

**Final Massachusetts Integrated List of Waters for the
Clean Water Act 2022 Reporting Cycle**

**Appendix 23
South Coastal Drainage Area
Assessment and Listing Decision Summary**

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Massachusetts Department of Environmental Protection

MassDEP's mission is to protect and enhance the Commonwealth's natural resources – air, water, and land – to provide for the health, safety, and welfare of all people, and to ensure a clean and safe environment for future generations. In carrying out this mission MassDEP commits to address and advance environmental justice and equity for all people of the Commonwealth; provide meaningful, inclusive opportunities for people to participate in agency decisions that affect their lives; and ensure a diverse workforce that reflects the communities we serve.

Watershed Planning Program

The Watershed Planning Program is a statewide program in the Division of Watershed Management, Bureau of Water Resources, at MassDEP. We are stewards of the water resources of Massachusetts. Together with other state environmental agencies, we share in the duty and responsibility to protect, enhance, and restore the quality and value of the waters of the Commonwealth. We are guided by the federal Clean Water Act and work to secure the environmental, recreational, and public health benefits of clean water for the residents of Massachusetts. The Watershed Planning Program is organized into five Sections that each have a different technical focus under the Clean Water Act: (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 Pollution.

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:

<https://www.mass.gov/lists/integrated-lists-of-waters-related-reports>.

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Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Aaron River	MA94-28	5	5	(Fanwort*)		Unchanged
Aaron River	MA94-28	5	5	(Non-Native Aquatic Plants*)		Unchanged
Aaron River	MA94-28	5	5	Algae		Unchanged
Aaron River Reservoir	MA94178	4a	4a	Mercury in Fish Tissue	33880	Unchanged
Arnold School Pond	MA94004	3	3	None		Unchanged
Back River	MA94-66	--	2	None		Unchanged
Bartlett Pond	MA94005	2	3	None		Unchanged
Beaver Dam Brook	MA94-65	3	3	None		Unchanged
Ben Mann Brook	MA94-41	2	2	None		Unchanged
Billington Sea	MA94007	5	5	(Fanwort*)		Unchanged
Billington Sea	MA94007	5	5	Algae		Unchanged
Billington Sea	MA94007	5	5	Chlorophyll-a		Unchanged
Billington Sea	MA94007	5	5	Dissolved Oxygen Supersaturation		Unchanged
Billington Sea	MA94007	5	5	Harmful Algal Blooms		Added
Billington Sea	MA94007	5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
Billington Sea	MA94007	5	5	Phosphorus, Total		Unchanged
Billington Sea	MA94007	5	5	Turbidity		Unchanged
Black Jimmy Pond	MA94008	3	3	None		Unchanged
Black Mountain Pond	MA94009	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Bloody Pond	MA94015	2	2	None		Unchanged
Bluefish River	MA94-30	4a	4a	Fecal Coliform	61738	Unchanged
Boot Pond	MA94016	5	5	Dissolved Oxygen		Unchanged
Boot Pond	MA94016	5	5	Harmful Algal Blooms		Added
Bound Brook	MA94-18	5	5	Turbidity		Unchanged
Bound Brook Pond	MA94017	3	3	None		Unchanged
Briggs Reservoir	MA94019	4c	4c	(Fanwort*)		Unchanged
Briggs Reservoir	MA94020	4c	4c	(Fanwort*)		Unchanged
Cohasset Cove	MA94-32	4a	4a	Fecal Coliform	61706, 61739	Unchanged
Cohasset Harbor	MA94-01	4a	4a	Fecal Coliform	61708	Unchanged
Cooks Pond	MA94027	4c	5	(Fanwort*)		Unchanged
Cooks Pond	MA94027	4c	5	(Non-Native Aquatic Plants*)		Unchanged
Cooks Pond	MA94027	4c	5	Harmful Algal Blooms		Added
Crossman Pond	MA94032	5	5	(Aquatic Plants (Macrophytes)*)		Changed
Crossman Pond	MA94032	5	5	Nutrient/Eutrophication Biological Indicators		Added
Cushing Brook	MA94-40	5	5	Escherichia Coli (E. Coli)		Unchanged
Drinkwater River	MA94-21	5	5	(Curly-leaf Pondweed*)		Unchanged
Drinkwater River	MA94-21	5	5	(Debris*)		Unchanged
Drinkwater River	MA94-21	5	5	(Fanwort*)		Unchanged
Drinkwater River	MA94-21	5	5	Algae		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Drinkwater River	MA94-21	5	5	Chlorophyll-a		Unchanged
Drinkwater River	MA94-21	5	5	Dissolved Oxygen Supersaturation		Unchanged
Drinkwater River	MA94-21	5	5	Escherichia Coli (E. Coli)	61724	Unchanged
Drinkwater River	MA94-21	5	5	Fecal Coliform	61724	Unchanged
Drinkwater River	MA94-21	5	5	Mercury in Fish Tissue		Unchanged
Drinkwater River	MA94-21	5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
Drinkwater River	MA94-21	5	5	Phosphorus, Total		Unchanged
Drinkwater River	MA94-21	5	5	Transparency / Clarity		Unchanged
Drinkwater River	MA94-21	5	5	Trash		Unchanged
Duxbury Bay	MA94-15	5	5	Estuarine Bioassessments		Unchanged
Duxbury Bay	MA94-15	5	5	Fecal Coliform	61735	Unchanged
Eel River	MA94-37	2	2	None		Unchanged
Eel River	MA94-38	5	5	(Fanwort*)		Unchanged
Eel River	MA94-38	5	5	Benthic Macroinvertebrates		Unchanged
Elbow Pond	MA94035	3	3	None		Unchanged
Ellisville Harbor	MA94-34	4a	4a	Fecal Coliform	61716	Unchanged
Factory Pond	MA94175	5	5	(Fish Passage Barrier*)		Unchanged
Factory Pond	MA94175	5	5	Mercury in Fish Tissue		Unchanged
First Herring Brook	MA94-36	4c	4c	(Fish Passage Barrier*)		Unchanged
First Herring Brook	MA94-63	4c	4c	(Fish Passage Barrier*)		Unchanged
French Stream	MA94-03	5	5	Dissolved Oxygen		Unchanged
French Stream	MA94-03	5	5	Escherichia Coli (E. Coli)	61718	Unchanged
French Stream	MA94-03	5	5	Fecal Coliform	61718	Unchanged
French Stream	MA94-03	5	5	Fish Bioassessments		Unchanged
French Stream	MA94-03	5	5	Phosphorus, Total		Unchanged
Fresh Pond	MA94040	2	5	(Fish Passage Barrier*)		Added
Fresh Pond	MA94040	2	5	Mercury in Fish Tissue		Added
Furnace Brook	MA94-52	3	4c	(Fish Passage Barrier*)		Added
Furnace Pond	MA94043	5	5	(Fanwort*)		Unchanged
Furnace Pond	MA94043	5	5	Dissolved Oxygen		Unchanged
Governor Winslow House Pond	MA94047	3	3	None		Unchanged
Great Herring Pond	MA94050	5	5	Dissolved Oxygen		Unchanged
Great Herring Pond	MA94050	5	5	Mercury in Fish Tissue	33880	Unchanged
Great Sandy Bottom Pond	MA94053	3	3	None		Unchanged
Great South Pond	MA94054	5	5	Dissolved Oxygen		Unchanged
Great South Pond	MA94054	5	5	Mercury in Fish Tissue	33880	Unchanged
Green Harbor	MA94-11	4a	4a	Fecal Coliform	61731	Unchanged
Green Harbor River	MA94-10	5	5	(Fish Passage Barrier*)		Unchanged
Green Harbor River	MA94-10	5	5	(Flow Regime Modification*)		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Green Harbor River	MA94-10	5	5	Algae		Unchanged
Green Harbor River	MA94-10	5	5	Turbidity		Unchanged
Gunners Exchange Pond	MA94055	2	2	None		Unchanged
Halls Brook	MA94-57	3	3	None		Unchanged
Halls Brook	MA94-58	4c	4c	(Fish Passage Barrier*)		Unchanged
Harrobs Corner Bog Pond	MA94061	3	3	None		Unchanged
Hedges Pond	MA94065	2	2	None		Unchanged
Herring Brook	MA94-29	4c	4c	(Fanwort*)		Unchanged
Herring Brook	MA94-29	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Herring River	MA94-07	4a	4a	Enterococcus	61727	Unchanged
Herring River	MA94-07	4a	4a	Fecal Coliform	61727	Unchanged
Herring River	MA94-44	2	2	None		Unchanged
Hobomock Pond	MA94177	3	3	None		Unchanged
Hoyts Pond	MA94070	2	2	None		Unchanged
Indian Brook	MA94-51	5	5	(Fanwort*)		Unchanged
Indian Brook	MA94-51	5	5	(Non-Native Aquatic Plants*)		Unchanged
Indian Brook	MA94-51	5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
Indian Brook	MA94-51	5	5	Phosphorus, Total		Unchanged
Indian Head Brook	MA94-49	4c	4c	(Fish Passage Barrier*)		Unchanged
Indian Head Brook	MA94-50	4c	4c	(Fish Passage Barrier*)		Unchanged
Indian Head Pond	MA94071	5	5	(Fish Passage Barrier*)		Unchanged
Indian Head Pond	MA94071	5	5	Harmful Algal Blooms		Unchanged
Indian Head River	MA94-04	5	5	(Fish Passage Barrier*)		Unchanged
Indian Head River	MA94-04	5	5	Escherichia Coli (E. Coli)		Unchanged
Indian Head River	MA94-04	5	5	Mercury in Fish Tissue		Unchanged
Indian Head River	MA94-22	5	5	(Fish Passage Barrier*)		Added
Indian Head River	MA94-22	5	5	Mercury in Fish Tissue		Unchanged
Indian Pond	MA94072	3	3	None		Unchanged
Iron Mine Brook	MA94-24	2	2	None		Unchanged
Island Creek	MA94-46	4c	4c	(Fish Passage Barrier*)		Unchanged
Island Creek	MA94-47	3	3	None		Unchanged
Island Creek Pond	MA94073	4c	4c	(Fanwort*)		Unchanged
Island Creek Pond	MA94073	4c	4c	(Fish Passage Barrier*)		Unchanged
Island Pond	MA94074	2	5	Mercury in Fish Tissue		Added
Island Pond	MA94075	4c	4c	(Fanwort*)		Unchanged
Island Pond	MA94076	3	3	None		Unchanged
Jacobs Pond	MA94077	4c	4c	(Fanwort*)		Unchanged
Jacobs Pond	MA94077	4c	4c	(Fish Passage Barrier*)		Unchanged
Jacobs Pond	MA94077	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Jones River	MA94-12	5	5	(Aquatic Plants (Macrophytes)*)		Changed
Jones River	MA94-12	5	5	(Dewatering*)		Unchanged
Jones River	MA94-12	5	5	(Fish Passage Barrier*)		Unchanged
Jones River	MA94-12	5	5	Algae		Unchanged
Jones River	MA94-12	5	5	Dissolved Oxygen		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Jones River	MA94-12	5	5	Nutrient/Eutrophication Biological Indicators		Added
Jones River	MA94-12	5	5	Turbidity		Unchanged
Jones River	MA94-13	5	5	(Aquatic Plants (Macrophytes*))		Changed
Jones River	MA94-13	5	5	(Dewatering*)		Unchanged
Jones River	MA94-13	5	5	Algae		Unchanged
Jones River	MA94-13	5	5	Dissolved Oxygen		Unchanged
Jones River	MA94-13	5	5	Nutrient/Eutrophication Biological Indicators		Added
Jones River	MA94-13	5	5	Turbidity		Unchanged
Jones River	MA94-14	5	5	Fecal Coliform	61734	Unchanged
Jones River	MA94-14	5	5	Fish Bioassessments		Unchanged
Jones River	MA94-14	5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
Keene Pond	MA94079	3	3	None		Unchanged
Lily Pond	MA94179	5	5	(Curly-leaf Pondweed*)		Unchanged
Lily Pond	MA94179	5	5	(Fanwort*)		Unchanged
Lily Pond	MA94179	5	5	(Non-Native Aquatic Plants*)		Unchanged
Lily Pond	MA94179	5	5	Transparency / Clarity		Unchanged
Little Harbor	MA94-20	4a	4a	Fecal Coliform	2586	Unchanged
Little Herring Pond	MA94082	2	2	None		Unchanged
Little Pond	MA94182	2	2	None		Unchanged
Little Sandy Bottom Pond	MA94085	3	3	None		Unchanged
Little South Pond	MA94087	2	2	None		Unchanged
Long Island Pond	MA94088	4c	4c	(Fanwort*)		Unchanged
Long Island Pond	MA94088	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Longwater Brook	MA94-39	5	5	Escherichia Coli (E. Coli)		Unchanged
Lorings Bogs Pond	MA94089	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Lout Pond	MA94090	2	2	None		Unchanged
Lower Chandler Pond	MA94091	4c	4c	(Fanwort*)		Unchanged
Maquan Pond	MA94096	3	3	None		Unchanged
Morey Hole	MA94102	2	2	None		Unchanged
Musquashcut Brook	MA94-64	3	5	Enterococcus		Added
Musquashcut Pond	MA94-33	5	5	(Flow Regime Modification*)		Unchanged
Musquashcut Pond	MA94-33	5	5	Algae		Unchanged
Musquashcut Pond	MA94-33	5	5	Chlorophyll-a		Unchanged
Musquashcut Pond	MA94-33	5	5	Dissolved Oxygen Supersaturation		Unchanged
Musquashcut Pond	MA94-33	5	5	Enterococcus		Added
Musquashcut Pond	MA94-33	5	5	Fecal Coliform	61713	Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Musquashcut Pond	MA94-33	5	5	Phosphorus, Total		Unchanged
North Hill Marsh Pond	MA94109	3	3	None		Unchanged
North River	MA94-05	5	5	Enterococcus		Added
North River	MA94-05	5	5	Fecal Coliform	61725	Unchanged
North River	MA94-05	5	5	Mercury in Fish Tissue		Unchanged
North River	MA94-06	4a	4a	Fecal Coliform	61730	Unchanged
North Triangle Pond	MA94110	2	2	None		Unchanged
Old Oaken Bucket Pond	MA94113	5	5	(Fanwort*)		Unchanged
Old Oaken Bucket Pond	MA94113	5	5	(Non-Native Aquatic Plants*)		Unchanged
Old Oaken Bucket Pond	MA94113	5	5	Phosphorus, Total		Unchanged
Oldham Pond	MA94114	5	5	(Asian Clam*)		Added
Oldham Pond	MA94114	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Unchanged
Oldham Pond	MA94114	5	5	(Non-Native Fish/Shellfish/Zooplankton*)		Removed
Oldham Pond	MA94114	5	5	Harmful Algal Blooms		Unchanged
Pembroke Street South Pond	MA94117	4c	4c	(Fanwort*)		Unchanged
Philips Brook	MA94-48	2	2	None		Unchanged
Pine Lake	MA94120	3	3	None		Unchanged
Pine Street Pond	MA94121	3	3	None		Unchanged
Plymouth Bay	MA94-17	2	5	Fecal Coliform		Added
Plymouth Harbor	MA94-16	5	5	Estuarine Bioassessments		Unchanged
Plymouth Harbor	MA94-16	5	5	Fecal Coliform	61737	Unchanged
Pudding Brook	MA94-60	3	2	None		Unchanged
Reeds Millpond	MA94126	4c	4c	(Fanwort*)		Unchanged
Reservoir	MA94127	4c	4c	(Flow Regime Modification*)		Unchanged
Reservoir	MA94186	4c	4c	(Fish Passage Barrier*)		Unchanged
Round Pond	MA94131	3	3	None		Unchanged
Russell Millpond	MA94132	5	5	Algae		Unchanged
Russell Millpond	MA94132	5	5	Dissolved Oxygen		Unchanged
Russell Pond	MA94133	4c	4c	(Fanwort*)		Unchanged
Russell Pond	MA94133	4c	4c	(Fish Passage Barrier*)		Unchanged
Savery Pond	MA94136	5	5	Harmful Algal Blooms		Unchanged
Savery Pond	MA94136	5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
Savery Pond	MA94136	5	5	Phosphorus, Total		Unchanged
Scituate Harbor	MA94-02	5	5	Estuarine Bioassessments		Unchanged
Scituate Harbor	MA94-02	5	5	Fecal Coliform	61715	Unchanged
Second Herring Brook	MA94-26	4c	4c	(Fish Passage Barrier*)		Unchanged
Second Herring Brook	MA94-31	4a	4a	Fecal Coliform	61721	Unchanged
Shallow Pond	MA94140	3	3	None		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Ship Pond	MA94142	3	3	None		Unchanged
Silver Lake	MA94143	5	5	(Fish Passage Barrier*)		Unchanged
Silver Lake	MA94143	5	5	(Flow Regime Modification*)		Unchanged
Silver Lake	MA94143	5	5	Dissolved Oxygen		Unchanged
Smelt Brook	MA94-54	5	5	(Fish Passage Barrier*)		Unchanged
Smelt Brook	MA94-54	5	5	Turbidity		Unchanged
Smelt Brook	MA94-56	3	3	None		Unchanged
Smelt Pond	MA94184	4c	4c	(Fanwort*)		Unchanged
Smelt Pond	MA94184	4c	4c	(Fish Passage Barrier*)		Unchanged
Smelt Pond	MA94184	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
South River	MA94-08	5	5	(Fish Passage Barrier*)		Unchanged
South River	MA94-08	5	5	Dissolved Oxygen		Unchanged
South River	MA94-09	4a	4a	Enterococcus	61728	Unchanged
South River	MA94-09	4a	4a	Fecal Coliform	61728	Unchanged
South Triangle Pond	MA94149	3	3	None		Unchanged
Studleys Pond	MA94151	5	5	Fecal Coliform		Unchanged
Tack Factory Pond	MA94152	4c	4c	(Fish Passage Barrier*)		Unchanged
The Gulf	MA94-19	4a	4a	Fecal Coliform	61710	Unchanged
Third Herring Brook	MA94-27	4c	5	(Fish Passage Barrier*)		Unchanged
Third Herring Brook	MA94-27	4c	5	Escherichia Coli (E. Coli)		Added
Torrey Pond	MA94157	4c	4c	(Fanwort*)		Unchanged
Torrey Pond	MA94157	4c	4c	(Fish Passage Barrier*)		Unchanged
Town Brook	MA94-42	4c	4c	(Curly-leaf Pondweed*)		Unchanged
Town Brook	MA94-42	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Triangle Pond	MA94160	2	5	Harmful Algal Blooms		Added
Tussock Brook	MA94-67	--	3	None		Unchanged
Tussock Brook	MA94-68	--	2	None		Unchanged
Unnamed Tributary	MA94-35	4c	4c	(Fish Passage Barrier*)		Unchanged
Unnamed Tributary	MA94-43	3	3	None		Unchanged
Unnamed Tributary	MA94-45	3	3	None		Unchanged
Unnamed Tributary	MA94-53	4c	4c	(Fish Passage Barrier*)		Unchanged
Unnamed Tributary	MA94-55	2	2	None		Unchanged
Unnamed Tributary	MA94-59	4c	4c	(Fish Passage Barrier*)		Unchanged
Unnamed Tributary	MA94-61	4c	4c	(Fish Passage Barrier*)		Unchanged
Unnamed Tributary	MA94-62	3	3	None		Unchanged
Upper Chandler Pond	MA94165	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Wampatuck Pond	MA94168	5	5	(Fanwort*)		Unchanged
Wampatuck Pond	MA94168	5	5	(Fish Passage Barrier*)		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Wompatuck Pond	MA94168	5	5	Chlorophyll-a		Unchanged
Wompatuck Pond	MA94168	5	5	Dissolved Oxygen Supersaturation		Unchanged
Wompatuck Pond	MA94168	5	5	Harmful Algal Blooms		Unchanged
Wompatuck Pond	MA94168	5	5	Phosphorus, Total		Unchanged
Wompatuck Pond	MA94168	5	5	Transparency / Clarity		Unchanged
West Chandler Pond	MA94170	3	3	None		Unchanged
Winslow Cemetery Pond	MA94172	3	3	None		Unchanged
Wright Pond	MA94174	3	3	None		Unchanged

Aaron River (MA94-28)

Location:	Outlet Aaron River Reservoir, Cohasset to flow control structure near Beechwood Street (confluence with Bound Brook), Cohasset.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Aaron River (MA94-28) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)		Unchanged
5	5	(Non-Native Aquatic Plants*)		Unchanged
5	5	Algae		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(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	X	X
Algae	Source Unknown (N)			X	X	X

Aaron River Reservoir (MA94178)

Location:	Cohasset/Hingham/Scituate.
AU Type:	FRESHWATER LAKE
AU Size:	136 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Aaron River Reservoir (MA94178) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Mercury in Fish Tissue	33880	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Mercury in Fish Tissue	Atmospheric Deposition - Toxics (Y)		X			
Mercury in Fish Tissue	Source Unknown (N)		X			

Arnold School Pond (MA94004)

Location:	Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	12 ACRES
Classification/Qualifier:	B

No usable data were available for Arnold School Pond (MA94004) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Back River (MA94-66)

Location:	Estuarine waters of Duxbury Marsh landward from the Powder Point Bridge, Duxbury including the following named (SARIS) waters: Great Wood Island (9457400), Pine Point (9457425), Little Wood Island (9457475), Duck Hill (9457500), Cut (9457450, portion south of Canal Street, Marshfield) and Bourne Wharf (9457525) rivers, and Dug Way (9457550), Marshfield/Duxbury.
AU Type:	ESTUARY
AU Size:	0.65 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
--	2	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for the Back River (MA94-66) so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in the Back River (MA94-66), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
Back River (MA94-66): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5668 sq mi (88%). The approved shellfish growing area represents 0.5668 sq mi (88%). The Shellfish Harvesting Use is assessed as fully supporting because the growing area (normalized to the AU area) is classified as 100% approved.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB45.0	Duxbury Bay	Approved	0.00010	0.0%
CCB47.0	Back River	Approved	0.56666	87.8%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for the Back River (MA94-66), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5668 sq mi (88%). The approved shellfish growing area represents 0.5668 sq mi (88%).</p> <p>The Primary Contact Recreation Use of the Back River (MA94-66) is assessed as Fully Supporting because the shellfish growing area (normalized to the AU area) is classified as 100% approved.</p>	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
<p>Back River (MA94-66): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5668 sq mi (88%). The approved shellfish growing area represents 0.5668 sq mi (88%). The Primary Contact Recreation Use is assessed as fully supporting because the growing area (normalized to the AU area) is classified as 100% approved, unless other data are available that contradict this use attainment decision.</p>

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5668 sq mi (88%). The approved shellfish growing area represents 0.5668 sq mi (88%).</p> <p>The Secondary Contact Recreation Use of the Back River (MA94-66) is assessed as Fully Supporting because the shellfish growing area (normalized to the AU area) is classified as 100% approved.</p>	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
<p>Back River (MA94-66): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5668 sq mi (88%). The approved shellfish growing area represents 0.5668 sq mi (88%). The Secondary Contact Recreation use is assessed as fully supporting because the growing area (normalized to the AU area) is classified as 100% approved, unless other data are available that contradict this use attainment decision.</p>

Bartlett Pond (MA94005)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	33 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	3	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No data are available for Bartlett Pond (MA94005), so the Aquatic Life Use is Not Assessed. The prior Alert for enrichment (i.e., elevated chlorophyll- <i>a</i> , supersaturated conditions, and elevated concentrations of total phosphorus) during the summer of 2008, is being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in the Bartlett Pond (MA94005), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Bartlett Pond (MA94005) were reported to MassDPH for 14 days in 2018 (the advisory was issued based on sample analysis). Without bloom(s) of extended duration (>20 days), an impairment decision will not be made at this time. Too limited data are available to evaluate the Aesthetics Use for Bartlett Pond (MA94005), so it is assessed as having Insufficient Information. An Alert for C-HABs is being added and the Alert for elevated chlorophyll- <i>a</i> (documented in 2008) is being carried forward.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Bartlett Pond (MA94005) were reported to MassDPH for 14 days in 2018 (the advisory was issued based on sample analysis). Since no blooms of extended duration (>20 days) were reported, an impairment decision will not be made at this time. However, an Alert is identified for C-HABs.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Bartlett Pond	Advisory issued based on sample analysis				14		0	no

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Bartlett Pond (MA94005) were reported to MassDPH for 14 days in 2018 (the advisory was issued based on sample analysis). Without bloom(s) of extended duration (>20 days), an impairment decision will not be made at this time. Too limited data are available to evaluate the Primary Contact Recreational Use for Bartlett Pond (MA94005), so it is assessed as having Insufficient Information. An Alert for C-HABs is being added and the Alert for elevated chlorophyll- <i>a</i> (documented in 2008) is being carried forward.	

Secondary Contact Recreation

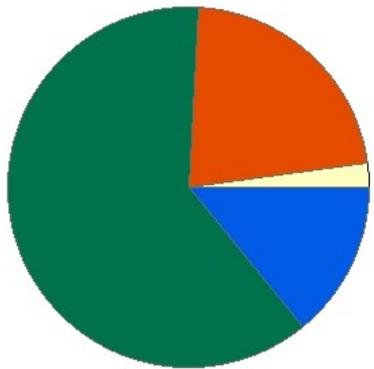
2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Bartlett Pond (MA94005) were reported to MassDPH for 14 days in 2018 (the advisory was issued based on sample analysis). Without bloom(s) of extended duration (>20 days), an impairment decision will not be made at this time. Too limited data are available to evaluate the Secondary Contact Recreational Use for Bartlett Pond (MA94005), so it is assessed as having Insufficient Information. An Alert for C-HABs is being added and the Alert for elevated chlorophyll- <i>a</i> (documented in 2008) is being carried forward.	

Beaver Dam Brook (MA94-65)

Location:	Headwaters east of Long Island Pond, Plymouth to mouth at inlet Bartlett Pond, Plymouth (through former 2016 segment: Beaver Dam Pond MA94006).
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	B

Beaver Dam Brook - MA94-65

Watershed Area: 5.51 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.51	5.51	1.45	1.45
Agriculture	2.2%	2.2%	6.4%	6.4%
Developed	21.9%	21.9%	16.9%	16.9%
Natural	61.9%	61.9%	49.2%	49.2%
Wetland	14%	14%	27.5%	27.5%
Impervious Cover	11.3%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

According to DMF biologists the bog reservoir dam, located about half way down the Beaver Dam Brook AU (MA94-65), is an obstruction to the passage of the target species (river herring and American eel). A passage score of 10 (no possible passage), was given to the structure although the population score in proximity to the bog reservoir dam was noted to be "0". Further downstream MassDFG biologists conducted backpack electrofishing at two low gradient sites in Plymouth, above Rt.3A next to Moose Lodge (Sample ID 8003) and up and downstream of Brook Street (Sample ID 8004) in August 2018. The sample above Rt.3A was comprised of only 13 American eel while the sample at Brook Street did contain a macrohabitat generalist species moderately tolerant to environmental perturbations (i.e., pumpkinseed) which comprised 8% of the sample.

Too limited data are available to evaluate the Aquatic Life Use for Beaver Dam Brook (MA94-65) so it is assessed as having Insufficient Information. An Alert is being identified for the barrier to diadromous fish passage at the bog reservoir dam.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
8003	MassDFG	Fish Community	Beaver Dam Brook	above route 3A next to Moose Lodge, Plymouth	41.91940	-70.56570
8004	MassDFG	Fish Community	Beaver Dam Brook	above and below Brook Street, Plymouth	41.92308	-70.56284

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, GS = Golden Shiner, P = Pumpkinseed]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
8003	08/13/18	BP	TP	L	1	13	0%	0	0%	0%	0	0%	No	No	AE,
8004	08/13/18	BP	TP	L	3	13	0%	0	0%	0%	1	8%	No	No	AE, GS, P,

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary
According to DMF biologists the bog reservoir dam, located about half way down the Beaver Dam Brook AU, is an obstruction to the passage of river herring and American eel. A passage score of "10" (no possible passage), was given to the structure, though the population score was noted to be "0" in this area.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in Beaver Dam Brook (MA94-65); therefore, the Fish Consumption Use is Not Assessed	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for Beaver Dam Brook (MA94-65) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available to assess the status of the Primary Contact Recreation Use for Beaver Dam Brook (MA94-65) so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E.coli</i> bacteria data are available to assess the status of the Secondary Contact Recreation Use for Beaver Dam Brook (MA94-65) so it is Not Assessed.	

Ben Mann Brook (MA94-41)

Location:	Headwaters, south of Abington Rockland Reservoir, Rockland to mouth at confluence with Cushing Brook, Hanover.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

No usable data were available for Ben Mann Brook (MA94-41) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Billington Sea (MA94007)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	263 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)		Unchanged
5	5	Algae		Unchanged
5	5	Chlorophyll-a		Unchanged
5	5	Dissolved Oxygen Supersaturation		Unchanged
5	5	Harmful Algal Blooms		Added
5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
5	5	Phosphorus, Total		Unchanged
5	5	Turbidity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Algae	Source Unknown (N)			X	X	X
Chlorophyll-a	Agriculture (N)	X				
Chlorophyll-a	Source Unknown (N)	X				
Dissolved Oxygen Supersaturation	Agriculture (N)	X				
Dissolved Oxygen Supersaturation	Source Unknown (N)	X				
Harmful Algal Blooms	Source Unknown (N)			X	X	X
Nutrient/Eutrophication Biological Indicators	Agriculture (N)	X				
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X				
Phosphorus, Total	Agriculture (N)	X				
Phosphorus, Total	Source Unknown (N)	X				
Turbidity	Source Unknown (N)			X	X	X

Recommendations

2022 Recommendations
ALU: Potential infestation of <i>Myriophyllum heterophyllum</i> in Billington Sea (needs species confirmation when flowering heads are present). Determine whether or not any recommendations from the Billington Sea Diagnostic/Feasibility Study (Gale Associates, Inc. and K-V Associates, Inc. 1990) have been implemented to control nutrient sources (cranberry bogs, septic systems) to this lake.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
No data are available to assess the status of the Aquatic Life Use for Billington Sea (MA94007) so it will continue to be assessed as Not Supporting with the Chlorophyll- <i>a</i> , Dissolved Oxygen Supersaturation, Fanwort, Nutrient/Eutrophication Biological Indicators and Phosphorus, Total impairments all being carried forward. The prior Alert due to the potential infestation of <i>Myriophyllum heterophyllum</i> is also being carried forward	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics monitoring has been conducted in Billington Sea (MA94007) and since no site-specific advisory was issued, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal blooms (C-HAB) postings for Billington Sea (MA94007) were reported to MassDPH for 21 days in 2018 and 125 days in 2019. The Aesthetics Use for Billington Sea (MA94007) will continue to be assessed as Not Supporting. Since blooms >20 days in duration were reported in two recent years, a Harmful Algal Blooms impairment is being added and the Algae and Turbidity impairments are being carried forward.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for the Billington Sea (MA94007) were reported to MassDPH for 21 days in 2018 and 125 days in 2019. Since blooms >20 days in duration were reported in two recent years, the Primary/Secondary Contact Recreation Uses and Aesthetics Use are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Billington Sea	Not issued or confirmed by sampling				21	125	2	no

Primary Contact Recreation

2022 Use Attainment	Alert
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Not Supporting	NO
2022 Use Attainment Summary	
<p>Cyanobacteria harmful algal blooms (C-HAB) postings for Billington Sea (MA94007) were reported to MassDPH for 21 days in 2018 and 125 days in 2019.</p> <p>The Primary Contact Recreation Use for Billington Sea (MA94007) will continue to be assessed as Not Supporting. Since blooms >20 days in duration were reported in two recent years, a Harmful Algal Blooms impairment is being added and the Algae and Turbidity impairments are being carried forward.</p>	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>Cyanobacteria harmful algal blooms (C-HAB) postings for Billington Sea (MA94007) were reported to MassDPH for 21 days in 2018 and 125 days in 2019.</p> <p>The Secondary Contact Recreation Use for Billington Sea (MA94007) will continue to be assessed as Not Supporting. Since blooms >20 days in duration were reported in two recent years, a Harmful Algal Blooms impairment is being added and the Algae and Turbidity impairments are being carried forward.</p>	

Black Jimmy Pond (MA94008)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	9 ACRES
Classification/Qualifier:	B

No usable data were available for Black Jimmy Pond (MA94008) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Black Mountain Pond (MA94009)

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

No usable data were available for Black Mountain Pond (MA94009) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X		X	X	X

Bloody Pond (MA94015)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	101 ACRES
Classification/Qualifier:	B

No usable data were available for Bloody Pond (MA94015) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Bluefish River (MA94-30)

Location:	Saltmarsh north of Harrison Street, Duxbury to mouth at Duxbury Bay, Duxbury.
AU Type:	ESTUARY
AU Size:	0.07 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61738	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for the Bluefish River (MA94-30), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in the Bluefish River (MA94-30), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Bluefish River (MA94-30): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0592 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). The Shellfish Harvesting Use is assessed as not supporting because the growing area (normalized to the AU area) is <100% approved. Based on the new growing area classifications and the prior classifications, the existing Fecal Coliform impairment is being retained.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB46.1	Bluefish River	Conditionally Approved	0.02559	39.3%
CCB46.5	Bluefish River	Prohibited	0.03358	51.6%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for the Bluefish River (MA94-30), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available for the Bluefish River (MA94-30), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Bluefish River (MA94-30): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0592 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for the Bluefish River (MA94-30), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Bluefish River (MA94-30): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0592 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Boot Pond (MA94016)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	69 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Dissolved Oxygen		Unchanged
5	5	Harmful Algal Blooms		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Dissolved Oxygen	Source Unknown (N)	X				
Harmful Algal Blooms	Source Unknown (N)			X	X	X

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No new data are available to assess the status of the Aquatic Life Use for Boot Pond (MA94016) so it will continue to be assessed as Not Supporting with the Dissolved Oxygen impairment being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in Boot Pond (MA94016); therefore, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal blooms (C-HAB) postings for Boot Pond (MA94016) were reported to MassDPH for 48 days in 2018. The Aesthetics Use for Boot Pond (MA94016) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added since blooms >20 days in duration were reported in a recent year (2018).	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Boot Pond (MA94016) were reported to MassDPH for 48 days in 2018. Since blooms >20 days in duration were reported in a recent year, the Primary/Secondary Contact Recreation Uses and Aesthetics Use are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Boot Pond	Not issued or confirmed by sampling				48		1	no

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal blooms (C-HAB) postings for Boot Pond (MA94016) were reported to MassDPH for 48 days in 2018. The Primary Contact Recreation Use for Boot Pond (MA94016) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added since blooms >20 days in duration were reported in a recent year (2018).	

Secondary Contact Recreation

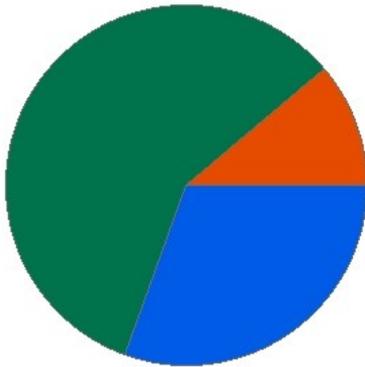
2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal blooms (C-HAB) postings for Boot Pond (MA94016) were reported to MassDPH for 48 days in 2018. The Secondary Contact Recreation Use for Boot Pond (MA94016) is assessed as Not Supporting. A Harmful Algal Blooms impairment is being added since blooms >20 days in duration were reported in a recent year (2018).	

