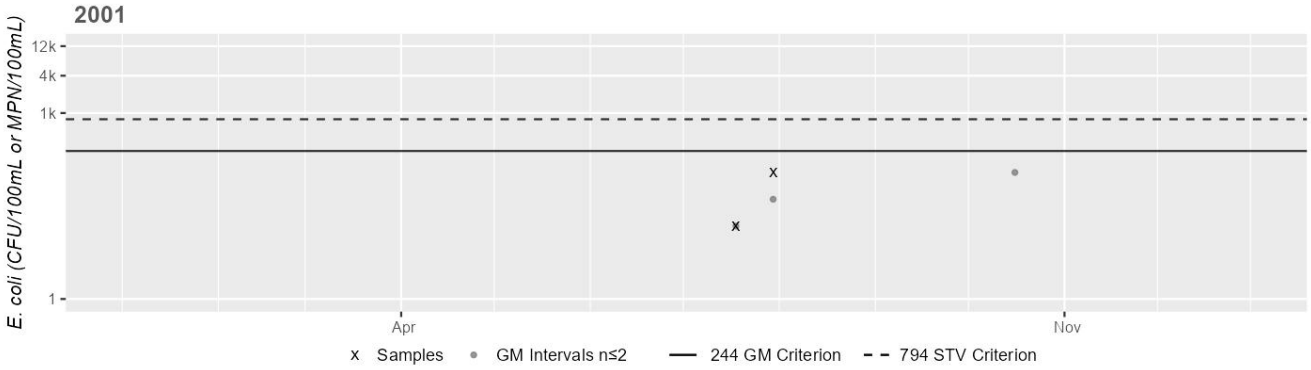
Variable*	Result
Samples	2
SeasGM	97
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0835 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



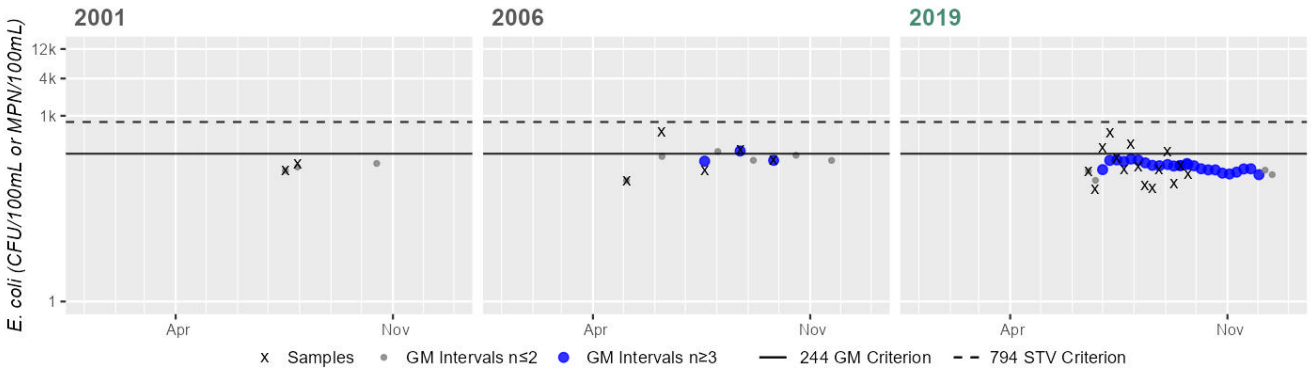
Variable*	Result
Samples	2
SeasGM	40
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0838 & OARS_SUD-237 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	148
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	5
SeasGM	201
#GMI	3
#GMI Ex	1
%GMI Ex	33%
n>STV	0
%n>STV	0%

Variable*	Result
Samples	15
SeasGM	151
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

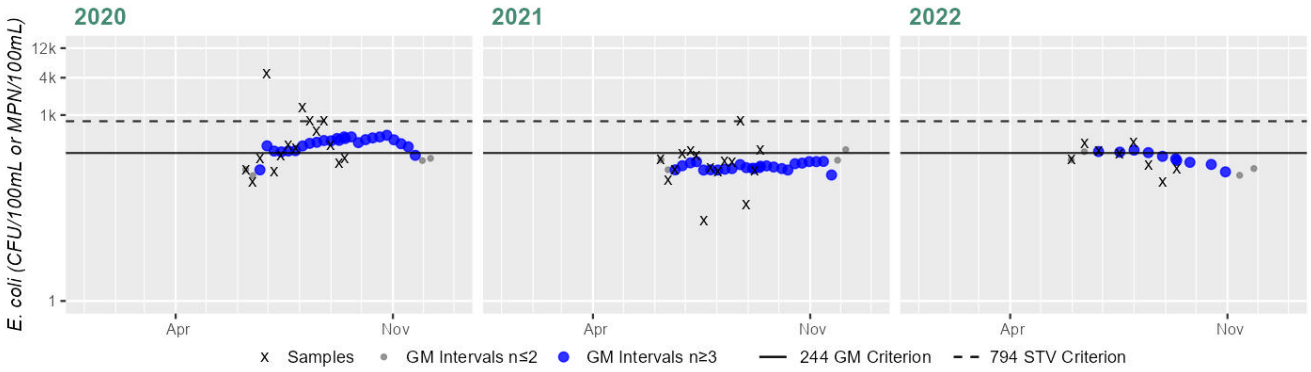
Cumulative %GMI Exceedance
Historic (1997-2010)
33%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station OARS_SUD-236 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	15
SeasGM	347
#GMI	25
#GMI Ex	23
%GMI Ex	92%
n>STV	4
%n>STV	26%

Variable*	Result
Samples	15
SeasGM	146
#GMI	25
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	6%

Variable*	Result
Samples	8
SeasGM	200
#GMI	10
#GMI Ex	4
%GMI Ex	40%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
45%

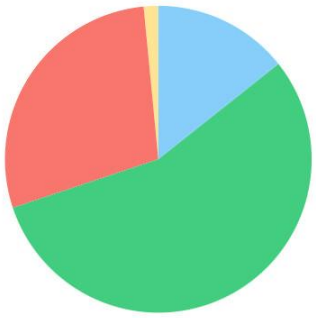
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Sudbury River (MA82A-26)

Location:	Outlet Framingham Reservoir #1, Framingham to inlet of Saxonville Pond, Framingham (formerly part of 2004 segment: Sudbury River MA82A-02).
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B: WWF, HQW

Sudbury River (MA82A-26)

Watershed Area: 81.81 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	81.81	11.08	31.37	4.27
Agriculture	1.5%	2.2%	1.3%	2.5%
Developed	28.6%	38.5%	19.6%	25.1%
Natural	55.5%	50.5%	57%	57.8%
Wetland	14.3%	8.9%	22.1%	14.6%
Impervious	14.4%	20.4%	9.6%	12%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Water Chestnut*)	--	Unchanged
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Mercury in Fish Tissue	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	CERCLA NPL (Superfund) Sites (Y)	--	X	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [Trash, algae growth, and sediment deposition, low priority] Collect aesthetics observations at the upstream end of the Sudbury River (MA82A-26) to follow-up on a 1997 shoreline survey done by the “Framingham Advocates for the Sudbury River” beginning at the Winter Street Dam, during which Trash, algae growth and sediment deposition were noted. This is a low priority. {downstream of the Winter Street Dam in Framingham}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for this Sudbury River AU (MA82A-26) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for the Sudbury River (referred to by MA DPH as ''Sudbury River (from Ashland to its confluence with the Assabet and Concord Rivers), Stern Reservoir, and Bracket Reservoir'') in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	YES

2024/26 Use Attainment Summary

No recent data are available to assess the Aesthetics Use for this Sudbury River AU (MA82A-26), so it is Not Assessed. The prior Alert identified for objectionable conditions is being carried forward. This Alert was based on observations made by the "Framingham Advocates for the Sudbury River" during a 1997 shoreline survey beginning at the Winter Street Dam, during which Trash, algae growth and sediment deposition were noted (O'Brien-Clayton 2005). No new aesthetics observation data are available to evaluate the Aesthetics Use for this Sudbury River AU (MA82A-26).

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this Sudbury River AU (MA82A-26) are available, so the Primary Contact Recreation Use is Not Assessed. The prior Alert for Trash, algae growth, and sediment deposition at the Winter Street Dam is being removed from the recreational uses but continues to be maintained under the Aesthetics Use.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for this Sudbury River AU (MA82A-26) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed. The prior Alert for Trash, algae growth, and sediment deposition at the Winter Street Dam is being removed from the recreational uses but continues to be maintained under the Aesthetics Use. MassDEP staff collected historical *E. coli* bacteria samples at the upstream end of this Sudbury River AU (MA82A-26) at W0840 [Winter St bridge, Framingham] from Jul 2001 (n=2). These historic *E. coli* data are too limited to assess according to the 2024 CALM.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0840	MassDEP	Water Quality	Sudbury River	[Winter Street bridge, Framingham]	42.291547	-71.441902

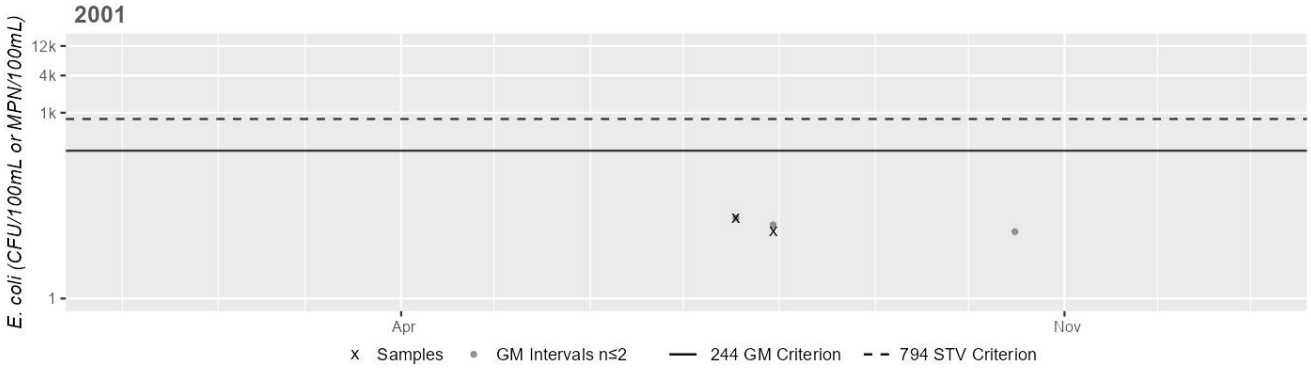
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0840	MassDEP	E. coli	07/18/01	07/30/01	2	12	20	15

Station MASSDEP_W0840 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	2
SeasGM	15
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Taylor Brook (MA82B-08)

Location:	Headwaters, outlet Puffer Pond, Maynard to mouth at confluence with the Assabet River, Maynard.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B

No usable data were available for Taylor Brook (MA82B-08) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Tripp Pond (MA82107)

Location:	Hudson.
AU Type:	FRESHWATER LAKE
AU Size:	4 ACRES
Classification/Qualifier:	B

No usable data were available for Tripp Pond (MA82107) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Unnamed Tributary (MA82A-15)

Location:	Headwaters, northeast of Indian Head Hill (near Route 20), Marlborough to mouth at inlet of Hager Pond, Marlborough (formerly part of 1996 segment: Hop Brook MA82A-05).
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B

Unnamed Tributary (MA82A-15)

Watershed Area: 1.06 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	1.06	1.06	0.25	0.25
Agriculture	1.1%	1.1%	1.7%	1.7%
Developed	34.7%	34.7%	37.8%	37.8%
Natural	51.3%	51.3%	41%	41%
Wetland	12.9%	12.9%	19.4%	19.4%
Impervious	21.1%	21.1%	25.8%	25.8%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Algae	--	Unchanged
5	5	Ambient Bioassays - Chronic Aquatic Toxicity	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged
5	5	Total Suspended Solids (TSS)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Algae	Municipal Point Source Discharges (Y)	--	--	X	X	X
Algae	Source Unknown (N)	--	--	X	X	X
Ambient Bioassays - Chronic Aquatic Toxicity	Source Unknown (N)	X	--	--	--	--
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Total Suspended Solids (TSS)	Municipal Point Source Discharges (Y)	X	--	--	--	--