Bound Brook (MA94-18)

Location:	Headwaters, flow control structure near Beechwood Street, Cohasset to mouth at outlet Hunters Pond (confluence with The Gulf), Scituate.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B

Bound Brook - MA94-18

Watershed Area: 11.6 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	11.6	7.99	2.33	1.85
Agriculture	0.8%	0.3%	0.2%	0.2%
Developed	11.1%	12.3%	10.3%	11.4%
Natural	57.8%	58.8%	45%	44.6%
Wetland	30.3%	28.7%	44.6%	43.8%
Impervious Cover	5.5%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Turbidity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Turbidity	Source Unknown (N)			X	X	X

Recommendations

2022 Recommendations
ALU: Conduct water quality surveys of Bound Brook to evaluate water quality conditions (especially DO) post-removal of the Hunters Pond Dam which was formerly located at the downstream end of this AU (MA94-18).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>UMass-Amherst students collected water quality data from 2015-2017 at two stations in Bound Brook (MA94-18) as part of a study evaluating the effects of the Hunters Pond Dam (as previously reported, the dam was formerly located at the mouth of this AU but was removed in 2017 (MassDEP 2021)). Data were collected 400m upstream of the dam (Station UMassA_HUNUS) and 20m upstream of the dam (Station UMassA_HUNIMP). Dissolved oxygen (DO) measurements were recorded during four 4-6 day periods in Sept 2015 and July/Sept 2016. The XDADMin DO concentration was <5.0 mg/L one time during most of the deploys and the 1-day minima were <4.0 mg/L 2 or 4 times during two of the deploys for the upstream station and 4-6 times during all deploys at the downstream station. It should be noted that most of the deploys occurred during a historic drought (Drought Management Task Force 2021). Continuous temperature measurements were recorded over periods of 21-106 days during the summer index periods in 2015-2017. There were generally no 7DADMs exceeding 27.7°C and none of the maximum 24-hr rolling average temperatures exceeded 28.3°C. Surface pH measurements (n=6/station) ranged from 5.8-6.5 SU (one measurement <6.0 SU). Specific conductance measurements (also at the surface) had a maximum of 667µs/cm.</p> <p>Because data were collected by UMass-Amherst students before the Hunters Pond Dam was demolished, and mostly during a historic drought, too limited data are available to evaluate current conditions so the Aquatic Life Use of Bound Brook (MA94-18) is assessed as having Insufficient Information. An Alert is being identified for low DO and water quality monitoring is being recommended.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
UMassA_HUNIMP	UMass Amherst	Water Quality	Bound Brook	20m upstream dam	42.222867	-70.788567
UMassA_HUNUS	UMass Amherst	Water Quality	Bound Brook	400m upstream dam	42.219704	-70.787035

Physico-chemical Water Quality Information

DO, pH, Temperature

UMass Amherst Dam Study Short-term Continuous Dissolved Oxygen Data (2015-2017). (UMass-Amherst 2018) (MassDEP Undated 3)

[Note: X= 7 (or # of deploy days if less than seven days); XDADMin= XDay Average of the Daily Minima, XDADA= XDay Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
UMassA_HUNIMP	09/05/15	09/10/15	6	0	0.3	1	2.8	1	6	0	0	1	6
UMassA_HUNIMP	07/02/16	07/06/16	5	0.2	1.4	2.9	4.2	1	5	1	5	1	5
UMassA_HUNIMP	09/01/16	09/04/16	4	0	0	0.2	3.4	1	4	0	0	1	4
UMassA_HUNIMP	09/26/16	09/30/16	5	0	0.5	1.8	4.4	1	5	0	0	1	5

Station Code	Start Date	End Date	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
UMassA_HUNUS	09/05/15	09/10/15	6	5.3	5.9	6.6	2.1	1	0	0	0	0	0
UMassA_HUNUS	07/02/16	07/06/16	5	4	4.1	4.7	1.8	1	5	1	5	1	0
UMassA_HUNUS	09/01/16	09/04/16	4	0.3	2	5.4	9.6	1	4	0	0	1	4
UMassA_HUNUS	09/26/16	09/30/16	5	2.6	3.6	4.9	4.9	1	5	0	0	1	2

UMass Amherst Dam Study Discrete Dissolved Oxygen Data (2016-2017). (UMass-Amherst 2018) (MassDEP Undated 3)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Sample Depth	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
UMassA_HUNIMP	07/07/16	07/07/16	surface	1	2.2	2.2	1	1	1
UMassA_HUNIMP	07/07/16	07/07/16	0.4m	1	0.9	0.9	1	1	1

UMass Amherst Dam Study Long-term Continuous Temperature Data (Summer Index 2014-2017). (UMass-Amherst 2018)

(MassDEP Undated 3)

[Summer Index is June 1 – Sept 15; 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Index Count	Max 24hr Rolling Avg Temp (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier2 7DADA >21	Count WW 7DADM >27.7
UMassA_HUNIMP	06/30/15	12/31/15	78	25.3	26.4	25.1	24.9	72	71	0
UMassA_HUNIMP	01/01/16	12/31/16	106	27.9	30.0	28.0	27.6	105	90	2
UMassA_HUNIMP	01/01/17	06/21/17	21	23.3	24.7	22.0	21.6	8	7	0
UMassA_HUNUS	06/30/15	12/31/15	77	24.3	26.0	24.3	24.1	65	62	0
UMassA_HUNUS	01/01/16	12/31/16	106	22.6	26.0	23.1	22.9	74	34	0
UMassA_HUNUS	01/01/17	06/21/17	21	21.9	22.3	20.9	20.7	7	0	0

UMass Amherst Dam Study Discrete Temperature Data (2016-2017). (UMass-Amherst 2018) (MassDEP Undated 3)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Sample Depth	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
UMassA_HUNIMP	07/07/16	07/07/16	surface	1	1	23	23	1	1	0	0
UMassA_HUNIMP	07/07/16	07/07/16	0.4m	1	1	22	22	1	1	0	0

UMass Amherst Dam Study Discrete pH Data (2016-2017). (UMass-Amherst 2018) (MassDEP Undated 3)

Station Code	Start Date	End Date	Sample Depth	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
UMassA_HUNIMP	07/07/16	07/07/16	0.4m	1	5.8	5.8	1	1
UMassA_HUNIMP	07/01/16	10/01/16	surface	6	5.7	6.8	4	2
UMassA_HUNUS	07/01/16	10/01/16	Surface	6	5.8	6.5	5	1

Toxics and other pollutants (metals, ammonia, chloride, chlorine)

UMass Amherst Dam Study Discrete Specific Conductance Data (2016-2017) Compared to Estimated Chloride Criteria.
(UMass-Amherst 2018) (MassDEP Undated 3)

Station Code	Start Date	End Date	Sample Depth	SpCond Count	SpCond Min (µs/cm)	SpCond Max (µs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
UMassA_HUNIMP	07/01/16	10/01/16	surface	6	205	505	0	0	0	0	0	0
UMassA_HUNIMP	07/07/16	07/07/16	0.4m	1	210	210	0	0	0	0	0	0
UMassA_HUNUS	07/01/16	10/01/16	surface	6	194	667	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Bound Brook (MA94-18), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No data are available for Bound Brook (MA94-18), so the Aesthetics Use will continue to be assessed as Not Supporting with the prior Turbidity impairment being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available for Bound Brook (MA94-18), so the Primary Contact Recreation Use will continue to be assessed as Not Supporting with the prior Turbidity impairment being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available for Bound Brook (MA94-18), so the Secondary Contact Recreation Use will continue to be assessed as Not Supporting with the prior Turbidity impairment being carried forward.	

Bound Brook Pond (MA94017)

Location:	Norwell.
AU Type:	FRESHWATER LAKE
AU Size:	21 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Bound Brook Pond (MA94017) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Briggs Reservoir (MA94019)

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

No usable data were available for Briggs Reservoir (MA94019) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Briggs Reservoir (MA94020)

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

No usable data were available for Briggs Reservoir (MA94020) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (N)	X				

Cohasset Cove (MA94-32)

Location:	The waters south of a line drawn from the Bassing Beach jetty, Scituate westerly to the opposite shore, Cohasset excluding Baileys Creek and The Gulf.
AU Type:	ESTUARY
AU Size:	0.09 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61706, 61739	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
There are no recent data available for Cohasset Cove (MA94-32), so the Aquatic Life Use is Not Assessed. The prior Alert which was identified because an eelgrass bed area at the very outer edge of the cove receded (MassDEP 2021), is being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Cohasset Cove (MA94-32), so the fish consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Cohasset Cove (MA94-32): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0805 sq mi (93%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0805 sq mi (93%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB10.1	West Cohasset Harbor	Prohibited	0.08054	92.8%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Cohasset Cove (MA94-32), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>The Cohasset Center for Student Coastal Research (CCSCR) staff/volunteers collected Enterococci bacteria samples during summer 2020 in Cohasset Cove (MA94-32) at the Bassings South Beach (CCSCR_Bassings South; n=12), at the Cohasset Sailing Club dock (CCSCR_Cohasset Sailing Club; n=11), and most seaward, at the Bassings North Beach (CCSCR_Bassings North; n=11). Data analysis for all three stations did not trigger use attainment impairment thresholds: the maximum percentage of GM intervals exceeding 35 CFU/100mL was 47%, there was never more than one sample exceeding the 130 CFU/100mL STV criterion, and the maximum seasonal GM was 32 CFU/100mL. Additionally, MassDPH beach posting data for Bassings South Beach never exceeded 10% of the samples in any year between 2014-2019. The Primary Contact Recreation Use for Cohasset Cove (MA94-32) is assessed as Fully Supporting since the CCSCR Enterococci data from three stations during summer 2020 met the use attainment threshold for single year, moderate frequency datasets and there were minimal swimming advisory beach postings (<10% per season, 2014-2019) at Bassings South Beach.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CCSCR_Bassings North	Cohasset Center for Student Coastal Research	Water Quality	Cohasset Harbor	beach	42.241504	-70.786998
CCSCR_Bassings South	Cohasset Center for Student Coastal Research	Water Quality	Cohasset Harbor	beach	42.239849	-70.786714
CCSCR_Cohasset Sailing Club	Cohasset Center for Student Coastal Research	Water Quality	Cohasset Harbor	dock	42.239456	-70.788461

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (CCSCR 2020) (MassDEP Undated 3)

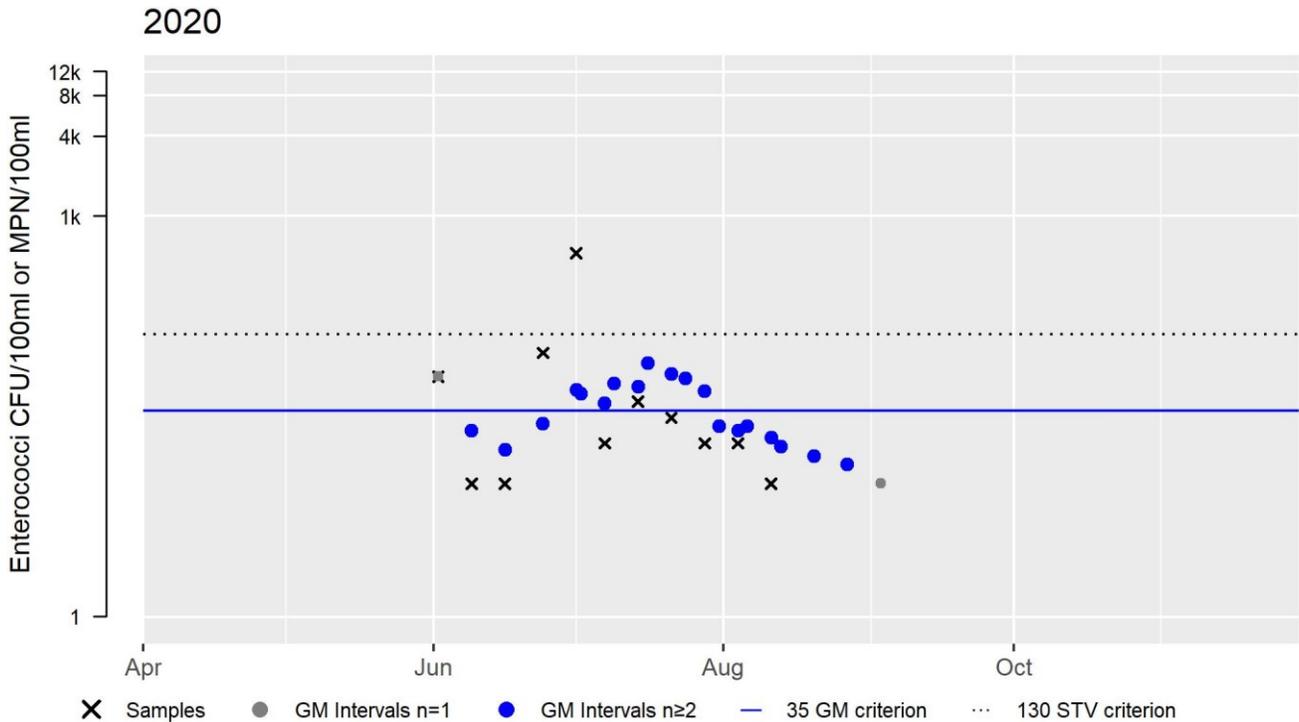
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CCSCR_Bassings North	Cohasset Center for Student Coastal Research	Enterococci	06/02/20	08/11/20	11	10	529	32
CCSCR_Bassings South	Cohasset Center for Student Coastal Research	Enterococci	06/02/20	09/02/20	12	10	86	24
CCSCR_Cohasset Sailing Club	Cohasset Center for Student Coastal Research	Enterococci	06/02/20	08/11/20	11	10	441	31

CCSCR_Bassings North Enterococci (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	11
SeasGM	32
#GMI	19
#GMI Ex	9
%GMI Ex	47
n>STV	1
%n>STV	9

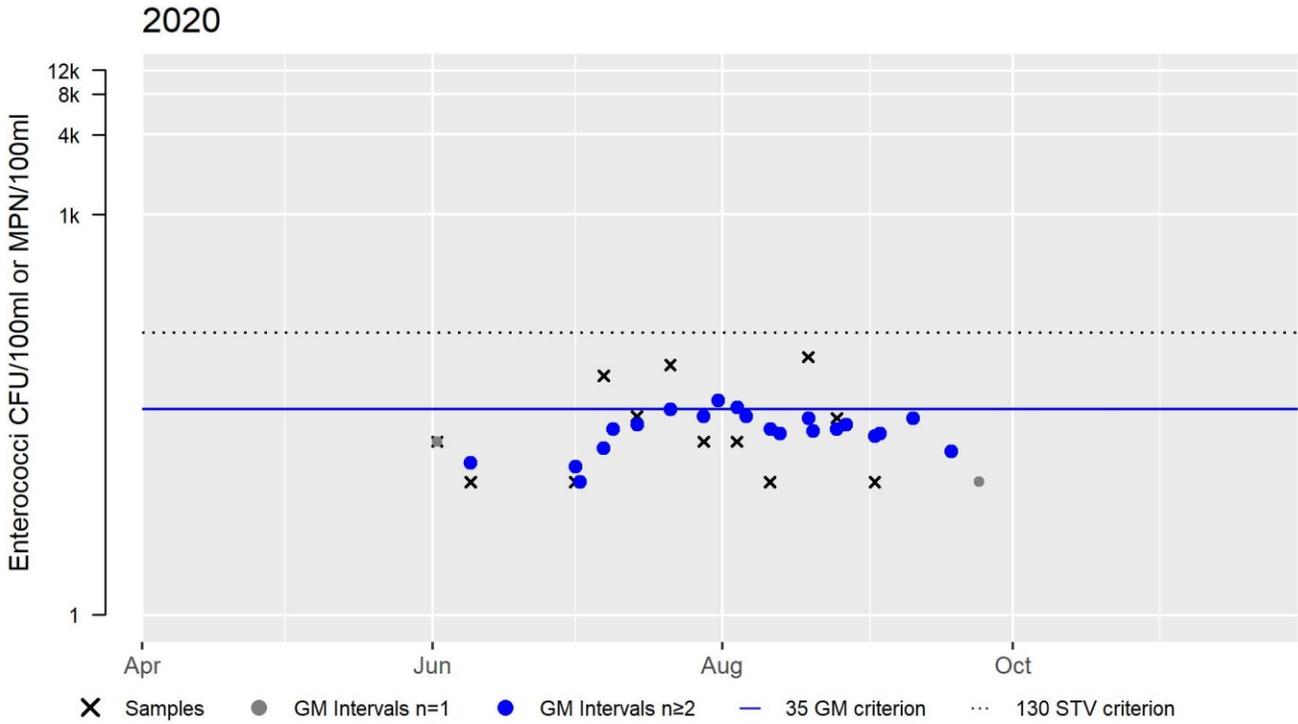
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Bassings South Enterococci (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	12
SeasGM	24
#GMI	21
#GMI Ex	2
%GMI Ex	10
n>STV	0
%n>STV	0

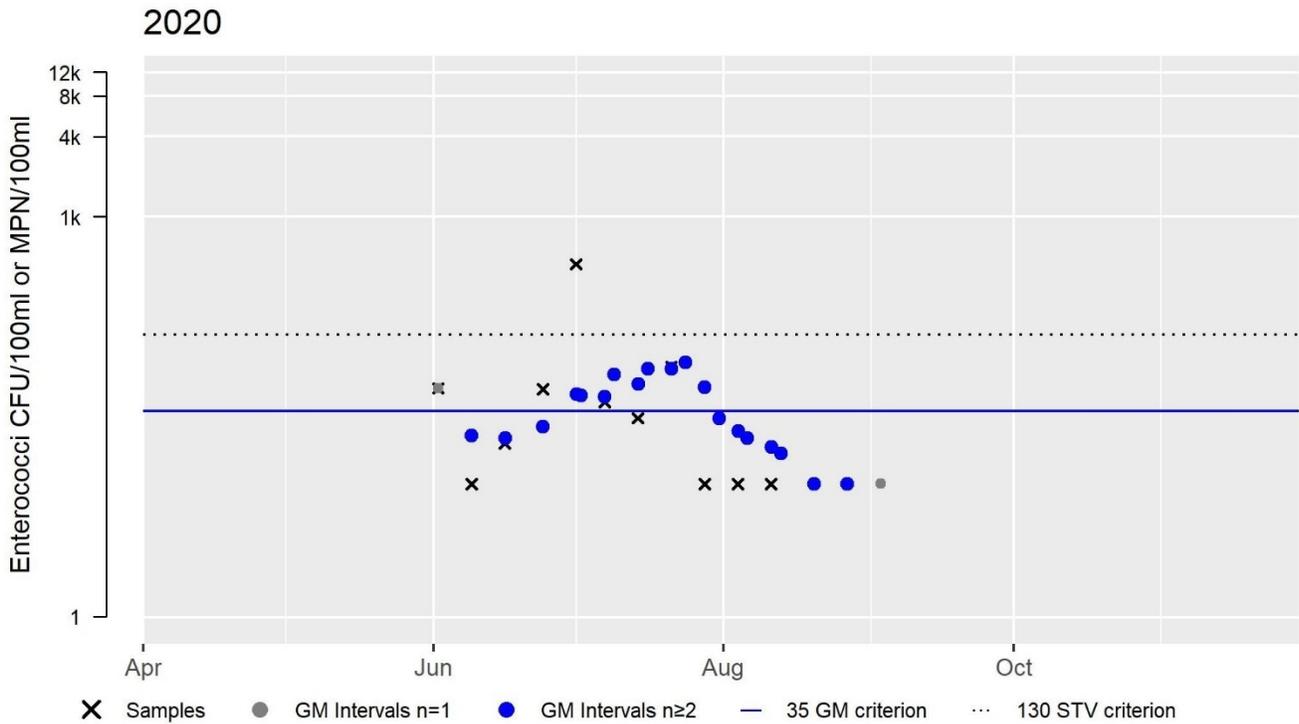
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Cohasset Sailing Club Enterococci (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	11
SeasGM	31
#GMI	19
#GMI Ex	9
%GMI Ex	47
n>STV	1
%n>STV	9

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Beach Postings

MassDPH Beach Posting Data Summary (% Bathing Season Posted 2014-2019) (Bailey, Logan February 2, 2021) (MassDEP Undated 3)

Beach ID	Beach Name/Town	Left Boundary (Latitude)	Left Boundary (Longitude)	Right Boundary (Latitude)	Right Boundary (Longitude)	2014	2015	2016	2017	2018	2019	# years > 10%
5654	Bassings Beach/Scituate	42.23999	-70.78840	42.24166	-70.78560	7%	0%	0%	7%	7%	2%	0

*Shellfish Growing Area Classifications***MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)**
(MassDEP Undated 6)

Summary
Cohasset Cove (MA94-32): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0805 sq mi (93%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>The Cohasset Center for Student Coastal Research (CCSCR) staff/volunteers collected Enterococci bacteria samples during summer 2020 in Cohasset Cove (MA94-32) at the Bassings South Beach (CCSCR_Bassings South; n=12), at the Cohasset Sailing Club dock (CCSCR_Cohasset Sailing Club; n=11), and most seaward, at the Bassings North Beach (CCSCR_Bassings North; n=11). Data analysis for all three stations did not trigger use attainment impairment thresholds: none of the intervals had GMs exceeding 175 CFU/100mL, there was never more than one sample exceeding the 350 CFU/100mL STV criterion, and the maximum overall GM was 32 CFU/100mL. Additionally, MassDPH beach posting data for Bassings South Beach never exceeded 10% of the samples in any year between 2014-2019.</p> <p>The Secondary Contact Recreation Use for this Cohasset Cove AU (MA94-32) is assessed as Fully Supporting since the CCSCR Enterococci data from three stations during summer 2020 met the use attainment threshold for single year, moderate frequency datasets and there were minimal swimming advisory beach postings (<10% per season, 2014-2019) at Bassings South Beach.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CCSCR_Bassings North	Cohasset Center for Student Coastal Research	Water Quality	Cohasset Harbor	beach	42.241504	-70.786998
CCSCR_Bassings South	Cohasset Center for Student Coastal Research	Water Quality	Cohasset Harbor	beach	42.239849	-70.786714
CCSCR_Cohasset Sailing Club	Cohasset Center for Student Coastal Research	Water Quality	Cohasset Harbor	dock	42.239456	-70.788461

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CCSCR 2020)**
(MassDEP Undated 3)

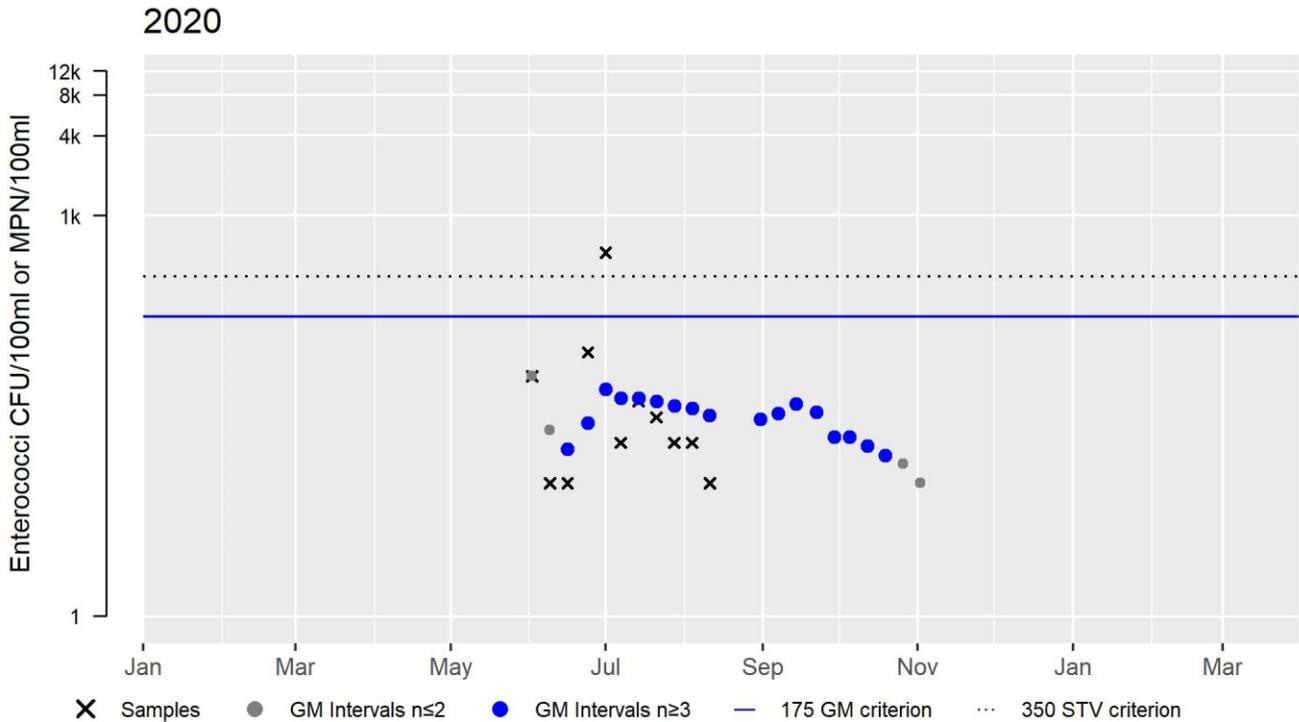
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
CCSCR_Bassings North	Cohasset Center for Student Coastal Research	Enterococci	06/02/20	08/11/20	11	10	529	32
CCSCR_Bassings South	Cohasset Center for Student Coastal Research	Enterococci	06/02/20	09/02/20	12	10	86	24
CCSCR_Cohasset Sailing Club	Cohasset Center for Student Coastal Research	Enterococci	06/02/20	08/11/20	11	10	441	31

CCSCR_Bassings North Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	11
SeasGM	32
#GMI	17
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	9

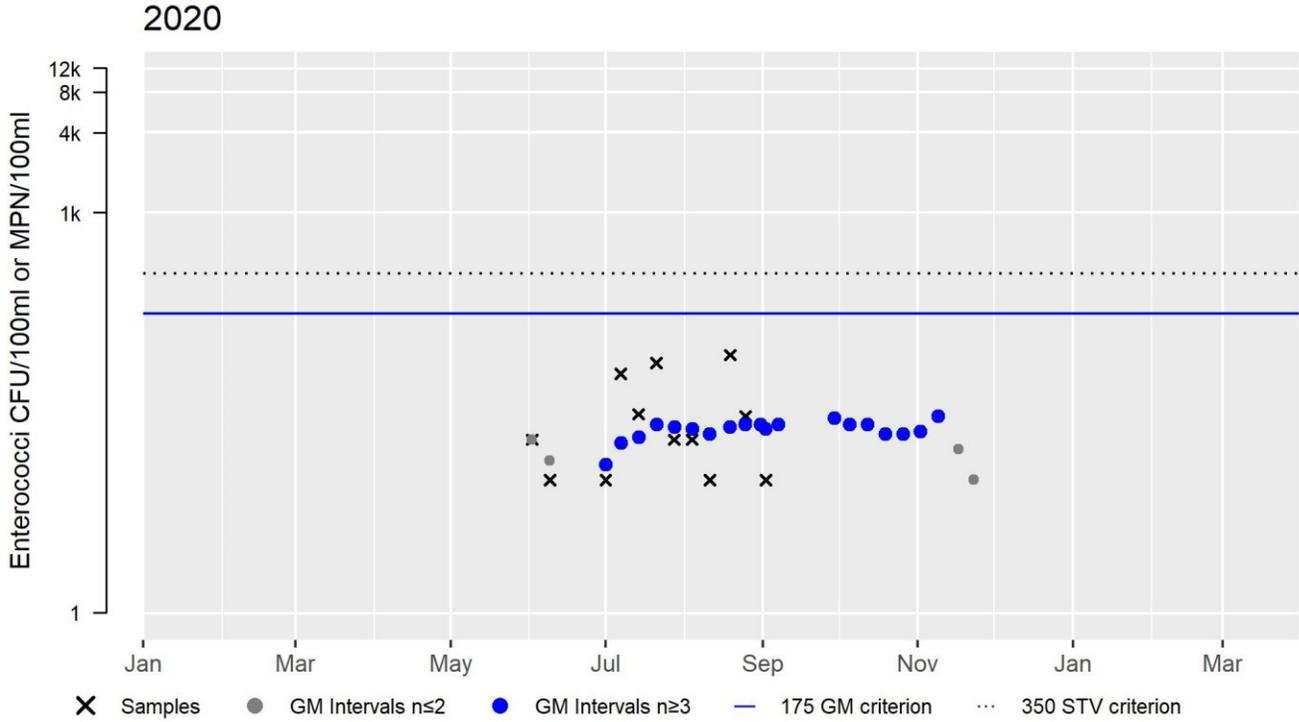
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Bassings South Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	12
SeasGM	24
#GMI	19
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

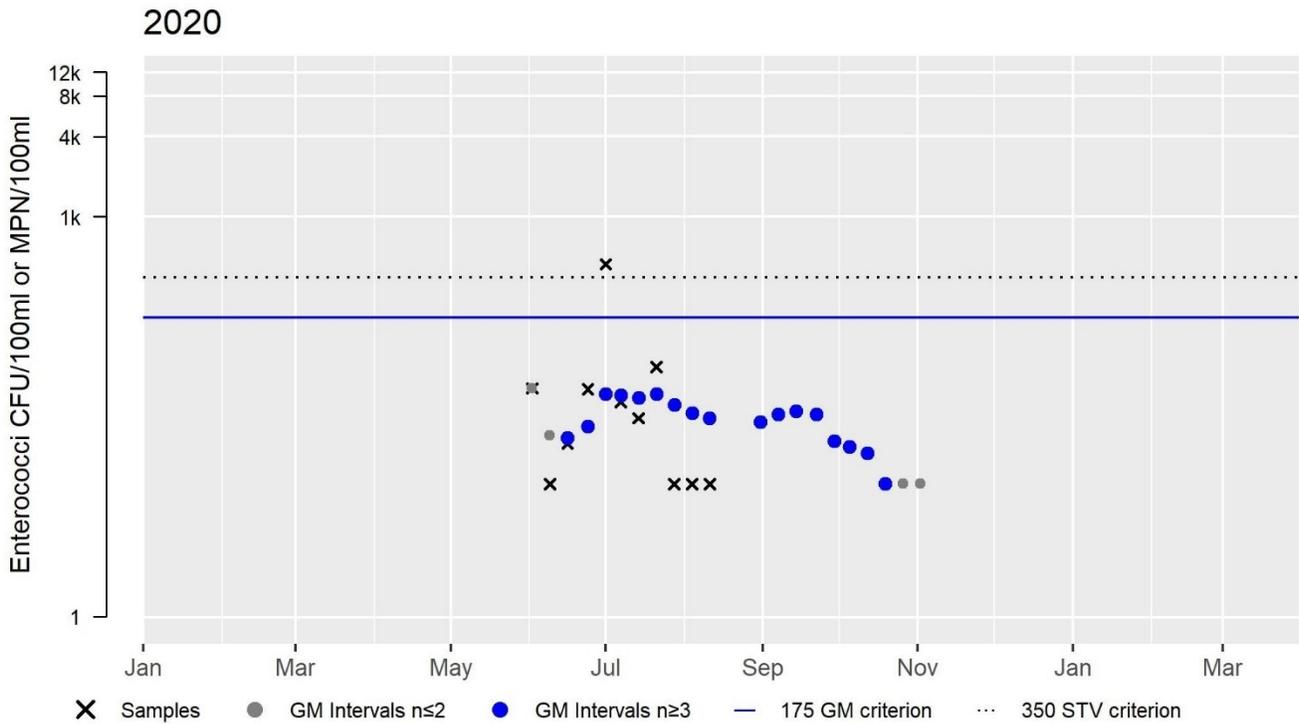
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Cohasset Sailing Club Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	11
SeasGM	31
#GMI	17
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	9

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Cohasset Cove (MA94-32): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0805 sq mi (93%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Cohasset Harbor (MA94-01)

Location:	The waters south of a line drawn from the northwestern point of Scituate Neck, Scituate to just north of Quarry Point, Cohasset not including Cohasset Cove, Cohasset/Scituate.
AU Type:	ESTUARY
AU Size:	0.7 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61708	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No recent data are available for Cohasset Harbor (MA94-01), so the Aquatic Life Use is Not Assessed. As was previously reported in the 2018/20 IR reporting cycle an Alert was identified because of steady declines in the eelgrass bed habitat nearest to Cohasset Cove (MassDEP 2021) and this Alert is being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Cohasset Harbor (MA94-01), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cohasset Harbor (MA94-01): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.6051 sq mi (87%). The approved shellfish growing area represents 0 sq mi (0%). The Shellfish Harvesting Use is assessed as not supporting because the growing area (normalized to the AU area) is <100% approved. Based on the new growing area classifications and the prior classifications, the existing Fecal Coliform impairment is being retained.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB10.0	East Cohasset Harbor	Conditionally Approved	0.27879	40.0%
MB10.1	West Cohasset Harbor	Prohibited	0.29759	42.7%
MB10.3	Briggs Harbor, Cohasset Harbor	Prohibited	0.01539	2.2%
MB9.0	Cohasset North Coastal	Prohibited	0.01330	1.9%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Cohasset Harbor (MA94-01), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent Enterococci bacteria data are available for Cohasset Harbor (MA94-01), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Cohasset Harbor (MA94-01): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.6051 sq mi (87%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent Enterococci bacteria data are available for Cohasset Harbor (MA94-01), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Cohasset Harbor (MA94-01): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.6051 sq mi (87%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Cooks Pond (MA94027)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	21 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	5	(Fanwort*)		Unchanged
4c	5	(Non-Native Aquatic Plants*)		Unchanged
4c	5	Harmful Algal Blooms		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(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				
Harmful Algal Blooms	Source Unknown (N)			X	X	X

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
No recent data are available for Cooks Pond (MA94027), so the Aquatic Life Use will continue to be assessed as Not Supporting, with the Fanwort and Non-Native Aquatic Plants impairments being carried forward. As was previously reported in the 2018/20 IR reporting cycle an Alert was identified because of low dissolved oxygen at depths below 1.5m and slightly elevated total phosphorus concentrations (MassDEP 2021) and these Alerts are being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling was performed by MassDEP WPP biologists at Cooks Pond in Plymouth (MA94027) in June 2018 as part of the probabilistic lake surveys (MAP2). Edible fillets were analyzed for the presence of mercury, metals, and organochlorine pesticides. No site-specific fish consumption advisory was issued by MassDPH. Since no site-specific fish consumption advisory has been issued, the Fish Consumption Use for Cooks Pond (MA94027) is Not Assessed.	

MassDEP fish toxics sampling information (2018-2020) and MassDPH Fish Consumption Advisory information (2019-2021) (MassDEP 2018) (MassDEP Undated 8)

Fish toxics sampling was performed by MassDEP WPP biologists at Cooks Pond in Plymouth (MA94027) in June 2018 as part of the probabilistic lake surveys (MAP2). Edible fillets were analyzed for the presence of mercury, metals, and organochlorine pesticides. No site-specific fish consumption advisory was issued by MassDPH.

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Cooks Pond (MA94027) were reported to MassDPH for 28 days in 2018 (the advisory was confirmed based on sample analysis). The Aesthetics Use for Cooks Pond (MA94027) is assessed as Not Supporting since blooms >20 days in length were reported in a recent year. A Harmful Algal Blooms impairment is being added.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Cooks Pond (MA94027) were reported to MassDPH for 28 days in 2018 (the advisory was confirmed based on sample analysis). Since blooms >20 days in length were reported in a recent year, the Primary/Secondary Contact Recreation Uses and Aesthetics Use are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Cooks Pond	Advisory confirmed by sample analysis				28		1	no

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Cooks Pond (MA94027) were reported to MassDPH for 28 days in 2018 (the advisory was confirmed based on sample analysis). The Primary Contact Recreation Use for Cooks Pond (MA94027) is assessed as Not Supporting since blooms >20 days in length were reported in a recent year. A Harmful Algal Blooms impairment is being added.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Cooks Pond (MA94027) were reported to MassDPH for 28 days in 2018 (the advisory was confirmed based on sample analysis). The Secondary Contact Recreation Use for Cooks Pond (MA94027) is assessed as Not Supporting since blooms >20 days in length were reported in a recent year. A Harmful Algal Blooms impairment is being added.	