Recommendations

2024/26 Recommendations
2024/2026 IR [E. coli, high priority] Higher frequency follow-up bacteria monitoring should be conducted on this Unnamed Tributary AU (MA82A-15; locally known as Ward Brook or Sewage Brook) to determine whether an impairment of both recreational uses is needed. An Alert was identified for Escherichia Coli (E. Coli) at OARS_HBS-098 in the 2024/2026 IR cycle since 1 of 3 samples was elevated at 2300 CFU/100mL. {OARS_HBS-098}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Unnamed Tributary (MA82A-15), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert

Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Unnamed Tributary to Hager Pond (MA82A-15) continues to be assessed as Not Supporting, with the Algae impairment being carried forward from the 1998 303(d) list. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Unnamed Tributary AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Unnamed Tributary AU (MA82A-15; locally known as Ward Brook or Sewage Brook) continues to be assessed as Not Supporting. The prior Algae impairment (from the Aesthetics Use) is being carried forward. An Alert is being identified for Escherichia Coli (E. Coli) based on monitoring conducted at OARS_HBS-098 in 2021. OARS staff/volunteers collected *E. coli* bacteria samples at the downstream end of this Unnamed Tributary AU (MA82A-15) at OARS_HBS-098 [Rt. 20 bridge above Hager Pond - Ward Brook, Marlborough] from Jun-Aug 2021 (n=3). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL, 1 sample exceeded the 410 CFU/100mL STV, and the seasonal GM was 267 CFU/100mL. *E. coli* data from OARS_HBS-098 meet 2024 CALM guidance, however an Alert is being identified for Escherichia Coli (E. Coli) at OARS_HBS-098 since the seasonal GM was elevated and 1 sample exceeded the STV at 2300 CFU/100mL. A recommendation will be made for follow-up sampling. Surface water sampling was conducted by the USGS both upstream of the Marlborough (Easterly) WWTF discharge on Ward Brook (MA82A-15; at station USGS_01098704 DEP name Unnamed Tributary) and downstream of the Marlborough (Easterly) WWTF discharge on Sewage Brook (MA82A-15; at station USGS_01098705 DEP name Unnamed Tributary) on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value at both sites (HFPO-DA/GenX was not analyzed in this study).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_HBS-098	OARS	Water Quality	Hop Brook	Rt. 20 bridge above Hager Pond - Ward Brook, Marlborough	42.350920	-71.490479
USGS-01098704	USGS Massachusetts Water Science Center	Water Quality	Ward Brook	WARD BROOK NEAR MARLBOROUGH, MA; upstream of Marlborough (Easterly) WWTF	42.352000	-71.495000

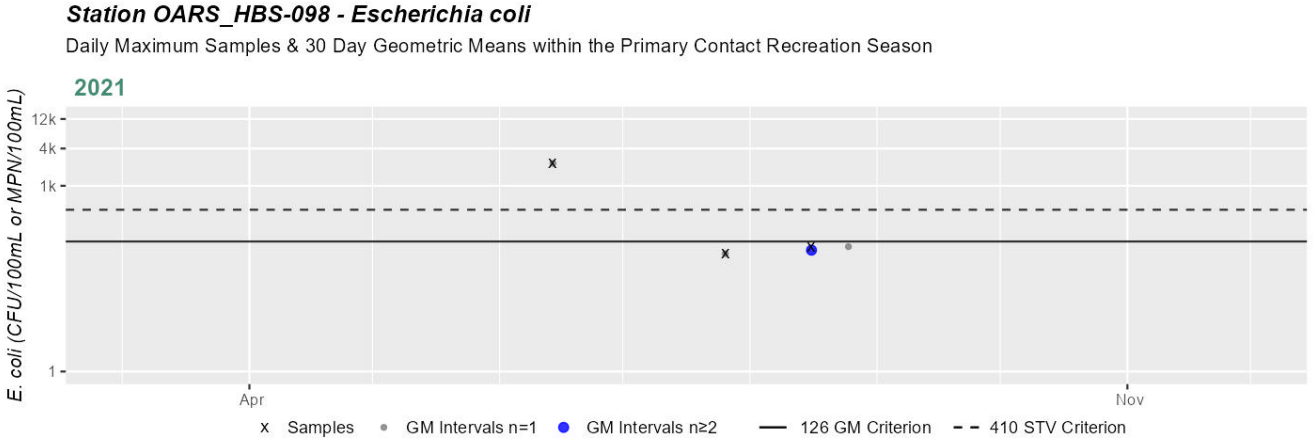
Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
USGS-01098705	USGS Massachusetts Water Science Center	Water Quality	Sewage Brook	SEWAGE BROOK NEAR MARLBOROUGH, MA; downstream of Marlborough (Easterly) WWTF	42.351000	-71.491000

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (30-day Interval Analysis) (OARS 2023) (MassDEP Undated 2)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_HBS-098	OARS	E. coli	06/14/21	08/16/21	3	80	2300	267



Variable*	Result
Samples	3
SeasGM	267
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	1
%n>STV	33%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Other Indicators

Summary Statement(s) for USGS 2020 PFAS in Water Column Data (Savoie and Argue 2023) (MassDEP Undated 2)

Summary
Surface water sampling was conducted by the USGS downstream of the Marlborough (Easterly) WWTF discharge on Sewage Brook (MA82A-15; at station USGS_01098705 DEP name Unnamed Tributary) on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).
Surface water sampling was conducted by the USGS upstream of the Marlborough (Easterly) WWTF discharge on Ward Brook (MA82A-15; at station USGS_01098704 DEP name Unnamed Tributary) on three dates during August to October 2020 as part of a MassDEP funded project to evaluate 24 PFAS analytes in ambient water samples upstream and downstream of wastewater treatment facilities. The concentrations of six of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS) were all less than the 90 ng/L (ppt) recreational screening value (HFPO-DA/GenX was not analyzed in this study).

USGS 2020 PFAS in Water Column Data Collected Upstream and Downstream of Wastewater Treatment Facilities (Savoie and Argue 2023) (MassDEP Undated 2)

[The ∑PFAS6 equals the sum of PFOA, PFOS, PFNA, PFHxS, PFDA, PFHpA (not all shown individually here). * indicates the ∑PFAS6 concentration is qualified since data for one or more individual PFAS6 analytes were qualified. A concentration with a "<" was less than the reporting detection limit (RDL) and the RDL was used to calculate the ΣPFAS6. E = qualifier "value is estimated"; V = qualifier "value affected by field or laboratory contamination"]

Station Code	Sample Date	PFOA ng/L	PFOS ng/L	PFNA ng/L	PFHxS ng/L	PFBA ng/L	PFBS ng/L	ΣPFAS6 ng/L
USGS-01098704	8/21/2020	11.3	E11.3	E1.01	3.77	3.72	11.5	33.2*
USGS-01098704	9/15/2020	9.78	E10.6	E0.946	3.27	3.94	11.9	30.1*
USGS-01098704	10/16/2020	10.1	8.71	E0.909	2.37	4.62	13.8	26.3*
USGS-01098705	8/21/2020	8.49	E7.47	E1.34	E1.16	7.37	2.52	23.3*
USGS-01098705	9/15/2020	7.37	E5.7	E0.952	E1.02	9	3.15	18.5*
USGS-01098705	10/16/2020	9.12	7.61	E1.32	E1.03	13	2.79	24.1*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Unnamed Tributary AU (MA82A-15; locally known as Ward Brook or Sewage Brook) continues to be assessed as Not Supporting. The prior Algae impairment (from the Aesthetics Use) is being carried forward. An Alert is being identified for Escherichia Coli (E. Coli) based on monitoring conducted at OARS_HBS-098 in 2021. OARS staff/volunteers collected *E. coli* bacteria samples at the downstream end of this Unnamed Tributary (MA82A-15) at OARS_HBS-098 [Rt. 20 bridge above Hager Pond - Ward Brook, Marlborough] from Jun-Aug 2021 (n=3). Analysis of this limited frequency *E. coli* dataset indicated 100% of intervals had GMs >244 CFU/100mL, 1 sample exceeded the 794 CFU/100mL STV, and the overall GM was 267 CFU/100mL While these *E. coli* data from OARS_HBS-098 appear to be indicative of an Escherichia Coli (E. Coli) impairment, due to the small sample size (1 sample skewed the dataset), an impairment decision will not be made at this time. An Alert is being identified for Escherichia Coli (E. Coli) and a recommendation will be made for follow-up sampling.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_HBS-098	OARS	Water Quality	Hop Brook	Rt. 20 bridge above Hager Pond - Ward Brook, Marlborough	42.350920	-71.490479

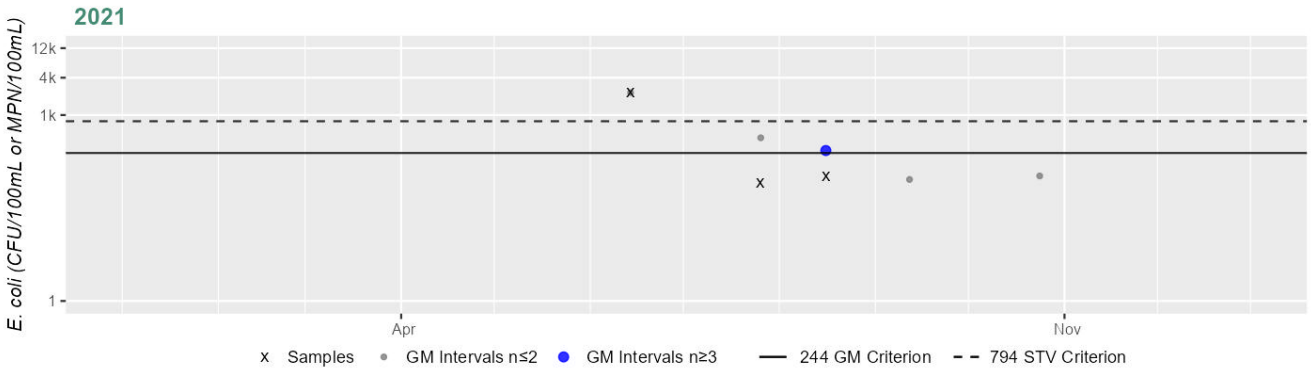
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_HBS-098	OARS	E. coli	06/14/21	08/16/21	3	80	2300	267

Station OARS_HBS-098 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	267
#GMI	1
#GMI Ex	1
%GMI Ex	100%
n>STV	1
%n>STV	33%

Cumulative %GMI Exceedance

Current (2011-2022)

100%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Unnamed Tributary (MA82A-16)

Location:	Headwaters, outlet Hager Pond, Marlborough to mouth at inlet of Grist Mill Pond, Marlborough (formerly part of 1996 segment: Hop Brook MA82A-05).
AU Type:	RIVER
AU Size:	0.2 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82A-16) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Algae	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Dissolved Oxygen Supersaturation	--	Unchanged
5	5	pH, High	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged
5	5	Total Suspended Solids (TSS)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Algae	Dam or Impoundment (Y)	--	--	X	X	X
Algae	Municipal Point Source Discharges (Y)	--	--	X	X	X
Algae	Source Unknown (N)	--	--	X	X	X
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Dissolved Oxygen Supersaturation	Dam or Impoundment (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
pH, High	Municipal Point Source Discharges (Y)	X	--	--	--	--
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Total Suspended Solids (TSS)	Municipal Point Source Discharges (Y)	X	--	--	--	--

Unnamed Tributary (MA82A-17)

Location:	Headwaters, outlet Grist Mill Pond, Sudbury to mouth at inlet of Carding Mill Pond, Sudbury (formerly part of 1996 segment: Hop Brook MA82A-05).
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B

Unnamed Tributary (MA82A-17)

Watershed Area: 3.14 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	3.14	3.14	0.93	0.93
Agriculture	1.9%	1.9%	1%	1%
Developed	21.9%	21.9%	20.9%	20.9%
Natural	62.6%	62.6%	56.9%	56.9%
Wetland	13.6%	13.6%	21.2%	21.2%
Impervious	12.5%	12.5%	12.7%	12.7%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Algae	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Dissolved Oxygen Supersaturation	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged
5	5	Total Suspended Solids (TSS)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Algae	Dam or Impoundment (Y)	--	--	X	X	X

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Algae	Municipal Point Source Discharges (Y)	--	--	X	X	X
Algae	Source Unknown (N)	--	--	X	X	X
Dissolved Oxygen	Municipal Point Source Discharges (Y)	X	--	--	--	--
Dissolved Oxygen Supersaturation	Dam or Impoundment (Y)	X	--	--	--	--
Phosphorus, Total	Municipal Point Source Discharges (Y)	X	--	--	--	--
Total Suspended Solids (TSS)	Municipal Point Source Discharges (Y)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Unnamed Tributary AU (MA82A-17), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use for this Unnamed Tributary (MA82A-17) to Carding Mill Pond continues to be assessed as Not Supporting, with the historical Algae impairment being carried forward from the 1998 303(d) list. No new aesthetics observation data are available to evaluate the Aesthetics Use for this Unnamed Tributary AU.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Unnamed Tributary (MA82A-17) to Carding Mill Pond continues to be assessed as Not Supporting. The prior Algae impairment (from the Aesthetics Use) is being carried forward. OARS staff/volunteers collected limited *E. coli* bacteria samples in the downstream half of this short Unnamed Tributary AU (MA82A-17) at OARS_HBS-085 [Wayside Inn Rd side bridge, Sudbury] from Jun-Aug 2021 (n=3). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 56 CFU/100mL). These limited data are indicative of good water quality conditions.

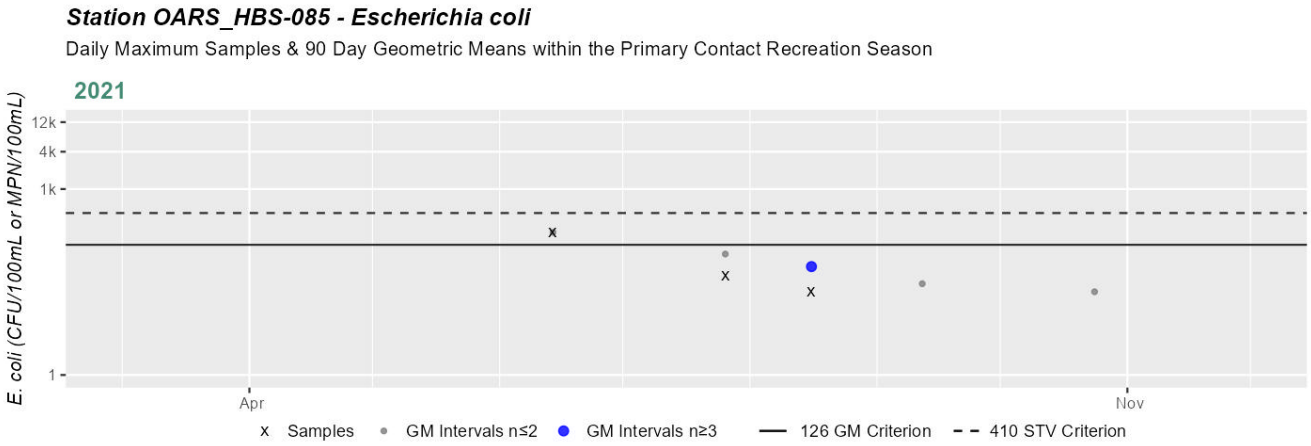
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_HBS-085	OARS	Water Quality	Hop Brook	Wayside Inn Rd side bridge, Sudbury	42.357723	-71.470175

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 2)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_HBS-085	OARS	E. coli	06/14/21	08/16/21	3	22	200	56



Variable*	Result
Samples	3
SeasGM	56
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Unnamed Tributary (MA82A-17) to Carding Mill Pond continues to be assessed as Not Supporting. The prior Algae impairment (from the Aesthetics Use) is being carried forward. OARS staff/volunteers collected limited *E. coli* bacteria samples in the downstream half of this short Unnamed Tributary AU (MA82A-17) at OARS_HBS-085 [Wayside Inn Rd side bridge, Sudbury] from Jun-Aug 2021 (n=3). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV (the overall GM was 56 CFU/100mL). These limited data are indicative of good water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
OARS_HBS-085	OARS	Water Quality	Hop Brook	Wayside Inn Rd side bridge, Sudbury	42.357723	-71.470175

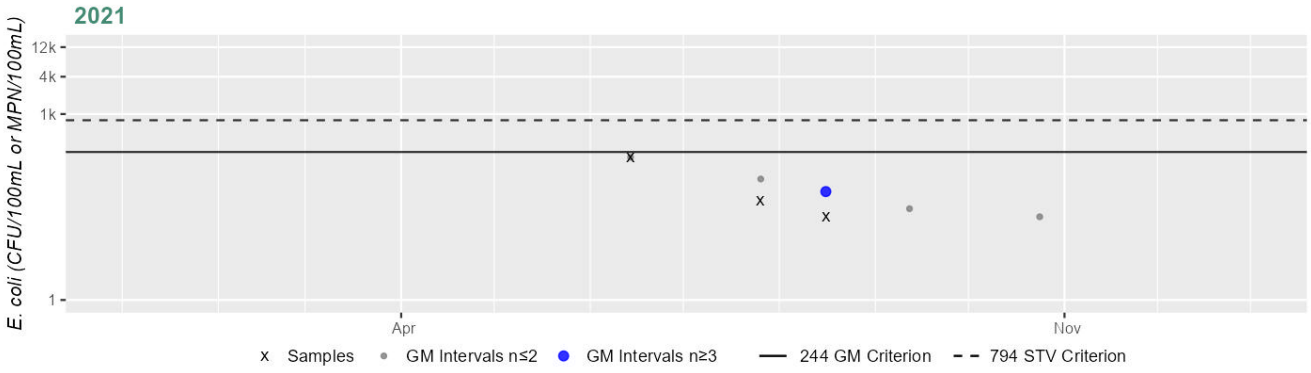
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(OARS 2023) (MassDEP Undated 1)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
OARS_HBS-085	OARS	E. coli	06/14/21	08/16/21	3	22	200	56

Station OARS_HBS-085 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	3
SeasGM	56
#GMI	1
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Unnamed Tributary (MA82A-22)

Location:	Unnamed tributary to the Sudbury River locally known as Cochituate Brook, headwaters, outlet north basin of Lake Cochituate, Framingham to mouth at confluence with Sudbury River, Framingham.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

Unnamed Tributary (MA82A-22)

Watershed Area: 20.36 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	20.36	9.62	6.30	3.34
Agriculture	1.4%	0%	1.6%	0%
Developed	41.1%	49.6%	25.5%	26.7%
Natural	42.8%	42%	50.1%	57%
Wetland	14.6%	8.4%	22.8%	16.3%
Impervious	25.9%	31.8%	15.6%	17.2%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)	--	Unchanged
5	5	(Debris*)	--	Unchanged
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Escherichia Coli (E. Coli)	R1_MA_2024_04	Changed
5	5	Nutrient/Eutrophication Biological Indicators	--	Unchanged
5	5	Trash	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Debris*)	Source Unknown (N)	--	--	X	X	X
Benthic Macroinvertebrates	Dam or Impoundment (Y)	X	--	--	--	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--
Nutrient/Eutrophication Biological Indicators	Dam or Impoundment (Y)	X	--	--	--	--
Trash	Source Unknown (N)	--	--	X	X	X

Supporting Information for Removed Impairments

2022 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	TMDL approved or established by EPA (4a)	Impairment covered under TMDL: Massachusetts Statewide TMDL for Pathogen-Impaired Waterbodies (Report CN 515.1, approved 2/13/2024, ATTAINS Action ID: R1_MA_2024_04)

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Unnamed Tributary (MA82A-22), so the Fish Consumption Use for Unnamed Tributary (MA82A-22) is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use of this Unnamed Tributary (MA82A-22, locally known as Cochituate Brook) continues to be assessed as Not Supporting, with the prior Debris and Trash impairments being carried forward. MassDEP field crews recorded aesthetics observations at one station about three-quarters of the way down this Unnamed Tributary AU ~800 ft upstream of School St / Rt 126, Framingham (W2536/MAP2-715, n=5) in summer 2015. Field crews generally did not note any odors, growths, or turbidity; however, an aesthetics impairment flag was noted on two occasions as well as objectionable deposits observed on all site visits (i.e., trash, was described on one of the visits when the aesthetics impairment flag was NOT checked as "Lots of trash. Just under impairable levels" (MassDEP Undated 7)). These observations are indicative of the existing Trash impairment (the existing Debris impairment remains as a relic of the implementation of the ATTAINS reporting system (MassDEP 2025).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2536	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Sudbury River locally known as 'Cochituate Brook', approximately 800 feet upstream of School Street (Route 126), Framingham]	42.319324	-71.395583

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)
[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2536	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2536 on Unnamed Tributary (MA82A-22) during 5 site visits between May 2015 and Sep 2015. There were some objectionable conditions recorded, including an aesthetics impairment flag (n=2). Field staff also noted objectionable deposits (n=5) and abundant trash (n=3). These conditions are indicative of an Alert status.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2536	2015	5	5	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2536	Unnamed Tributary	2015	Aesthetics Impaired?	No	3	5
W2536	Unnamed Tributary	2015	Aesthetics Impaired?	Yes	2	5
W2536	Unnamed Tributary	2015	Aquatic Plant Density, Overall	None	5	5
W2536	Unnamed Tributary	2015	Color	Light Yellow/Tan	5	5
W2536	Unnamed Tributary	2015	Objectionable Deposits	Yes	5	5
W2536	Unnamed Tributary	2015	Odor	None	5	5
W2536	Unnamed Tributary	2015	Periphyton Density, Filamentous	None	2	5
W2536	Unnamed Tributary	2015	Periphyton Density, Filamentous	Sparse	3	5
W2536	Unnamed Tributary	2015	Periphyton Density, Film	None	3	5
W2536	Unnamed Tributary	2015	Periphyton Density, Film	Sparse	2	5
W2536	Unnamed Tributary	2015	Scum	No	4	5
W2536	Unnamed Tributary	2015	Scum	Yes	1	5
W2536	Unnamed Tributary	2015	Turbidity	None	4	5
W2536	Unnamed Tributary	2015	Turbidity	Slightly Turbid	1	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this Unnamed Tributary (MA82A-22, locally known as Cochituate Brook) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W2536 in 2015. The prior Debris and Trash impairments (from the Aesthetics Use) are also being carried forward.
MassDEP staff collected *E. coli* bacteria samples about three-quarters of the way down this Unnamed Tributary (MA82A-22) to the Sudbury River locally known as 'Cochituate Brook', at W2536 [~800 ft upstream of School St (Rt. 126) in Framingham] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 80% of intervals had GMs >126 CFU/100mL, 1 sample exceeded the 410 CFU/100mL STV, and the seasonal GM was 163 CFU/100mL. These data are indicative of an Escherichia Coli (E. Coli) impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2536	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Sudbury River locally known as 'Cochituate Brook', approximately 800 feet upstream of School Street (Route 126), Framingham]	42.319324	-71.395583

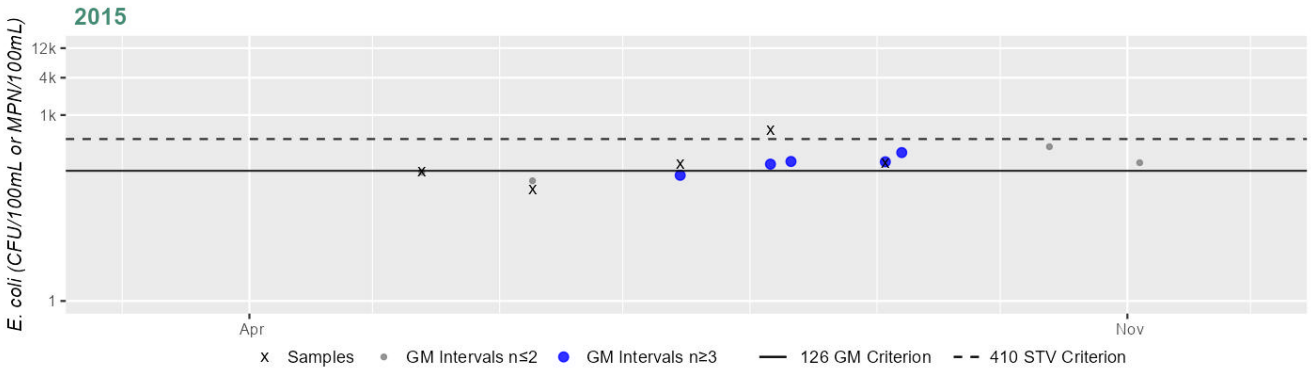
Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2536	MassDEP	E. coli	05/13/15	09/03/15	5	63	560	163