Crossman Pond (MA94032)

Location:	Kingston.
AU Type:	FRESHWATER LAKE
AU Size:	13 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Aquatic Plants (Macrophytes)*)		Changed
5	5	Nutrient/Eutrophication Biological Indicators		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Source Unknown (N)			X	X	X
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)			X	X	X

Supporting Information for Removed Impairments

2018/20 Removed Impairment	Removal Reason	Removal Comment
Aquatic Plants (Macrophytes)	Not caused by a pollutant (4c)	As described in detail in the 2022 CALM guidance document (MassDEP 2022b), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. Crossman Pond (MA94032) was first listed as impaired for Noxious Aquatic Plants in 1998 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The original impairment was based on an August 1996 synoptic survey conducted by MassDEP staff in which it was noted that most of the pond was covered with very dense aquatic plants, including the non-rooted, floating species, <i>Utricularia vulgaris</i> (MassDEP 1996, MassDEP 2002). Google Earth images from August 2013 and October 2018 show dense plant coverage over roughly 40-50% of the pond (Google Earth Pro Undated). Nutrient/ Eutrophication Biological Indicators is being added as an impairment based on the presence of a non-rooted, floating, aquatic macrophyte species. Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since more than 25% of the pond was covered in aquatic macrophytes in recent years.

Aquatic Plants (Macrophytes)

1998 WBS Coding Sheet (MassDEP 2002):

WBID: MA 94032 WATERSHED: South Coastal
 NAME: Crossman Pond TYPE: Lake/Pond
 CODE: SIZE: 15.0 acres

CLASS: B/
 ORW?: Yes or No
 Water Supply?: Yes or No

LATITUDE:
 LONGITUDE:
 Lake/Pond Name:
 Ecoregion Name:
 Description: Crossman Pond, Kingston

Assessment Date: 9710 Begin Sampling: 9608 Water Quality Limited?: YES or NO
 Cycle: 9798 End Sampling: 9608 303(d) List?: YES or NO

Lake Specific Information

Significantly Publicly Owned:	1997	Significantly Publicly Owned:	Y or N
Trophic Status:		Trophic Status:	O M E H D U
Trophic Trend:		Trophic Trend:	I S D U
Acidity/Toxics Trend:		Acidity/Toxics Trend:	I S D U
Acidity Effects:		Acidity Effects:	I V N U

Uses

Uses	Support	Threat	Partial	Non-Sup	Not-Asses	Not-Attain
OVERALL USE SUPPORT				15.0		
ALUS					15.0	
FISH CONSUMPTION					15.0	
PRIMARY CONTACT					15.0	
SECONDARY CONTACT				15.0		
Aesthetics				15.0		
ALUS Bio				15.0		
ALUS Chem/Phys						
ALUS Toxicity						

Nonattainment Causes

Code	Size	Magnitude	1997 Code	Size	Magnitude
	2200'	15.0		15.0	H

Nonattainment Sources

Code	Size	Magnitude	1997 Code	Size	Magnitude
	9000'	15.0		15.0	H

Assessment Type

1996 Assessment Category = M E NA
 R35

Media/Pollutants Assessed

1996 Toxics Monitoring = YES or NO

Comments:
 1998: 22 August 1996 synoptic survey indicated the entire pond covered by floating leaf and emergent vegetation.

OK RSM
 (Printed 08/01/96)
 0-10-98
 JCR

1996 Synoptic Survey Field Sheet (MassDEP 1996):

Page 1 of 2

Lake/Pond Crossman Pond 15.0 acres Date 8/22/96Town/City Kingston Observers DeGore/GilRiver Basin South CoastalUSGS Topo Plympton PALIS NO. 94032

Location/type of access (be specific, e.g., public boat ramp at west cove area off Simpson Street):
 asked owner @ #186 + 206 South St.

Ownership of Location/Access (specify public or private, name of owner(s), and any use restrictions):
 Private

Posted signs (re aquatic plants, fish advisories, access, etc.):
 No Trespassing

Water quality observations (clarity, dissolved organic staining, blooms, et cetera):
 Bubbly green algal mats on top.
 Moderately turbid - muddy brown

Page 2 of 2

Record of aquatic plant "species" observed (see note below):

Decodon, Nuphar, Nymphaea, Utricularia vulgaris, ~~Najas~~ Horn sp.,
Scirpus, Potamogeton

Observed aquatic plant density (at observation site and across lake or pond, if practicable):

Very Dense - 100%

Only small patch of open water in center of pond
Islands forming

Other notes (e.g., overt pollution, construction, and water uses:
Storm drains from road to pond.

Owners said town was trying to appropriate \$ for dredging

Trophic - Eutrophic

1° Contact - 15.0 acres - Non-Support

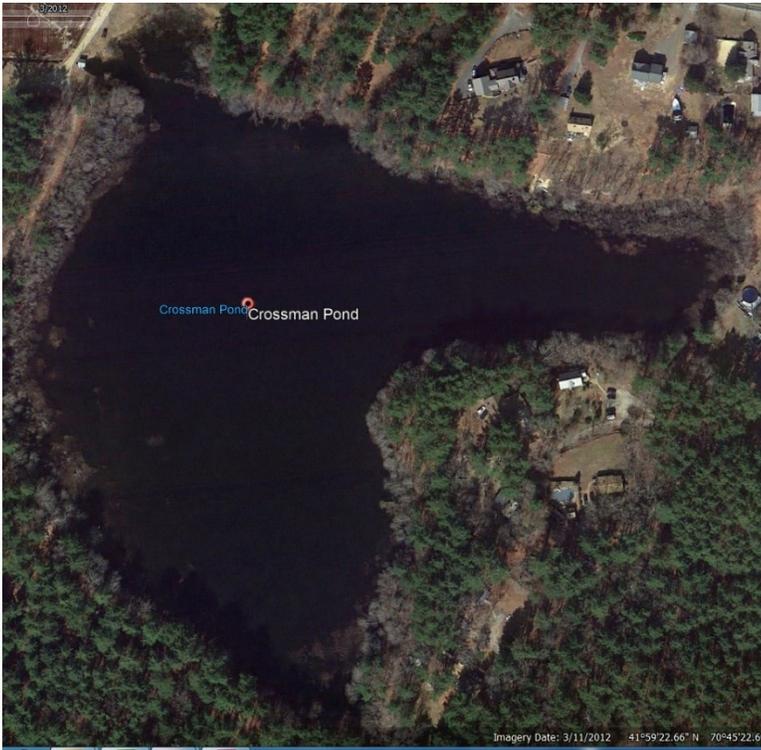
2° Contact - 15.0 " - " "

Aesthetic's 15.0 " - " "

Note: record suspect *M. heterophyllum* plants that may require confirmation once emergent flowering stalks are evident.

Cause - Noxious plants - 15.0 acres - (H)

Google Earth image of Crossman Pond while clear, 3/11/2012 (Google Earth Pro Undated):



Google Earth image of Crossman Pond, 8/24/2013 (Google Earth Pro Undated):



Google Earth image of Crossman Pond, 10/5/2018 (Google Earth Pro Undated):



Recommendations

2022 Recommendations	
ALU: An aquatic macrophyte survey should be conducted in Crossman Pond to confirm the presence of Myriophyllum heterophyllum when flowering heads are present. Confirmation of any non-native species should be made by a qualified state agency staff/taxonomist.	

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No data are available to evaluate the Aquatic Life Use for Crossman Pond so it will continue to be Not Assessed with the Alert for possible presence of a non-native species, Myriophyllum heterophyllum, being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics monitoring has been conducted in Crossman Pond (MA94032); therefore, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. Crossman Pond (MA94032) was first listed as impaired for Noxious Aquatic Plants in 1998 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The original impairment was based on an August 1996 synoptic survey conducted by MassDEP staff in which it was noted that most of the pond was covered with very dense aquatic plants, including the non-rooted, floating species, <i>Utricularia vulgaris</i> (MassDEP 1996, MassDEP 2002). Google Earth images from August 2013 and October 2018 show dense plant coverage over roughly 40-50% of the pond (Google Earth Pro Undated). Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of a non-rooted, floating, aquatic macrophyte species. Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since more than 25% of the pond was covered in aquatic macrophytes in recent years.</p> <p>The Aesthetics Use for Crossman Pond will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of a non-rooted, floating, aquatic macrophyte species <i>Utricularia vulgaris</i>. The Aquatic Plants (Macrophytes) impairment is being delisted as a pollutant and added back as a non-pollutant.</p>	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. Crossman Pond (MA94032) was first listed as impaired for Noxious Aquatic Plants in 1998 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The original impairment was based on an August 1996 synoptic survey conducted by MassDEP staff in which it was noted that most of the pond was covered with very dense aquatic plants, including the non-rooted, floating species, <i>Utricularia vulgaris</i> (MassDEP 1996, MassDEP 2002). Google Earth images from August 2013 and October 2018 show dense plant coverage over roughly 40-50% of the pond (Google Earth Pro Undated). Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of a non-rooted, floating, aquatic macrophyte species. Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since more than 25% of the pond was covered in aquatic macrophytes in recent years.</p> <p>The Primary Contact Recreational Use for Crossman Pond will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of a non-rooted, floating, aquatic macrophyte species <i>Utricularia vulgaris</i>. The Aquatic Plants (Macrophytes) impairment is being delisted as a pollutant and added back as a non-pollutant.</p>	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. Crossman Pond (MA94032) was first listed as impaired for Noxious Aquatic Plants in 1998 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The original impairment was based on an August 1996 synoptic survey conducted by MassDEP staff in which it was noted that most of the pond was covered with very dense aquatic plants, including the non-rooted,</p>	

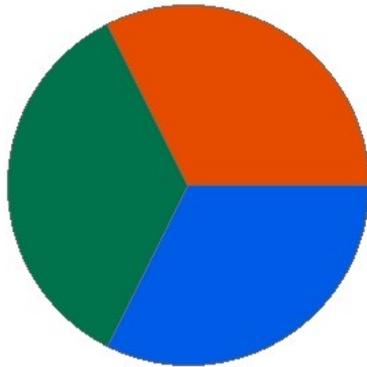
floating species, *Utricularia vulgaris* (MassDEP 1996, MassDEP 2002). Google Earth images from August 2013 and October 2018 show dense plant coverage over roughly 40-50% of the pond (Google Earth Pro Undated). Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of a non-rooted, floating, aquatic macrophyte species. Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since more than 25% of the pond was covered in aquatic macrophytes in recent years. The Secondary Contact Recreational Use for Crossman Pond will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of a non-rooted, floating, aquatic macrophyte species *Utricularia vulgaris*. The Aquatic Plants (Macrophytes) impairment is being delisted as a pollutant and added back as a non-pollutant.

Cushing Brook (MA94-40)

Location:	Headwaters (perennial portion), east of Pleasant Street, Rockland to mouth at confluence with Drinkwater River, Hanover.
AU Type:	RIVER
AU Size:	3.1 MILES
Classification/Qualifier:	B

Cushing Brook - MA94-40

Watershed Area: 4.08 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	4.08	3.31	1.47	1.21
Agriculture	0%	0%	0%	0%
Developed	32.5%	29.9%	18.8%	16.1%
Natural	35.1%	34.4%	31.3%	32.1%
Wetland	32.4%	35.7%	49.9%	51.9%
Impervious Cover	19.1%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Escherichia Coli (E. Coli)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)				X	X
Escherichia Coli (E. Coli)	Source Unknown (N)				X	X

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary
No data are available for Cushing Brook (MA94-40), so the Aquatic Life Use is Not Assessed.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Cushing Brook (MA94-40), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No recent data are available for Cushing Brook (MA94-40), so the Aesthetics Use is Not Assessed. The prior Alert for very dense aquatic macrophyte coverage documented at MassDEP station W1525 in summer 2006 (MassDEP Undated 7) is being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected <i>E. coli</i> bacteria samples from Cushing Brook (MA94-40) across the street from Christopher Drive (NSRWA_Cushing Brook) between July and August 2019 (n=4). Data analysis indicated that 100% of the intervals had GMs >126 CFU/100mL and two samples exceeded the 410 CFU/100mL STV. The seasonal GM was 764 CFU/100mL.</p> <p>Since the NSRWA <i>E. coli</i> samples exceeded the use attainment impairment threshold for a single year, limited frequency dataset, the Primary Contact Recreation Use for Cushing Brook (MA94-40) will continue to be assessed as Not Supporting, with the prior <i>Escherichia Coli</i> (<i>E. Coli</i>) impairment being carried forward. The prior Alert for very dense aquatic macrophyte coverage documented at MassDEP station W1525 in summer 2006 (MassDEP Undated 7) is also being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Cushing Brook	North South River Watershed Association	Water Quality	Cushing Brook	Across the street from Christopher Drive	42.1317	-70.90519

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)
(MassDEP Undated 3)

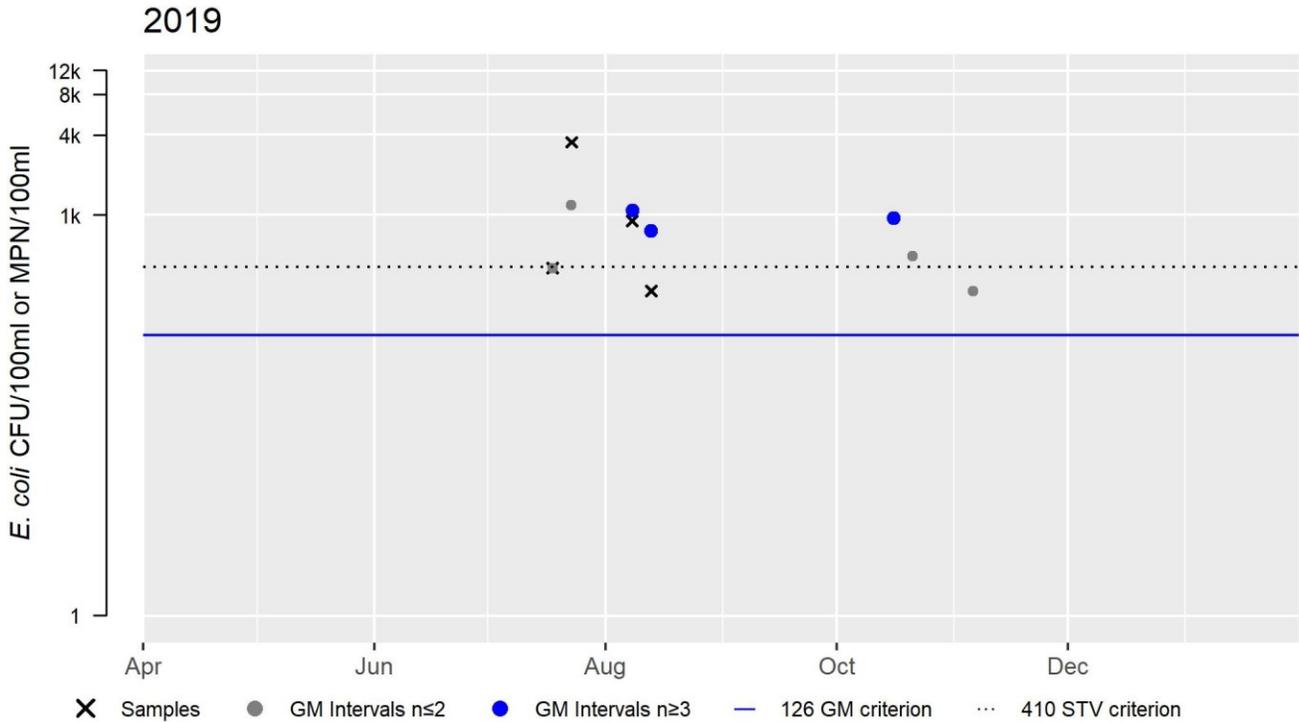
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Cushing Brook	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	270	3500	764

NSRWA_Cushing Brook *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	764
#GMI	3
#GMI Ex	3
%GMI Ex	100
n>STV	2
%n>STV	50

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

North South River Watershed Association (NSRWA) staff/volunteers collected *E. coli* bacteria samples from Cushing Brook (MA94-40) across the street from Christopher Drive (NSRWA_Cushing Brook) between July and August 2019 (n=4). Data analysis indicated that 100% of the intervals had GMs >630 CFU/100mL and one sample exceeded the 1260 CFU/100mL STV. The seasonal GM was 764 CFU/100mL.

Since the NSRWA *E. coli* samples exceeded the use attainment impairment threshold for a single year, limited frequency dataset, the Secondary Contact Recreation Use for Cushing Brook (MA94-40) is assessed as Not Supporting, with an *Escherichia Coli* (*E. Coli*) impairment being added. Additionally, the prior Alert for very dense aquatic macrophyte coverage documented at MassDEP station W1525 in summer 2006 (MassDEP Undated 7) is being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Cushing Brook	North South River Watershed Association	Water Quality	Cushing Brook	Across the street from Christopher Drive	42.1317	-70.90519

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)
(MassDEP Undated 3)

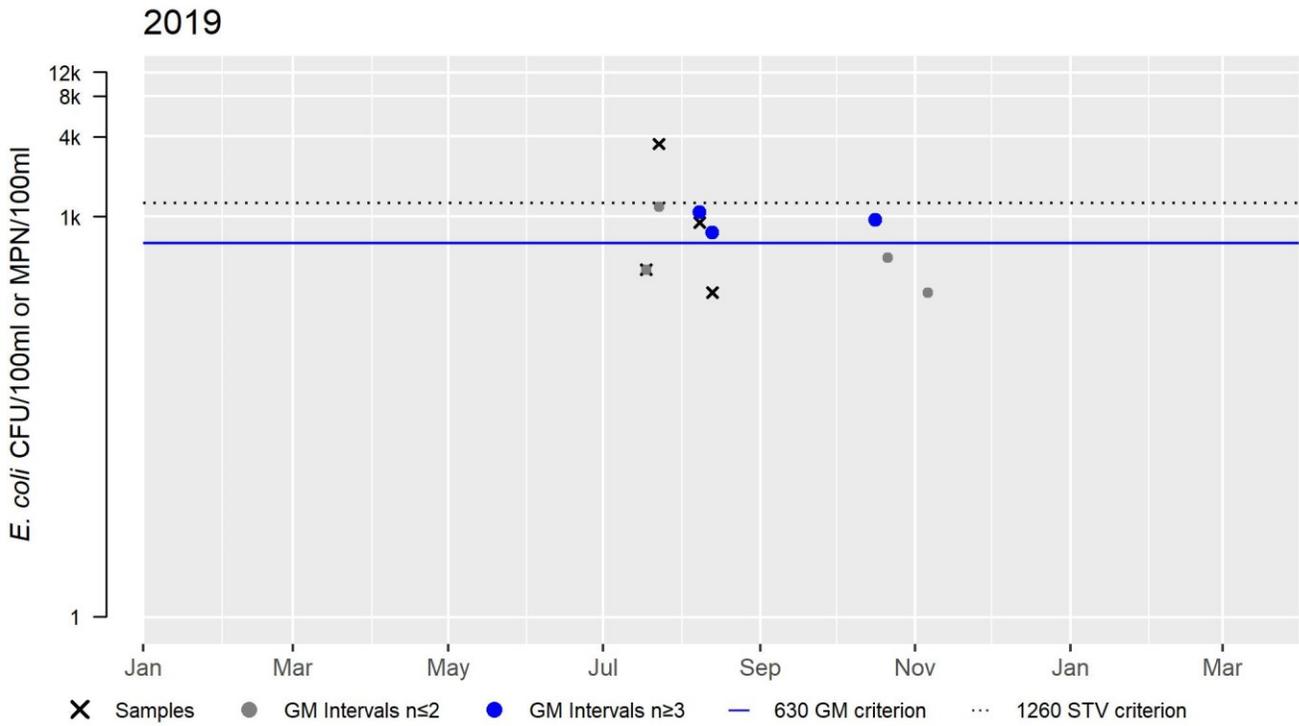
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Cushing Brook	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	270	3500	764

NSRWA_Cushing Brook *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	764
#GMI	3
#GMI Ex	3
%GMI Ex	100
n>STV	1
%n>STV	25

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

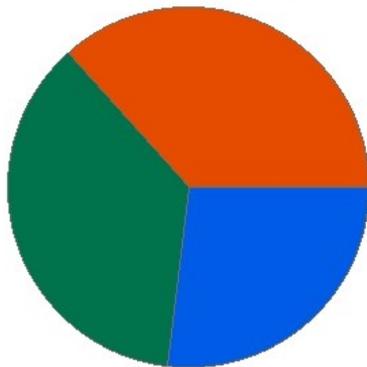


Drinkwater River (MA94-21)

Location:	Headwaters west of Whiting Street, Hanover to mouth at inlet Factory Pond, Hanover (through former 2014 segment: Forge Pond MA94037).
AU Type:	RIVER
AU Size:	3.7 MILES
Classification/Qualifier:	B: WWF

Drinkwater River - MA94-21

Watershed Area: 20.69 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	20.69	10.75	6.08	3.36
Agriculture	0.6%	0.6%	0.1%	0.1%
Developed	36.4%	31.7%	23.8%	19.6%
Natural	36.3%	37.4%	32.5%	31.5%
Wetland	26.7%	30.3%	43.6%	48.8%
Impervious Cover	18.1%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)		Unchanged
5	5	(Debris*)		Unchanged
5	5	(Fanwort*)		Unchanged
5	5	Algae		Unchanged
5	5	Chlorophyll-a		Unchanged
5	5	Dissolved Oxygen Supersaturation		Unchanged
5	5	Escherichia Coli (E. Coli)	61724	Unchanged
5	5	Fecal Coliform	61724	Unchanged
5	5	Mercury in Fish Tissue		Unchanged
5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
5	5	Phosphorus, Total		Unchanged
5	5	Transparency / Clarity		Unchanged
5	5	Trash		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Debris*)	Source Unknown (N)			X	X	X
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Algae	Municipal Point Source Discharges (Y)			X	X	X
Chlorophyll-a	Municipal Point Source Discharges (Y)	X				
Chlorophyll-a	Source Unknown (N)	X				
Dissolved Oxygen Supersaturation	Municipal Point Source Discharges (Y)	X				
Dissolved Oxygen Supersaturation	Source Unknown (N)	X				
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Fecal Coliform	Source Unknown (N)				X	
Mercury in Fish Tissue	Contaminated Sediments (Y)		X			
Mercury in Fish Tissue	Illegal Dumps or Other Inappropriate Waste Disposal (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		X	X	X
Phosphorus, Total	Source Unknown (N)	X		X	X	X
Transparency / Clarity	Municipal Point Source Discharges (Y)			X	X	X
Transparency / Clarity	Source Unknown (N)			X	X	X
Trash	Source Unknown (N)			X	X	X

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available for the Drinkwater River (MA94-21), so the Aquatic Life Use will continue to be assessed as Not Supporting with all prior impairments (Chlorophyll- <i>a</i> , Curly-leaf Pondweed, Dissolved Oxygen Supersaturation, Fanwort, Nutrient/Eutrophication Biological Indicators, and “Phosphorus, Total”) being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Since there is a site specific DPH advisory for elevated mercury in fish tissue in the Drinkwater River (MA94-21), the Fish Consumption Use will continue to be assessed as Not Supporting with the Mercury in Fish Tissue impairment being carried forward. MA DPH advises that “No one should consume any fish from this water body” from the Forge Pond Dam on the Drinkwater River in Hanover, downstream through Factory Pond and the Indian Head River, to the Rt. 3 crossing of the North River due to mercury contamination (MassDPH 2021).	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available for the Drinkwater River (MA94-21), so the Aesthetics Use will continue to be assessed as Not Supporting with all prior impairments (Algae, Debris, "Phosphorus, Total", Transparency/Clarity, Trash) being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected <i>E. coli</i> bacteria samples from the Drinkwater River (MA94-21) on the opposite side of the road as Forge Pond (NSRWA_Drinkwater River) between July and August 2019 (n=4). Data analysis indicated that 100% of the intervals had GMs >126 CFU/100mL and two samples exceeded the 410 CFU/100mL STV. The seasonal GM was 331 CFU/100mL.</p> <p>The Primary Contact Recreation Use for the Drinkwater River (MA94-21) is assessed as Not Supporting. Since the NSRWA <i>E. coli</i> samples exceeded the use attainment impairment threshold for a single year limited frequency dataset, the prior <i>Escherichia Coli</i> (<i>E. Coli</i>) and Fecal Coliform impairments are being carried forward, and all other prior impairments (Algae, Debris, "Phosphorus, Total", Transparency/Clarity, Trash) are also being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Drinkwater River	North South River Watershed Association	Water Quality	Drinkwater River	Opposite side of road as Forge Pond	42.1035	-70.8776

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)

(MassDEP Undated 3)

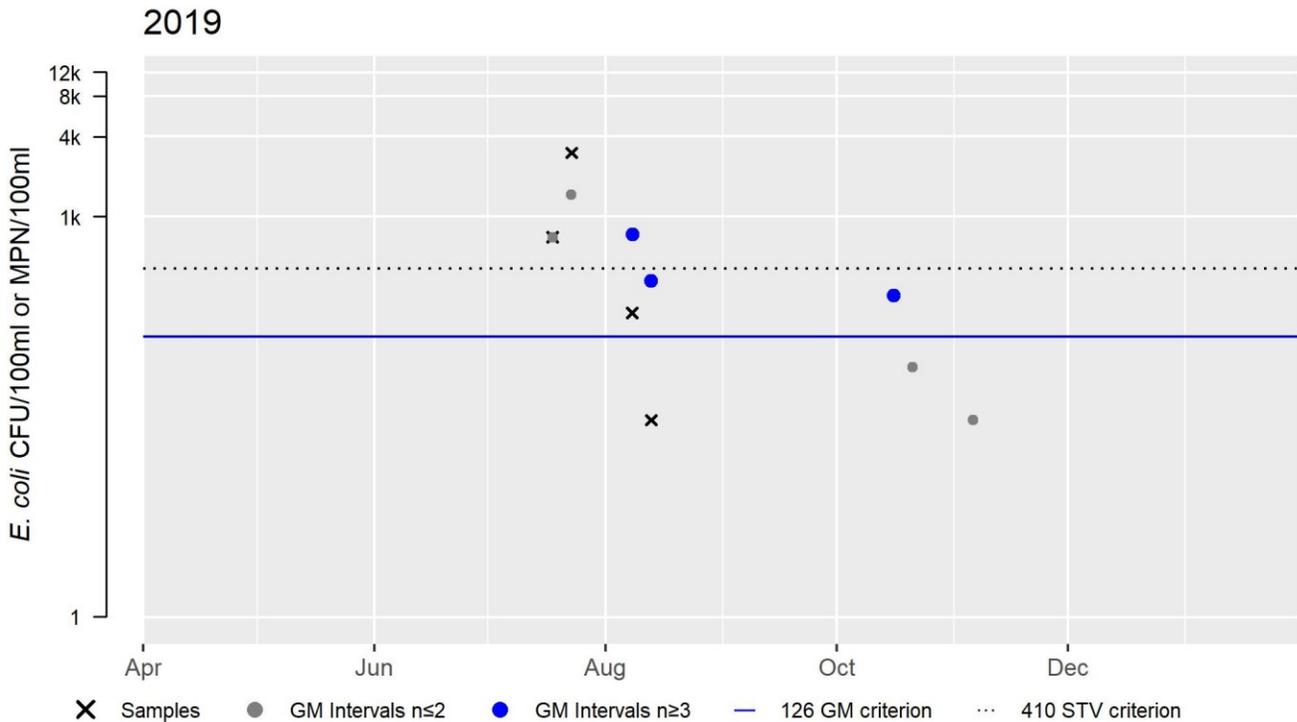
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Drinkwater River	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	30	3000	331

NSRWA_Drinkwater River *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	331
#GMI	3
#GMI Ex	3
%GMI Ex	100
n>STV	2
%n>STV	50

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected <i>E. coli</i> bacteria samples from the Drinkwater River (MA94-21) on the opposite side of the road as Forge Pond (NSRWA_Drinkwater River) between July and August 2019 (n=4). Data analysis indicated that 33% of intervals had GMs >630 CFU/100mL and one sample exceeded the 1260 CFU/100mL STV. The overall GM was 331 CFU/100mL.</p> <p>Although the NSRWA <i>E. coli</i> samples did not exceed the use attainment impairment threshold for a single year, limited frequency dataset, the Secondary Contact Recreation Use for the Drinkwater River (MA94-21) will continue to be assessed as Not Supporting with all prior impairments (Algae, Debris, "Phosphorus, Total", Transparency/Clarity, Trash) being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Drinkwater River	North South River Watershed Association	Water Quality	Drinkwater River	Opposite side of road as Forge Pond	42.1035	-70.8776

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)**

(MassDEP Undated 3)

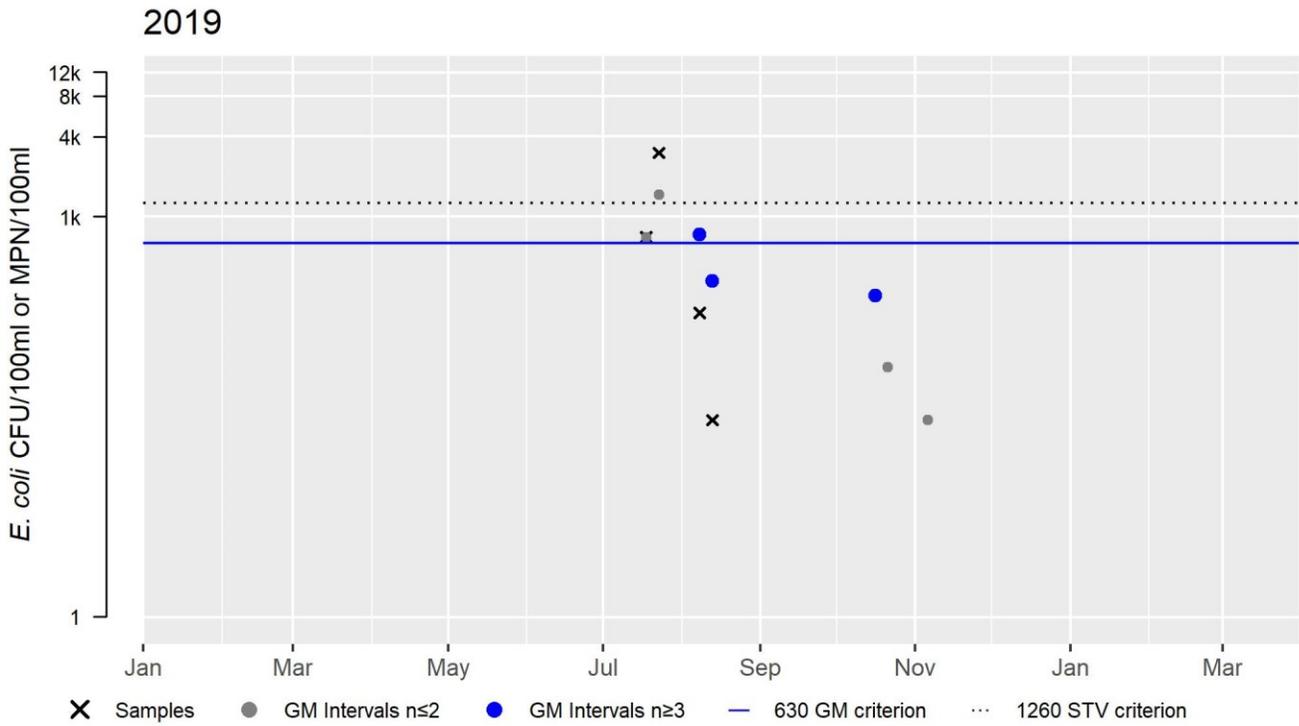
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Drinkwater River	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	30	3000	331

NSRWA_Drinkwater River *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	331
#GMI	3
#GMI Ex	1
%GMI Ex	33
n>STV	1
%n>STV	25

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Duxbury Bay (MA94-15)

Location:	The waters north and west of a line from Saquish Head to the tip of Plymouth Beach and from there to High Cliff (includes Kingston Bay), Plymouth excluding Back River and Bluefish River, Duxbury and Jones River, Kingston.
AU Type:	ESTUARY
AU Size:	12.7 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Estuarine Bioassessments		Unchanged
5	5	Fecal Coliform	61735	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Estuarine Bioassessments	Source Unknown (N)	X					
Fecal Coliform	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)			X			
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
As was previously reported in the 2018/20 IR reporting cycle (MassDEP 2021) there was eelgrass bed habitat loss (~25% loss between 1995 and 2013 and ~66% loss between 1995 and 2017). The Aquatic Life Use for Duxbury Bay (MA94-15) will continue to be assessed as Not Supporting with the Estuarine Bioassessments impairment being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in Duxbury Bay (MA94-15); therefore, the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary
Duxbury Bay (MA94-15): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 12.6169 sq mi (99%). The approved shellfish growing area represents 4.8609 sq mi (38%). The Shellfish Harvesting Use is assessed as not supporting because the growing area (normalized to the AU area) is <100% approved. Based on the new growing area classifications and the prior classifications, the existing Fecal Coliform impairment is being retained.

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB41.2	Browns Bank	Conditionally Approved	0.05504	0.4%
CCB42.0	Ichabod Flats	Conditionally Approved	2.66519	21.0%
CCB42.1	Inner Plymouth Harbor	Prohibited	0.67163	5.3%
CCB43.1	Kingston Bay East	Conditionally Approved	0.50110	3.9%
CCB43.2	Kingston Bay, North	Prohibited	0.33981	2.7%
CCB43.3	Kingston Bay Center	Conditionally Approved	1.11020	8.7%
CCB43.5	Boundary Lane	Prohibited	0.00455	0.0%
CCB44.0	Jones River	Prohibited	0.00045	0.0%
CCB45.0	Duxbury Bay	Approved	4.86090	38.3%
CCB45.1	Eagle Nest Creek	Prohibited	0.00118	0.0%
CCB45.3	Duxbury Bay	Prohibited	0.00052	0.0%
CCB45.4	Standish Shores Mooring Area	Conditionally Approved	0.01801	0.1%
CCB45.5	Town Pier Inshore Mooring Area	Conditionally Approved	0.03900	0.3%
CCB45.6	Town Pier Offshore Mooring Area	Conditionally Approved	0.09940	0.8%
CCB45.7	Duxbury Bay South	Conditionally Approved	2.17234	17.1%
CCB46.1	Bluefish River	Conditionally Approved	0.07482	0.6%
CCB46.3	Long Point Marine	Prohibited	0.00275	0.0%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for Duxbury Bay (MA94-15) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

There are five beaches in Duxbury Bay along the northwest shore (MA94-15); the names and ID codes for the beaches from north to south are as follows: West End, Duxbury (ID 2773); Shipyard Lane, Duxbury (ID 2772) Landing Road, Duxbury (ID 2770); Rocky Nook, Kingston (ID 2927), and Gray’s, Kingston (ID 2926). While West End, Gray’s and Rocky Nook Beaches were either never or infrequently posted for swimming between 2014 and 2019, Landing Road Beach was posted for 37% of the bathing season in 2019 and 11% in 2015 and Shipyard Lane Beach was posted for 7% of the bathing season in 2019.

The Primary Contact Recreation Use for Duxbury Bay (MA94-15) is assessed as Fully Supporting, since there were few, if any, swimming advisory postings at the West End, Gray’s, Rocky Nook, and Shipyard Lane beaches between 2014 and 2019. An Alert is being identified for beach postings >10% of the bathing season at Landing Road Beach in Duxbury (37% in 2019 and 11% in 2015).