Station MASSDEP_W2536 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Primary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	163
#GMI	5
#GMI Ex	4
%GMI Ex	80%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Current (2011-2022)
80%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for this Unnamed Tributary (MA82A-22, locally known as Cochituate Brook) continues to be assessed as Not Supporting. The prior Debris and Trash impairments (from the Aesthetics Use) are being carried forward.
MassDEP staff collected *E. coli* bacteria samples in the current IR window (2011-2022) about three-quarters of the way down this Unnamed Tributary (MA82A-22) at W2536 [unnamed tributary to Sudbury River locally known as 'Cochituate Brook', ~800 ft upstream of School St (Rt. 126), Framingham] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 20% of intervals had GMs >244 CFU/100mL, no samples exceeded the 794 CFU/100mL STV, and the overall GM was 163 CFU/100mL. *E. coli* data from W2536 meet 2024 CALM guidance.
DEP staff also collected historical *E. coli* bacteria samples from the following stations/sample years: W0841 [unnamed tributary to Sudbury River, at outlet of Lake Cochituate, Framingham] in Jul 2001 (n=2), and in the downstream quarter of the brook at W2135 [unnamed tributary to Sudbury River locally known as Cochituate Brook, ~600 ft upstream of School St (Rt. 126), Framingham] from May-Sep 2010 (n=6) and at W0842 [unnamed tributary to Sudbury River, Rt. 126 bridge, Framingham] in Jul 2001 (n=2). These data were either insufficient according to the 2024 CALM (W0841, W0842) or similarly met 2024 CALM guidance as W2536 (W2135), but since these data were all collected prior to the current IR window (2011-2022), they cannot be used for assessment purposes.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0841	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Sudbury River, at outlet of Lake Cochituate, Framingham]	42.314857	-71.384250
W0842	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Sudbury River, Route 126 bridge, Framingham]	42.321366	-71.396410
W2135	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Sudbury River locally known as Cochituate Brook, approximately 600 feet upstream of School Street (Route 126), Framingham]	42.319815	-71.395881
W2536	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Sudbury River locally known as 'Cochituate Brook', approximately 800 feet upstream of School Street (Route 126), Framingham]	42.319324	-71.395583

Bacteria Data

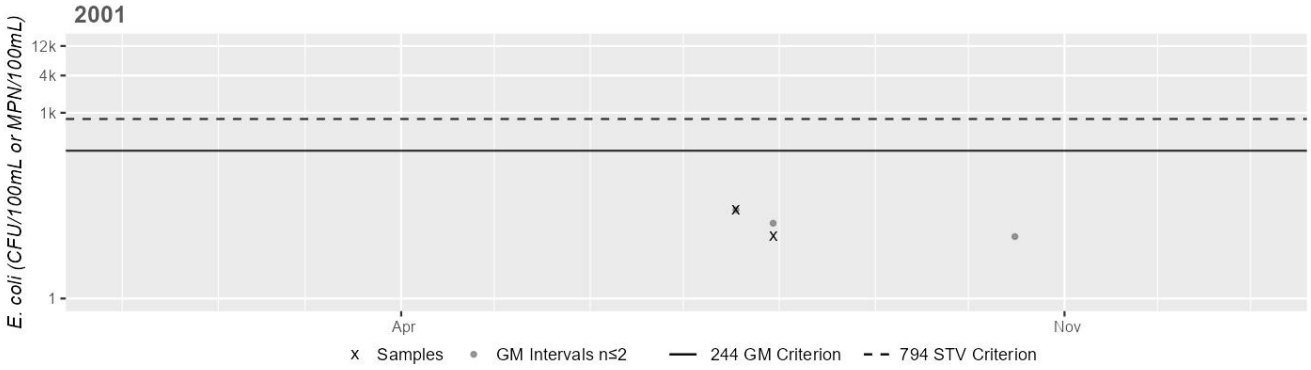
Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0841	MassDEP	E. coli	07/18/01	07/30/01	2	10	27	16
W0842	MassDEP	E. coli	07/18/01	07/30/01	2	85	85	85
W2135	MassDEP	E. coli	05/04/10	09/13/10	6	70	410	221

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2536	MassDEP	E. coli	05/13/15	09/03/15	5	63	560	163

Station MASSDEP_W0841 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



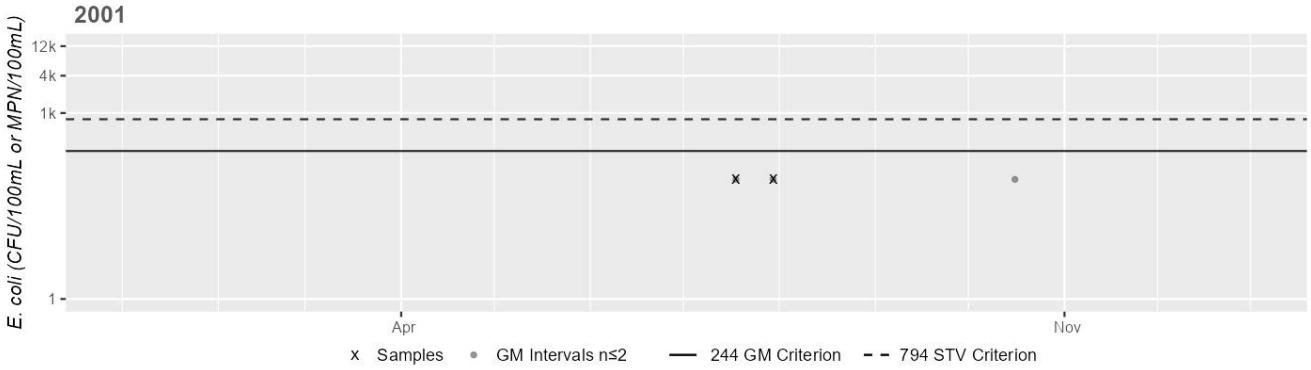
Variable*	Result
Samples	2
SeasGM	16
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W0842 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



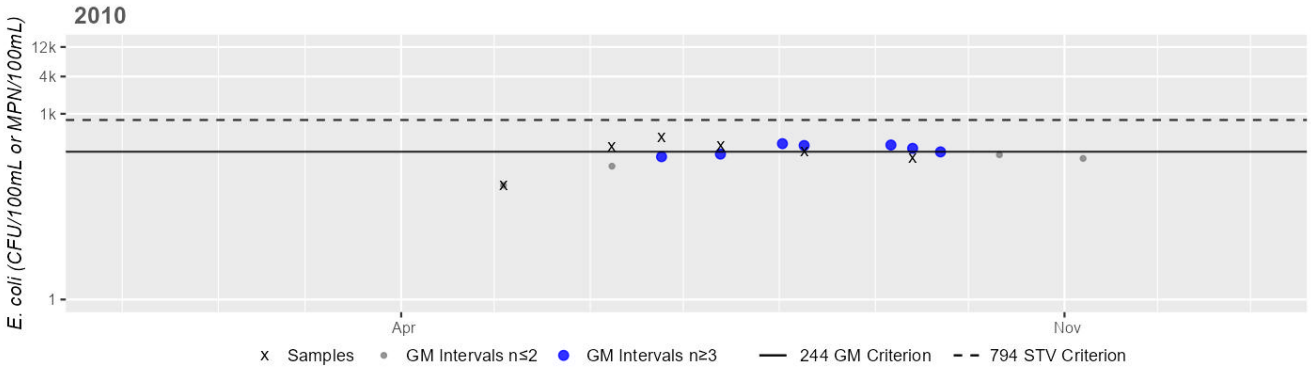
Variable*	Result
Samples	2
SeasGM	85
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2135 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



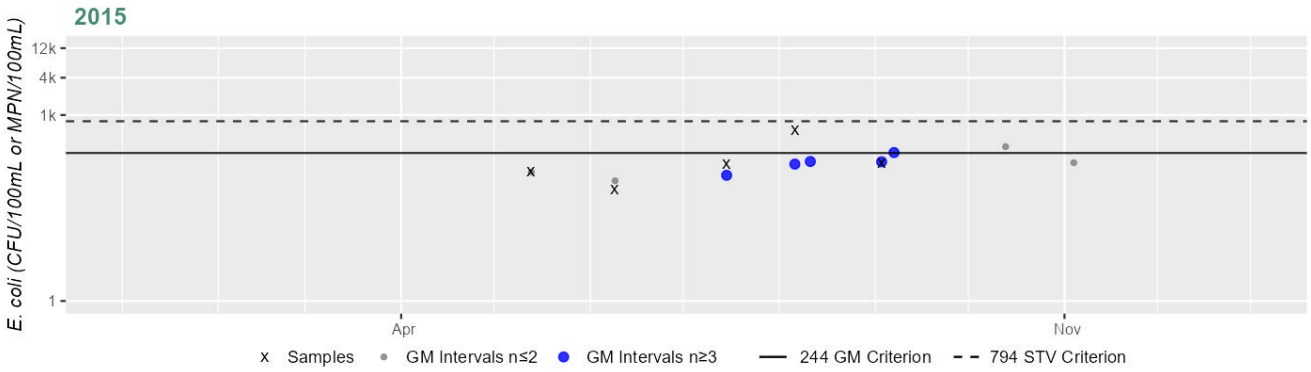
Variable*	Result
Samples	6
SeasGM	221
#GMI	7
#GMI Ex	4
%GMI Ex	57%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
57%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2536 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	163
#GMI	5
#GMI Ex	1
%GMI Ex	20%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance

Current (2011-2022)

20%

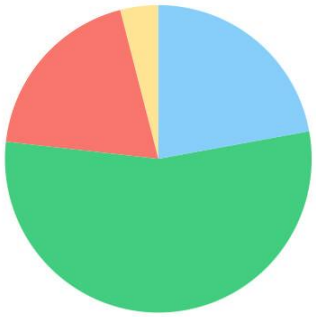
**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Unnamed Tributary (MA82A-31)

Location:	Unnamed tributary to River Meadow Brook, outlet Elm Street Pond, Carlisle to mouth at confluence with River Meadow Brook, Chelmsford (through former 2014 segment: Russell Millpond MA82096 and excluding approximately 0.4 mile through existing segment: Meadow Pond MA82129) (formerly part of 2014 segment: Unnamed Tributary MA82A-21).
AU Type:	RIVER
AU Size:	3.7 MILES
Classification/Qualifier:	B

Unnamed Tributary (MA82A-31)

Watershed Area: 10.00 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	10.00	6.32	3.24	2.02
Agriculture	4%	4.3%	5.3%	6.2%
Developed	19.2%	17.4%	11.6%	10.7%
Natural	54.7%	57.6%	48.5%	54.8%
Wetland	22.1%	20.7%	34.5%	28.3%
Impervious	8.7%	7.6%	5.5%	4.7%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Flow Regime Modification*)	--	Unchanged
4c	4c	(Water Chestnut*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Flow Regime Modification*)	Source Unknown (N)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Unnamed Tributary AU (MA82A-31), so the Fish Consumption Use for is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use of this Unnamed Tributary (MA82A-31) to River Meadow Brook is assessed as Fully Supporting based on the general lack of objectionable conditions noted by MassDEP staff during the summers of 2015 and 2016. MassDEP field crews recorded aesthetics observations at one station in the middle of the section of this Unnamed Tributary AU that is downstream of Meadow Pond, ~100 feet upstream from the inlet of Russell Millpond, Chelmsford (W2547) in 2015 (n=3) and 2016 (n=6). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2547	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Russell Millpond, approximately 100 feet upstream from inlet of Russell Millpond, Chelmsford]	42.562315	-71.336306

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2547	2015	3	Aesthetic observations were made by MassDEP field sampling crews at Station W2547 on Unnamed Tributary (MA82A-31) during 3 site visits between Oct 2015 and Dec 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.
W2547	2016	6	Aesthetic observations were made by MassDEP field sampling crews at Station W2547 on Unnamed Tributary (MA82A-31) during 6 site visits between Jan 2016 and Sep 2016. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2547	2015	3	3	0
W2547	2016	6	6	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2547	Unnamed Tributary	2015	Aesthetics Impaired?	No	3	3
W2547	Unnamed Tributary	2015	Aquatic Plant Density, Overall	None	3	3
W2547	Unnamed Tributary	2015	Color	None	3	3
W2547	Unnamed Tributary	2015	Objectionable Deposits	No	3	3
W2547	Unnamed Tributary	2015	Odor	None	3	3
W2547	Unnamed Tributary	2015	Periphyton Density, Filamentous	None	3	3
W2547	Unnamed Tributary	2015	Periphyton Density, Film	None	3	3
W2547	Unnamed Tributary	2015	Scum	No	3	3
W2547	Unnamed Tributary	2015	Turbidity	None	3	3
W2547	Unnamed Tributary	2016	Aesthetics Impaired?	No	6	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2547	Unnamed Tributary	2016	Aquatic Plant Density, Overall	None	6	6
W2547	Unnamed Tributary	2016	Color	Light Yellow/Tan	1	6
W2547	Unnamed Tributary	2016	Color	None	5	6
W2547	Unnamed Tributary	2016	Objectionable Deposits	No	6	6
W2547	Unnamed Tributary	2016	Odor	None	6	6
W2547	Unnamed Tributary	2016	Periphyton Density, Filamentous	Moderate	1	6
W2547	Unnamed Tributary	2016	Periphyton Density, Filamentous	None	5	6
W2547	Unnamed Tributary	2016	Periphyton Density, Film	None	6	6
W2547	Unnamed Tributary	2016	Scum	No	6	6
W2547	Unnamed Tributary	2016	Turbidity	None	6	6

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No bacteria data are available to assess the Primary Contact Recreation Use for this Unnamed Tributary (MA82A-31) to River Meadow Brook and available aesthetics observations for this AU did not result in any impairment, so it is assessed as having Insufficient Information.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No bacteria data are available to assess the Secondary Contact Recreation Use for this Unnamed Tributary (MA82A-31) to River Meadow Brook and available aesthetics observations for this AU did not result in any impairment, so it is assessed as having Insufficient Information.

Unnamed Tributary (MA82A-35)

Location:	Unnamed tributary to Hop Brook, headwaters south of Graham Path, Marlborough to mouth at confluence with Hop Brook, Sudbury.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82A-35) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Unnamed Tributary (MA82A-36)

Location:	Unnamed tributary to Hop Brook, headwaters outlet unnamed pond west of Vega Road, Marlborough to mouth at confluence with Hop Brook, Sudbury.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82A-36) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Unnamed Tributary (MA82B-16)

Location:	Unnamed tributary to Assabet River (locally considered part of Spencer Brook), outlet Angiers Pond, Concord to mouth at confluence with the Assabet River, Concord.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82B-16) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Unnamed Tributary (MA82B-23)

Location:	Unnamed tributary to the Assabet River; headwaters, outlet small pond south of Athens Street, Stow to mouth at confluence with Assabet River (backwater area), Stow.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Unnamed Tributary (MA82B-23) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Unnamed Tributary (MA82B-24)

Location:	Unnamed tributary to Nashoba Brook, headwaters outlet unnamed pond east of Pope Road, Acton to mouth at confluence with Nashoba Brook, Acton.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82B-24) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Unnamed Tributary (MA82B-27)

Location:	Unnamed tributary to Assabet River Reservoir, headwaters, perennial portion south of Route 30 (Nourse Street), Westborough to mouth at inlet of Assabet River Reservoir, Westborough.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82B-27) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Unnamed Tributary (MA82B-28)

Location:	Unnamed tributary to Assabet River Reservoir, headwaters, perennial portion north of Nourse Street (Route 30), Westborough to mouth at inlet of Assabet River Reservoir, Westborough.
AU Type:	RIVER
AU Size:	0.3 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82B-28) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

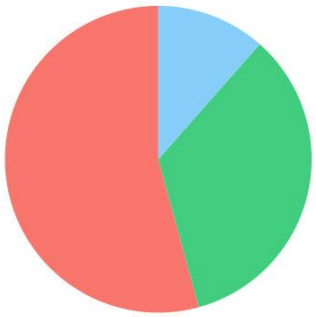
AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Unnamed Tributary (MA82B-31)

Location:	Unnamed tributary to Hop Brook, headwaters west of Tennis Drive, Shrewsbury to inlet Eaton Pond, Shrewsbury.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

Unnamed Tributary (MA82B-31)

Watershed Area: 1.23 square miles



Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	1.23	1.23	0.37	0.37
Agriculture	0%	0%	0%	0%
Developed	54.3%	54.3%	38.5%	38.5%
Natural	34.2%	34.2%	32.8%	32.8%
Wetland	11.5%	11.5%	28.8%	28.8%
Impervious	27.1%	27.1%	18.4%	18.4%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Chloride	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Escherichia Coli (E. Coli)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Chloride	Highway/Road/Bridge Runoff (Non-construction Related) (Y)	X	--	--	--	--

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Chloride	Impervious Surface/Parking Lot Runoff (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)	--	--	--	X	--
Escherichia Coli (E. Coli)	Source Unknown (N)	--	--	--	X	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in this Unnamed Tributary AU (MA82B-31), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Aesthetics Use of this Unnamed Tributary AU (MA82B-31) is assessed as Fully Supporting based on the general lack of any objectionable conditions noted by MassDEP staff during the summer of 2015. MassDEP field crews recorded aesthetics observations at the downstream end of this Unnamed Tributary to Hop Brook ~875 feet downstream/north of Main Boulevard, Shrewsbury (W2528) during summer 2015 (n=5). There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2528	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Hop Brook, approximately 875 feet downstream/north of Main Boulevard, Shrewsbury]	42.291074	-71.688531

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2528	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2528 on Unnamed Tributary (MA82B-31) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2528	2015	5	4	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2528	Unnamed Tributary	2015	Aesthetics Impaired?	No	5	5
W2528	Unnamed Tributary	2015	Aquatic Plant Density, Overall	None	4	5
W2528	Unnamed Tributary	2015	Aquatic Plant Density, Overall	Sparse	1	5
W2528	Unnamed Tributary	2015	Color	Light Yellow/Tan	2	5
W2528	Unnamed Tributary	2015	Color	None	3	5
W2528	Unnamed Tributary	2015	Objectionable Deposits	No	5	5
W2528	Unnamed Tributary	2015	Odor	None	5	5
W2528	Unnamed Tributary	2015	Periphyton Density, Filamentous	None	3	5
W2528	Unnamed Tributary	2015	Periphyton Density, Filamentous	NR	1	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2528	Unnamed Tributary	2015	Periphyton Density, Filamentous	Sparse	1	5
W2528	Unnamed Tributary	2015	Periphyton Density, Film	None	4	5
W2528	Unnamed Tributary	2015	Periphyton Density, Film	NR	1	5
W2528	Unnamed Tributary	2015	Scum	No	5	5
W2528	Unnamed Tributary	2015	Turbidity	None	5	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for this Unnamed Tributary AU (MA82B-31) continues to be assessed as Not Supporting. The prior Escherichia Coli (E. Coli) impairment is being carried forward based on bacteria data not meeting the threshold at W2528. MassDEP staff collected *E. coli* bacteria samples at the downstream end of this Unnamed Tributary AU (MA82B-31) at W2528 [unnamed tributary to Hop Brook, ~875 ft downstream/N of Main Boulevard, Shrewsbury] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 100% of intervals had GMs >126 CFU/100mL and 1 sample exceeded the 410 CFU/100mL STV (the seasonal GM was 257 CFU/100mL). *E. coli* data from W2528 are reflective of the existing Escherichia Coli (E. Coli) impairment.

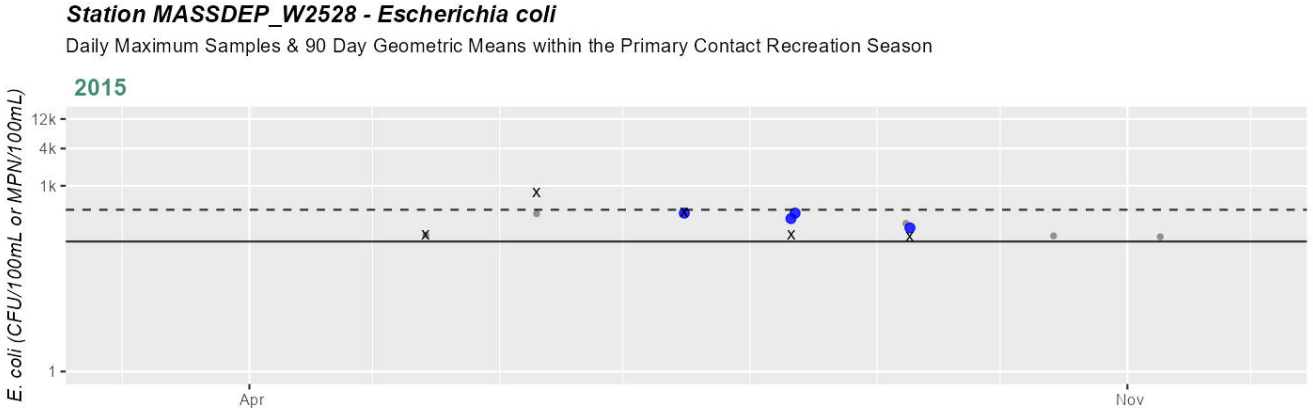
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2528	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Hop Brook, approximately 875 feet downstream/north of Main Boulevard, Shrewsbury]	42.291074	-71.688531

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2528	MassDEP	E. coli	05/14/15	09/09/15	5	150	780	257



Variable*	Result
Samples	5
SeasGM	257
#GMI	4
#GMI Ex	4
%GMI Ex	100%
n>STV	1
%n>STV	20%

Cumulative %GMI Exceedance
Current (2011-2022)
100%

*Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this Unnamed Tributary AU (MA82B-31) continues to be assessed as Fully Supporting. MassDEP staff collected *E. coli* bacteria samples at the downstream end of this Unnamed Tributary AU (MA82B-31) at W2528 [unnamed tributary to Hop Brook, ~875 ft downstream/N of Main Boulevard, Shrewsbury] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated 75% of intervals had GMs >244 CFU/100mL, no samples exceeded the 794 CFU/100mL STV, and the overall GM was 257 CFU/100mL. *E. coli* data from W2528 meet 2024 CALM guidance.

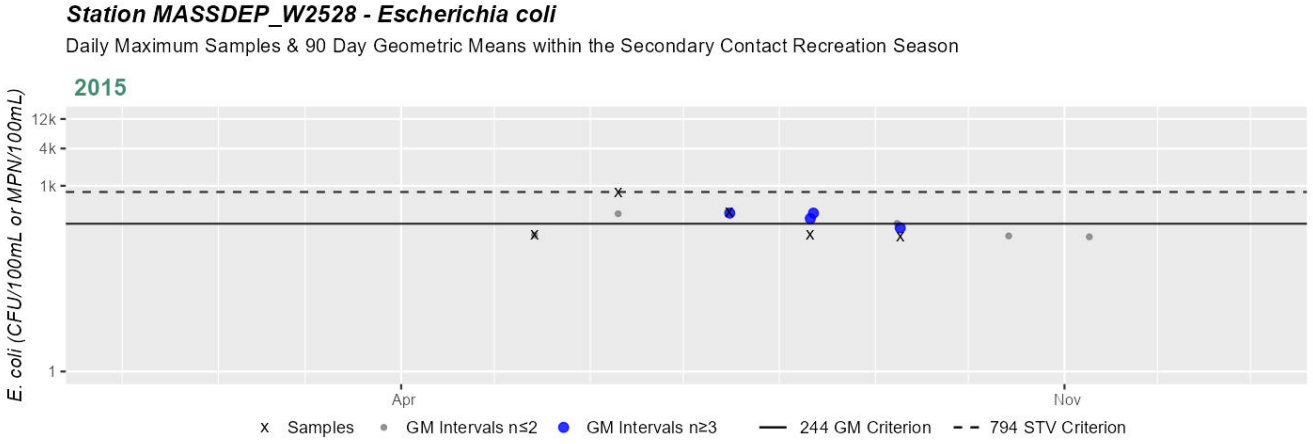
Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2528	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Hop Brook, approximately 875 feet downstream/north of Main Boulevard, Shrewsbury]	42.291074	-71.688531

Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2528	MassDEP	E. coli	05/14/15	09/09/15	5	150	780	257



Variable*	Result
Samples	5
SeasGM	257
#GMI	4
#GMI Ex	3
%GMI Ex	75%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
75%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Unnamed Tributary (MA82B-32)

Location:	Unnamed tributary to Assabet River, headwaters outlet Warner Pond, Concord to mouth at confluence with Assabet River, Concord.
AU Type:	RIVER
AU Size:	0.2 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA82B-32) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None	--	Unchanged

Walden Pond (MA82109)

Location:	Concord.
AU Type:	FRESHWATER LAKE
AU Size:	63 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	5	Mercury in Fish Tissue	33880	Unchanged
4a	5	PFAS in Fish Tissue	--	Added

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--
PFAS in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary

The Fish Consumption Use for Walden Pond (MA82109) continues to be assessed as Not Supporting. The prior Mercury in Fish Tissue impairment is being carried forward and a new impairment is being added for PFAS in Fish Tissue. Fish toxics sampling was conducted at Walden Pond (MA82109) in Concord as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. DPH issued a site-specific advisory for PFAS in Walden Pond in their February 2023 Freshwater Fish Consumption Advisory List and retained both this advisory as well as the existing Mercury advisory in the January 2025 list. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations. No source of PFAS has been identified at this time.