Beach Postings

MassDPH Beach Posting Data Summary (% Bathing Season Posted 2014-2019) (Bailey, Logan February 2, 2021) (MassDEP Undated 3)

Beach ID	Beach Name/Town	Left Boundary (Latitude)	Left Boundary (Longitude)	Right Boundary (Latitude)	Right Boundary (Longitude)	2014	2015	2016	2017	2018	2019	# years > 10%
2770	Landing Road/Duxbury	42.01254	-70.70000	42.01276	-70.69960	5%	11%	2%	0%	0%	37%	2
2772	Shipyard Lane/Duxbury	42.02767	-70.67100	42.02689	-70.67090	1%	0%	0%	0%	0%	7%	0
2773	West End/Duxbury	42.04695	-70.65100	42.04589	-70.65120	2%	0%	0%	0%	0%	0%	0
2926	Gray's/Kingston	41.98747	-70.69940	41.98664	-70.69880	0%	1%	0%	0%	0%	0%	0
2927	Rocky Nook/Kingston	41.99633	-70.70010	41.99566	-70.69980	0%	1%	0%	0%	0%	0%	0

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Duxbury Bay (MA94-15): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 12.6169 sq mi (99%). The approved shellfish growing area represents 4.8609 sq mi (38%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

There are five beaches in Duxbury Bay along the northwest shore (MA94-15); the names and ID codes for the beaches from north to south are as follows: West End, Duxbury (ID 2773); Shipyard Lane, Duxbury (ID 2772) Landing Road, Duxbury (ID 2770); Rocky Nook, Kingston (ID 2927), and Gray's, Kingston (ID 2926). While West End, Gray's and Rocky Nook Beaches were either never or infrequently posted for swimming between 2014 and 2019, Landing Road Beach was posted for 37% of the bathing season in 2019 and 11% in 2015 and Shipyard Lane Beach was posted for 7% of the bathing season in 2019.

The Secondary Contact Recreation Use for Duxbury Bay (MA94-15) is assessed as Fully Supporting, since there were few, if any, swimming advisory postings at the West End, Gray's, Rocky Nook, and Shipyard Lane beaches and generally few advisories at Landing Road Beach in Duxbury either between 2014 and 2019.

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)

(MassDEP Undated 6)

Summary

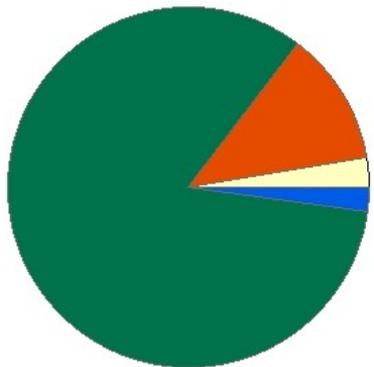
Duxbury Bay (MA94-15): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 12.6169 sq mi (99%). The approved shellfish growing area represents 4.8609 sq mi (38%). Because the total of all shellfish growing area classifications is anything less than "approved", the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.
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Eel River (MA94-37)

Location:	Headwaters (restored), southeast of College Pond Road, Plymouth to inlet Russell Millpond, Plymouth (formerly part of 2014 segment: Eel River MA94-23).
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

Eel River - MA94-37

Watershed Area: 3.84 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	3.84	3.84	0.55	0.55
Agriculture	2.7%	2.7%	16.2%	16.2%
Developed	12%	12%	8%	8%
Natural	83.3%	83.3%	71%	71%
Wetland	2.1%	2.1%	4.9%	4.9%
Impervious Cover	5.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Recommendations

2022 Recommendations
ALU: The Eel River (MA94-37) should be protected as a Tier 1 Existing Use Cold Water.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

The Town of Plymouth, the Massachusetts Division of Ecological Restoration, the Massachusetts Department of Fish and Game, U.S Fish and Wildlife Service, US Department of Agriculture, Natural Resources Conservation Service, the Nature Conservancy, American Rivers, and MassDEP have combined efforts and funding to collaborate on the Eel River Headwaters Restoration Project (DER Undated). The Eel River Headwaters Project applied a process-based approach to transform 60-acres of a former commercial cranberry farm into a self-sustaining freshwater wetland. The restoration project was intended to improve fish passage, promote a healthy coldwater fishery, improve water quality, and increase biological diversity (DER Undated). This \$2 million project was designed and constructed between 2007 and 2010 and included a reconstruction of 1.7 miles of stream channel, replacement of two undersized culverts (Long Pond Road Crossing and TNC Driveway Crossing), removal of the Sawmill Pond Dam, removal of seven small dams, and installation of approximately 20,000 plants (DER Undated). Prior to restoration, the Sawmill Pond Dam was a barrier to fish migration, and the impoundment affected habitat, water quality, and natural riverine habitat (Lewis 2010). The project has resulted in high-value, high-quality river and wetland habitat, permanently preserved for the use and enjoyment of the public (Lewis 2010). MassDFG biologists conducted backpack electrofishing at four locations in this Eel River AU (MA94-37) in Plymouth. From up to downstream, these sites can be described as follows: above Long Pond Road, footbridge upstream (Sample 5607 in July 2015), above old nature conservancy driveway (now SE Mass Pine Barrens Alliance) (Sample's 5624 in September 2015 and 8533 in August 2019) and below the footbridge (old dam site) downstream of Long Pond Road (Sample 8517 in July 2019). The fluvial dependent species white sucker was present in all samples but it is noted that the percent fluvial fish increased between summer 2015 (11 to 50% of the samples) and summer 2019 (75 and 89% of the samples). In July 2019 the sample downstream of Long Pond Road (and the old dam site) was dominated by multiple age classes of Eastern brook trout (70% of the sample). It should be noted that MassDFG considers this AU to be a Coldwater Fisheries Resource (CFR). The Aquatic Life Use for this Eel River AU (MA94-37) will continue to be assessed as Fully Supporting based primarily on the lack of any barriers to fish passage, as well as the evidence of reproducing eastern brook trout indicative of excellent habitat and water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5607	MassDFG	Fish Community	Eel River	Above Long Pond Road, footbridge upstream, Plymouth	41.90678	-70.64882
5624	MassDFG	Fish Community	Eel River	Above Nature Conservancy driveway, Plymouth	41.91101	-70.64394
8517	MassDFG	Fish Community	Eel River	Below footbridge (old dam site) below Long Pond Road, Plymouth	41.91198	-70.64036
8533	MassDFG	Fish Community	Eel River	above old nature conservancy driveway(now SE mass Pine Barrens Alliance), Plymouth	41.91104	-70.64398

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net]

[Species List: AE = American Eel, EBT = Brook Trout, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
8517	07/09/19	BP	TP	3	56	39	53	237	34	0	70%	89%	No	Yes	AE, EBT, WS,

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, CP = Chain Pickerel, GS = Golden Shiner, LMB = Largemouth Bass, WS = White Sucker, YP = Yellow Perch]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5607	07/27/15	BP	TP		4	19	0%	1	11%	0%	1	16%	Yes	Yes	AE, CP, GS, WS,
5624	09/03/15	BP	TP	L	3	8	0%	1	50%	0%	1	13%	Yes	Yes	AE, LMB, WS,
8533	08/02/19	BP	TP	L	5	60	0%	1	75%	0%	3	10%	Yes	Yes	AE, CP, LMB, WS, YP,

Habitat and Flow Data (anthropogenic alterations)

The Town of Plymouth, the Massachusetts Division of Ecological Restoration, the Massachusetts Department of Fish and Game, U.S Fish and Wildlife Service, US Department of Agriculture, Natural Resources Conservation Service, the Nature Conservancy, American Rivers, and the Massachusetts Department of Environmental Protection have combined efforts and funding to collaborate on the Eel River Headwaters Restoration Project (DER Undated). The Eel River Headwaters Project applied a process-based approach to transform 60-acres of a former commercial cranberry farm into a self-sustaining freshwater wetland. The restoration project was intended to improve fish passage, promote a healthy coldwater fishery, improve water quality, and increase biological diversity (DER Undated). This \$2 million project was designed and constructed between 2007 and 2010, and included a reconstruction of 1.7 miles of stream channel, replacement of two undersized culverts (Long Pond Road Crossing and TNC Driveway Crossing), removal of the Sawmill Pond Dam, removal of seven small dams, and installation of approximately 20,000 plants (DER Undated). Prior to restoration, the Sawmill Pond Dam was a barrier to fish migration, and the impoundment affected habitat, water quality, and natural riverine habitat (Lewis 2010). The project has resulted in high-value, high-quality river and wetland habitat, permanently preserved for the use and enjoyment of the public (Lewis 2010).

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in this Eel River AU (MA94-37); therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary	
No recent data are available to assess the status of the Aesthetic Use for this Eel River AU (MA94-37) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent <i>E. coli</i> or Enterococci bacteria data are available to assess the Primary Contact Recreation Use for this Eel River AU (MA94-37) so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent <i>E. coli</i> bacteria data are available to assess the Secondary Contact Recreation Use for this Eel River AU (MA94-37) so it is Not Assessed.	

Eel River (MA94-38)

Location:	From outlet Russell Millpond, Plymouth to mouth at Plymouth Harbor, Plymouth (formerly part of 2014 segment: Eel River MA94-23).
AU Type:	RIVER
AU Size:	2.7 MILES
Classification/Qualifier:	B

No usable data were available for Eel River (MA94-38) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)		Unchanged
5	5	Benthic Macroinvertebrates		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Benthic Macroinvertebrates	Source Unknown (N)	X				

Elbow Pond (MA94035)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	21 ACRES
Classification/Qualifier:	B

No usable data were available for Elbow Pond (MA94035) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Ellisville Harbor (MA94-34)

Location:	east of Ellisville Road, Plymouth.
AU Type:	ESTUARY
AU Size:	0.01 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61716	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Ellisville Harbor (MA94-34) so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Ellisville Harbor (MA94-34), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Ellisville Harbor (MA94-34): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0093 sq mi (77%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0093 sq mi (77%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as Not Supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB40.0	Ellisville Harbor	Prohibited	0.00926	77.1%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for Ellisville Harbor (MA94-34) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for Ellisville Harbor (MA94-34), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Ellisville Harbor (MA94-34): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0093 sq mi (77%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for Ellisville Harbor (MA94-34), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Ellisville Harbor (MA94-34): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0093 sq mi (77%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Factory Pond (MA94175)

Location:	Hanson/Hanover.
AU Type:	FRESHWATER LAKE
AU Size:	51 ACRES
Classification/Qualifier:	B

No usable data were available for Factory Pond (MA94175) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Unchanged
5	5	Mercury in Fish Tissue		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Mercury in Fish Tissue	Illegal Dumps or Other Inappropriate Waste Disposal (Y)		X			

First Herring Brook (MA94-36)

Location:	Headwaters, in South Swamp, Norwell to inlet Tack Factory Pond, Scituate (formerly part of 2014 segment: First Herring Brook MA94-25).
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for First Herring Brook (MA94-36) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

First Herring Brook (MA94-63)

Location:	Outlet of unnamed pond (locally called 'Reservoir') to mouth at inlet of Old Oaken Bucket Pond, Scituate (formerly part of 2014 segment: First Herring Brook MA94-25).
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for First Herring Brook (MA94-63) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

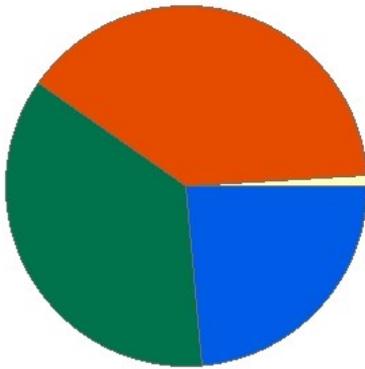
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

French Stream (MA94-03)

Location:	Headwaters on the southeast side of the South Weymouth Naval Air Station, Rockland to mouth at confluence with Drinkwater River, Hanover (excluding the approximately 0.3 mile through Studleys Pond).
AU Type:	RIVER
AU Size:	5.8 MILES
Classification/Qualifier:	B: WWF

French Stream - MA94-03

Watershed Area: 8.93 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	8.93	6.22	2.55	1.8
Agriculture	1%	1.3%	0.1%	0.2%
Developed	39.3%	34.3%	26.7%	25.6%
Natural	36.1%	38.7%	33.4%	31.1%
Wetland	23.6%	25.6%	39.8%	43.1%
Impervious Cover	18.4%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Dissolved Oxygen		Unchanged
5	5	Escherichia Coli (E. Coli)	61718	Unchanged
5	5	Fecal Coliform	61718	Unchanged
5	5	Fish Bioassessments		Unchanged
5	5	Phosphorus, Total		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Dissolved Oxygen	Municipal (Urbanized High Density Area) (Y)	X				
Dissolved Oxygen	Source Unknown (N)	X				
Dissolved Oxygen	Unspecified Urban Stormwater (Y)	X				
Escherichia Coli (E. Coli)	Municipal Point Source Discharges (Y)				X	
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Escherichia Coli (E. Coli)	Unspecified Urban Stormwater (Y)				X	

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Municipal Point Source Discharges (Y)				X	
Fecal Coliform	Source Unknown (N)				X	
Fecal Coliform	Unspecified Urban Stormwater (Y)				X	
Fish Bioassessments	Source Unknown (N)	X				
Phosphorus, Total	Municipal Point Source Discharges (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
<p>MassDEP staff conducted limited water quality sampling at sites along French Stream (MA94-03), described from upstream to downstream as follows: at Spruce Street in Rockland (W2358) during the summer of 2012 (n=2), at the North Avenue/Rt. 139 crossing in Rockland (W0899) during the summer of 2012 (n=2), at West Water Street in Rockland (W2360) during the summer of 2012 (n=1), at Market Street in Rockland (W2357) during the summer of 2012 (n=2), at the Summer Street crossing in Rockland (W0898) during the summer of 2013 (n=1), and approximately 30ft upstream of the confluence with the Drinkwater River in Hanover (W0906) during the summer of 2013 (n=2). No observations of dense or very dense filamentous algae were recorded during any of these site visits.</p> <p>Since extremely limited data are available for French Stream (MA94-03), the Aquatic Life Use will continue to be assessed as Not Supporting, with the prior impairments for Dissolved Oxygen, Fish Bioassessments, and “Phosphorus, Total” being carried forward. As noted in the 2018/20 IR cycle (MassDEP 2021), a former Alert is being carried forward due to poor survival of <i>P. promelas</i> test organisms exposed to stream water collected at Summer Street Bridge prior to June 2000 (survival was less than 75% for ~61% of the time tested) based on Rockland WWTP’s Whole Effluent Toxicity testing data however the facility no longer uses <i>P. promelas</i> as testing organisms so reevaluation of this Alert has not been possible.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0898	MassDEP	Water Quality	French Stream	[Summer Street crossing, Rockland]	42.109127	-70.909274
W0899	MassDEP	Water Quality	French Stream	[North Avenue/Route 139 crossing, Rockland]	42.128484	-70.934067
W0906	MassDEP	Water Quality	French Stream	[approximately 30 feet upstream of confluence with Drinkwater River, Hanover]	42.109805	-70.881606
W2357	MassDEP	Water Quality	French Stream	[Market Street, Rockland]	42.119342	-70.916586
W2358	MassDEP	Water Quality	French Stream	[Spruce Street, Rockland]	42.136583	-70.934541
W2360	MassDEP	Water Quality	French Stream	[West Water Street, Rockland]	42.121371	-70.923761

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W0898	2013	--	--	--	--	--	--	--	--	1	0
W0899	2012	--	--	--	--	--	--	--	--	2	0
W0906	2013	--	--	--	--	--	--	--	--	2	0
W2357	2012	--	--	--	--	--	--	--	--	2	0
W2358	2012	--	--	--	--	--	--	--	--	2	0
W2360	2012	--	--	--	--	--	--	--	--	1	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in French Stream (MA94-03), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	
<p>MassDEP staff conducted limited water quality sampling (n=2/site) at six sites along French Stream (MA94-03), described from upstream to downstream as follows: at Spruce Street in Rockland (W2358) during the summer of 2012, at the North Avenue/Rt. 139 crossing in Rockland (W0899) during the summer of 2012, at West Water Street in Rockland (W2360) during the summer of 2012, at Market Street in Rockland (W2357) during the summer of 2012, at the Summer Street crossing in Rockland (W0898) during the summer of 2013, and approximately 30ft upstream of the confluence with the Drinkwater River in Hanover (W0906) during the summer of 2013. There were generally no objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP staff at any site, except for at W2360 which had highly turbid water noted during both site visits.</p> <p>While the frequency of visits at the six sites along French Stream (MA94-03) in summers 2012 and 2013 was low, the Aesthetics Use will continue to be assessed as Fully Supporting since there were generally no objectionable conditions except for turbidity at one site. The former Alerts for elevated total phosphorus (MassDEP Undated 7) and occasional chlorine/septic odors in the river downstream from the Rockland WWTP discharge (MassDEP 2006) are being carried forward and a new alert is being identified for turbidity in the river at West Water Street, Rockland (W2360).</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0898	MassDEP	Water Quality	French Stream	[Summer Street crossing, Rockland]	42.109127	-70.909274

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0899	MassDEP	Water Quality	French Stream	[North Avenue/Route 139 crossing, Rockland]	42.128484	-70.934067
W0906	MassDEP	Water Quality	French Stream	[approximately 30 feet upstream of confluence with Drinkwater River, Hanover]	42.109805	-70.881606
W2357	MassDEP	Water Quality	French Stream	[Market Street, Rockland]	42.119342	-70.916586
W2358	MassDEP	Water Quality	French Stream	[Spruce Street, Rockland]	42.136583	-70.934541
W2360	MassDEP	Water Quality	French Stream	[West Water Street, Rockland]	42.121371	-70.923761

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0898	French Stream	2013	2	There are insufficient data available to assess the Aesthetics Use for French Stream. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP staff at station W0898 during surveys in summer 2013, however, data were limited (n=2).
W0899	French Stream	2012	2	There are insufficient data available to assess the Aesthetics Use for French Stream. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP staff at station W0899 during surveys in summer 2012, however, data were limited (n=2).
W0906	French Stream	2013	2	There are insufficient data available to assess the Aesthetics Use for French Stream. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP staff at station W0906 during surveys in summer 2013, however, data were limited (n=2).
W2357	French Stream	2012	2	MassDEP aesthetics observations for station W2357 on French Stream can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2012. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).
W2358	French Stream	2012	2	MassDEP aesthetics observations for station W2358 on French Stream can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2012. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2360	French Stream	2012	2	Although MassMassDEP field crews generally did not note any objectionable conditions (odors, deposits, or growths) at station W2360 on French Stream during summer 2012, there is insufficient information to assess the Aesthetics Use since data were limited (n=2). However, an Alert status is identified because the water was highly turbid during both site visits.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0898	2013	2	1	0
W0899	2012	2	2	0
W0906	2013	2	2	0
W2357	2012	2	2	0
W2358	2012	2	2	0
W2360	2012	2	1	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0898	French Stream	2013	Color	Light Yellow/Tan	1	2
W0898	French Stream	2013	Color	None	1	2
W0898	French Stream	2013	Objectionable Deposits	Not Applicable (N/A)	2	2
W0898	French Stream	2013	Odor	None	2	2
W0898	French Stream	2013	Scum	Not Applicable (N/A)	2	2
W0898	French Stream	2013	Turbidity	Slightly Turbid	2	2
W0899	French Stream	2012	Color	Light Yellow/Tan	2	2
W0899	French Stream	2012	Objectionable Deposits	Not Applicable (N/A)	2	2
W0899	French Stream	2012	Odor	None	2	2
W0899	French Stream	2012	Scum	Not Applicable (N/A)	2	2
W0899	French Stream	2012	Turbidity	Moderately Turbid	2	2
W0906	French Stream	2013	Color	Light Yellow/Tan	1	2
W0906	French Stream	2013	Color	None	1	2
W0906	French Stream	2013	Objectionable Deposits	Not Applicable (N/A)	2	2
W0906	French Stream	2013	Odor	Effluent (Treated)	1	2
W0906	French Stream	2013	Odor	None	1	2
W0906	French Stream	2013	Scum	Not Applicable (N/A)	2	2
W0906	French Stream	2013	Turbidity	Slightly Turbid	2	2
W2357	French Stream	2012	Color	Light Yellow/Tan	2	2
W2357	French Stream	2012	Objectionable Deposits	Not Applicable (N/A)	2	2
W2357	French Stream	2012	Odor	None	2	2
W2357	French Stream	2012	Scum	Not Applicable (N/A)	2	2
W2357	French Stream	2012	Turbidity	Slightly Turbid	2	2

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2358	French Stream	2012	Color	None	2	2
W2358	French Stream	2012	Objectionable Deposits	Not Applicable (N/A)	2	2
W2358	French Stream	2012	Odor	None	2	2
W2358	French Stream	2012	Scum	Not Applicable (N/A)	2	2
W2358	French Stream	2012	Turbidity	Moderately Turbid	2	2
W2360	French Stream	2012	Color	Light Yellow/Tan	1	2
W2360	French Stream	2012	Color	None	1	2
W2360	French Stream	2012	Objectionable Deposits	Not Applicable (N/A)	2	2
W2360	French Stream	2012	Odor	None	2	2
W2360	French Stream	2012	Scum	Not Applicable (N/A)	2	2
W2360	French Stream	2012	Turbidity	Highly Turbid	2	2

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
<p>MassDEP staff conducted limited water quality sampling (n=2/site) at six sites along this French Stream AU (MA94-03) for the purposes of bacteria source tracking (BST), with sites described from upstream to downstream as follows: at Spruce Street in Rockland (W2358) during the summer of 2012, at the North Avenue/Route 139 crossing in Rockland (W0899) during the summer of 2012, at West Water Street in Rockland (W2360) during the summer of 2012, at Market Street in Rockland (W2357) during the summer of 2012, at the Summer Street crossing in Rockland (W0898) during the summer of 2013, and approximately 30 feet upstream of the confluence with the Drinkwater River in Hanover (W0906) during the summer of 2013. These <i>E. coli</i> data were too limited to evaluate the status of the Primary Contact Recreational Use per the 2022 CALM guidance (MassDEP 2022b), but the seasonal GMs ranged from 181-373 MPN/100mL. BST human marker analysis was run at numerous locations over the years and results were always "inconclusive," i.e., no evidence of a human source and despite the elevated bacteria concentrations no correctable sources were ever found. There were generally no objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP staff at any of these sites, except for at W2360, which had highly turbid water noted during both site visits. North South River Watershed Association (NSRWA) staff/volunteers collected <i>E. coli</i> samples during summer 2019 (n=4), in the vicinity of DEP station W0898, across the street from Eleanor Lane (NSRWA_FrenchStream). Analysis of this limited frequency dataset indicated that 100% of the intervals had GMs >126 CFU/100mL and two samples exceeded the 410 CFU/100mL STV (the seasonal GM was 576 CFU/100 mL).</p> <p>The Primary Contact Recreation Use of French Stream (MA94-03) will continue to be assessed as Not Supporting. The <i>Escherichia Coli</i> (<i>E. Coli</i>) and Fecal Coliform impairments are being carried forward since the limited data collected by MassDEP staff during summers 2012 and 2013 and the NSRWA <i>E. coli</i> data collected during summer 2016, which exceeded use attainment impairment thresholds for a single year limited frequency dataset, corroborates the decision. The former Alerts for elevated total phosphorus (MassDEP Undated 7) and occasional chlorine/septic odors in the river downstream from the Rockland WWTP discharge (MassDEP 2006) are also being carried forward and a new alert is being identified for turbidity in the river at West Water Street, Rockland (W2360).</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0898	MassDEP	Water Quality	French Stream	[Summer Street crossing, Rockland]	42.109127	-70.909274

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0899	MassDEP	Water Quality	French Stream	[North Avenue/Route 139 crossing, Rockland]	42.128484	-70.934067
W0906	MassDEP	Water Quality	French Stream	[approximately 30 feet upstream of confluence with Drinkwater River, Hanover]	42.109805	-70.881606
W2357	MassDEP	Water Quality	French Stream	[Market Street, Rockland]	42.119342	-70.916586
W2358	MassDEP	Water Quality	French Stream	[Spruce Street, Rockland]	42.136583	-70.934541
W2360	MassDEP	Water Quality	French Stream	[West Water Street, Rockland]	42.121371	-70.923761
NSRWA_French Stream	North South River Watershed Association	Water Quality	French Stream	Across the street from Eleanor Lane	42.10893	-70.90931

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5) (NSRWA 2019) (MassDEP Undated 3)

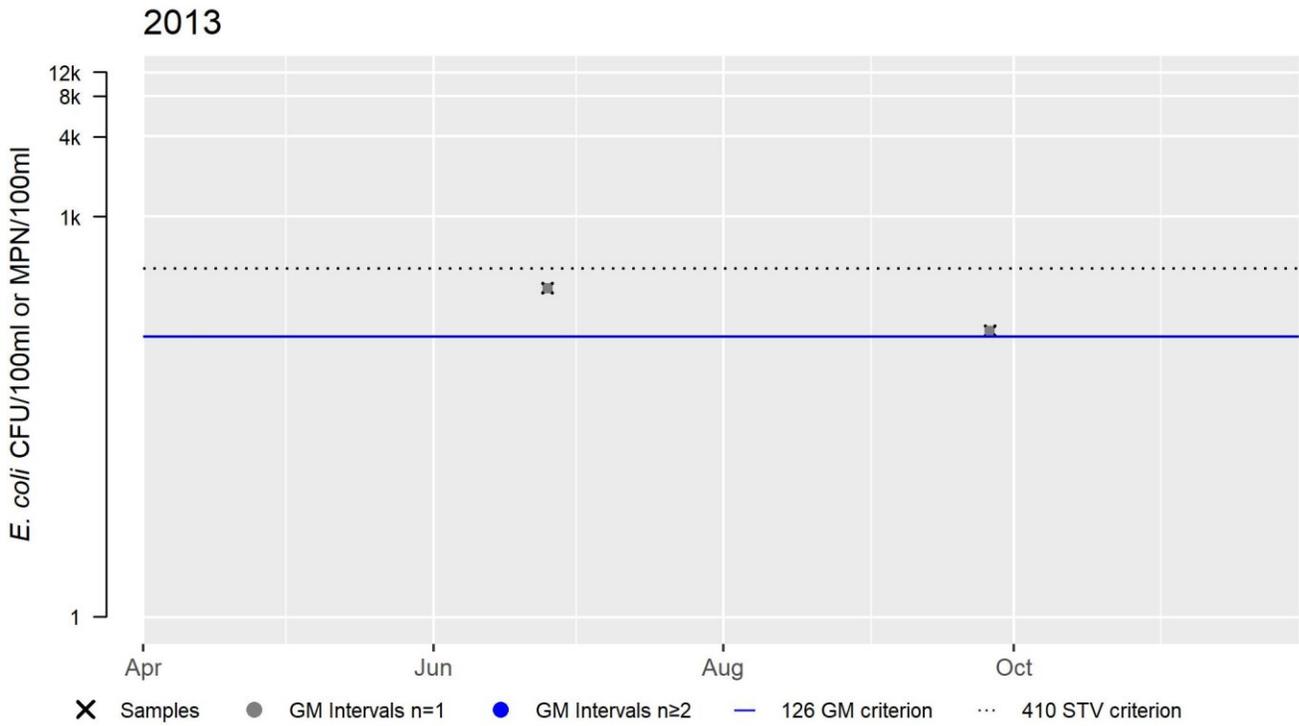
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0898	MassDEP	E. coli	06/25/13	09/26/13	2	140	291	202
W0899	MassDEP	E. coli	06/19/12	07/25/12	2	228	248	238
W0906	MassDEP	E. coli	06/25/13	09/26/13	2	231	291	259
W2357	MassDEP	E. coli	06/19/12	07/25/12	2	285	488	373
W2358	MassDEP	E. coli	06/19/12	07/25/12	2	46	712	181
W2360	MassDEP	E. coli	06/19/12	07/25/12	2	80	461	192
NSRWA_French Stream	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	230	2200	576

W0898 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	202
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

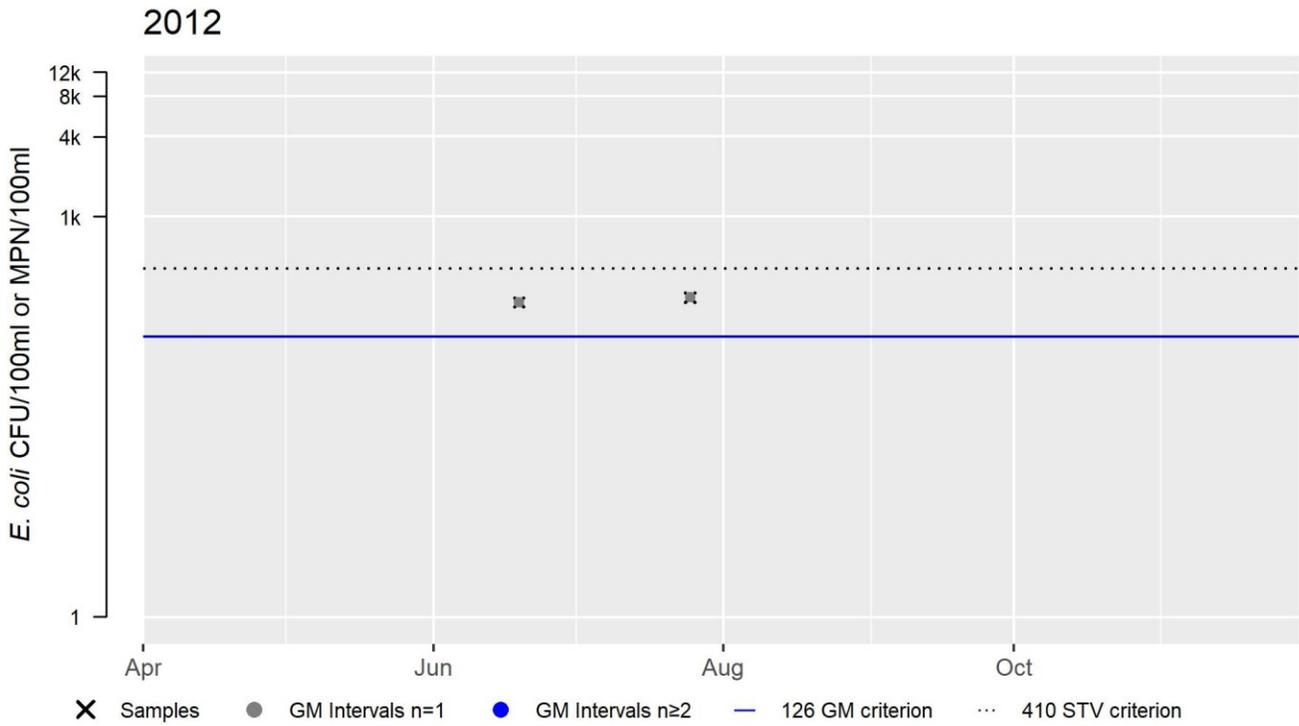
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W0899 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	238
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

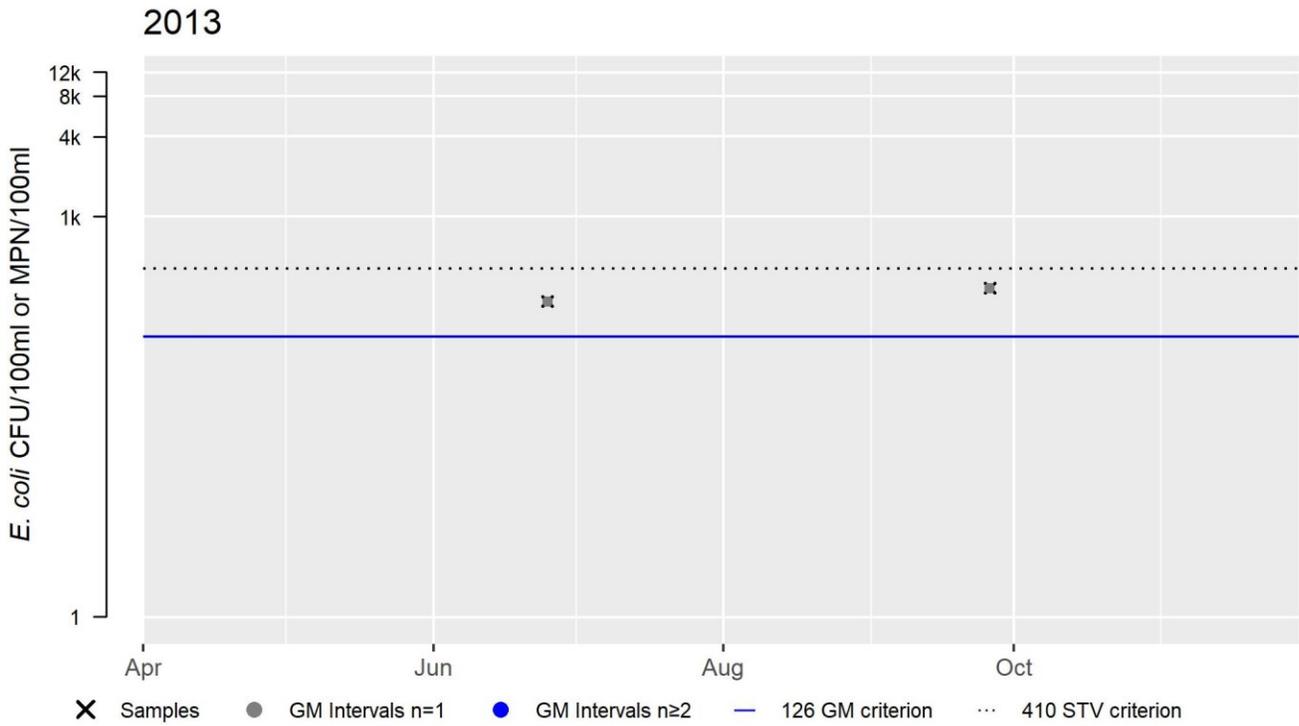
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W0906 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	259
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

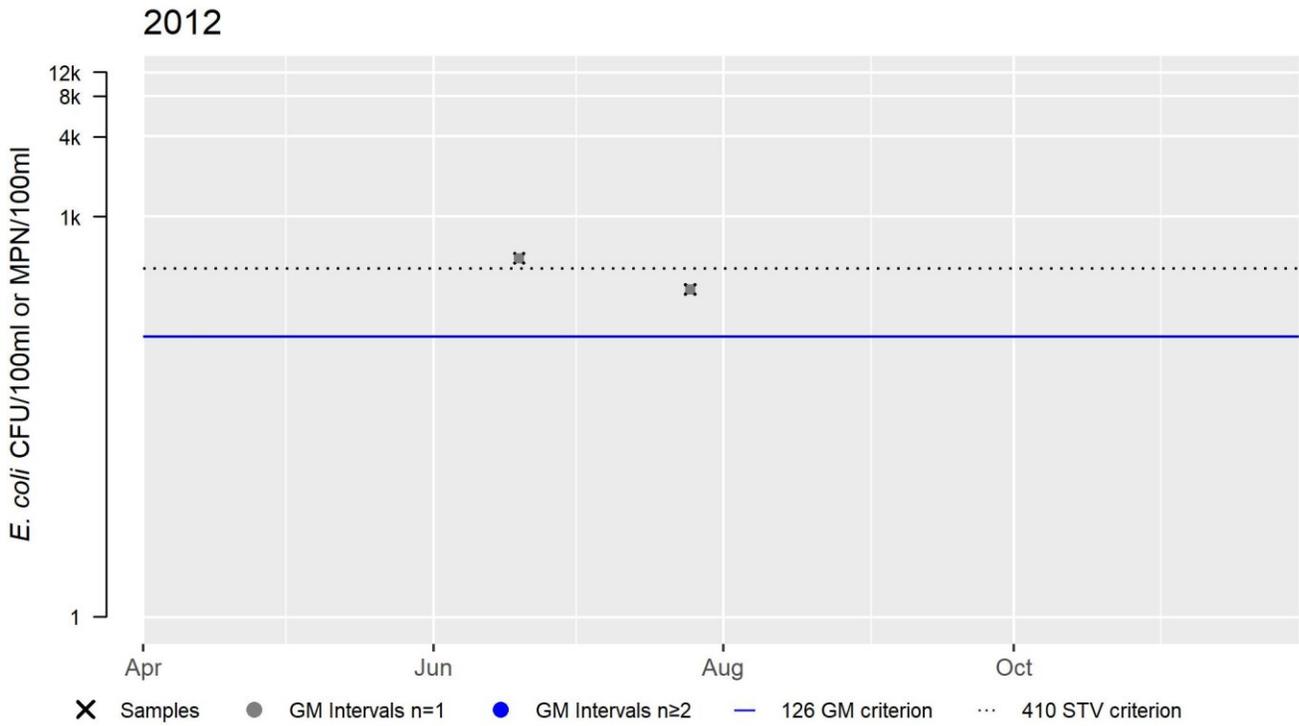
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W2357 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	373
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	50