Fish Consumption Advisories

Summary of Fish Toxics Sampling and Resulting Fish Consumption Advisories (MA DPH 2025) (MA DPH 2023b)

Summary Statement
Fish toxics sampling was conducted at Walden Pond (MA82109) in Concord as part of a June 2022 MA DPH study assessing 40 PFAS analytes in fish tissue samples collected from lakes and ponds in state parks. Because of elevated PFAS measured in fish filets, MA DPH issued site-specific fish consumption advisories for Walden Pond in their February 2023 Freshwater Fish Consumption Advisory List. Additionally, MA DPH retained the existing site-specific fish consumption advisories for Mercury associated with Walden Pond in their January 2025 Freshwater Fish Consumption Advisory List. The site-specific DPH advisories are indicative of Fish Consumption Use impairments for PFAS in Fish Tissue and Mercury in Fish Tissue for Walden Pond (MA82109).

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Walden Pond (MA82109) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Walden Pond (MA82109) continues to be assessed as Fully Supporting.
Walden Pond (MA82109) in Concord has 2 DCR beaches with DPH beach closure data: Walden Pond - Main Beach [Beach ID: 4604] and Walden Pond - Red Cross Beach [Beach ID: 4605]. Both beaches were rarely, if at all, posted for swimming from 2018-2022 (generally 0-4% closures with a maximum of 9% in one year, 2022, at the Main beach). Note that some errors were identified in the 2014-2019 beach closure data for the Red Cross beach that were previously reported in the 2022 IR (MassDEP 2023a). In that document the maximum closure percentage was reported as 10% in 2015 when it should have been reported as 6%.
Surface water sampling was conducted at the Main Beach and Red Cross Beach on Walden Pond (MA82109) as part of a May 2022 MA DPH study assessing 40 PFAS analytes in surface water and fish tissue samples collected from waterbodies in state parks. The average concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value (maximum average 2.4 ng/L PFOA).

Beach Postings

MA DPH Beach Posting Data Summary (% Bathing Season Posted 2014-2022) (Bailey, Logan Feb. 2, 2021) (Bailey Sept. 10, 2023) (MassDEP Undated 2)

Beach ID	Beach Name/ Town	Left Border (Lat., Long.)	Right Border (Lat., Long.)	2014	2015	2016	2017	2018	2019	2020	2021	2022	# years >10%
4604	Walden Pond - Main (DCR)/ Concord	42.43993, -71.33470	42.43887, -71.33440	0%	4%	6%	4%	2%	2%	2%	2%	9%	0
4605	Walden Pond - Red Cross (DCR)/ Concord	42.44045, -71.33660	42.44019, -71.33520	0%	6%	1%	2%	2%	2%	4%	0%	0%	0

Other Indicators

Summary of MA DPH 2021 and 2022 PFAS in Water Column Data (MA DPH 2023a, MA DPH 2023b)

Surface water sampling was conducted at the Main Beach and Red Cross Beach on Walden Pond (MA82109) in Concord as part of a May 2022 MA DPH study assessing 40 PFAS analytes in surface water and fish tissue samples collected from waterbodies in state parks. The average concentrations of the seven analytes with individual toxicity criteria (PFOA, PFOS, PFNA, PFHxS, PFBA, PFBS, HFPO-DA/GenX) were all less than the 90 ng/L (ppt) recreational screening value (maximum average 2.4 ng/L PFOA).

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for Walden Pond (MA82109) continues to be assessed as Fully Supporting. Walden Pond (MA82109) in Concord has 2 DCR beaches with DPH beach closure data: Walden Pond - Main Beach [Beach ID: 4604] and Walden Pond - Red Cross Beach [Beach ID: 4605]. Both beaches were rarely, if at all, posted for swimming from 2018-2022 (generally 0-4% closures with a maximum of 9% in one year, 2022, at the Main beach). Note that some errors were identified in the 2014-2019 beach closure data for the Red Cross beach that were previously reported in the 2022 IR (MassDEP 2023a). In that document the maximum closure percentage was reported as 10% in 2015 when it should have been reported as 6%.

Warners Pond (MA82110)

Location:	Concord.
AU Type:	FRESHWATER LAKE
AU Size:	59 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	(Water Chestnut*)	--	Unchanged
4a	4a	Mercury in Fish Tissue	33880	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary

The Fish Consumption Use for Warners Pond (MA82110) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Warners Pond in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available, so the Aesthetics Use for Warners Pond (MA82110) is Not Assessed.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Warners Pond (MA82110) are available, so the Primary Contact Recreation Use is Not Assessed.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Assessed	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data for Warners Pond (MA82110) are available in the current IR window (2011-2022), so the Secondary Contact Recreation Use is Not Assessed.

Waushakum Pond (MA82112)

Location:	Framingham/Ashland.
AU Type:	FRESHWATER LAKE
AU Size:	87 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	Chlorophyll-a	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Phosphorus, Total	--	Unchanged
5	5	Turbidity	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Chlorophyll-a	Source Unknown (N)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Phosphorus, Total	Source Unknown (N)	X	--	--	--	--
Turbidity	Source Unknown (N)	X	--	X	X	X

Recommendations

2024/26 Recommendations
2024/2026 IR [Harmful Algal Blooms, high priority] Follow-up monitoring should be conducted in Waushakum Pond (MA82112) to determine if Harmful Algal Blooms may be impairing the Recreational and Aesthetic uses (extended blooms were reported in 2021 & 2022). Monitoring should include observational data and collection of cyanobacteria cell count data, as well as continued reporting of algal blooms to MDPH. {Waushakum Pond (MA82112)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Waushakum Pond (MA82112), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary
The Aesthetics Use for Waushakum Pond (MA82112) continues to be assessed as Not Supporting, with the prior impairment for Turbidity being carried forward. An Alert is being identified for Harmful Algal Blooms in this waterbody since C-HAB postings (blooms of >15 days in duration) were reported to MDPH for 2021 and 2022. During the period 2015 through 2022, C-HAB postings for Waushakum Pond were reported to MDPH based on visual observations for 43 days in 2021 and 111 days in 2022 and no blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for Harmful Algal Blooms in this waterbody and a recommendation for follow-up sampling will be made.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Waushakum Pond (MA82112) were reported to MDPH based on visual observations for 43 days in 2021 and 111 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, an Alert is being identified for C-HABs in this waterbody and a recommendation for follow-up sampling will be made.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Waushakum Pond	Ashland & Framingham							43	111

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary
The Primary Contact Recreation Use for Waushakum Pond (MA82112) continues to be assessed as Not Supporting. The prior Turbidity impairment (from the Aesthetics Use) is being carried forward. An Alert is being identified for Harmful Algal Blooms and additional sampling is recommended for this AU. During the period 2015 through 2022, C-HAB postings for Waushakum Pond (MA82112) were reported to MDPH based on visual observations for 43 days in 2021 and 111 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Waushakum Pond (MA82112) continues to be assessed as Not Supporting. The prior Turbidity impairment (from the Aesthetics Use) is being carried forward. An Alert is being identified for Harmful Algal Blooms and additional sampling is recommended for this AU.
During the period 2015 through 2022, C-HAB postings for Waushakum Pond (MA82112) were reported to MDPH based on visual observations for 43 days in 2021 and 111 days in 2022. No blooms were reported in other years. Since no extended blooms (>20 days in duration) based on cell count data were reported in recent years, an impairment decision will not be made at this time based on C-HAB postings. However, a Harmful Algal Blooms Alert is being identified for this waterbody and a recommendation for follow-up sampling will be made.

West Pond (MA82115)

Location:	Bolton.
AU Type:	FRESHWATER LAKE
AU Size:	19 ACRES
Classification/Qualifier:	B

No usable data were available for West Pond (MA82115) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Westborough Reservoir (MA82114)

Location:	Westborough.
AU Type:	FRESHWATER LAKE
AU Size:	41 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Westborough Reservoir (MA82114) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

White Pond (MA82118)

Location:	Concord.
AU Type:	FRESHWATER LAKE
AU Size:	36 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Dissolved Oxygen	--	Unchanged
5	5	Harmful Algal Blooms	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Harmful Algal Blooms	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)	X	--	X	X	X
Harmful Algal Blooms	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems) (N)	X	--	X	X	X
Harmful Algal Blooms	Source Unknown (N)	X	--	X	X	X

Recommendations

2024/26 Recommendations
<2016 [NEBI/E. coli, medium priority] White Pond (MA82118) should be sampled for *E. coli* and indicators of enrichment since the 2001 Water Quality Assessment Report noted that the Town of Concord identified the White Pond area as needing an off-site neighborhood wastewater treatment system because many of the septic systems in the area were old and failing (O'Brien-Clayton 2005). This waterbody was alerted prior to 2016. {White Pond (MA82118)}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Insufficient Information	No

2024/26 Use Attainment Summary
There is Insufficient Information to assess the Fish Consumption Use for this White Pond AU (MA82118). Fish toxics sampling for metals (mercury, arsenic, cadmium and selenium) was performed by MassDEP WPP biologists in White Pond (MA82118) at station F0064 in 2019 at the recommendation of the Interagency Committee on Freshwater Fish Toxics Monitoring and Assessment in response to a public request for monitoring. However, no site-specific fish consumption advisory was issued by MA DPH.

Fish Consumption Advisories

Summary of Fish Toxics Sampling and Resulting Fish Consumption Advisories (MassDEP Undated 5)

Summary Statement
Fish toxics sampling for metals (mercury, arsenic, cadmium and selenium) was performed by MassDEP WPP biologists in White Pond (MA82118) at station F0064 in 2019 at the recommendation of the Interagency Committee on Freshwater Fish Toxics Monitoring and Assessment in response to a public request for monitoring. No site-specific fish consumption advisory was issued by MA DPH.

Aesthetic

2024/26 Use Attainment	Alert
Not Supporting	NO

2024/26 Use Attainment Summary

The Aesthetics Use for this White Pond AU (MA82118) continues to be assessed as Not Supporting, with the prior impairment for Harmful Algal Blooms being carried forward since extended blooms (>20 days in length) were reported in 2015, 2016, and 2021.
During the period 2015 through 2022, C-HAB postings for White Pond were reported to MDPH based on visual observations for 65 days in 2015 (35 of those with cell count data), 70 days in 2016, 5 days in 2017, 11 days in 2019, 154 days in 2021, and 2 days in 2022. No blooms were reported in other years. A 2021 study prepared for the Town of Concord noted a "dramatic increase" in the number of C-HABs in recent years and identified possible sources/confounding issues including septic systems from surrounding residences, fertilizers, stormwater runoff, human and dog waste, erosion, rainbow trout stocking, and variable water levels (possibly due to ground water pumping from Town Well #7) (White Pond Advisory Committee 2021). Since extended blooms (>20 days in duration) based on cell count data were reported in recent years, this is reflective of the existing Harmful Algal Blooms impairment for this White Pond AU (MA82118).

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for White Pond (MA82118) were reported to MDPH based on visual observations for 65 days in 2015 (35 of those with cell count data), 70 days in 2016, 5 days in 2017, 11 days in 2019, 154 days in 2021, and 2 days in 2022. No blooms were reported in other years. Since extended blooms (>20 days in duration) based on cell count data were reported in recent years, the Aesthetics Use and Primary/Secondary Contact Recreational Uses continue to be assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
White Pond	Concord	65	70	5		11		154	2

Primary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for this White Pond AU (MA82118) continues to be assessed as Not Supporting, with the prior impairment for Harmful Algal Blooms being carried forward since extended blooms (>20 days in length) were reported in 2015, 2016, and 2021. The prior Alert for old and failing septic systems is also being carried forward. (O'Brien-Clayton 2005).
During the period 2015 through 2022, C-HAB postings for White Pond were reported to MDPH based on visual observations for 65 days in 2015 (35 of those with cell count data), 70 days in 2016, 5 days in 2017, 11 days in 2019, 154 days in 2021, and 2 days in 2022. No blooms were reported in other years. A 2021 study prepared for the Town of Concord noted a “dramatic increase” in the number of C-HABs in recent years and identified possible sources/confounding issues including septic systems from surrounding residences, fertilizers, stormwater runoff, human and dog waste, erosion, rainbow trout stocking, and variable water levels (possibly due to ground water pumping from Town Well #7) (White Pond Advisory Committee 2021). Since extended blooms (>20 days in duration) based on cell count data were reported in recent years, this is reflective of the existing Harmful Algal Blooms impairment for this White Pond AU (MA82118).

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Not Supporting	YES

2024/26 Use Attainment Summary
The Secondary Contact Recreation Use for this White Pond AU (MA82118) continues to be assessed as Not Supporting, with the prior impairment for Harmful Algal Blooms being carried forward since extended blooms (>20 days in length) were reported in 2015, 2016, and 2021. The prior Alert for old and failing septic systems is also being carried forward. (O'Brien-Clayton 2005). During the period 2015 through 2022, C-HAB postings for White Pond were reported to MDPH based on visual observations for 65 days in 2015 (35 of those with cell count data), 70 days in 2016, 5 days in 2017, 11 days in 2019, 154 days in 2021, and 2 days in 2022. No blooms were reported in other years. A 2021 study prepared for the Town of Concord noted a “dramatic increase” in the number of C-HABs in recent years and identified possible sources/confounding issues including septic systems from surrounding residences, fertilizers, stormwater runoff, human and dog waste, erosion, rainbow trout stocking, and variable water levels (possibly due to ground water pumping from Town Well #7) (White Pond Advisory Committee 2021). Since extended blooms (>20 days in duration) based on cell count data were reported in recent years, this is reflective of the existing Harmful Algal Blooms impairment for this White Pond AU (MA82118).

White Pond (MA82119)

Location:	Hudson/Stow.
AU Type:	FRESHWATER LAKE
AU Size:	49 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for White Pond (MA82119) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Whitehall Brook (MA82A-11)

Location:	Headwaters, outlet Whitehall Reservoir, Hopkinton to mouth at confluence with the Sudbury River, Westborough.
AU Type:	RIVER
AU Size:	3.5 MILES
Classification/Qualifier:	B: ORW

Whitehall Brook (MA82A-11)

Watershed Area: 7.60 square miles

Land Cover Type	Entire Basin	Proximal Subbasin (5 km radius)	Stream Buffer (100 m)	Proximal Stream Buffer
Land Cover Area (square miles)	7.60	5.59	3.55	2.90
Agriculture	1%	1.4%	1%	1.2%
Developed	15.3%	16.4%	10.4%	10.3%
Natural	68.9%	66.8%	66.8%	67.1%
Wetland	14.8%	15.4%	21.8%	21.4%
Impervious	5.9%	6.3%	3.9%	3.9%

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Benthic Macroinvertebrates	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
Benthic Macroinvertebrates	Source Unknown (N)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--

Recommendations

2024/26 Recommendations
<2016 [Sedimentation/Siltation, Low priority] An Alert was previously identified for Sedimentation/Siltation in Whitehall Brook (MA82A-11) based on DFG observations in 2001 (O'Brien-Clayton 2005) of a “very deep muck bottom” which resulted in poor backpack shocking sampling efficiency (Sample #401 located between Rt 495 and the gravel pit in the middle of the AU). A habitat evaluation should be conducted in the vicinity of fish sample 401 to determine if the mucky bottom was natural in origin (DFG also described the location as swampy) or if it could have occurred as a result of runoff from the nearby gravel pit. {Fish Sample #401}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Whitehall Brook (MA82A-11), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Fully Supporting	YES

2024/26 Use Attainment Summary
The Aesthetics Use for Whitehall Brook (MA82A-11) is assessed as Fully Supporting based on the general lack of any objectionable conditions noted during the summer of 2015. A prior Alert, identified based on DFG observations in 2001 (O'Brien-Clayton 2005) of a “very deep muck bottom” which resulted in poor backpack shocking sampling efficiency (Sample #401 located between Rt 495 and the gravel pit in the middle of the AU), is being carried forward. MassDEP field crews recorded aesthetics observations at one station halfway down Whitehall Brook ~3500 feet upstream/east of Fruit Street in Hopkinton (W2513, n=5) during summer 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted grey water color (n=1), high turbidity (n=1), and dense/very dense aquatic plants on two occasions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2513	MassDEP	Water Quality	Whitehall Brook	[approximately 3500 feet upstream/east of Fruit Street, Hopkinton]	42.253214	-71.567270

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2020) (MassDEP Undated 4)

[Note: scums of natural origins (e.g. pollen blankets or natural foams) are excluded.]

Station Code	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2513	2015	5	Aesthetic observations were made by MassDEP field sampling crews at Station W2513 on Whitehall Brook (MA82A-11) during 5 site visits between May 2015 and Sep 2015. There were generally no persistent objectionable conditions (odors, deposits, growths, or turbidity) recorded, though field staff noted grey water color (n=1), high turbidity (n=1), and dense/very dense aquatic plants (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2020) (MassDEP Undated 7) (MassDEP Undated 4)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2513	2015	5	4	0

MassDEP Aesthetics Observations (2011-2020) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2513	Whitehall Brook	2015	Aesthetics Impaired?	No	5	5
W2513	Whitehall Brook	2015	Aquatic Plant Density, Overall	Dense	1	5
W2513	Whitehall Brook	2015	Aquatic Plant Density, Overall	Moderate	1	5
W2513	Whitehall Brook	2015	Aquatic Plant Density, Overall	NR	1	5
W2513	Whitehall Brook	2015	Aquatic Plant Density, Overall	Sparse	1	5
W2513	Whitehall Brook	2015	Aquatic Plant Density, Overall	Very Dense	1	5
W2513	Whitehall Brook	2015	Color	Greyish	1	5
W2513	Whitehall Brook	2015	Color	Light Yellow/Tan	3	5
W2513	Whitehall Brook	2015	Color	Reddish	1	5
W2513	Whitehall Brook	2015	Objectionable Deposits	No	5	5
W2513	Whitehall Brook	2015	Odor	None	5	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2513	Whitehall Brook	2015	Periphyton Density, Filamentous	None	1	5
W2513	Whitehall Brook	2015	Periphyton Density, Filamentous	Sparse	3	5
W2513	Whitehall Brook	2015	Periphyton Density, Filamentous	Unobservable	1	5
W2513	Whitehall Brook	2015	Periphyton Density, Film	None	4	5
W2513	Whitehall Brook	2015	Periphyton Density, Film	Unobservable	1	5
W2513	Whitehall Brook	2015	Scum	No	3	5
W2513	Whitehall Brook	2015	Scum	Yes	2	5
W2513	Whitehall Brook	2015	Turbidity	Highly Turbid	1	5
W2513	Whitehall Brook	2015	Turbidity	None	2	5
W2513	Whitehall Brook	2015	Turbidity	Slightly Turbid	2	5

Primary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Primary Contact Recreation Use for Whitehall Brook (MA82A-11) continues to be assessed as Fully Supporting based on 2015 bacteria data from W2513. The prior Alert for Sedimentation/Siltation is being removed from the recreational uses but continues to be maintained under the Aesthetics Use.
MassDEP staff collected *E. coli* bacteria samples in the middle of Whitehall Brook (MA82A-11) at W2513 [~3500 ft upstream/E of Fruit St in Hopkinton] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV (the seasonal GM was 61 CFU/100mL). *E. coli* data from W2513 are indicative of good water quality.

Monitoring Stations

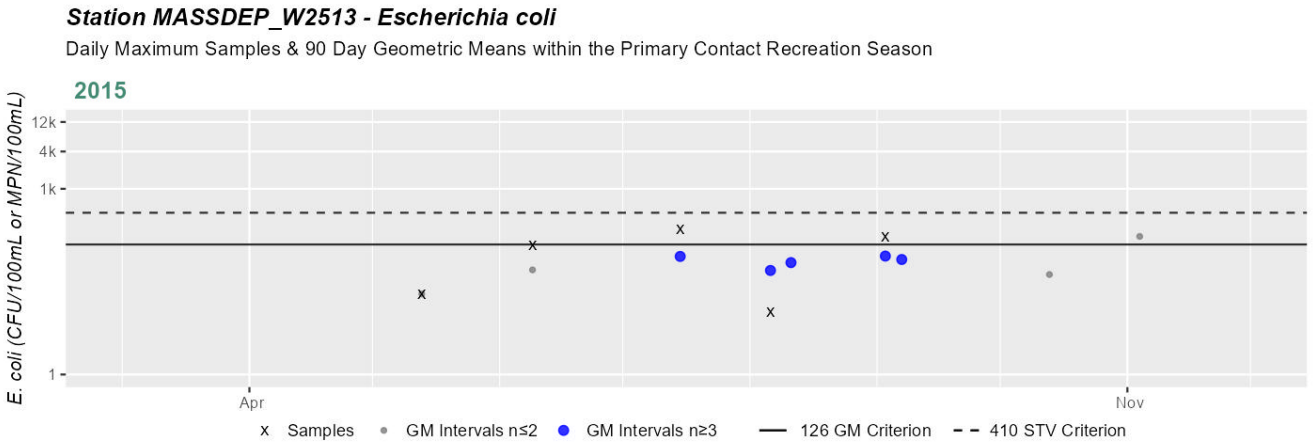
Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2513	MassDEP	Water Quality	Whitehall Brook	[approximately 3500 feet upstream/east of Fruit Street, Hopkinton]	42.253214	-71.567270

Bacteria Data

Bacteria Data Collected by MassDEP (2011-2020) and External Data Providers (2011-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 4)

[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2513	MassDEP	E. coli	05/13/15	09/03/15	5	10	220	61



Variable*	Result
Samples	5
SeasGM	61
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Fully Supporting	NO

2024/26 Use Attainment Summary

The Secondary Contact Recreation Use for Whitehall Brook (MA82A-11) continues to be assessed as Fully Supporting based on 2015 bacteria data from W2513. The prior Alert for Sedimentation/Siltation is being removed from the recreational uses but continues to be maintained under the Aesthetics Use.
MassDEP staff collected *E. coli* bacteria samples in the current IR window (2011-2022) in the middle of Whitehall Brook (MA82A-11) at W2513 [~3500 ft upstream/E of Fruit St in Hopkinton] from May-Sep 2015 (n=5). Analysis of this limited frequency *E. coli* dataset indicated no intervals had GMs >244 CFU/100mL and no samples exceeded the 794 CFU/100mL STV, (the overall GM was 61 CFU/100mL). *E. coli* data from W2513 are indicative of good water quality.
DEP staff also collected historical *E. coli* data a short way downstream at W0833 [Fruit St bridge in Hopkinton] in Jul 2001 (n=2). These data are too limited to evaluate according to the 2024 CALM (however max concentration was good at 120 CFU/100mL), and in case cannot be used to positively assess the Secondary Contact Recreation Use since they were collected prior to the current IR window (2011-2022).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0833	MassDEP	Water Quality	Whitehall Brook	[Fruit Street bridge, Hopkinton]	42.256603	-71.571048
W2513	MassDEP	Water Quality	Whitehall Brook	[approximately 3500 feet upstream/east of Fruit Street, Hopkinton]	42.253214	-71.567270