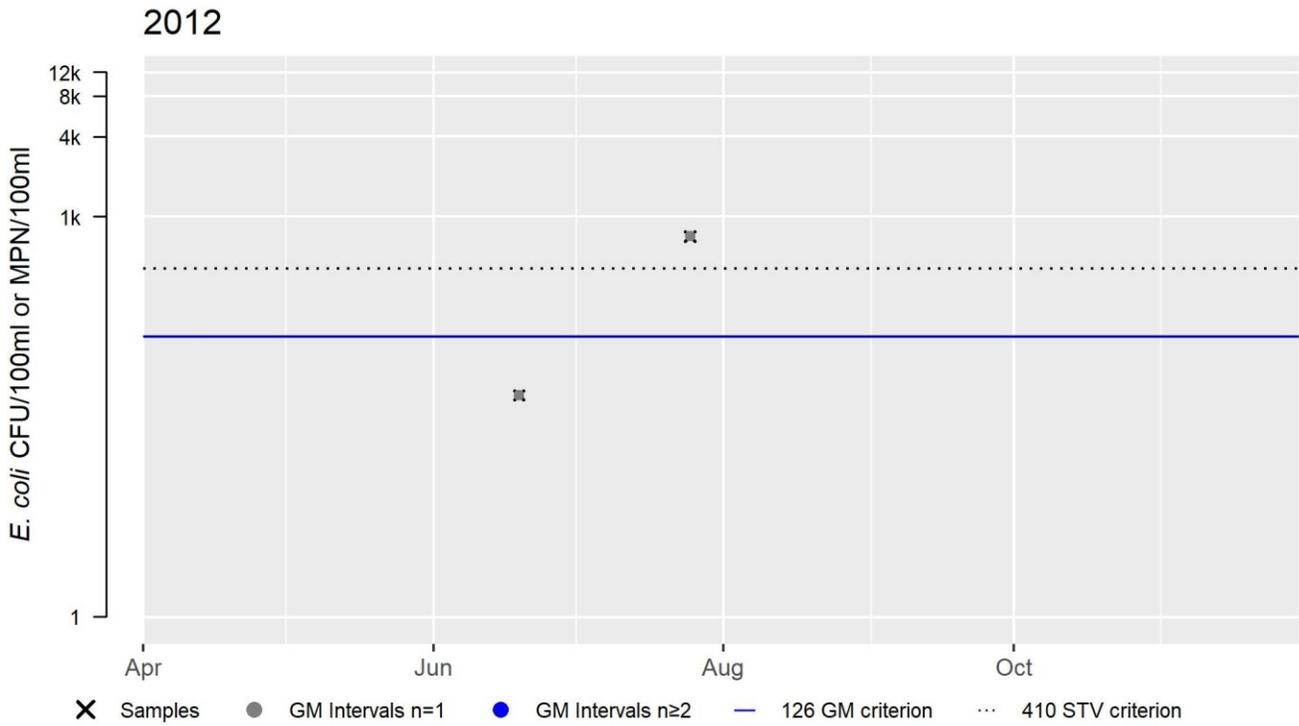
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2358 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	181
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	50

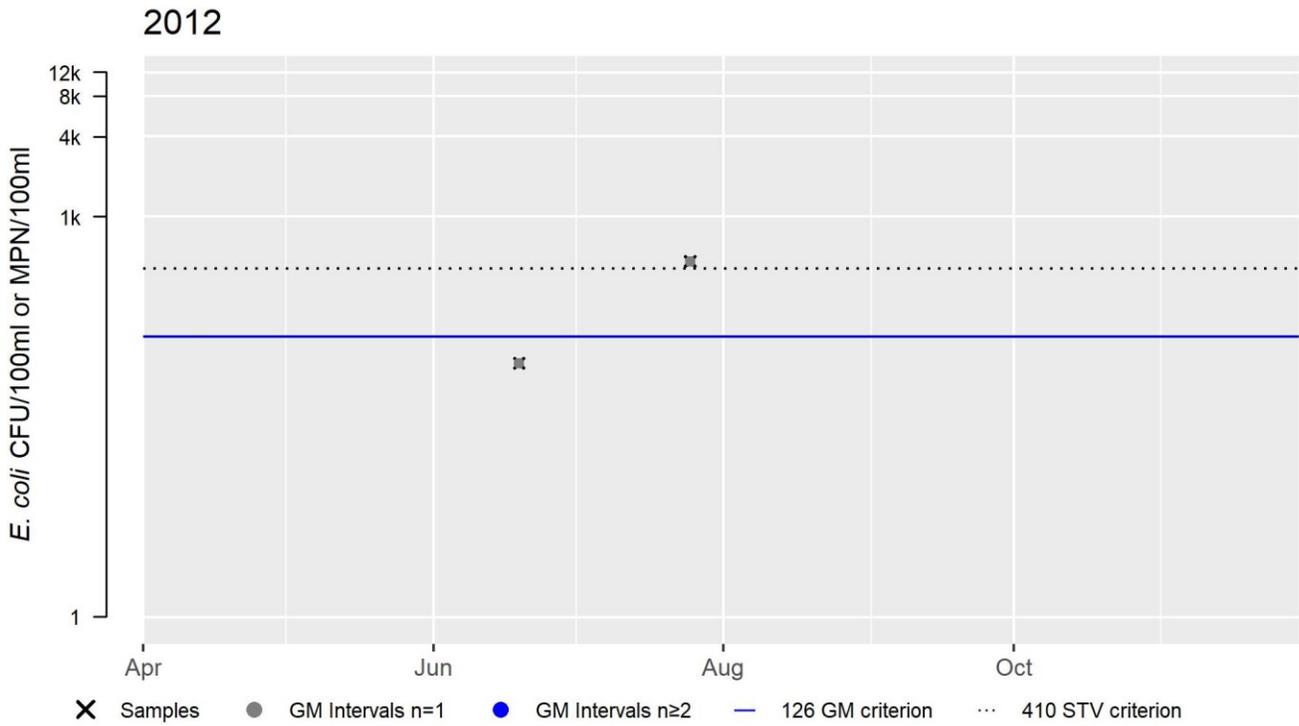
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2360 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	192
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	50

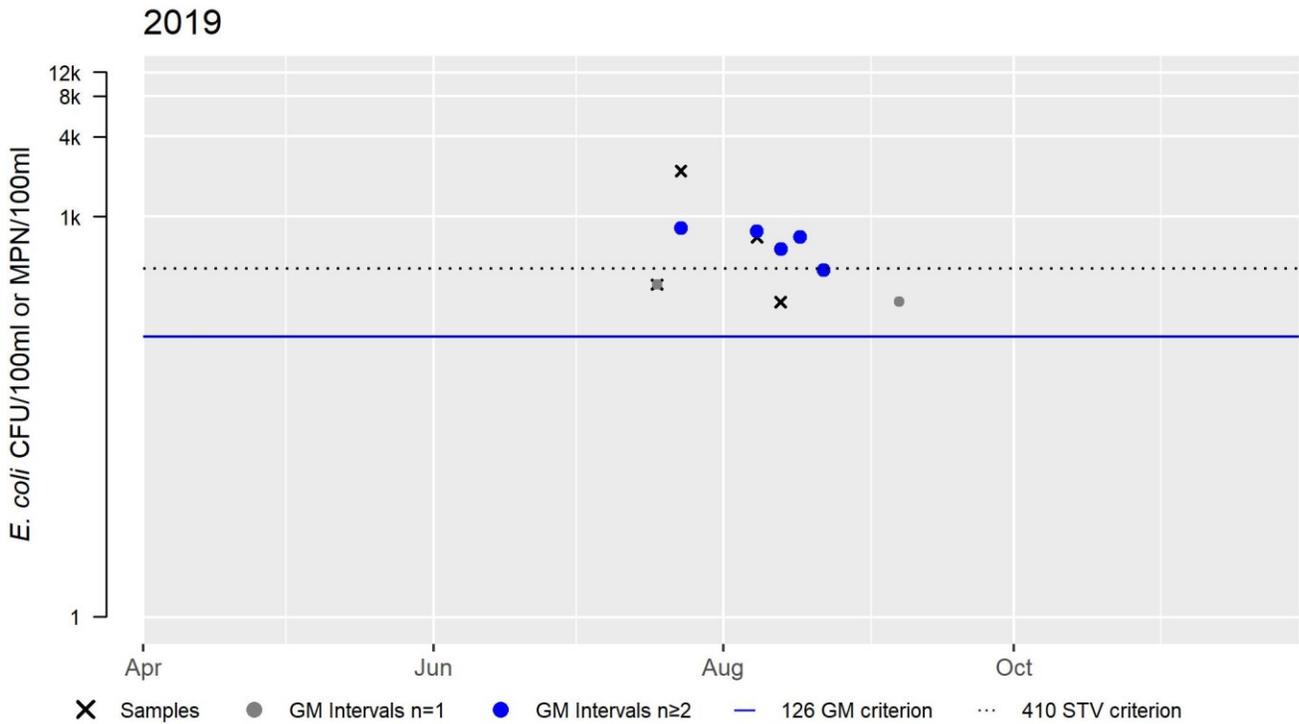
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_French Stream *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	576
#GMI	5
#GMI Ex	5
%GMI Ex	100
n>STV	2
%n>STV	50

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary
BST work was conducted in 2012-2014 at 6 sites on the French Stream AU (MA94-03), with <i>E.coli</i> concentrations ranging 46 to 776MPN. Additionally samples were collected at a number of unnamed tributaries over the same time range, with a max <i>E.coli</i> concentration of 2,489MPN. Human marker analysis was run at numerous locations over the years and results were always "inconclusive" evidence of a human source. Despite the elevated bacteria concentrations no correctable sources were ever found.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDEP staff conducted limited water quality sampling (n=2/site) at six sites throughout this French Stream AU (MA94-03) for the purposes of bacteria source tracking (BST), with sites described from upstream to downstream as follows: at Spruce Street in Rockland (W2358) during the summer of 2012, at the North Avenue/Route 139 crossing in Rockland (W0899) during the summer of 2012, at West Water Street in Rockland (W2360) during the summer of 2012, at Market Street in Rockland (W2357) during the summer of 2012, at the Summer Street crossing in Rockland (W0898) during the summer of 2013, and approximately 30 feet upstream of the confluence with the Drinkwater River in Hanover (W0906) during the summer of 2013. These *E. coli* data were too limited to evaluate the status of the Secondary Contact Recreational Use per the per the 2022 CALM guidance (MassDEP 2022b), but the overall GMs ranged from 181-373 MPN/100mL. Human marker analysis results run at numerous locations over the years were always "inconclusive" i.e., no evidence of a human source and no correctable sources were ever found. There were generally no objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP staff at any of these sites, except for at W2360, which had highly turbid water noted during both site visits. North South River Watershed Association (NSRWA) staff/volunteers collected *E. coli* samples during summer 2019 (n=4), in the vicinity of DEP station W0898, across the street from Eleanor Lane (NSRWA_FrenchStream). Analysis of this limited frequency dataset indicated that 67% of the intervals had GMs >630 CFU/100mL, one sample exceeded the 1260 CFU/100mL STV, and the overall GM was 576 CFU/100 mL. These results did not exceed the use attainment impairment thresholds.

The Secondary Contact Recreation Use of French Stream (MA94-03) is assessed as Fully Supporting, based primarily on the limited data collected by MassDEP staff during summers 2012 and 2013 and the NSRWA *E. coli* data collected during summer 2016, which did not exceed use attainment impairment thresholds for a single year limited frequency dataset. The former Alerts for elevated total phosphorus (MassDEP Undated 7) and occasional chlorine/septic odors in the river downstream from the Rockland WWTP discharge (MassDEP 2006) are being carried forward and a new alert is being identified for turbidity in the river at West Water Street, Rockland (W2360).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0898	MassDEP	Water Quality	French Stream	[Summer Street crossing, Rockland]	42.109127	-70.909274
W0899	MassDEP	Water Quality	French Stream	[North Avenue/Route 139 crossing, Rockland]	42.128484	-70.934067
W0906	MassDEP	Water Quality	French Stream	[approximately 30 feet upstream of confluence with Drinkwater River, Hanover]	42.109805	-70.881606
W2357	MassDEP	Water Quality	French Stream	[Market Street, Rockland]	42.119342	-70.916586
W2358	MassDEP	Water Quality	French Stream	[Spruce Street, Rockland]	42.136583	-70.934541
W2360	MassDEP	Water Quality	French Stream	[West Water Street, Rockland]	42.121371	-70.923761
NSRWA_French Stream	North South River Watershed Association	Water Quality	French Stream	Across the street from Eleanor Lane	42.10893	-70.90931

Bacteria Data

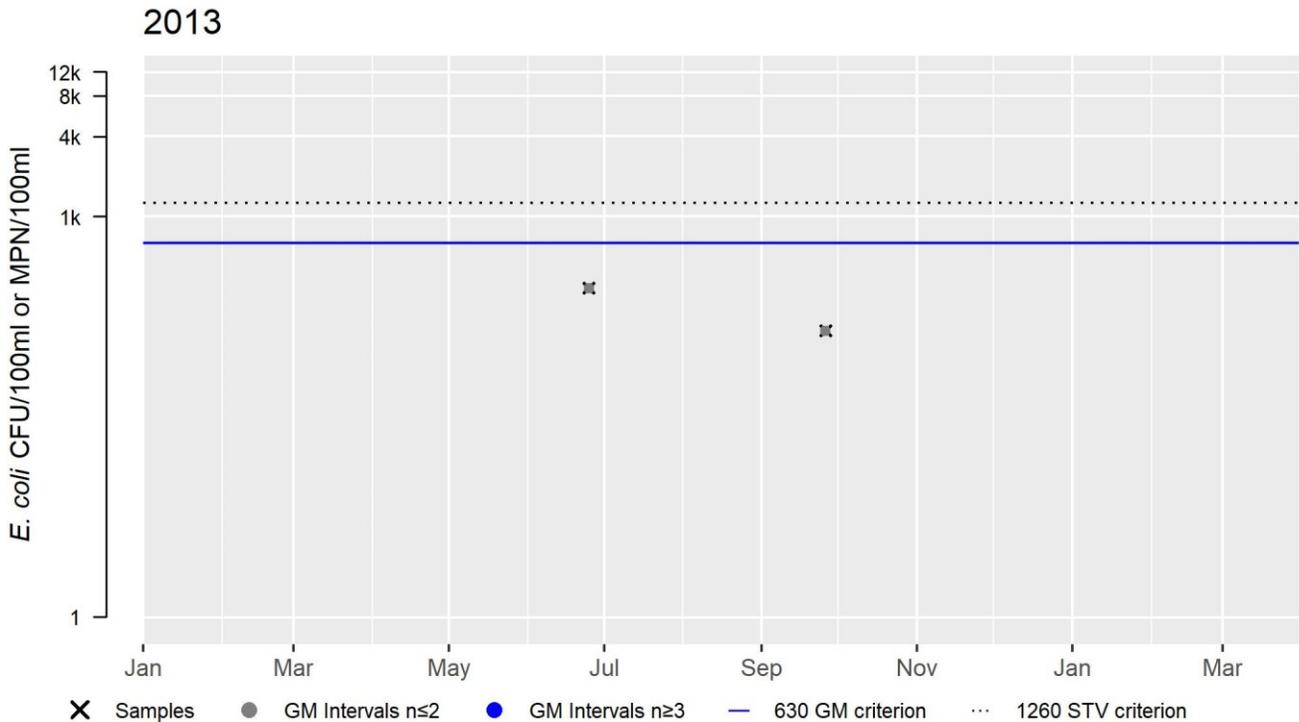
Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5) (NSRWA 2019) (MassDEP Undated 3)
 [Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W0898	MassDEP	E. coli	06/25/13	09/26/13	2	140	291	202
W0899	MassDEP	E. coli	06/19/12	07/25/12	2	228	248	238
W0906	MassDEP	E. coli	06/25/13	09/26/13	2	231	291	259
W2357	MassDEP	E. coli	06/19/12	07/25/12	2	285	488	373
W2358	MassDEP	E. coli	06/19/12	07/25/12	2	46	712	181
W2360	MassDEP	E. coli	06/19/12	07/25/12	2	80	461	192
NSRWA_French Stream	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	230	2200	576

W0898 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	202
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

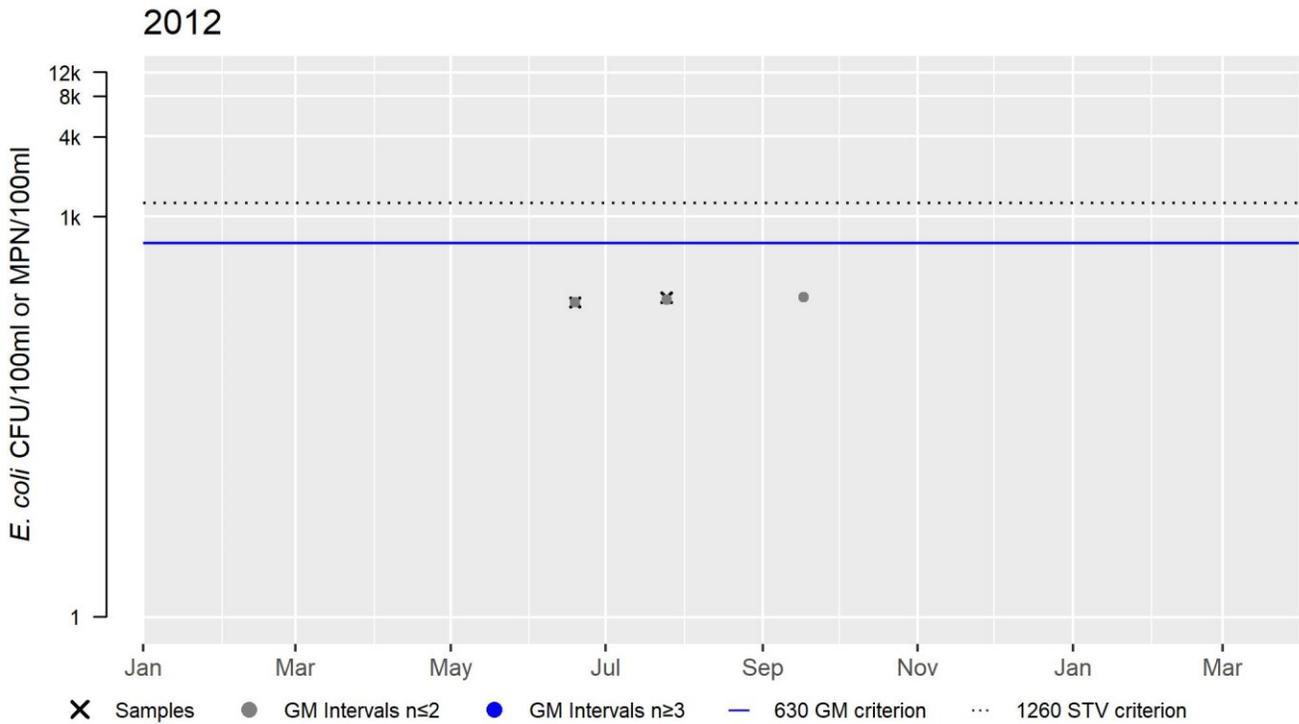
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W0899 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	238
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

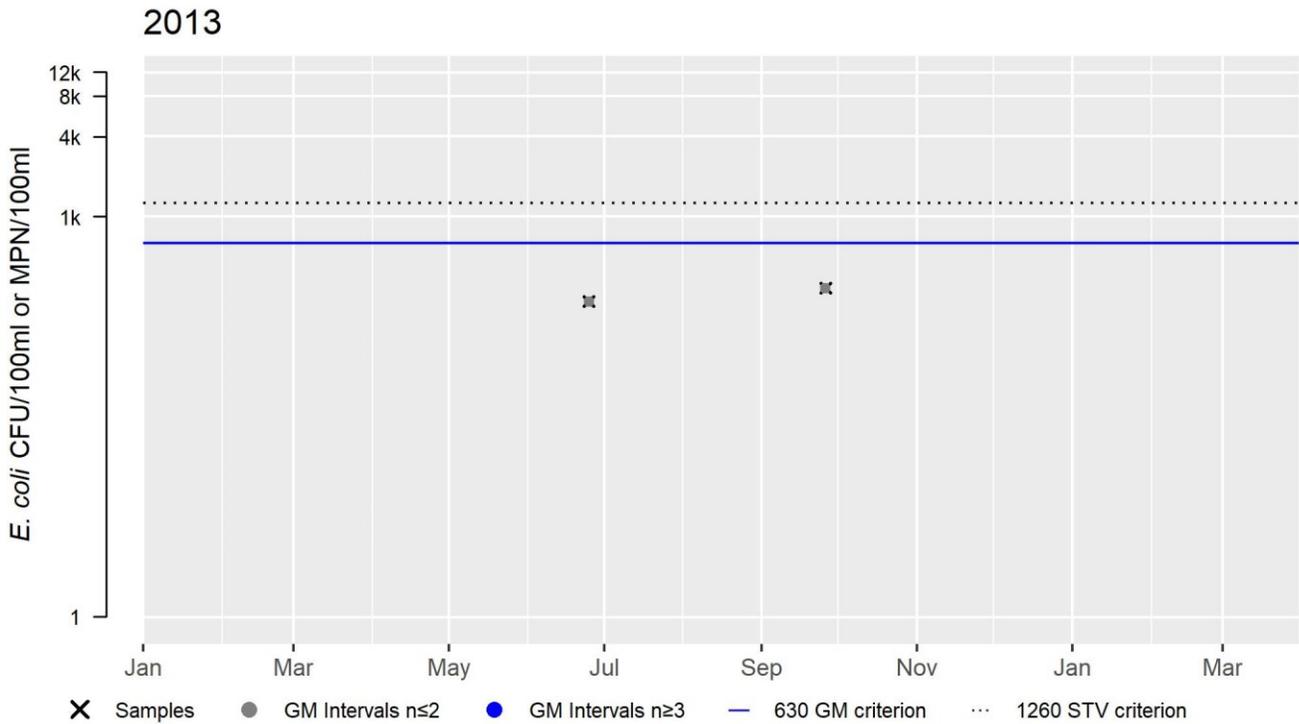
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W0906 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	259
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

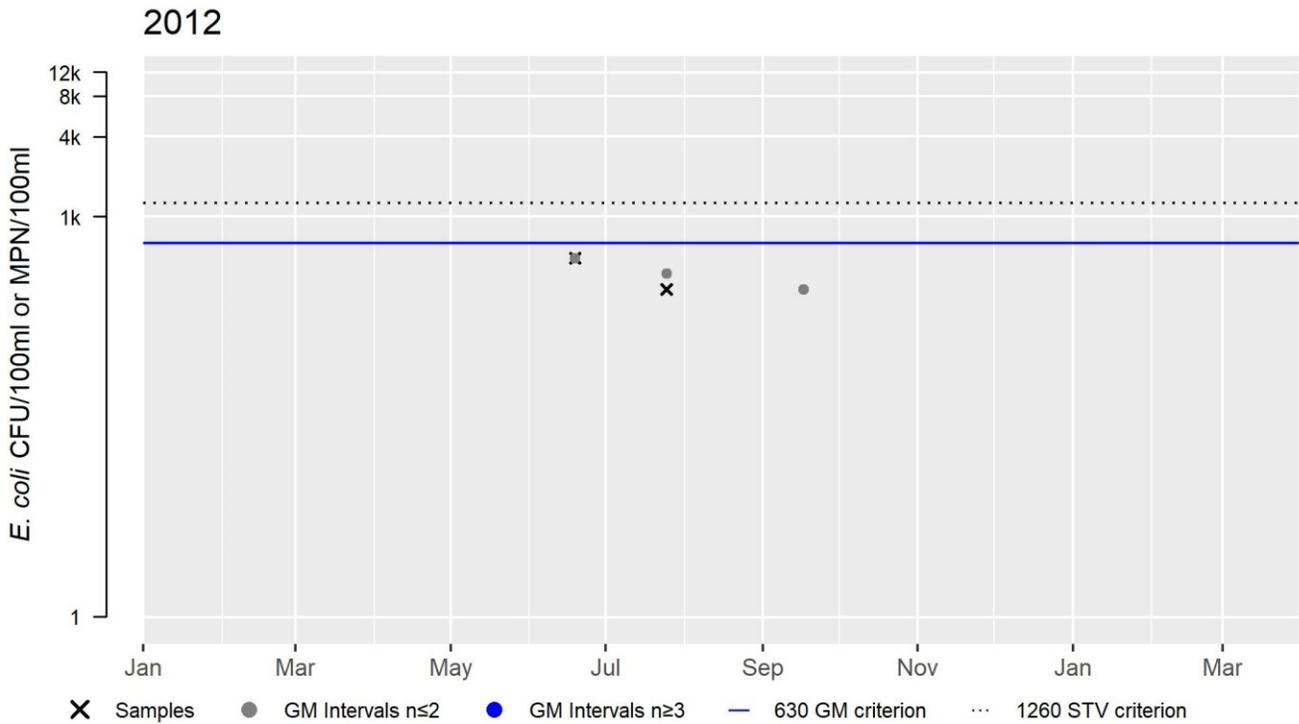
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2357 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	373
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

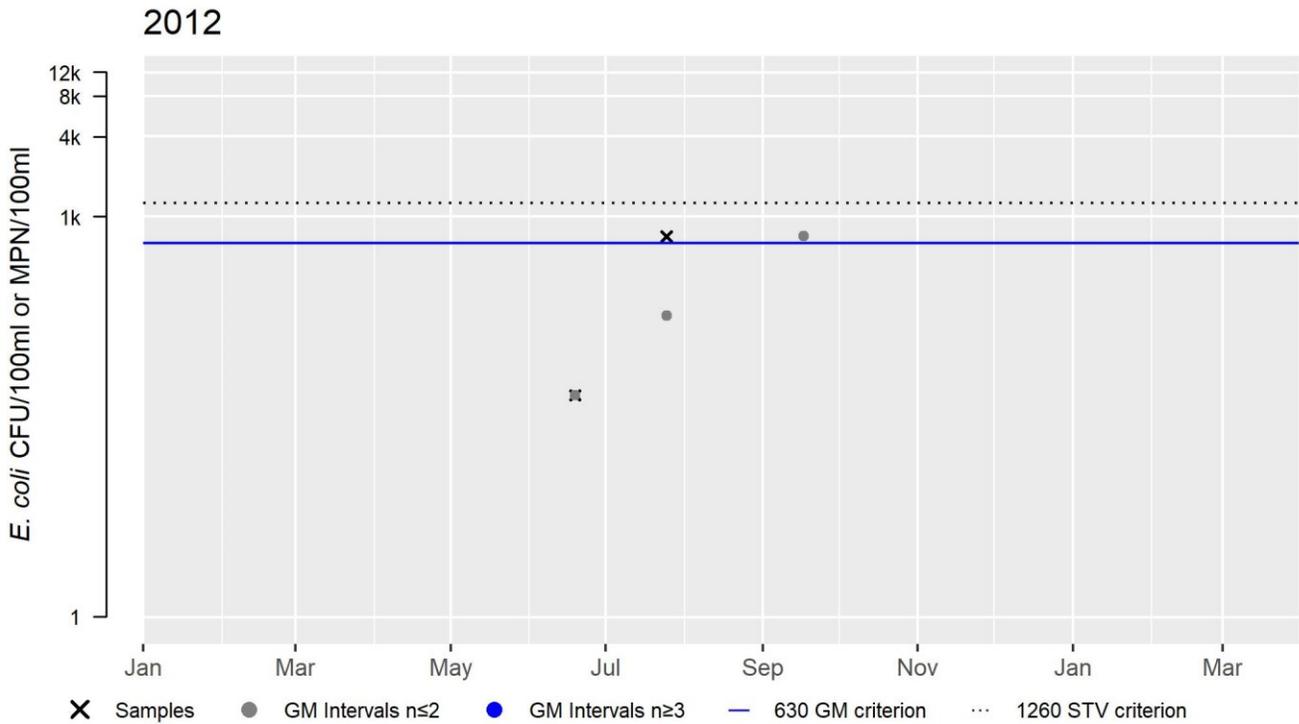
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2358 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	181
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

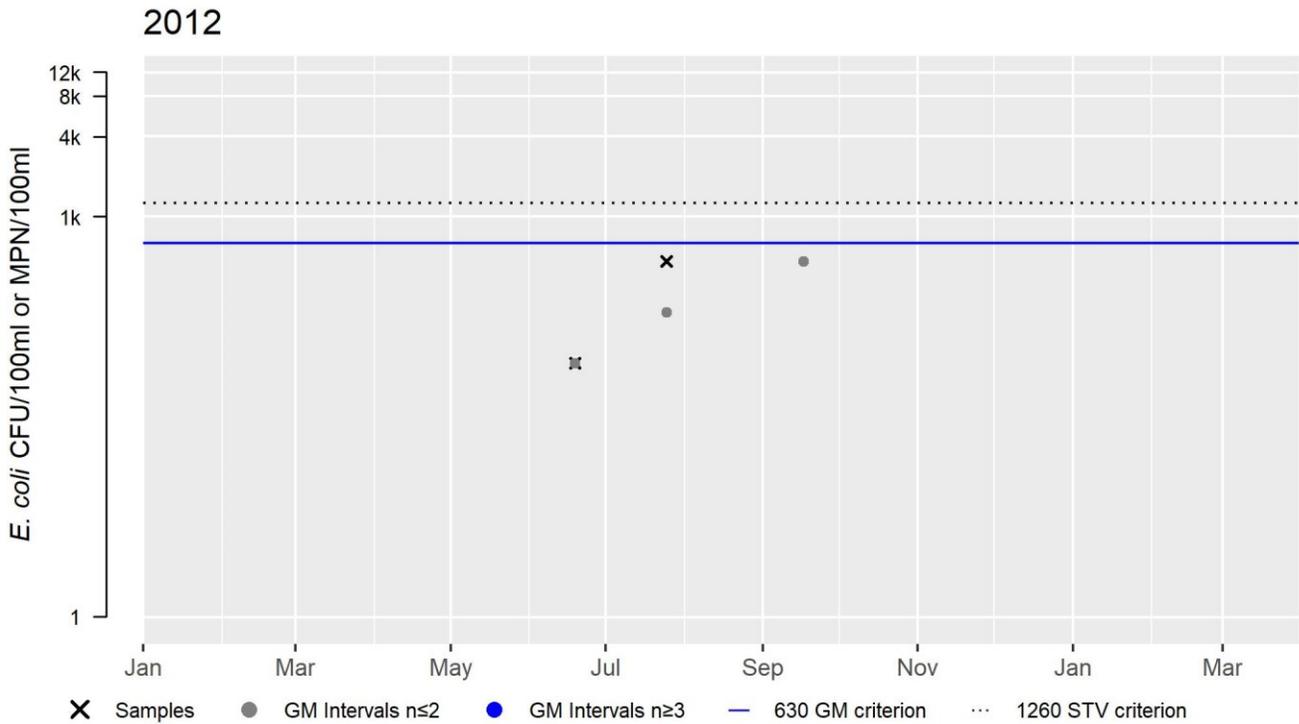
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2360 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	192
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

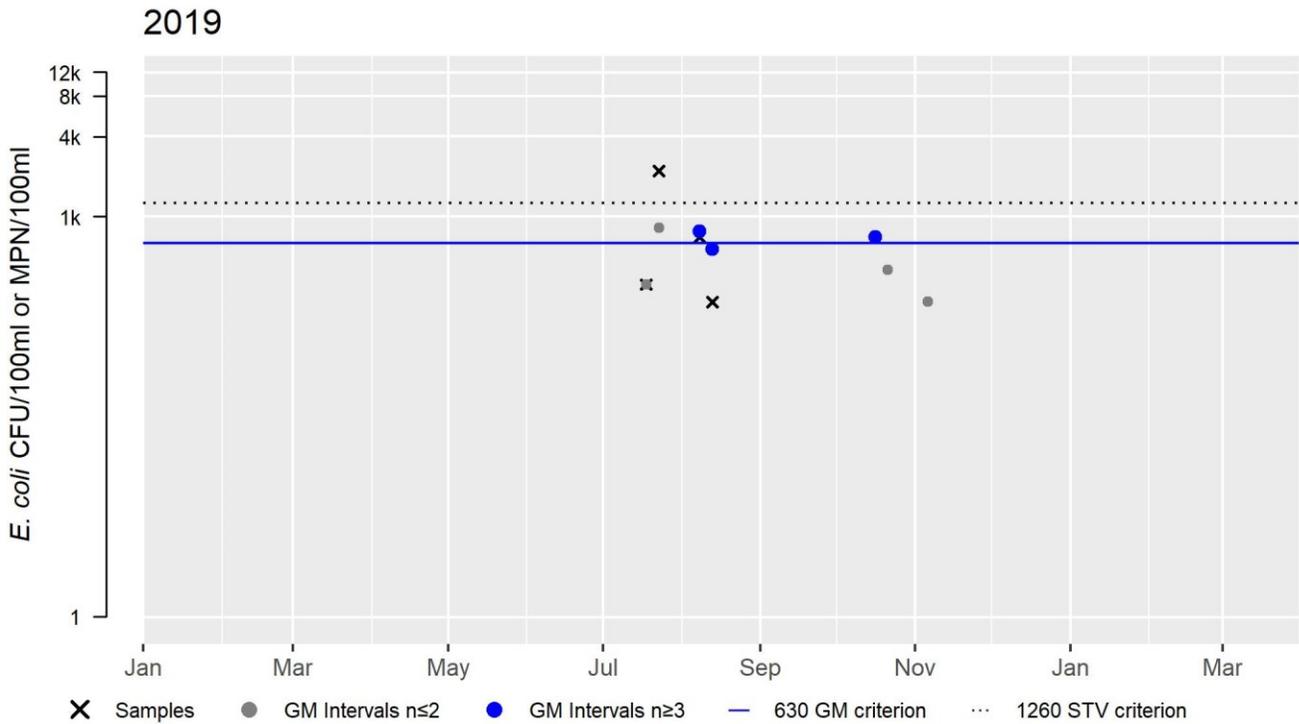
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_French Stream *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	576
#GMI	3
#GMI Ex	2
%GMI Ex	67
n>STV	1
%n>STV	25

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Fresh Pond (MA94040)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	60 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	(Fish Passage Barrier*)		Added
2	5	Mercury in Fish Tissue		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Mercury in Fish Tissue	Atmospheric Deposition (N)		X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
<p>According to DMF biologists the Fresh Pond outlet is an obstruction to the passage of diadromous fish between the pond and the downstream AU (Beaver Dam Brook MA94-65). A DMF habitat assessment found that the outlet was often flow/depth limited, and that the channel is very shallow and clogs with sand; they also noted that herring cannot access Fresh Pond in low flow years (Chase April 20, 2021). A passage score of 6 out of 10 (on a 0-10 scale) was given to the outlet structure, indicating that the dam restricts the passage of diadromous fish. Targeted species for passage include river herring and American eel and while DMF biologists have assigned a population score of 0 out of 10, DMF biologists also noted that there has been at least one year recently when herring did enter the pond through this channel and the score is likely to be increased to 1 or 2 in the near future (Chase April 20, 2021).</p> <p>The Aquatic Life Use for Fresh Pond (MA94040) is assessed as Not Supporting based on the barrier to diadromous fish passage at the outlet. As was previously reported in the 2018/20 IR reporting cycle (MassDEP 2021) an Alert for low DO at depth and one high depth integrated chlorophyll-<i>a</i> measurement indicative of nutrient enrichment is being carried forward.</p>	

Biological Monitoring Information

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary
<p>According to DMF biologists the Fresh Pond outlet is an obstruction to the passage of diadromous fish between the pond and the downstream AU (Beaverdam Brook MA94-65). A DMF habitat assessment found that the outlet was often flow/depth limited, and that the channel is very shallow and clogs with sand; they also noted that herring cannot access Fresh Pond in low flow years (Chase April 20, 2021). A passage score of "6" out of 10 (on a 0-10 scale) was given to the outlet structure, indicating that the dam restricts the passage of diadromous fish. Targeted species for passage would be river herring and American eel and while DMF biologists have assigned a population score of 0 out of 10, DMF biologists also noted that there has been at least one year recently when herring did enter the pond through this channel and the score is likely to be increased to 1 or 2 in the near future (Chase April 20, 2021). The Aquatic Life Use for Fresh Pond (Assessment Unit MA94040) is assessed as Not Supporting based on the barrier to diadromous fish passage at the outlet.</p>

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>MassDEP biologists conducted fish toxics sampling at Fresh Pond (Plymouth) in June 2018 as part of the probabilistic lake surveys (MAP2). Because of elevated mercury measured in chain pickerel and largemouth bass fillets, MassDPH issued the following fish consumption advisories: "<i>Children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any of the affected fish species (chain pickerel, largemouth bass) from this water body,</i>" and "<i>The general public should limit consumption of affected fish species (chain pickerel, largemouth bass) to two meals per month.</i>"</p> <p>Since there is a site specific DPH advisory for elevated mercury in fish tissue, the Fish Consumption Use for Fresh Pond (MA94040) is assessed as Not Supporting. The likely source, although not confirmed, is atmospheric deposition.</p>	

MassDEP fish toxics sampling information (2018-2020) and MassDPH Fish Consumption Advisory information (2019-2021) (MassDPH 2021, MassDEP 2018, MassDEP Undated 8)

MassDEP biologists conducted fish toxics sampling at Fresh Pond (Plymouth) in June 2018 as part of the probabilistic lake surveys (MAP2). Because of elevated mercury measured in chain pickerel and largemouth bass fillets, MassDPH issued the following fish consumption advisories:

- "*Children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any of the affected fish species (chain pickerel, largemouth bass) from this water body.*"
- "*The general public should limit consumption of affected fish species (chain pickerel, largemouth bass) to two meals per month.*"

Since there is a site specific DPH advisory for elevated mercury in fish tissue, the Fish Consumption Use for Fresh Pond (MA94040) is assessed as Not Supporting. The likely source, although not confirmed, is atmospheric deposition.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for Fresh Pond (MA94040) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No *E. coli* or Enterococcus bacteria data are available to assess the status of the Primary Contact Recreation Use for Fresh Pond (MA94040) so it is Not Assessed.