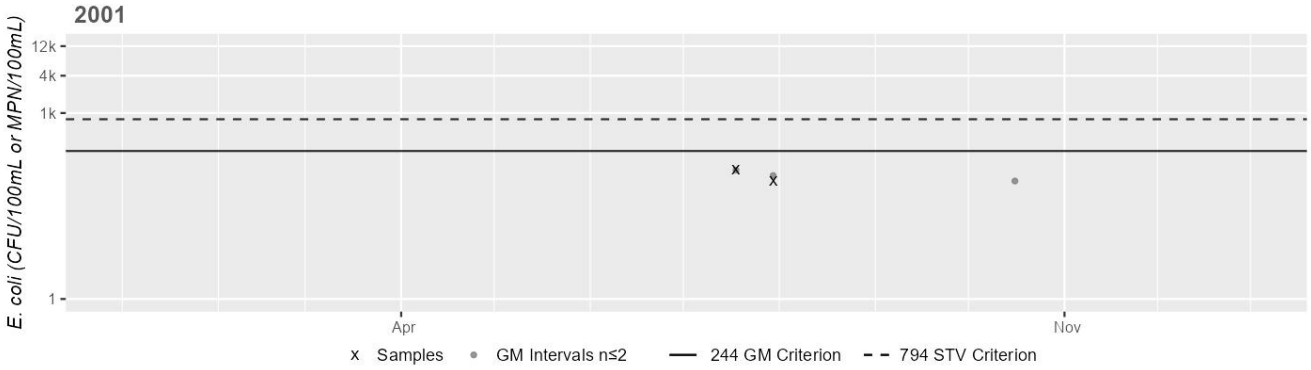
Bacteria Data

Bacteria Data Collected by MassDEP (1997-2020) and External Data Providers (1997-2022) (90-day Interval Analysis)
(MassDEP Undated 7) (MassDEP Undated 3)
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0833	MassDEP	E. coli	07/18/01	07/30/01	2	80	120	97
W2513	MassDEP	E. coli	05/13/15	09/03/15	5	10	220	61

Station MASSDEP_W0833 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



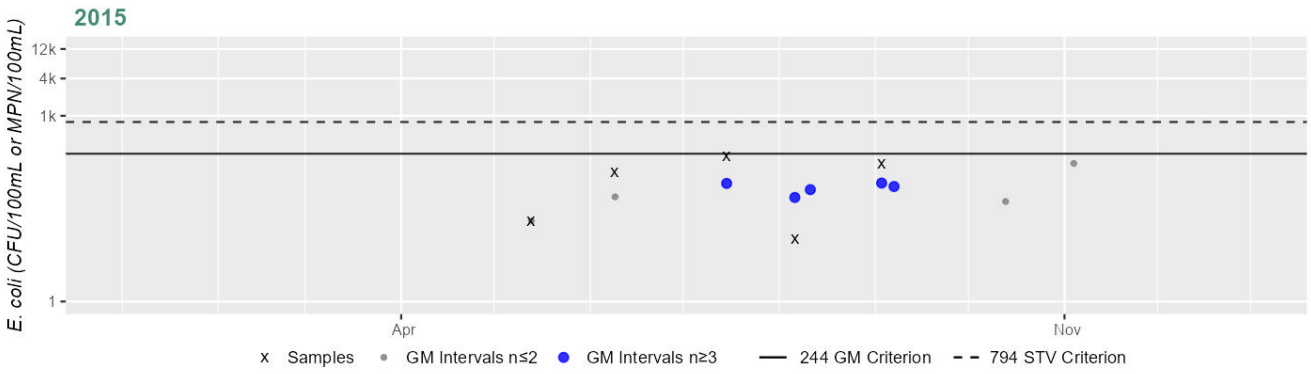
Variable*	Result
Samples	2
SeasGM	97
#GMI	0
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Historic (1997-2010)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Station MASSDEP_W2513 - Escherichia coli

Daily Maximum Samples & 90 Day Geometric Means within the Secondary Contact Recreation Season



Variable*	Result
Samples	5
SeasGM	61
#GMI	5
#GMI Ex	0
%GMI Ex	0%
n>STV	0
%n>STV	0%

Cumulative %GMI Exceedance
Current (2011-2022)
0%

**Samples = # of samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = # of GM Intervals; #GMI Ex = # of GMI Exeedances; %GMI Ex = % GMI Exeedances; n>STV = # of samples > Statistical Threshold Value (STV); %n > STV = % of samples > STV; "Recent 5 Years" may not be consecutive as the analysis excludes years without GMI meeting the minimum sample size.*

Whitehall Reservoir (MA82120)

Location:	Hopkinton.
AU Type:	FRESHWATER LAKE
AU Size:	560 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)	--	Unchanged
5	5	(Non-Native Aquatic Plants*)	--	Unchanged
5	5	Dissolved Oxygen	--	Unchanged
5	5	Mercury in Fish Tissue	33880	Unchanged
5	5	Phosphorus, Total	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
Dissolved Oxygen	Source Unknown (N)	X	--	--	--	--
Mercury in Fish Tissue	Atmospheric Deposition (Y)	--	X	--	--	--
Mercury in Fish Tissue	Source Unknown (N)	--	X	--	--	--
Phosphorus, Total	Source Unknown (N)	X	--	--	--	--

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Supporting	No

2024/26 Use Attainment Summary
The Fish Consumption Use for Whitehall Reservoir (MA82120) continues to be assessed as Not Supporting and the prior Mercury in Fish Tissue impairment is being carried forward. MA DPH included a site-specific advisory for Whitehall Reservoir in their January 2025 Freshwater Fish Consumption Advisory List. The public should refer to the most recent DPH Freshwater Fish Consumption Advisory List for the most up to date meal advice for sensitive and general populations.

Aesthetic

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No aesthetics observation data are available for Whitehall Reservoir (MA82120), and there is Insufficient Information to assess the Aesthetics Use at this time. Since the prior Non-Native Aquatic Plants impairment was redundantly duplicated across multiple uses for this waterbody, the Non-Native Aquatic Plants impairment is being removed from the Aesthetics Use, but will continue to be maintained under the Aquatic Life Use. Although MassDEP staff noted dense/very dense plant cover over approximately 50% of the lake area (including various non-native species) during a summer 1996 synoptic survey (MassDEP 1996), recent Google Earth images from September 2010, September 2014, October 2020, and June 2022 (Google Earth Pro Undated) show <25% coverage overall (note that there is dense plant cover mainly in the shallow northwest cove). Consequently, an Aquatic Plants (Macrophytes) non-pollutant impairment will not be added in the place of the Non-Native Aquatic Plants impairment at this time. Since no aesthetics observation data are available for Whitehall Reservoir, there is Insufficient Information to assess the Aesthetics Use.

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data are available for Whitehall Reservoir (MA82120), and there is Insufficient Information to assess the Primary Contact Recreation Use at this time. Since the prior Non-Native Aquatic Plants impairment is being removed from the Aesthetics Use, this impairment is also being removed from the Primary Contact Recreation Use.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	NO

2024/26 Use Attainment Summary
No bacteria or other indicator data are available for Whitehall Reservoir (MA82120), and there is Insufficient Information to assess the Secondary Contact Recreation Use at this time. Since the prior Non-Native Aquatic Plants impairment is being removed from the Aesthetics Use, this impairment is also being removed from the Secondary Contact Recreation Use.

Williams Lake (MA82121)

Location:	Marlborough.
AU Type:	FRESHWATER LAKE
AU Size:	69 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Williams Lake (MA82121) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Willis Pond (MA82122)

Location:	Sudbury.
AU Type:	FRESHWATER LAKE
AU Size:	67 ACRES
Classification/Qualifier:	B

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None	--	Unchanged

Recommendations

2024/26 Recommendations
2022 IR [Harmful Algal Blooms, low priority] Follow-up monitoring should be conducted in Willis Pond (MA82122) to determine if Harmful Algal Blooms may be impairing the Recreational and Aesthetic uses (an extended duration bloom was reported to MDPH in 2015, but no other blooms were reported 2016-2022). Monitoring should include observational data and collection of cyanobacteria cell count data, as well as continued reporting of algal blooms to MDPH. {MA82122}

Designated Use Attainment Decisions

Fish Consumption

2024/26 Use Attainment	Alert
Not Assessed	No

2024/26 Use Attainment Summary
Fish toxics sampling has not been conducted in Willis Pond (MA82122), so the Fish Consumption Use is Not Assessed.

Aesthetic

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
Since aesthetics observation data are not available for Willis Pond (MA82122) and the available data did not result in an impairment, there is Insufficient Information to assess the Aesthetics Use. Note that the prior Harmful Algal Blooms alert is being retained since extended blooms were reported in 2015. During the period 2015 through 2022, C-HAB postings for Willis Pond (MA82122) were reported to MDPH based on visual observations for 52 days in 2015 (21 of those with cell count data). However, no blooms were reported in the following seven years and available Google Earth satellite imagery showed no indications of a bloom in recent years (Google Earth Pro Undated). Since extended blooms (>20 days in duration) based on cell count data were not reported in recent years, a use impairment decision will not be made at this time. However, the prior Alert identified for C-HABs in this waterbody is being retained and a recommendation for follow-up sampling will be made.

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2022 MDPH Data (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

C-HAB Summary Statement
During the period 2015 through 2022, C-HAB postings for Willis Pond (MA82122) were reported to MDPH based on visual observations for 52 days in 2015 (21 of those with cell count data). No blooms were reported in other years. Since extended blooms (>20 days in duration) based on cell count data were not reported in recent years, a use impairment decision should not be made at this time. However, an Alert is being identified for C-HABs in this waterbody and a recommendation for follow-up sampling will be made.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2022) Provided by MDPH (Bailey, Logan April 26, 2023) (MassDEP Undated 1)

[* indicates a C-HAB posting of unknown duration]

DEP Waterbody (DPH Waterbody)	DPH Town	Posting Days 2015	Posting Days 2016	Posting Days 2017	Posting Days 2018	Posting Days 2019	Posting Days 2020	Posting Days 2021	Posting Days 2022
Willis Pond	Sudbury	52							

Primary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary

Since bacteria data are not available for Willis Pond (MA82122) and other indicators did not result in an impairment, there is Insufficient Information to assess the Primary Contact Recreation Use. Note that the prior Harmful Algal Blooms alert is being retained since extended blooms were reported in 2015.
During the period 2015 through 2022, C-HAB postings for Willis Pond (MA82122) were reported to MDPH based on visual observations for 52 days in 2015 (21 of those with cell count data). However, no blooms were reported in the following seven years and available Google Earth satellite imagery showed no indications of a bloom in recent years (Google Earth Pro Undated). Since extended blooms (>20 days in duration) based on cell count data were not reported in recent years, a use impairment decision will not be made at this time. However, the prior Alert identified for C-HABs in this waterbody is being retained and a recommendation for follow-up sampling will be made.

Secondary Contact Recreation

2024/26 Use Attainment	Alert
Insufficient Information	YES

2024/26 Use Attainment Summary
Since bacteria data are not available for Willis Pond (MA82122) and other indicators did not result in an impairment, there is Insufficient Information to assess the Secondary Contact Recreation Use. Note that the prior Harmful Algal Blooms alert is being retained since extended blooms were reported in 2015. During the period 2015 through 2022, C-HAB postings for Willis Pond (MA82122) were reported to MDPH based on visual observations for 52 days in 2015 (21 of those with cell count data). However, no blooms were reported in the following seven years and available Google Earth satellite imagery showed no indications of a bloom in recent years (Google Earth Pro Undated). Since extended blooms (>20 days in duration) based on cell count data were not reported in recent years, a use impairment decision will not be made at this time. However, the prior Alert identified for C-HABs in this waterbody is being retained and a recommendation for follow-up sampling will be made.

Winning Pond (MA82123)

Location:	Billerica.
AU Type:	FRESHWATER LAKE
AU Size:	22 ACRES
Classification/Qualifier:	B

No usable data were available for Winning Pond (MA82123) for the 2024/26 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

AU Category 2022	AU Category 2024/26	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)	--	Unchanged
4c	4c	(Non-Native Aquatic Plants*)	--	Unchanged
4c	4c	(Water Chestnut*)	--	Unchanged

Impairment	Source (Confirmed Y/N)	ALU	FC	AES	PCR	SCR
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X	--	--	--	--

Data Sources

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