Secondary Contact Recreation

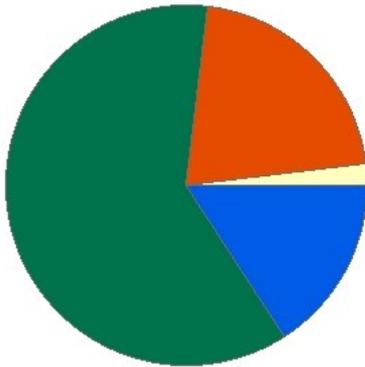
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available to assess the status of the Secondary Contact Recreation Use for Fresh Pond (MA94040) so it is Not Assessed.	

Furnace Brook (MA94-52)

Location:	Locally known as 'Trout Brook', headwaters outlet Soules Pond, Kingston to mouth at confluence with Jones River, Kingston.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B

Furnace Brook - MA94-52

Watershed Area: 2.22 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	2.22	2.22	0.77	0.77
Agriculture	1.9%	1.9%	5.2%	5.2%
Developed	21.2%	21.2%	11.9%	11.9%
Natural	61.1%	61.1%	55.1%	55.1%
Wetland	15.8%	15.8%	27.9%	27.9%
Impervious Cover	8.9%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	4c	(Fish Passage Barrier*)		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Recommendations

2022 Recommendations
<p>ALU: Track developments on a project to breach the Sylvania Place Pond Dam, abandon the existing fish ladder, and construct a channel connecting the pond to the downstream Bryant Mill Pond on the Unnamed Tributary (MA94-53) immediately upstream of this Furnace Brook AU (since passage limitations at the Sylvania Place Pond Dam were the driving force behind the 2022 Fish Passage Barrier impairment identified for Furnace Brook MA94-52). Conduct a fish community survey in Furnace Brook (a CFR) in the vicinity of the Bay Circuit trail bridge (between 1 July and mid-September), and conduct continuous temperature monitoring during the summer index period (1 June through mid-September) to evaluate whether the stream serves as cold-water habitat.</p>

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>There are six structures in the upstream Unnamed Tributary (UNT, MA94-53, called Furnace Brook by DMF) to this Furnace Brook AU (MA94-52) that can limit passage of river herring and American eel (population score 4, all locations) trying to reach Russell Pond, the largest spawning habitat in this small system (located just upstream of the UNT). Structures are described from up to downstream but note that the Sylvania Place Pond Dam is the main structure restricting passage: The Russell Pond channel (immediately downstream of Russell Pond) was given a passage score of 2, on a 0-10 scale, indicating that the channel is only a minor obstruction to diadromous fish passage. DMF notes that this man-made "nature-like" channel needs maintenance to improve passage. The Sylvania Place Pond Dam (located within the 26-acre Stewart/Pearson Preserve owned by the Wildlands Trust of Southeastern Massachusetts) was given a passage score of 6, indicating that the dam restricts the passage of diadromous fish. DMF biologists noted that the fishway (immediately downstream of the dam) is a very old design and is "degraded". According to the certificate on the draft environmental impact report (EOEEA 2020), a project consisting of a dam breach, abandonment of the existing fish ladder, and construction of a channel connecting the pond to the downstream Bryant Mill Pond is being planned. DMF biologists report that the project has not yet gone forward due to design delays and local concerns (Chase May 11, 2021). The fishway downstream of the Sylvania Place Pond Dam (which flows into Bryant Mill Pond) is known as the "Wildlands Trust stream weirs", and although their condition was poor, the fishway was considered "passable" with a passage score of 0 (no obstruction). The Bryant Mill Pond Dam (NATID# MA02134) with existing fishway, located just upstream of Sylvania Place Road, in Kingston, was given a passage score of 1, indicating that it is only a minor obstruction to diadromous fish. DMF notes that the fishway needs maintenance, but that passage was adequate when it was inspected in 2020. The existing fishway from Sylvania Place Road to Elm St (Rt 80) was given a passage score of 3 indicating that it is only a minor obstruction to diadromous fish. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020. Downstream of Elm St, the Soules Pond Dam, with a passage score of 3, also serves as only a minor obstruction. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020. MassDFG biologists conducted backpack electrofishing at one site in Furnace Brook upstream of the Bay Circuit Trail bridge, Kingston (SampleID 5626) in June 2015. The sample (n=33 fish) in this low gradient habitat was comprised of fluvial fish (24% of sample) including multiple sizes of Eastern brook trout (n=6, one only 73 mm, the others ranging from 152–193mm) as well as a few moderately tolerant macrohabitat generalists. DFG biologists map Furnace Brook as a Coldwater Fisheries Resource (CFR) although Soules Pond is stocked with trout in the spring (MassDFW 2022). The Aquatic Life Use of Furnace Brook (MA94-52) is assessed as Not Supporting and a Fish Passage Barrier impairment is being added based on the barrier posed by the Sylvania Place Pond Dam in the upstream Unnamed Tributary AU (MA94-53). Progress on the dam breach project should be tracked. The presence of a small Eastern brook trout upstream of the Bay Circuit trail bridge is encouraging and is indicative of excellent habitat and water quality conditions in Furnace Brook, although this stream may not support cold water habitat throughout the year. Additional sampling (fish sampling between 1 July and mid-September, and temperature during the summer index period 1 June through mid-September) would be needed for that evaluation.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5600	MassDFG	Fish Community	Furnace Brook	Bay circuit trail bridge upstream, Kingston	41.98615	-70.74816

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, EBT = Brook Trout, LMB = Largemouth Bass, SL = Sea Lamprey, TD = Tesselated Darter]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5600	06/26/15	BP	TP	L	5	33	18%	2	24%	18%	1	6%	Yes	Yes	AE, EBT, LMB, SL, TD,

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary

According to DMF biologists, there are six areas which could potentially cause passage limitation to diadromous fish throughout Unnamed Tributary MA94-53 (called Furnace Brook by DMF) to Furnace Brook (MA94-52). The targeted species are river herring and American eel with a population score of "4" at all locations. From upstream to downstream: The Russell Pond channel (immediately downstream of Russell Pond) was given a passage score of "2", on a 0-10 scale, indicating that the channel is only a minor obstruction to the passage of diadromous fish. DMF notes that this man-made "nature-like" channel needs maintenance to improve passage. The Sylvia Place Pond Dam (located within the 26-acre Stewart/Pearson Preserve owned by the Wildlands Trust of Southeastern Massachusetts) was given a passage score of "6", indicating that the dam restricts the passage of diadromous fish. DMF biologists noted that the fishway (immediately downstream of the dam) is a very old design and is "degraded". According to the certificate on the draft environmental impact report (EOEEA 2020), a project consisting of a dam breach, abandonment of the existing fish ladder, and construction of a channel connecting the pond to the downstream Bryant Mill Pond is being planned. DMF biologists report that the project has not yet gone forward due to design delays and local concerns (Chase May 11, 2021). The fishway downstream of the Sylvia Place Pond Dam (which flows into Bryant Mill Pond) is known as the "Wildlands Trust stream weirs", and although their condition was identified to be poor, the fishway was noted to be "passable" and was assigned a passage score of "0" (no obstruction). The Bryant Mill Pond Dam (NATID# MA02134) with existing fishway, located just upstream of Sylvia Place Road, in Kingston, was given a passage score of "1", indicating that it is only a minor obstruction to diadromous fish. DMF notes that the fishway needs maintenance but that passage was adequate when it was inspected in 2020. The existing fishway from Sylvia Place Road to Elm Street (Route 80) was given a passage score of "3" indicating that it is only a minor obstruction to diadromous fish. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020. Downstream of Elm Street, the Soules Pond Dam was given a passage score of "3" indicating that it is only a minor obstruction to diadromous fish. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020. The Aquatic Life Use assessment for Furnace Brook (MA94-52) should be assessed as Not Supporting based on the barrier to diadromous fish passage posed by the Sylvia Place Pond Dam in the upstream Unnamed Tributary (MA94-53), which could potentially limit passage to diadromous fish trying to reach Russell Pond, the largest spawning habitat in this small system (located just upstream of the Unnamed Tributary).

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in Furnace Brook (MA94-52); therefore, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for Furnace Brook (MA94-52) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available to assess the Primary Contact Recreation Use for Furnace Brook (MA94-52) so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available to assess the Secondary Contact Recreation Use for Furnace Brook (MA94-52) so it is Not Assessed.	

Furnace Pond (MA94043)

Location:	Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	103 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Furnace Pond (MA94043) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)		Unchanged
5	5	Dissolved Oxygen		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Dissolved Oxygen	Source Unknown (N)	X				

Governor Winslow House Pond (MA94047)

Location:	Marshfield.
AU Type:	FRESHWATER LAKE
AU Size:	23 ACRES
Classification/Qualifier:	B

No usable data were available for Governor Winslow House Pond (MA94047) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Great Herring Pond (MA94050)

Location:	Bourne/Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	415 ACRES
Classification/Qualifier:	B

No usable data were available for Great Herring Pond (MA94050) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Dissolved Oxygen		Unchanged
5	5	Mercury in Fish Tissue	33880	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Dissolved Oxygen	Source Unknown (N)	X				
Mercury in Fish Tissue	Atmospheric Deposition - Toxics (Y)		X			
Mercury in Fish Tissue	Source Unknown (N)		X			

Great Sandy Bottom Pond (MA94053)

Location:	Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	103 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Great Sandy Bottom Pond (MA94053) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Great South Pond (MA94054)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	285 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Great South Pond (MA94054) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Dissolved Oxygen		Unchanged
5	5	Mercury in Fish Tissue	33880	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Dissolved Oxygen	Source Unknown (N)	X				
Mercury in Fish Tissue	Atmospheric Deposition - Toxics (Y)		X			
Mercury in Fish Tissue	Source Unknown (N)		X			

Green Harbor (MA94-11)

Location:	From the tidegates at Route 139, Marshfield to the mouth of the harbor at Massachusetts Bay/Cape Cod Bay, Marshfield.
AU Type:	ESTUARY
AU Size:	0.08 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61731	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Green Harbor (MA94-11), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Green Harbor (MA94-11), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Green Harbor (MA94-11): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0668 sq mi (88%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0668 sq mi (88%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB3.0	Green Harbor	Prohibited	0.06681	88.1%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Green Harbor (MA94-11), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for Green Harbor (MA94-11), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Green Harbor (MA94-11): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0668 sq mi (88%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for Green Harbor (MA94-11), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Green Harbor (MA94-11): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0668 sq mi (88%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Green Harbor River (MA94-10)

Location:	Headwaters, outlet Black Mountain Pond, Marshfield to the tidegate at Route 139, Marshfield.
AU Type:	RIVER
AU Size:	5.7 MILES
Classification/Qualifier:	B

No usable data were available for Green Harbor River (MA94-10) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Unchanged
5	5	(Flow Regime Modification*)		Unchanged
5	5	Algae		Unchanged
5	5	Turbidity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Hydrostructure Impacts on Fish Passage (Y)	X				
(Fish Passage Barrier*)	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
(Flow Regime Modification*)	Changes in Tidal Circulation/Flushing (Y)	X				
(Flow Regime Modification*)	Hydrostructure Impacts on Fish Passage (Y)	X				
(Flow Regime Modification*)	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
Algae	Source Unknown (N)			X	X	X
Turbidity	Source Unknown (N)			X	X	X

Gunners Exchange Pond (MA94055)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	26 ACRES
Classification/Qualifier:	B

No usable data were available for Gunners Exchange Pond (MA94055) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Halls Brook (MA94-57)

Location:	Locally known as 'Stony Brook', tidal portion east of Maple Street, Kingston to mouth at confluence with Jones River, Kingston.
AU Type:	ESTUARY
AU Size:	0.003 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
<p>MassDEP staff collected extremely limited water quality data in this Halls Brook AU (MA94-57) as part of Bacteria Source Tracking efforts during summer 2011, at two locations described from upstream to downstream as follows: at the upstream border of the AU ~130 ft downstream/east of Maple St, Kingston (downstream of Maple Street Dam, National ID MA02132) (Station W2316; n=2) and ~60 ft upstream of confluence with the Jones River, just downstream at Landing Road, Kingston (Station W2320; n=1). There were no observations of excessive filamentous algae recorded during any of these site visits.</p> <p>Too limited data/information are available to evaluate the Aquatic Life Use for this Halls Brook AU (MA94-57), so it is assessed as having Insufficient Information.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2316	MassDEP	Water Quality	Halls Brook	[approximately 130 feet downstream/east of Maple Street, Kingston (downstream of Maple Street Dam, National Id MA02132)]	41.999773	-70.725798
W2320	MassDEP	Water Quality	Halls Brook	[approximately 60 feet upstream of confluence with Jones River, just downstream at Landing Road, Kingston]	41.997918	-70.722181

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2316	2011	--	--	--	--	--	--	--	--	2	0
W2320	2011	--	--	--	--	--	--	--	--	1	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Halls Brook AU (MA94-57), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Halls Brook (MA94-57): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0019 sq mi (64%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0019 sq mi (64%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area \geq 0.0001 sq mi.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB44.0	Jones River	Prohibited	0.00185	64.0%

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
MassDEP staff conducted very limited water sampling in this Halls Brook AU (MA94-57) in Kingston [approximately 130 feet downstream/east of Maple Street (downstream of Maple Street Dam, National ID MA02132) (W2316, n=2) and farther downstream approximately 60 feet upstream of confluence with Jones River, just downstream at Landing Road (W2320, n=1) during the summer of 2011. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP sampling crews at either site. Too limited current data are available to evaluate the Aesthetics Use for this Halls Brook AU (MA94-57) so it is assessed as having Insufficient Information.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2316	MassDEP	Water Quality	Halls Brook	[approximately 130 feet downstream/east of Maple Street, Kingston (downstream of Maple Street Dam, National Id MA02132)]	41.999773	-70.725798
W2320	MassDEP	Water Quality	Halls Brook	[approximately 60 feet upstream of confluence with Jones River, just downstream at Landing Road, Kingston]	41.997918	-70.722181

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2316	Halls Brook	2011	2	MassDEP aesthetics observations for station W2316 on Halls Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).
W2320	Halls Brook	2011	1	MassDEP aesthetics observations for station W2320 on Halls Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=1).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2316	2011	2	2	0
W2320	2011	1	1	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2316	Halls Brook	2011	Color	Brownish	1	2
W2316	Halls Brook	2011	Color	None	1	2
W2316	Halls Brook	2011	Objectionable Deposits	Not Applicable (N/A)	2	2
W2316	Halls Brook	2011	Odor	None	2	2
W2316	Halls Brook	2011	Scum	Not Applicable (N/A)	2	2
W2316	Halls Brook	2011	Turbidity	None	1	2
W2316	Halls Brook	2011	Turbidity	Slightly Turbid	1	2
W2320	Halls Brook	2011	Color	None	1	1
W2320	Halls Brook	2011	Objectionable Deposits	Not Applicable (N/A)	1	1
W2320	Halls Brook	2011	Odor	Other	1	1
W2320	Halls Brook	2011	Scum	Not Applicable (N/A)	1	1
W2320	Halls Brook	2011	Turbidity	Moderately Turbid	1	1

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
<p>MassDEP staff collected a single Enterococci bacteria sample at the upstream end of this Halls Brook AU (MA94-57) approximately 130ft downstream/east of Maple Street in Kingston (downstream of Maple Street Dam, National ID MA02132) (W2316) in August 2011, for the purposes of bacteria source tracking (BST). The result was 216 MPN/100ml. This data is too limited to evaluate according to the 2022 CALM guidance (MassDEP 2022b). It is being noted here however that BST efforts found the "Tussock Brook" tributary (MA94-67 & MA94-68) to be the most significant contributor of bacteria to Halls Brook (though Human Marker analysis in 2011 determined this to not be a human sewage source) and the upstream Halls Brook AU (MA94-58) was also ruled out as a significant contributor of bacteria to this downstream Halls Brook AU.</p> <p>Too limited Enterococci data are available to assess the Primary Contact Recreation Use for this Halls Brook AU (MA94-57), so it is assessed as having Insufficient Information.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2316	MassDEP	Water Quality	Halls Brook	[approximately 130 feet downstream/east of Maple Street, Kingston (downstream of Maple Street Dam, National Id MA02132)]	41.999773	-70.725798

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

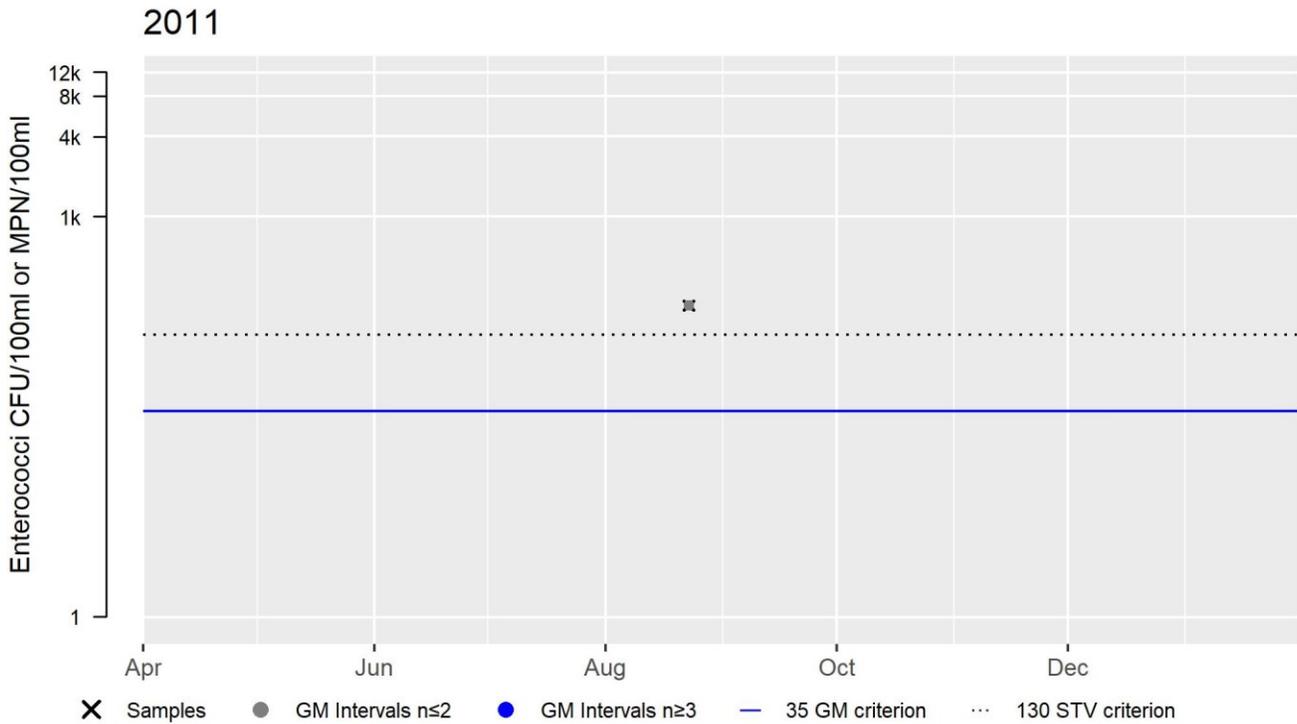
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2316	MassDEP	Enterococci	08/23/11	08/23/11	1	216	216	216

W2316 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	216
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	100

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary
BST work was conducted in 2011 at 2 sites on the Halls Brook AU (MA94-57), with E. coli concentrations ranging 187 to 2,481MPN and a max Enterococcus concentration of 529MPN. Additional source tracking in 2011-2013 & 2016 found the "Tussock Brook" tributary (MA94-67 & MA94-68) to be the most significant contributor of bacteria to Halls Brook, with a max E. coli concentration of >24,196MPN close to the confluence. Human Marker analysis run on samples taken at the downstream end of Tussock Brook in 2011 indicated "no evidence" of a human source. The Halls Brook AU upstream (MA94-58) was ruled out as a significant contributor of bacteria to this AU.

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Halls Brook (MA94-57): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0019 sq mi (64%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
<p>MassDEP staff collected a single Enterococci bacteria sample in this Halls Brook AU (MA94-57) approximately 130 feet downstream/east of Maple Street in Kingston (downstream of Maple Street Dam, National ID MA02132) (W2316) in August 2011 for the purposes of bacteria source tracking (BST). This data is too limited to evaluate according to the 2022 CALM guidance (MassDEP 2022b). It is being noted here however that BST efforts found the "Tussock Brook" tributary (MA94-67 & MA94-68) to be the most significant contributor of bacteria to Halls Brook (though Human Marker analysis in 2011 determined this to not be a human sewage source) and the upstream Halls Brook AU (MA94-58) was also ruled out as a significant contributor of bacteria to this downstream Halls Brook AU.</p> <p>Too limited Enterococci data are available to assess the Secondary Contact Recreation Use for this Halls Brook AU (MA94-57), so it is assessed as having Insufficient Information.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2316	MassDEP	Water Quality	Halls Brook	[approximately 130 feet downstream/east of Maple Street, Kingston (downstream of Maple Street Dam, National Id MA02132)]	41.999773	-70.725798

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

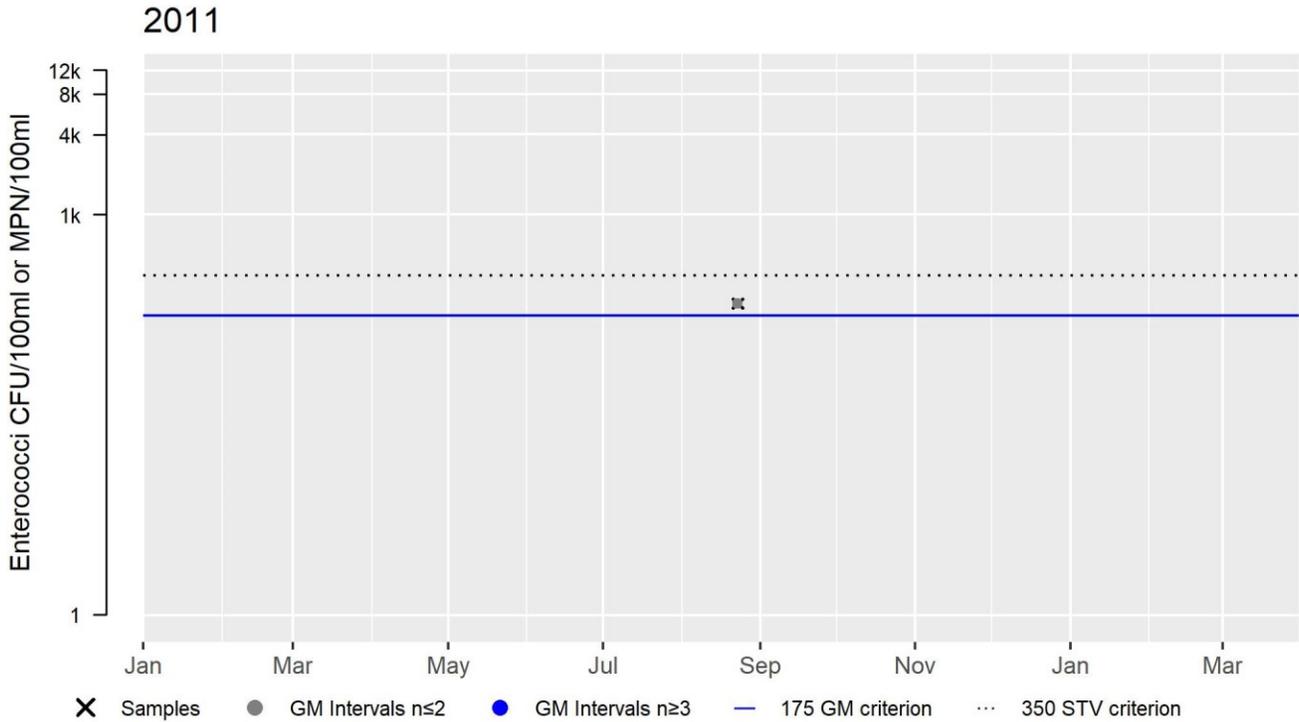
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2316	MassDEP	Enterococci	08/23/11	08/23/11	1	216	216	216

W2316 Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	216
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

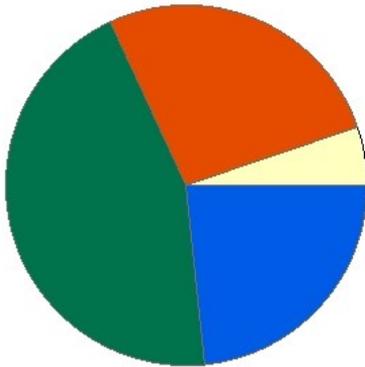
Summary
Halls Brook (MA94-57): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0019 sq mi (64%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Halls Brook (MA94-58)

Location:	Locally known as 'Stony Brook', from the inlet of Blackwater Pond, Kingston to tidal portion east of Maple Street, Kingston.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B

Halls Brook - MA94-58

Watershed Area: 4.18 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	4.18	4.17	1.59	1.59
Agriculture	5.2%	5.2%	7.9%	7.9%
Developed	26.8%	26.8%	19.5%	19.5%
Natural	44.7%	44.7%	37.4%	37.4%
Wetland	23.4%	23.4%	35.2%	35.2%
Impervious Cover	14.1%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted very limited water quality sampling in this Halls Brook AU (MA94-58) ~ 90 ft downstream/east of Summer Street (Rt. 3A) in Kingston during summer 2011. During two site visits, dense/very dense filamentous algae was observed once.

Too limited recent data are available to evaluate the Aquatic Life Use of this Halls Brook AU (MA94-58) so it will continue to be assessed as Not Supporting. The Fish Passage Barrier impairment, at the Maple Street Dam (also referred to as Mill Pond Dam) (MassDEP 2021), is being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2315	MassDEP	Water Quality	Halls Brook	[approximately 90 feet downstream/east of Summer Street (3A), Kingston]	41.998604	-70.730070

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2315	2011	--	--	--	--	--	--	--	--	2	1

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Halls Brook AU (MA94-58), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
MassDEP staff conducted very limited water quality sampling in this Halls Brook AU (MA94-58) approximately 90ft downstream/east of Summer Street (Rt. 3A) in Kingston (W2315) during the summer of 2011. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews (n=2 site visits). Too limited current data are available so the Aesthetics Use for this Halls Brook AU (MA94-58) is assessed as having Insufficient Information.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2315	MassDEP	Water Quality	Halls Brook	[approximatley 90 feet downstream/east of Summer Street (3A), Kingston]	41.998604	-70.730070

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2315	Halls Brook	2011	2	MassDEP aesthetics observations for station W2315 on Halls Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2315	2011	2	2	1

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2315	Halls Brook	2011	Color	Brownish	1	2
W2315	Halls Brook	2011	Color	None	1	2
W2315	Halls Brook	2011	Objectionable Deposits	Not Applicable (N/A)	2	2
W2315	Halls Brook	2011	Odor	None	2	2
W2315	Halls Brook	2011	Scum	Not Applicable (N/A)	2	2
W2315	Halls Brook	2011	Turbidity	Moderately Turbid	1	2
W2315	Halls Brook	2011	Turbidity	Slightly Turbid	1	2

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>MassDEP staff collected <i>E. coli</i> bacteria samples in June and August 2011 (n=2) and a single Enterococci bacteria sample in August 2011 in this Halls Brook AU (MA94-58) ~90 ft downstream/east of Summer Street (Rt. 3A) in Kingston (W2315) for the purposes of bacteria source tracking (BST). <i>E. coli</i> concentrations ranged from 160 to 238 MPN/100ml and the Enterococci concentration was 350 MPN/100ml. No correctable sources were ever found and the data are too limited to evaluate under 2022 CALM guidance (MassDEP 2022b). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during these site visits.</p> <p>Too limited <i>E. coli</i> and Enterococci data are available, so the Primary Contact Recreation Use for this Halls Brook AU (MA94-58) is assessed as having Insufficient Information. An Alert is being identified because the bacteria concentrations in summer 2011 were somewhat elevated.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2315	MassDEP	Water Quality	Halls Brook	[approximatley 90 feet downstream/east of Summer Street (3A), Kingston]	41.998604	-70.730070

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)**

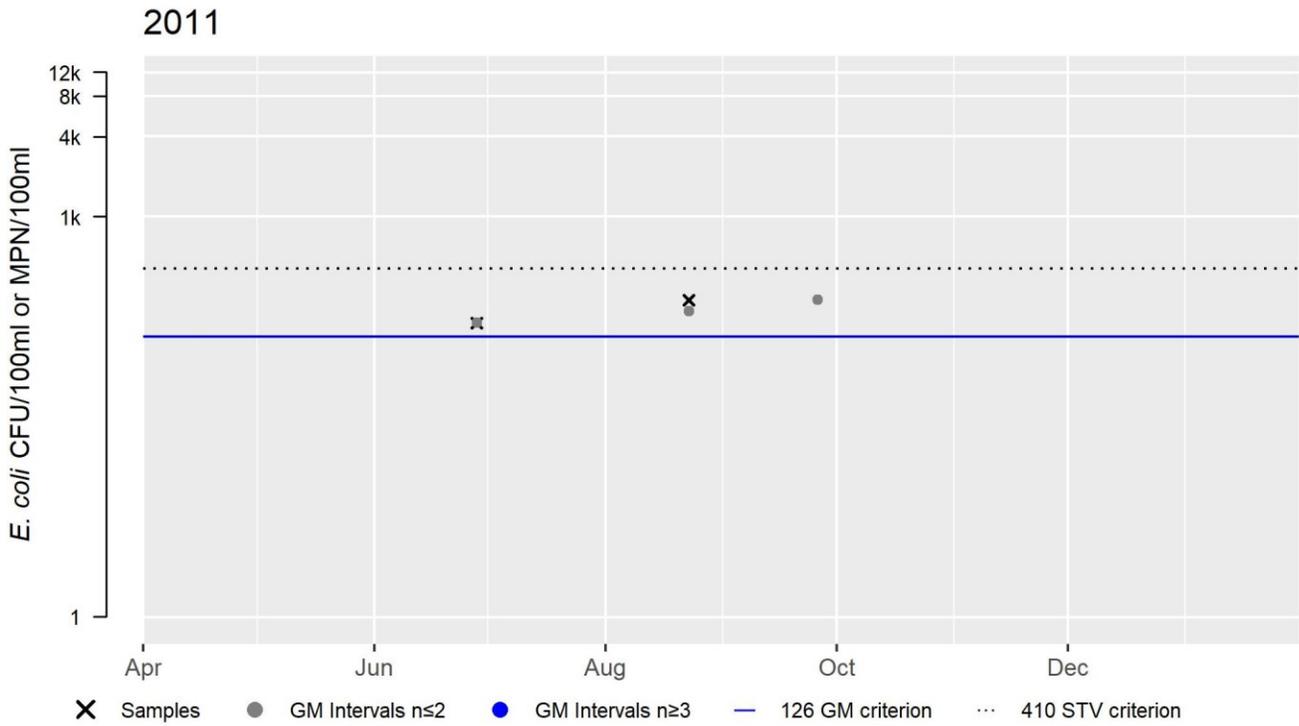
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2315	MassDEP	E. coli	06/28/11	08/23/11	2	160	238	195
W2315	MassDEP	Enterococci	08/23/11	08/23/11	1	350	350	350

W2315 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	195
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

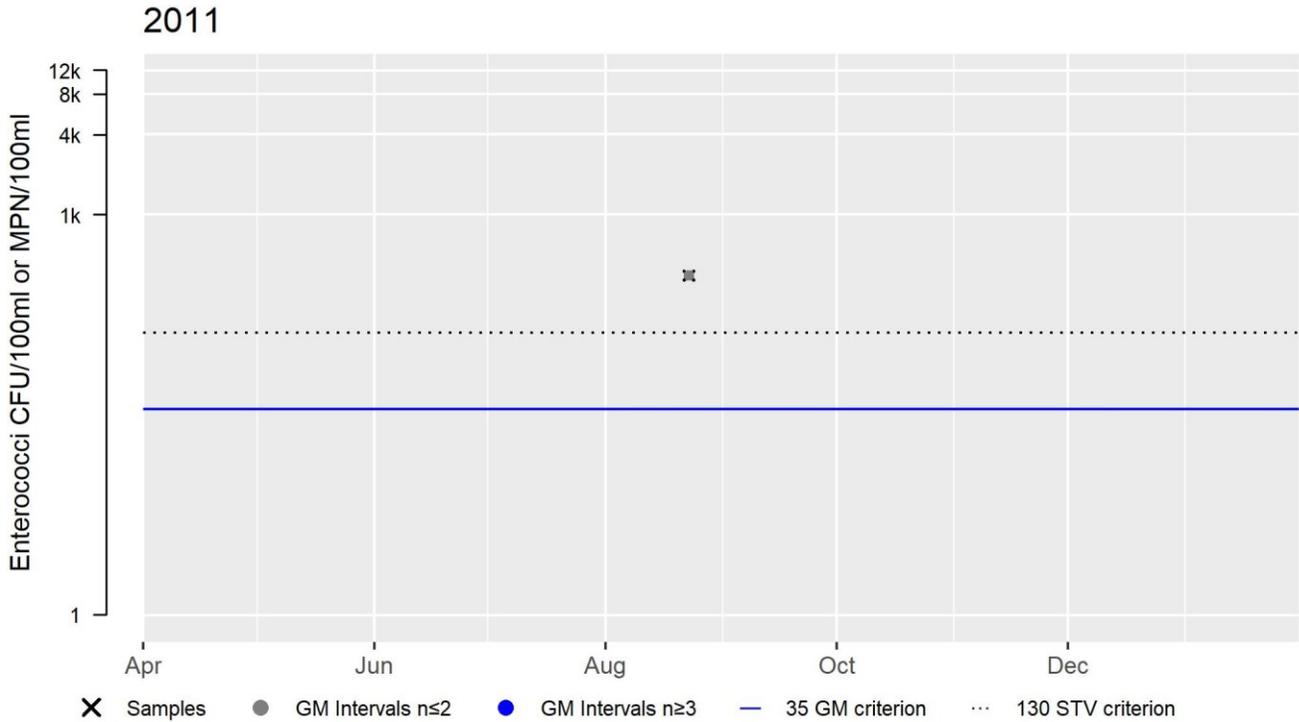
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2315 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	350
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	100

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary
BST work was conducted in 2011 at 2 sites on the Halls Brook AU (MA94-58), with E.coli concentrations ranging 160 to 411MPN and a max Enterococcus concentration of 350MPN. No correctable sources were ever found.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	

MassDEP staff collected *E. coli* bacteria samples in June and August 2011 (n=2) in this Halls Brook AU (MA94-58) ~90 ft downstream/east of Summer Street (Rt. 3A) in Kingston (W2315) for the purposes of bacteria source tracking (BST). *E. coli* concentrations ranged from 160 to 238 MPN/100ml but the data are too limited to evaluate under 2022 CALM guidance (MassDEP 2022b). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during these site visits. Too limited *E. coli* data are available, so the Secondary Contact Recreation Use for this Halls Brook AU (MA94-58) is assessed as having Insufficient Information.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2315	MassDEP	Water Quality	Halls Brook	[approximatley 90 feet downstream/east of Summer Street (3A), Kingston]	41.998604	-70.730070

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

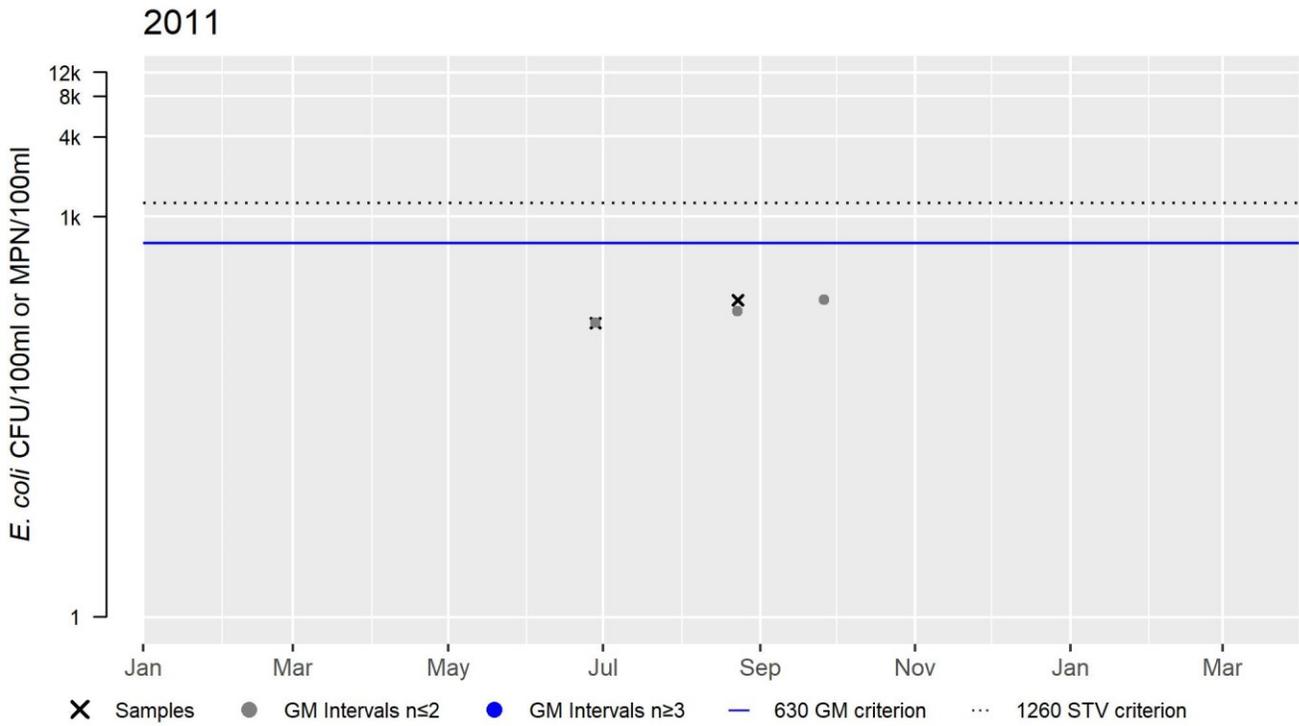
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2315	MassDEP	E. coli	06/28/11	08/23/11	2	160	238	195

W2315 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	195
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Harrobs Corner Bog Pond (MA94061)

Location:	Plympton.
AU Type:	FRESHWATER LAKE
AU Size:	20 ACRES
Classification/Qualifier:	B

No usable data were available for Harrobs Corner Bog Pond (MA94061) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Hedges Pond (MA94065)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	27 ACRES
Classification/Qualifier:	B

No usable data were available for Hedges Pond (MA94065) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Herring Brook (MA94-29)

Location:	Headwaters, outlet Lily Pond, Cohasset to mouth at confluence with Aaron River, Cohasset.
AU Type:	RIVER
AU Size:	0.3 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Herring Brook (MA94-29) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(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	X	X

Herring River (MA94-07)

Location:	Headwaters, outlet Old Oaken Bucket Pond, Scituate to mouth at confluence with North River, Scituate.
AU Type:	ESTUARY
AU Size:	0.08 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Enterococcus	61727	Unchanged
4a	4a	Fecal Coliform	61727	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Enterococcus	Municipal Point Source Discharges (Y)					X	X
Enterococcus	Source Unknown (N)					X	X
Fecal Coliform	Municipal Point Source Discharges (Y)			X			

Recommendations

2022 Recommendations
ALU: The recommendations from the 2018/2020 IR cycle are being carried forward: follow-up with DMF biologists to evaluate the status of smelt spawning/habitat and herring migration in the Herring River. Scituate WWTP WET testing can be reduced to two times per year using both <i>M. beryllina</i> and <i>Arbacia punctulata</i> in July/August and either January or April.; REC: Conduct follow-up Enterococci bacteria sampling in the vicinity of MassDEP Station W1511 in order to evaluate whether a delisting may be appropriate.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing at one site in a low gradient reach at the upstream end of this Herring River AU (MA94-07), below old Oaken Bucket Pond in Scituate (Sample ID 7772) in June 2018. The sample did not contain any fluvial specialist/dependent species, though it did contain one macrohabitat generalist moderately tolerant to environmental perturbations (i.e., pumpkinseed), comprising 3% of the sample. American eel, golden shiner, mummichog and ninespine stickleback were also present, for a total of 36 individuals.

Since this is estuarine habitat, the fish community data collected by MassDFG in 2018 cannot be utilized to make an Aquatic Life Use support determination. There is Insufficient Information to assess the Aquatic Life Use of this Herring River AU (MA94-07). The Alerts previously identified because of the issues with smelt spawning habitat area (low flows, algal growth that may also be exacerbated by flow manipulation and the disturbed riparian buffer zone adjacent to this habitat) and lack of diversity of the benthic community (MassDEP 2021) are being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7772	MassDFG	Fish Community	First Herring Brook	Below old Oaken Bucket Pond, Scituate. [DEP water body name is Herring River]	42.17709	-70.74874

Biological Monitoring Information

Fish Community Data (DELTS or population loss estimates only)

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, GS = Golden Shiner, M = Mummichog, NSS = Ninespine Stickleback, P = Pumpkinseed]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
7772	06/27/18	BP	TP	L	5	36	0%	0	0%	0%	1	3%	No	No	AE, GS, M, NSS, P,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Herring River AU (MA94-07), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

Herring River (MA94-07): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.068 sq mi (87%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.068 sq mi (87%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area ≥ 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB5.3	Herring River	Prohibited	0.06801	87.4%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for this Herring River AU (MA94-07), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria samples in this Herring River AU (MA94-07) at the base of the boat ramp in Driftway Park (NSRWA_Driftway Park) between June and September 2019 (n=16). Data analysis indicated that none of the intervals had GMs >35 CFU/100mL and only one sample exceeded the 130 CFU/100mL STV. The seasonal GM was 18 CFU/100mL.</p> <p>Although the Enterococci concentrations from the NSRWA station did not exceed the use attainment impairment threshold for a single year high frequency dataset, the Primary Contact Recreation Use for this Herring River AU (MA94-07) will continue to be assessed as Not Supporting with the prior Enterococcus impairment being carried forward since that impairment was based on data collected by MassDEP staff at the upstream end of the AU, Station W1511 (MassDEP Undated 7)).</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Driftway Park	North South River Watershed Association	Water Quality	Herring River	At base of boat ramp	42.17544	-70.73579

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019) (MassDEP Undated 3)

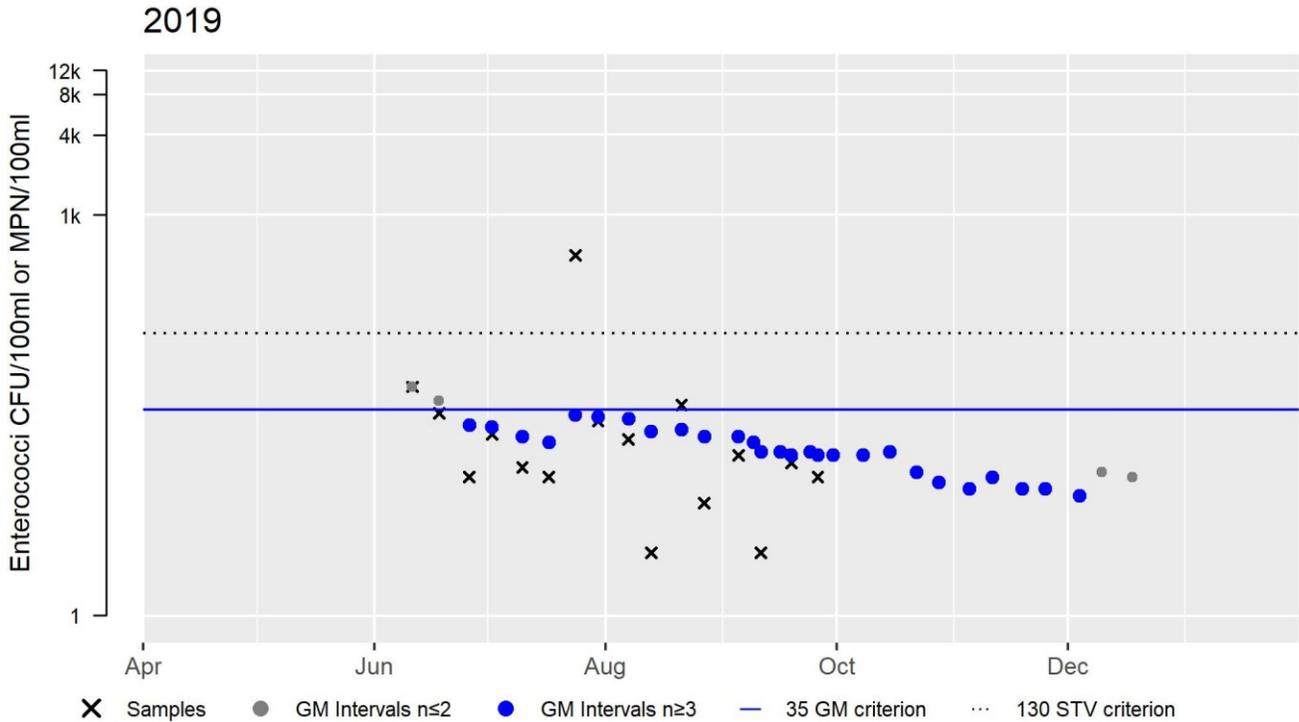
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Driftway Park	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	3	500	18

NSRWA_Driftway Park Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	18
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	6

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
 (MassDEP Undated 6)

Summary
Herring River (MA94-07): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.068 sq mi (87%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria samples in this Herring River AU (MA94-07) at the base of the boat ramp in Driftway Park (NSRWA_Driftway Park) between June and September 2019 (n=16). Data analysis indicated that none of the intervals had GMs >175 CFU/100mL and only one sample exceeded the 350 CFU/100mL STV. The overall GM was 18 CFU/100mL.</p> <p>Although the Enterococci concentrations from a NSRWA station did not exceed the use attainment impairment threshold for a single year high frequency dataset, the Secondary Contact Recreation Use for this Herring River AU (MA94-07) will continue to be assessed as Not Supporting with the prior Enterococcus impairment being carried forward since that impairment was based on data collected by MassDEP staff at the upstream end of the AU, Station W1511 (MassDEP Undated 7)).</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Driftway Park	North South River Watershed Association	Water Quality	Herring River	At base of boat ramp	42.17544	-70.73579

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)
(MassDEP Undated 3)

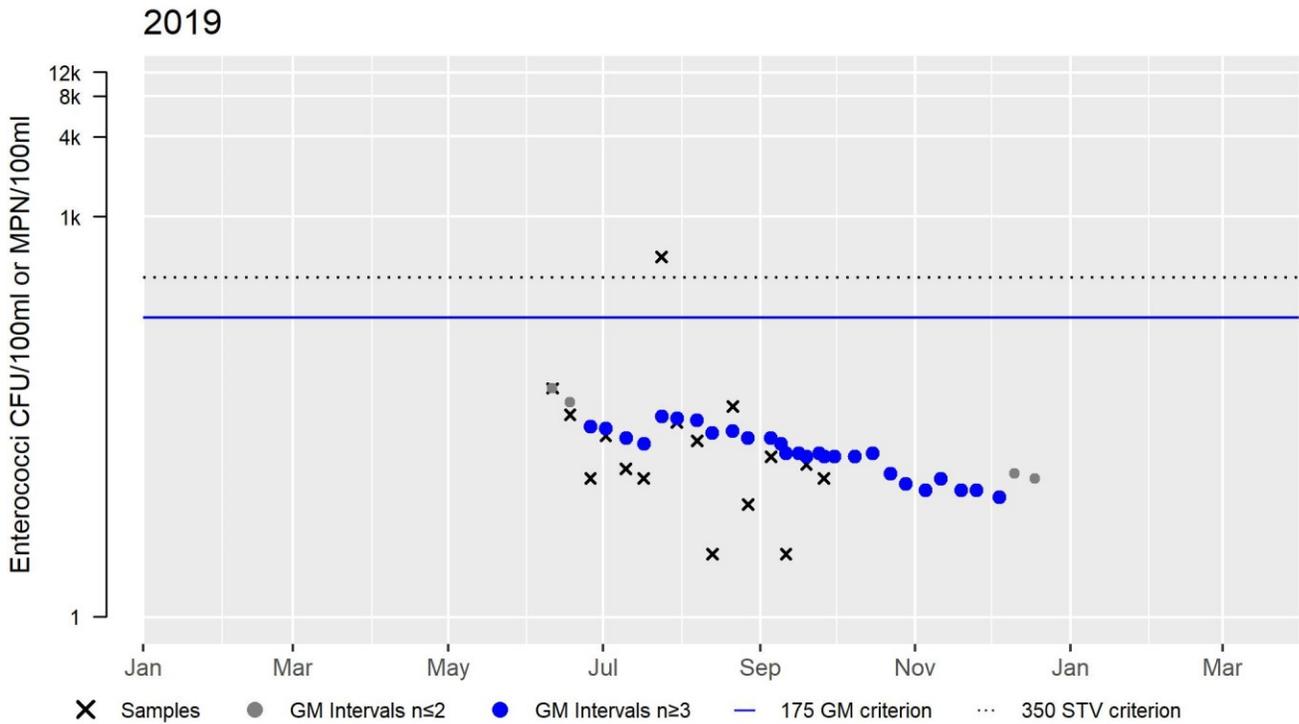
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Driftway Park	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	3	500	18

NSRWA_Driftway Park Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	18
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	6

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Herring River (MA94-07): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.068 sq mi (87%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Herring River (MA94-44)

Location:	Headwaters outlet Great Herring Pond, Bourne to confluence with Cape Cod Canal, Bourne (includes the approximately 0.3 miles through Foundry Pond and the unnamed tributary locally known as 'The Herring Run').
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

No usable data were available for Herring River (MA94-44) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Hobomock Pond (MA94177)

Location:	Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	13 ACRES
Classification/Qualifier:	B

No usable data were available for Hobomock Pond (MA94177) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Hoyts Pond (MA94070)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	20 ACRES
Classification/Qualifier:	B

No usable data were available for Hoyts Pond (MA94070) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Indian Brook (MA94-51)

Location:	outlet of cranberry bogs west of Indian Brook Road, Plymouth to mouth at inlet Cape Cod Bay, Plymouth.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Indian Brook (MA94-51) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)		Unchanged
5	5	(Non-Native Aquatic Plants*)		Unchanged
5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
5	5	Phosphorus, Total		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(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				
Nutrient/Eutrophication Biological Indicators	Agriculture (N)	X				
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X				
Phosphorus, Total	Agriculture (N)	X				
Phosphorus, Total	Source Unknown (N)	X				

Indian Head Brook (MA94-49)

Location:	Headwaters outlet Indian Head Pond, Hanson to inlet Wampatuck Pond, Hanson.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

No usable data were available for Indian Head Brook (MA94-49) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Indian Head Brook (MA94-50)

Location:	Outlet Wampatuck Pond, Hanson to mouth at confluence with Indian Head River, Hanson.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B

No usable data were available for Indian Head Brook (MA94-50) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Indian Head Pond (MA94071)

Location:	Hanson.
AU Type:	FRESHWATER LAKE
AU Size:	120 ACRES
Classification/Qualifier:	B

No usable data were available for Indian Head Pond (MA94071) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Unchanged
5	5	Harmful Algal Blooms		Unchanged

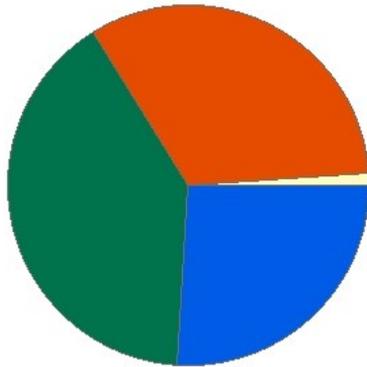
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Harmful Algal Blooms	Agriculture (N)			X	X	X
Harmful Algal Blooms	Source Unknown (N)			X	X	X

Indian Head River (MA94-04)

Location:	Headwaters, outlet Factory Pond, Hanover/Hanson to Curtis Crossing Dam (also called Ludhams Ford Dam (NATID: MA00428)) west of Elm Street, Hanover/Pembroke.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B: WWF

Indian Head River - MA94-04

Watershed Area: 30.44 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	30.44	9.55	9.28	3
Agriculture	1.1%	0.4%	2%	0.7%
Developed	32.8%	28.3%	20.8%	17.7%
Natural	40%	42.8%	35.2%	38.2%
Wetland	26%	28.4%	42%	43.3%
Impervious Cover	15.9%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Unchanged
5	5	Escherichia Coli (E. Coli)		Unchanged
5	5	Mercury in Fish Tissue		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Mercury in Fish Tissue	Contaminated Sediments (Y)		X			
Mercury in Fish Tissue	Illegal Dumps or Other Inappropriate Waste Disposal (Y)		X			

Recommendations

2022 Recommendations
ALU: Continue to track progress on State Street and Elm Street Dam removal projects.; REC: Bacteria <i>Escherichia Coli</i> (<i>E. coli</i>) sampling should be conducted in this Indian Head River AU (MA94-04), including sites originally sampled that led to the <i>E. Coli</i> impairment, to allow reevaluation of the impairment and a potential delisting.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>MassDFG biologists conducted backpack electrofishing in this Indian Head River AU (MA94-04) off Water Street below the old Watertown Dam site in Hanover (Sample ID 5906) in July 2016. The sample (n=57) did not contain any fluvial species but was comprised of 18% intolerant/moderately tolerant macrohabitat generalists, this meets the guidance in the 2022 CALM (MassDEP 2022b) for a designated Warmwater Fishery. According to MassDMF biologists, there are three barriers in Hanover/Hanson along this Indian Head River AU that obstruct the passage of river herring, American eel, and/or American shad (population score 7 and 8): the Factory Pond Dam in Hanover/Hanson (NATID# MA00391) (passage score of 10—no possible passage); the State Street Dam in Hanover/Hanson (also known as the "Cross Street Dam", NATID# MA01066) (passage score 8 - severe impediment); and the Elm Street Dam (with existing fishway) (NATID# MA00428) in Hanover/Pembroke at the most downstream end of this assessment unit (passage score of 4-restricted passage). DMF visited the Elm Street Dam site in 2020 and noted that despite repairs that were made to the fishway in 2008 (funded by the DMF hubline project), additional repairs are now necessary. In a recent press release (MassDEP 2022a), it was announced that over \$410,000 in funding was awarded to the North South River Watershed Association to support feasibility studies for the removal of the State Street Dam and Elm Street Dam (called Curtis Crossing Dam in the announcement).</p> <p>The Aquatic Life Use for this Indian Head River AU (MA94-04) will continue to be assessed as Not Supporting. The Fish Passage Barrier impairment will be carried forward based on the barriers posed by the Factory Pond Dam, State Street Dam, and Elm Street Dam.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5906	MassDFG	Fish Community	Indian Head River	Off Water st. below old watertown dam site., Hanover	42.09749	-70.83497

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, B = Bluegill, LMB = Largemouth Bass, P = Pumpkinseed, SL = Sea Lamprey]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5906	07/12/16	BP	TP		5	57	0%	0	0%	0%	2	18%	No	No	AE, B, LMB, P, SL,

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary
<p>According to DMF biologists, there are three barriers along this segment of Indian Head River in Hanover/Hanson that obstruct the passage of river herring, American eel, and/or American shad (population score 7 and 8): the Factory Pond Dam in Hanover/Hanson (NATID# MA00391) (passage score of 10—no possible passage); the State Street Dam in Hanover/Hanson (also known as the "Cross Street Dam", NATID# MA01066) (passage score 8 - severe impediment); and the Elm Street Dam (with existing fishway) (NATID# MA00428) in Hanover/Pembroke at the most downstream end of this assessment unit (passage score of 4-restricted passage). DMF visited the Elm Street Dam site in 2020 and noted that despite repairs that were made to the fishway in 2008 (as funded by the DMF hubline project), additional repairs are now necessary. The Aquatic Life Use for Indian Head River (Assessment Unit MA94-04) is assessed as Not Supporting based on the barrier to diadromous fish passage at the Factory Pond Dam, the State Street Dam and the Elm Street Dam.</p>

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>Since there is a site specific DPH advisory for elevated mercury in fish tissue including this Indian Head River AU (MA94-04), the Fish Consumption Use will continue to be assessed as Not Supporting with the Mercury in Fish Tissue impairment being carried forward. MA DPH advises that <i>"No one should consume any fish from this water body"</i> from the Forge Pond Dam on the Drinkwater River in Hanover, downstream through Factory Pond and the Indian Head River, to the Rt. 3 crossing of the North River due to mercury contamination (MassDPH 2021).</p>	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
<p>No recent data are available for this Indian Head River AU (MA94-04), so the Aesthetics Use is Not Assessed.</p>	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

North South River Watershed Association (NSRWA) staff/volunteers collected *E. coli* bacteria samples from this Indian Head River AU (MA94-04) where Winter St becomes Broadway (NSRWA_Indian Head River) between July and August 2019 (n=4). Data analysis indicated that 33% of intervals had GMs >126 CFU/100mL and one sample exceeded the 410 CFU/100mL STV. The seasonal GM was 90 CFU/100mL.

Although the NSRWA *E. coli* samples did not exceed the use attainment impairment threshold for a single year, limited frequency dataset, the Primary Contact Recreation Use for this Indian Head River AU (MA94-04) will continue to be assessed as Not Supporting. The NSRWA data are too limited to remove the historical *Escherichia Coli* (*E. Coli*) impairment (so this impairment is being carried forward). Additional monitoring is being recommended to allow for reevaluation of the *E. coli* impairment in a future cycle.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Indian Head River	North South River Watershed Association	Water Quality	Indian Head River	Where Winter St becomes Broadway	42.0906	-70.86534

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)
(MassDEP Undated 3)

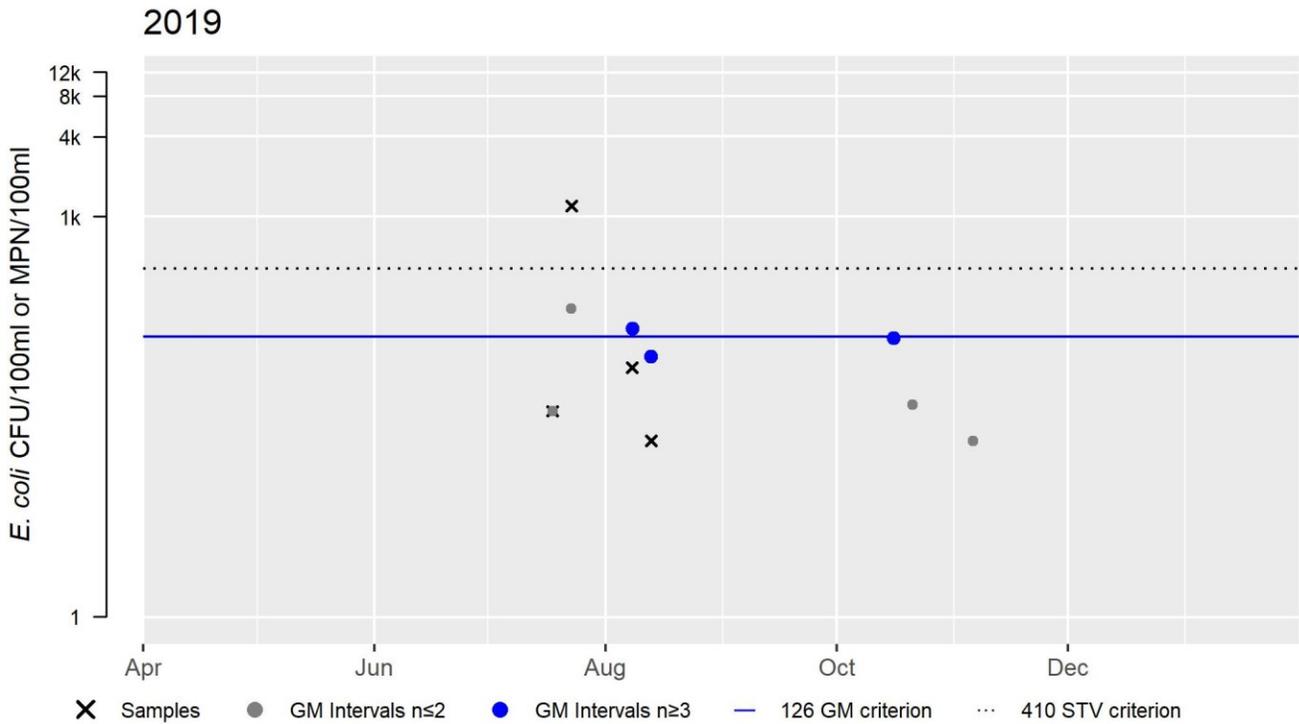
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Indian Head River	North South River Watershed Association	<i>E. coli</i>	07/18/19	08/13/19	4	21	1200	90

NSRWA_Indian Head River *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	90
#GMI	3
#GMI Ex	1
%GMI Ex	33
n>STV	1
%n>STV	25

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected <i>E. coli</i> bacteria samples from this Indian Head River AU (MA94-04) where Winter St becomes Broadway (NSRWA_Indian Head River) between July and August 2019 (n=4). Data analysis indicated that none of the intervals had GMs >630 CFU/100mL and none of the samples exceeded the 1260 CFU/100mL STV. The overall GM was 90 CFU/100mL.</p> <p>Since the NSRWA <i>E. coli</i> samples in summer 2019 did not exceed the use attainment impairment threshold for a single year, limited frequency dataset, the Secondary Contact Recreation Use for this Indian Head River AU (MA94-04) will continue to be assessed as Fully Supporting.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Indian Head River	North South River Watershed Association	Water Quality	Indian Head River	Where Winter St becomes Broadway	42.0906	-70.86534

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)

(MassDEP Undated 3)

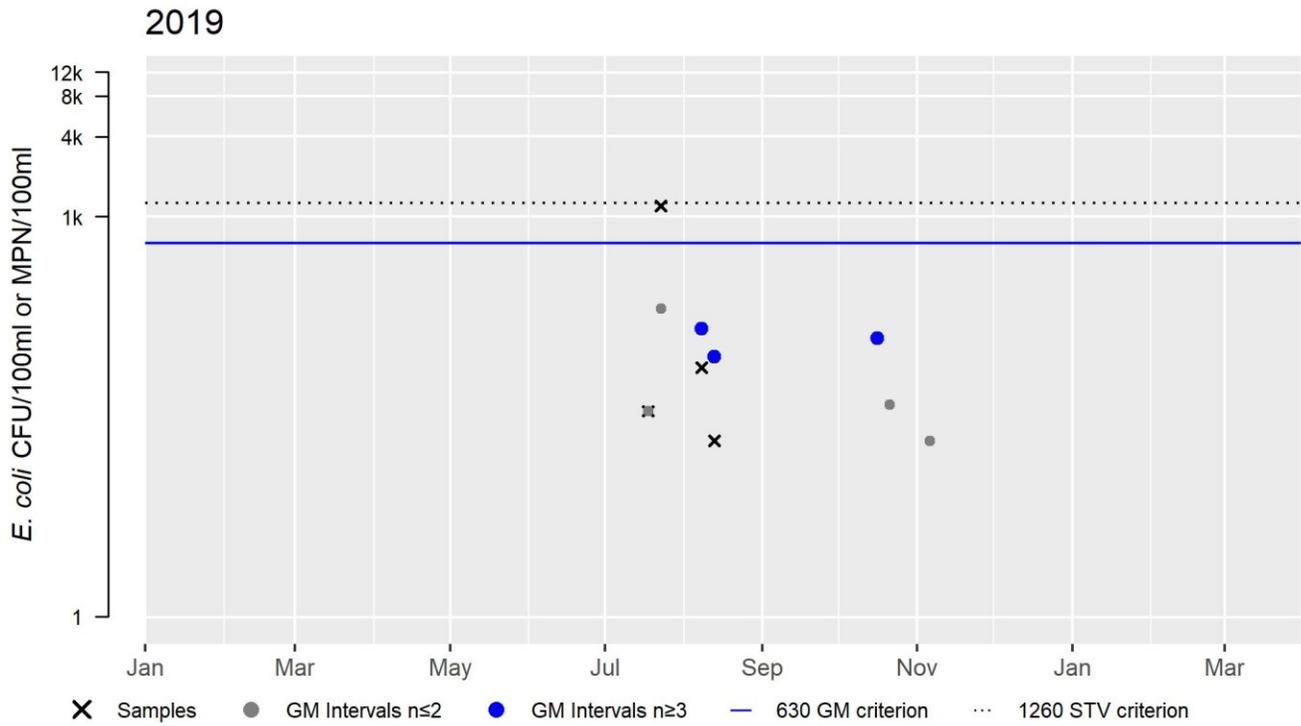
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Indian Head River	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	21	1200	90

NSRWA_Indian Head River *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	90
#GMI	3
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

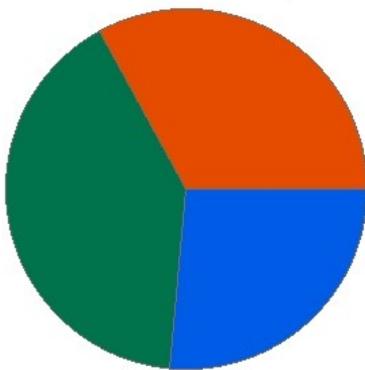


Indian Head River (MA94-22)

Location:	From Curtis Crossing Dam (also called Ludhams Ford Dam (NATID: MA00428)) west of Elm Street, Hanover/Pembroke to mouth at confluence with Herring Brook, (forming headwaters of North River) Hanover/Pembroke.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B: ORW, WWF

Indian Head River - MA94-22

Watershed Area: 31.94 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	31.94	7.07	9.83	2.16
Agriculture	1%	0.2%	1.9%	0.3%
Developed	32.7%	28.6%	20.9%	18.4%
Natural	40.1%	45%	35.4%	40.4%
Wetland	26.2%	26.2%	41.9%	40.9%
Impervious Cover	15.9%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Added
5	5	Mercury in Fish Tissue		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Mercury in Fish Tissue	Contaminated Sediments (Y)		X			
Mercury in Fish Tissue	Illegal Dumps or Other Inappropriate Waste Disposal (Y)		X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>According to MassDMF biologists, there is one barrier at the upstream end of this Indian Head River AU (MA94-22) that obstructs the passage of river herring and/or American shad (population score of 8): the Elm Street Dam (with existing fishway) (NATID# MA00428) in Hanover/Pembroke was given a passage score of 4 on a 0-10 scale (restricted passage). DMF staff visited the Elm Street Dam site in 2020 and noted that despite repairs that were made to the fishway in 2008 (funded by the DMF hubline project), additional repairs are now necessary. The Aquatic Life Use of this Indian Head River AU (MA94-22) is assessed as Not Supporting based on the barrier to diadromous fish passage at the Elm Street Dam. A Fish Passage Barrier impairment is being added.</p>	

Biological Monitoring Information

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary
<p>According to DMF biologists, there is one barrier at the upstream end of this segment of this Indian Head River AU that obstructs the passage of river herring and/or American shad (population 8): the Elm Street Dam (with existing fishway) (NATID# MA00428) in Hanover/Pembroke was given a passage score of "4" on a 0-10 scale (restricted passage). DMF visited the Elm Street Dam site in 2020 and noted that despite repairs that were made to the fishway in 2008 (as funded by the DMF hubline project), additional repairs are now necessary. The Aquatic Life Use for Indian Head River (Assessment Unit MA94-22) is assessed as Not Supporting based on the barrier to diadromous fish passage at the Elm Street Dam.</p>

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>Since there is a site specific DPH advisory for elevated mercury in fish tissue including this Indian Head River AU (MA94-22), the Fish Consumption Use will continue to be assessed as Not Supporting with the Mercury in Fish Tissue impairment being carried forward. MA DPH advises that “No one should consume any fish from this water body” from the Forge Pond Dam on the Drinkwater River in Hanover, downstream through Factory Pond and the Indian Head River, to the Rt. 3 crossing of the North River due to mercury contamination (MassDPH 2021).</p>	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
<p>No data are available for this Indian Head River AU (MA94-22), so the Aesthetics Use is Not Assessed.</p>	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
<p>No <i>E. coli</i> or Enterococci bacteria data are available for this Indian Head River AU (MA94-22), so the Primary Contact Recreation Use is Not Assessed.</p>	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available for this Indian Head River AU (MA94-22), so the Secondary Contact Recreation Use is Not Assessed.	

Indian Pond (MA94072)

Location:	Kingston/Plympton.
AU Type:	FRESHWATER LAKE
AU Size:	64 ACRES
Classification/Qualifier:	B

No usable data were available for Indian Pond (MA94072) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Iron Mine Brook (MA94-24)

Location:	Headwaters north of Route 139, Hanover to mouth at confluence with Indian Head River, Hanover (area associated with North River Corridor designated as ORW).
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B: ORW ('ORW' applies only to portion in North River Corridor)

No usable data were available for Iron Mine Brook (MA94-24) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

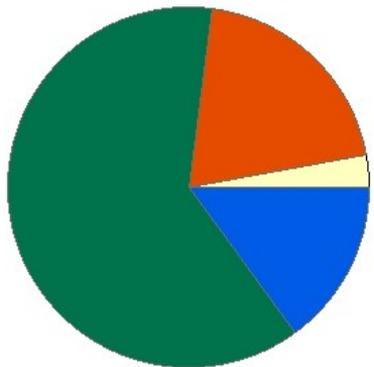
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Island Creek (MA94-46)

Location:	Headwaters outlet Island Creek Pond , Duxbury to tidal portion south of Route 3A and west of Bryant Avenue, Duxbury (through former 2016 segment; Mill Pond MA94101).
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

Island Creek - MA94-46

Watershed Area: 1.69 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.69	1.69	0.71	0.71
Agriculture	2.9%	2.9%	6.9%	6.9%
Developed	20%	20%	13.1%	13.1%
Natural	62.1%	62.1%	55.5%	55.5%
Wetland	14.9%	14.9%	24.5%	24.5%
Impervious Cover	9.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

According to MassDMF biologists there are four structures causing passage limitation to diadromous fish along this Island Creek AU (MA94-46) in Duxbury. The targeted species throughout the AU are river herring and American eel, with a population score of "1". From upstream to downstream: the Island Creek Pond outlet stream channel is substantially overgrown and despite progress made with maintenance efforts between 2017 and 2020, a passage score of 7 (assigned on a 0-10 scale), indicating that the outlet channel is a severe impediment to the passage of diadromous fish. A little further downstream (just downstream of Elm Street), channel boulders from the former dam were given a passage score of 4 (despite efforts to chip away at them in 2017), indicating that the boulders still restrict the passage of diadromous fish. The nearby Island Creek Pond control fishway was given a passage score of 1 (minor obstruction) following repair work in 2007. Just upstream of Tremont Street, the Mill Pond Dam (NATID# MA00419) was given a passage score of 1 (minor obstruction), following the installation of a new fishway in 2007. Close to the downstream end of the AU ~0.2 river miles south of Tremont Street, the railroad bank culvert was given a passage score of 2 (minor obstruction). DMF biologists note that annual maintenance/debris removal at the culvert is needed and that rainbow smelt are also a targeted species in this area.

The Aquatic Life Use for this Island Creek AU (MA94-46) will continue to be assessed as Not Supporting. The Fish Passage Barrier impairment is being carried forward given the barriers to diadromous fish passage at the Island Creek Pond outlet stream channel and at the channel boulders downstream of Elm Street.

Biological Monitoring Information

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary
<p>According to DMF biologists there are four structures causing passage limitation to diadromous fish along Island Creek in Duxbury. The targeted species throughout the AU are river herring and American eel, with a population score of "1". From upstream to downstream: the Island Creek Pond outlet stream channel is substantially overgrown and despite progress made with maintenance efforts between 2017 and 2020, a passage score of "7" was assigned on a 0-10 scale, indicating that the outlet channel is a severe impediment to the passage of diadromous fish. A little further downstream (just downstream of Elm Street), channel boulders from the former dam were given a passage score of "4" (despite efforts to chip away at them in 2017), indicating that the boulders still restrict the passage of diadromous fish. The nearby Island Creek Pond control fishway was given a passage score of "1" (minor obstruction) following repair work in 2007. Just upstream of Tremont Street, the Mill Pond Dam (NATID# MA00419) was given a passage score of "1" (minor obstruction), following the installation of a new fishway in 2007. Close to the bottom of the AU ~0.2 river miles south of Tremont Street, the railroad bank culvert was given a passage score of "2" (minor obstruction). DMF biologists note that annual maintenance/debris removal at culvert is needed and that rainbow smelt are also a targeted species in this area. The Aquatic Life Use for Island Creek (Assessment Unit MA94-46) will remain assessed as Not Supporting, based on the barrier to diadromous fish passage at the Island Creek Pond outlet stream channel and channel boulders downstream of Elm Street.</p>

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Island Creek AU (MA94-46), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert

Not Assessed	NO
2022 Use Attainment Summary	
No data are available for this Island Creek AU (MA94-46), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available for this Island Creek AU (MA94-46), so the Primary Contact Recreation Use is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available for this Island Creek AU (MA94-46), so the Secondary Contact Recreation Use is Not Assessed.	

Island Creek (MA94-47)

Location:	Tidal portion, Duxbury to mouth at Kingston Bay, Duxbury.
AU Type:	ESTUARY
AU Size:	0.01 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess this Island Creek AU (MA94-47), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Island Creek AU (MA94-47), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Island Creek (MA94-47): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0024 sq mi (37%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0024 sq mi (37%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area \geq 0.0001 sq mi.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB43.2	Kingston Bay, North	Prohibited	0.00238	37.0%

Aesthetic

2022 Use Attainment	Alert
----------------------------	--------------

Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess this Island Creek AU (MA94-47), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available to assess this Island Creek AU (MA94-47), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Island Creek (MA94-47): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0024 sq mi (37%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available to assess this Island Creek AU (MA94-47), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Island Creek (MA94-47): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0024 sq mi (37%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Island Creek Pond (MA94073)

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

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>According to MassDMF biologists there is one structure obstructing the passage of river herring and American eel (population score of 1) between Island Creek Pond and the downstream AU (Island Creek MA94-46). The Island Creek Pond outlet stream channel has been noted to be substantially overgrown, and despite progress made on maintenance efforts between 2017 and 2020, a passage score of 7 was assigned on a 0-10 scale, indicating that the outlet channel is a severe impediment to the passage of diadromous fish.</p> <p>The Aquatic Life Use for Island Creek Pond (MA94073) will continue to be assessed as Not Supporting, based on the barrier to diadromous fish passage at the Island Creek Pond outlet stream channel. The Fish Passage Barrier impairment, as well as the Fanwort impairment are both being carried forward.</p>	

Biological Monitoring Information

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary

According to DMF biologists there is one structure obstructing the passage of river herring and American eel (population score of 1) between Island Creek Pond and the downstream AU (Island Creek MA94-46). The Island Creek Pond outlet stream channel has been noted to be substantially overgrown and despite progress made with maintenance efforts between 2017 and 2020, a passage score of "7" was assigned on a 0-10 scale, indicating that the outlet channel is a severe impediment to the passage of diadromous fish. The Aquatic Life Use for Island Creek Pond (Assessment Unit MA94073) will remain assessed as Not Supporting, based on the barrier to diadromous fish passage at the Island Creek Pond outlet stream channel.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Island Creek Pond (MA94073), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No data are available for Island Creek Pond (MA94073), so the Aesthetics Use is Not Assessed. The prior Alert due to the density of the non-native aquatic macrophyte, Fanwort (<i>Cabomba caroliniana</i>) in the pond (MassDEP 2006) is being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available for Island Creek Pond (MA94073), so the Primary Contact Recreation Use is Not Assessed. The Alert for the density of the non-native aquatic macrophyte, Fanwort (<i>Cabomba caroliniana</i>) in the pond (MassDEP 2006) is being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available for Island Creek Pond (MA94073), so the Secondary Contact Recreation Use is Not Assessed. The Alert for the density of the non-native aquatic macrophyte, Fanwort (<i>Cabomba caroliniana</i>) in the pond (MassDEP 2006) is being carried forward.	

Island Pond (MA94074)

Location:	[west of the locality of Cedarville] Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	52 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Mercury in Fish Tissue		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Mercury in Fish Tissue	Atmospheric Deposition (N)		X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Island Pond (MA94074), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>Following a public request, MassDEP biologists conducted fish toxics sampling at Island Pond (west of the locality of Cedarville, Plymouth) in June 2018. Because of elevated mercury measured in fish fillets, MassDPH issued the following fish consumption advisories:</p> <ul style="list-style-type: none"> • "Children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any fish from this water body." • "The general public should limit consumption of all fish from this water body to two meals per month." <p>Since there is a site specific DPH advisory for elevated mercury in fish tissue, the Fish Consumption Use for Island Pond (MA94074) is assessed as Not Supporting. The likely source, although not confirmed, is atmospheric deposition.</p>	

MassDEP fish toxics sampling information (2018-2020) and MassDPH Fish Consumption Advisory information (2019-2021) (MassDPH 2021, MassDEP 2018, MassDEP Undated 8)

Following a public request, MassDEP biologists conducted fish toxics sampling at Island Pond (west of the locality of Cedarville, Plymouth) in June 2018. Because of elevated mercury measured in fish fillets, MassDPH issued the following fish consumption advisories:

- *"Children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any fish from this water body."*
- *"The general public should limit consumption of all fish from this water body to two meals per month."*

Since there is a site specific DPH advisory for elevated mercury in fish tissue, the Fish Consumption Use for Island Pond (MA94074) is assessed as Not Supporting. The likely source, although not confirmed, is atmospheric deposition.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for Island Pond (MA94074) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci or <i>E. coli</i> bacteria data are available to assess the Primary Contact Recreation Use for this Island Pond AU (MA94074) so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available to assess the Secondary Contact Recreation Use for this Island Pond AU (MA94074) so it is Not Assessed.	

Island Pond (MA94075)

Location:	[locally known as Great Island Pond] Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	80 ACRES
Classification/Qualifier:	B

No usable data were available for Island Pond (MA94075) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Island Pond (MA94076)

Location:	[south of locality of South Pond] Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	12 ACRES
Classification/Qualifier:	B

No usable data were available for Island Pond (MA94076) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Jacobs Pond (MA94077)

Location:	Norwell.
AU Type:	FRESHWATER LAKE
AU Size:	61 ACRES
Classification/Qualifier:	B

No usable data were available for Jacobs Pond (MA94077) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged
4c	4c	(Fish Passage Barrier*)		Unchanged
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

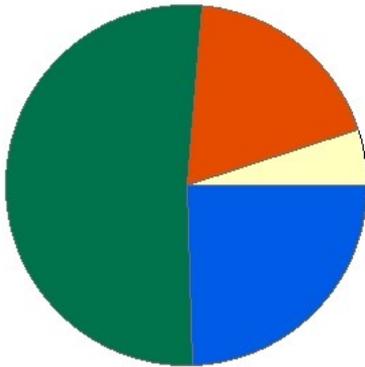
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X		X	X	X

Jones River (MA94-12)

Location:	Headwaters, outlet Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston.
AU Type:	RIVER
AU Size:	4.1 MILES
Classification/Qualifier:	B: WWF, HQW

Jones River - MA94-12

Watershed Area: 17.56 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	17.56	11.56	6.95	4.46
Agriculture	5%	5.6%	9%	9.3%
Developed	18.6%	19.4%	11.4%	10.8%
Natural	51.9%	49.6%	43.5%	41.5%
Wetland	24.5%	25.5%	36%	38.4%
Impervious Cover	7.6%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Aquatic Plants (Macrophytes)*)		Changed
5	5	(Dewatering*)		Unchanged
5	5	(Fish Passage Barrier*)		Unchanged
5	5	Algae		Unchanged
5	5	Dissolved Oxygen		Unchanged
5	5	Nutrient/Eutrophication Biological Indicators		Added
5	5	Turbidity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Water Diversions (Y)			X	X	X
(Dewatering*)	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
(Dewatering*)	Water Diversions (Y)	X				
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
(Fish Passage Barrier*)	Water Diversions (Y)	X				
Algae	Water Diversions (Y)			X	X	X
Dissolved Oxygen	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
Dissolved Oxygen	Water Diversions (Y)	X				
Nutrient/Eutrophication Biological Indicators	Water Diversions (Y)			X	X	X
Turbidity	Water Diversions (Y)			X	X	X

Supporting Information for Removed Impairments

2018/20 Removed Impairment	Removal Reason	Removal Comment
Aquatic Plants (Macrophytes)	Not caused by a pollutant (4c)	<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022b), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. The Jones River AU (MA94-12) downstream of Silver Lake was first listed as impaired for Aquatic Plants (Macrophytes) in the 2008 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP's summer 2001 water quality surveys in which sampling occurred 5 times each at the Forge Pond dam's spillway (JR104) and upstream of the Wapping Rd (Rt 106) bridge (JR103), Kingston. During these surveys, very dense aquatic macrophytes were observed at both the upstream (n=5/5) and downstream locations, (n=2/5) and the non-rooted, floating species, <i>Lemna/Utricularia</i> spp., were observed at both sites (MassDEP 2001). Google Earth images from August 2013, June 2015, and October 2018 at Forge Pond and potentially September 2014 upstream of Wapping Rd show high amounts of plant coverage (Google Earth Pro Undated).</p> <p>Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of several non-rooted, floating, aquatic macrophyte species in two impounded portions of the Jones River (MA94-12). Forge Pond alone comprises roughly 7.1% of the Jones River (MA94-12) AU and although it is difficult to determine an exact impacted length of the river upstream of Wapping Rd, it is likely that the impacted area, combined with Forge Pond, comprises >10% the length of the river AU. Therefore, at this time, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant, however, water quality and aquatic macrophyte surveys should be conducted throughout the AU to reevaluate use attainment in light of current water diversion practices (Silver Lake at the upstream end of this AU serves as a drinking water source for municipalities in the Taunton watershed, and flow regulation for water withdrawals has led to low flow issues in the Jones River- see the 2001 WQAR for more information (MassDEP 2006)).</p>

Aquatic Plants (Macrophytes)

Fieldsheets for MassDEP Station JR104, near the Forge Pond outlet structure near Lake St, Kingston (MassDEP 2001):

Project: _____ General weather conditions last 3 days at: _____ <http://mgis2.nws.noaa.gov/wr/cstns.htm>

SARIS # _____ date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcpn': _____

River Jones River

Town Kingston

Station ID # JR-104 Sampling Crew full names (initials ok for year round DWM employees)
 Lead: B. DeLesse Other: Tom Blair, Erica Matys

Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Date 6/27/01 Time (24 hr.) 10:00 Photos taken? yes no

Description of Station Access (include posted signs)
Proceed Side Turn-off - Lake St. Park on street @ end by white house #35

Station Description (describe precisely where samples are taken and general riparian condition (canopy cover, artificial banks, vegetation types, etc.))
Cement Dam & spillway access from Silver Lake School athletic field

Staff gage reading and source/type (if available)

Estimated water velocity none (0 fps) low (0-1 fps) medium (1-5 fps) high (>5 fps)

Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input checked="" type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	Water Color <input checked="" type="checkbox"/> Clear/Blue ADD <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input checked="" type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____
--	--	--	--	--	--

Phytoplankton Presence (check all that apply)
 None
 Sparse (0-25%)
 Moderate (25-75%)
 Dense (75-100%)
 Suspended
 Floating

Density of Aquatic Plants (check all that apply)
 None
 Unobservable (note why in description)
 Sparse (0-25%)
 Moderate (25-75%)
 Dense (75-100%)
 Emergent
 Floating
 Submerged

Presence of Periphyton (check all that apply)
 None
 Unobservable (note why in description)
 Sparse (0-25%)
 Moderate (25-75%)
 Dense (75-100%)
 Attached on rocks or bottom
 Attached on plants

Phytoplankton Description (general type, extent, color, condition, and location):

Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): nymphaea, typha, decodon, pontedericea

Periphyton Description (extent, color, condition, etc.):
Floc on weeds

Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Scum(s) yes no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)
 Description of Scum(s)

Observed Use(s) (include indications of use even if use not observed) none swimming boating water intake fishing other
 Description of Observed Use(s) (include numbers) or Indicators of Use(s)

Objectionable Deposits none floating sunken garbage/trash aquatic weeds flocculent mass (rust colored or other) other
 Description of Objectionable Deposits (type, extent and area affected...): Sediment / muck

Shoreline Erosion yes no (describe any shoreline erosion observed, note location; look for existing and potential slope failures, landslides.)
 Description of Erosion

Wildlife Sightings none fish mammals birds reptiles (snakes, turtles) waterfowl amphibians (frogs, salamanders) other
 Description of Wildlife Sightings (include numbers) or Indicators of Use(s)

Potential Pollution Sources none waste outfall pipes garbage/trash dumping land clearing green lawns shoreline residences other
 Description of Potential Pollution Sources

For office use only Field Sheet Login # 2001-0134 Unique ID # WD914 Revision Date June 2001
E: J2 18 Aug 03 20

Sheet 2 of 2

General Information (fill out prior to departure)

Project South Coastal General weather conditions last 3 days at: http://grv5.nws.noaa.gov/wb/cf/stns.htm
 SARIS # _____ date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcpn': _____
 River Jones River
 Town Kingsport
 Station ID # JR104 Sampling Crew full names (initials ok for year round DWM employees)
 Lead: Delespre Others: Baumgartner / Connor S

Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Date 7/25/01 Time (24 hr.) 9:30 Photos taken? yes no
 Description of Station Access (include posted signs)
lake st.

Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.])
Outlet of Kory Pond @ dam

Staff gage reading and source/type (if available)

Estimated water velocity none (0 fps) low (0-1 fps) medium (1-5 fps) high (>5 fps)

Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input checked="" type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input checked="" type="checkbox"/> Low (estimate minus <u>1</u> feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus _____ feet)	Odor <input type="checkbox"/> None <input checked="" type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	Water Color <input checked="" type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____
--	---	---	--	---	--

Phytoplankton Presence (check all that apply) <input checked="" type="checkbox"/> None <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Suspended <input type="checkbox"/> Floating	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input checked="" type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached on rocks or bottom <input checked="" type="checkbox"/> Attached on plants <input type="checkbox"/> Filamentous <input type="checkbox"/> Slimes <input checked="" type="checkbox"/> Thin films <input type="checkbox"/> Floe
--	--	---

Phytoplankton Description (general type, extent, color, condition, and location):

Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]):
Nymphaea (100% cover) Deadon, Potamogeton, Utricularia

Periphyton Description (extent, color, condition, etc.):
Brown

Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Scum(s) yes no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)
 Description of Scum(s)

Observed Use(s) (include indications of use even if use not observed) none swimming boating water intake fishing other
 Description of Observed Use(s) (include numbers) or Indicators of Use(s)

Objectionable Deposits none floating sunken garbage/trash aquatic weeds flocculent mass (rust colored or other) other
 Description of Objectionable Deposits (type, extent and area affected...)

Shoreline Erosion yes no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)
 Description of Erosion

Wildlife Sightings none fish mammals birds reptiles (snakes, turtles) waterfowl amphibians (frogs, salamanders) other
 Description of Wildlife Sightings (include numbers) or Indicators of Use(s)

Potential Pollution Sources none waste outfall pipes garbage/trash dumping land clearing green lawns shoreline residences other
 Description of Potential Pollution Sources

For office use only Field Sheet Login # 2001-0186 Unique ID # W0914 Revision Date June 2001
E: JZ 19AUG03

General Information (fill out prior to departure)		Sheet <u>1</u> of <u>1</u>	
Project <u>South Coastal</u>		General weather conditions last 3 days at: _____ http://gsv5.nws.noaa.gov/box/clsmz.htm	
SARIS # <u>94 57650</u>		date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcpn': _____	
River <u>Jones River</u>		<u>See sheet 1</u>	
Town <u>Kingston</u>			
Station ID # <u>JR104</u>		Sampling Crew full names (initials ok for year round DWM employees) Lead: <u>DeCesare</u> Others: <u>McCarthy, Baumgartner</u>	
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Date <u>8/29/01</u>		Time (24 hr.) <u>10:40</u>	
Description of Station Access (include posted signs)		Photos taken? <input type="checkbox"/> yes <input type="checkbox"/> no	
<u>Paved side turn off Lake Street, park on street at end by white house #35 across from Silver Lake School's athletic field.</u>			
Station Description (describe precisely where samples are taken and general riparian condition (canopy cover, artificial banks, vegetation types, etc.))			
<u>Cement dam at spillway.</u>			
Staff gage reading and source/type (if available)			
Estimated water velocity <input type="checkbox"/> none (0 fps) <input type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)			
Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input checked="" type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input checked="" type="checkbox"/> Low (estimate minus _____ feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus _____ feet)	Odor <input type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input checked="" type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____
Water Clarity (check all that apply) <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____		
Presence of Algae (check all that apply) <input checked="" type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Suspended <input type="checkbox"/> Floating	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input type="checkbox"/> Floating <input type="checkbox"/> Submerged	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached (on rocks, bottom) <input checked="" type="checkbox"/> Epiphyton (on plants) <input checked="" type="checkbox"/> Filamentous slime <input checked="" type="checkbox"/> Green/brown benthic mat <input checked="" type="checkbox"/> Green/brown rocks <input type="checkbox"/> Brown/rusty floe	
Algae Description (general type, extent, color, condition, and location):		Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Nymphaea</u> <u>Utricularia</u> (100% cover) <u>Typha, Pontederia</u>	
Periphyton Description (extent, color, condition, etc.):			
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Scum(s) <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)			
Description of Scum(s)			
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other			
Description of Observed Use(s) (include numbers) or Indicators of Use(s)			
Objectionable Deposits <input type="checkbox"/> none <input checked="" type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input checked="" type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other			
Description of Objectionable Deposits (type, extent and area affected...)			
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)			
Description of Erosion			
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other			
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)			
Potential Pollution Sources <input type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other			
Description of Potential Pollution Sources			
For office use only Field Sheet Login # <u>2001-0208</u>		Unique ID # <u>WD914</u>	
		Revision Date June 2001 <u>EJZSAW03</u>	

General Information (fill out prior to departure)					
Project <u>South Coastal</u>		General weather conditions last 3 days at: http://tgsv5.nws.noaa.gov/loc/clstns.htm			
SARIS # <u>94 57650</u>		date: _____ 'SkyC': _____ 'WxType': _____ 'Tpepn': _____			
River <u>Jones River</u>		<u>See sheet 1</u>			
Town <u>Kingston</u>		Sampling Crew full names (initials ok for year round DWM employees)			
Station ID # <u>JR104</u>		Lead: <u>G. DeCesare</u> Others: <u>Wienstein, Kir 2 S</u>			
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)					
Date <u>9/26/01</u>		Time (24 hr.) <u>08:50</u>		Photos taken? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Description of Station Access (include posted signs)					
<u>Paved side turn off Lake Street, park on street at end by white house #35 across from Silver Lake School's athletic field.</u>					
Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.])					
<u>Cement dam at spillway.</u>					
Staff gage reading and source/type (if available) <u>N/A</u> <u>No flow over dam (single impoundment)</u>					
Estimated water velocity <input type="checkbox"/> none (0 fps) <input type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)					
Current Weather	Air Temperature (°F)	Wind Conditions	Odor	Water Clarity (check all that apply)	Water Color
<input type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input checked="" type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	<input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input checked="" type="checkbox"/> 40-50 <input checked="" type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	<input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph)	<input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	<input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	<input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input checked="" type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____
Presence of Algae (check all that apply)		Density of Aquatic Plants (check all that apply)		Presence of Periphyton (check all that apply)	
<input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input checked="" type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%)		<input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%)		<input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%)	
<input type="checkbox"/> Suspended <input checked="" type="checkbox"/> Floating		<input type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged		<input checked="" type="checkbox"/> Attached (on rocks, bottom) <input type="checkbox"/> Epiphyton (on plants) <input checked="" type="checkbox"/> Filamentous slime <input checked="" type="checkbox"/> Green/brown benthic mat <input checked="" type="checkbox"/> Green/brown rocks <input checked="" type="checkbox"/> Brown/rusty floc (<u>over outlet</u>)	
Algae Description (general type, extent, color, condition, and location): <u>Algal mats, green</u>		Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Lemna, Nymphaea (100% cover) Typha, Utricularia, Pontederia</u>		Periphyton Description (extent, color, condition, etc.):	
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)					
Scum(s) <input checked="" type="checkbox"/> yes <input type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)					
Description of Scum(s) <u>Algal, trash</u>					
Observed Use(s) (include indications of use even if use not observed) <input type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input checked="" type="checkbox"/> fishing <input type="checkbox"/> other					
Description of Observed Use(s) (include numbers) or Indicators of Use(s)					
Objectionable Deposits <input type="checkbox"/> none <input type="checkbox"/> floating <input type="checkbox"/> sunken <input checked="" type="checkbox"/> garbage/trash <input type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other					
Description of Objectionable Deposits (type, extent and area affected...)					
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)					
Description of Erosion					
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other					
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)					
Potential Pollution Sources <input type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other					
Description of Potential Pollution Sources					
For office use only Field Sheet Login # <u>2001-0252</u>		Unique ID # <u>W0914</u>		Revision Date <u>June 2001</u>	
<u>E: JZ2SAUG03</u>					

Rivers and Streams Field Sheet

Sheet 9 of 7

General Information (fill out prior to departure)

Project South Coastal General weather conditions last 3 days at: See Sheet 1 <http://gsv5.nws.noaa.gov/er/bad/clsmn.htm>
 SARIS # 94 57650 date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcpn': _____
 River Jones River
 Town Kingston
 Station ID # JRI04 Sampling Crew full names (initials ok for year-round DWM employees)
 Lead: G. DeCesare Others: Weinstein, Cooke

Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Date 10/24/01 Time (24 hr.) 1100 Photos taken? yes no

Description of Station Access (include posted signs)
Paved side turn off Lake Street, park on street at end by white house #35 across from Silver Lake School's athletic field.

Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.]
Cement dam at spillway.

Staff gage reading and source/type (if available) N/A

Estimated water velocity none (0 fps) low (0-1 fps) medium (1-5 fps) high (>5 fps)

Current Weather <input type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input checked="" type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input checked="" type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input checked="" type="checkbox"/> Low (estimate minus ____ feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus ____ feet)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input checked="" type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____
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Presence of Algae (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Suspended <input checked="" type="checkbox"/> Floating Algae Description (general type, extent, color, condition, and location): <u>decaying film (green)</u>	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <u>Nymphaea (100% cover)</u> <input checked="" type="checkbox"/> Floating <u>Lemna, utricularia, Decodon,</u> <input checked="" type="checkbox"/> Submerged <u>Sparganium, Typha</u> Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>100% cover</u>	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached (on rocks, bottom) <input checked="" type="checkbox"/> Epiphyton (on plants) <input checked="" type="checkbox"/> Filamentous slime <input checked="" type="checkbox"/> Green/brown benthic mat <input checked="" type="checkbox"/> Green/brown rocks <input type="checkbox"/> Brown/rusty floc Periphyton Description (extent, color, condition, etc.):
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Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Scum(s) yes no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)
 Description of Scum(s) Algae, decaying plants

Observed Use(s) (include indications of use even if use not observed) none swimming boating water intake fishing other
 Description of Observed Use(s) (include numbers) or Indicators of Use(s)

Objectionable Deposits none floating sunken garbage/trash aquatic weeds flocculent mass (rust colored or other) other
 Description of Objectionable Deposits (type, extent and area affected...)
Muck, silt - very thick

Shoreline Erosion yes no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)
 Description of Erosion

Wildlife Sightings none fish mammals birds reptiles (snakes, turtles) waterfowl amphibians (frogs, salamanders) other
 Description of Wildlife Sightings (include numbers) or Indicators of Use(s)

Potential Pollution Sources none waste outfall pipes garbage/trash dumping land clearing green lawns shoreline residences other
 Description of Potential Pollution Sources
Water withdrawals

For office use only Field Sheet Login # 2001-0282 Unique ID # W0914 Revision Date June 2001 E:02 19AUG03

Fieldsheets for MassDEP Station JR103, upstream of the Rt 106 / Wapping Rd crossing, Kingston (MassDEP 2001):

Sheet 2 of 16

General Information (fill out prior to departure)

Project _____ General weather conditions last 3 days at: 06/27/01 <http://tgv5.nws.noaa.gov/box/clstns.htm>
 SARIS # _____ date: _____ SkyC: _____ WxType: _____ Tpcpn: _____
 River Jones River
 Town Kingston
 Station ID # JR-103 Sampling Crew (full names - initials ok for year round DWM employees)
 Lead: E DeLeone Others: Jim Blair, Erica Mertes

Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Date 06/27/01 Time (24 hr.) 9:30 Photos taken? yes no
 Description of Station Access (include posted signs)
Wide Breakdown lane (park)
 Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.])
Rt. 106 Bridge - center of river - upstream side

Staff gage reading and source/type (if available)

Estimated water velocity none (0 fps) low (0-1 fps) medium (1-5 fps) high (>5 fps)

Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input checked="" type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input type="checkbox"/> Low (estimate minus ____ feet) <input checked="" type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus ____ feet)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input checked="" type="checkbox"/> Suspended solids/murky	Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input checked="" type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____
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Phytoplankton Presence (check all that apply) <input type="checkbox"/> None <input checked="" type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Suspended <input type="checkbox"/> Floating	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Emergent <input type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input checked="" type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached on rocks or bottom <input checked="" type="checkbox"/> Attached on plants
Phytoplankton Description (general type, extent, color, condition, and location): <u>Brown</u>	Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>milfoil, nuphar, potamogeton, lemna</u>	<input type="checkbox"/> Filamentous <input type="checkbox"/> Slimes <input checked="" type="checkbox"/> Thin films <input type="checkbox"/> Floe Periphyton Description (extent, color, condition, etc.): <u>Brown</u>

Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Scum(s) yes no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics) cedar
 Description of Scum(s) _____

Observed Use(s) (include indications of use even if use not observed) none swimming boating water intake fishing other
 Description of Observed Use(s) (include numbers) or Indicators of Use(s) _____

Objectionable Deposits none floating sunken garbage/trash aquatic weeds flocculent mass (rust colored or other) other
 Description of Objectionable Deposits (type, extent and area affected...) _____

Shoreline Erosion yes no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides)
 Description of Erosion _____

Wildlife Sightings none fish mammals birds reptiles (snakes, turtles) waterfowl amphibians (frogs, salamanders) other
 Description of Wildlife Sightings (include numbers) or Indicators of Use(s) _____

Potential Pollution Sources none waste outfall pipes garbage/trash dumping land clearing green lawns shoreline residences other
 Description of Potential Pollution Sources _____

For office use only Field Sheet Login # 2001 - 0133 Unique ID # WB913 E: JZ18Aug05 Revision Date June 2001

General Information (fill out prior to departure)		Project <u>South Coast 1</u>		General weather conditions last 3 days at: http://igov5.nws.noaa.gov/wr/box/clims.htm	
SARIS # _____		date: _____		'SkyC': _____	
River <u>Jones River</u>		'WxType': _____		'Tcpgn': _____	
Town <u>Kingston</u>		Sampling Crew full names (initials ok for year round DWM employees)			
Station ID # <u>JR103</u>		Lead: <u>DeCesore</u>		Others: <u>Baumgartner / Connor S</u>	
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)					
Date <u>7/25/01</u>		Time (24 hr.) <u>09:10</u>		Photos taken? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Description of Station Access (include posted signs) <u>RT 106 Bridge</u>					
Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.]) <u>Upstream side</u>					
staff gage reading and source/type (if available)					
Estimated water velocity <input type="checkbox"/> none (0 fps) <input checked="" type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)					
Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow		Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input checked="" type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100		Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph)	
		River Water Level <input type="checkbox"/> Low (estimate minus ___ feet) <input checked="" type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus ___ feet)		Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	
				Water Clarity (check all that apply) <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	
				Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input checked="" type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____	
Phytoplankton Presence (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Suspended <input type="checkbox"/> Floating		Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged		Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached on rocks or bottom <input checked="" type="checkbox"/> Attached on plants	
Phytoplankton Description (general type, extent, color, condition, and location): <u>Grown in water column</u>		Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Lemna, Sparganium, Pontederia</u>		Periphyton Description (extent, color, condition, etc.): <u>Brown + green</u>	
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)					
Scum(s) <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)					
Description of Scum(s)					
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other					
Description of Observed Use(s) (include numbers) or Indicators of Use(s)					
Objectionable Deposits <input type="checkbox"/> none <input type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input checked="" type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input checked="" type="checkbox"/> other					
Description of Objectionable Deposits (type, extent and area affected...) <u>Algae</u>					
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location; look for existing and potential slope failures, landslides.)					
Description of Erosion					
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other					
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)					
Potential Pollution Sources <input checked="" type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other					
Description of Potential Pollution Sources					
For office use only Field Sheet Login #		Unique ID #		Revision Date	
<u>2001-0185</u>		<u>W0913</u>		<u>E:72100</u>	

Rivers and Streams Field Sheet		RIVERS and Streams Sheet <u>6</u> of <u>7</u>
General Information (fill out prior to departure)		
Project <u>South Coastal</u>	General weather conditions last 3 days at: <u>http://hgsv3.nws.noaa.gov/box/clstns.htm</u>	
SARIS # <u>94 57650</u>	date: _____	'SkyC': _____ 'WxType': _____ 'Tpeps': _____
River <u>Jones River</u>	<u>See sheet 1</u>	
Town <u>Kingston</u>		
Station ID # <u>JR103</u>	Sampling Crew full names (initials ok for year round DWM employees)	
	Lead: <u>DeCesare</u> Others: <u>McCarthy, Baumgartel</u>	
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)		
Date <u>8/29/01</u>	Time (24 hr.) <u>1100</u>	Photos taken? <input type="checkbox"/> yes <input type="checkbox"/> no
Description of Station Access (include posted signs)		
<u>Park in wide breakdown lane.</u>		
Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.])		
<u>Route 106 Bridge - center of river - upstream side</u>		
Staff gage reading and source/type (if available)		
Estimated water velocity <input type="checkbox"/> none (0 fps) <input checked="" type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)		
Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input checked="" type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input checked="" type="checkbox"/> Low (estimate minus <u>1</u> feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus _____ feet)
Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input checked="" type="checkbox"/> Suspended solids/murky	Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____
Presence of Algae (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Suspended <input type="checkbox"/> Floating	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached (on rocks, bottom) <input checked="" type="checkbox"/> Epiphyton (on plants) <input checked="" type="checkbox"/> Filamentous slime <input checked="" type="checkbox"/> Green/brown benthic mat <input type="checkbox"/> Green/brown rocks <input type="checkbox"/> Brown/rusty floc
Algae Description (general type, extent, color, condition, and location): <u>Brown in water column</u>	Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Sporogonium, Potamogeton, Myriophyllum, Lemna</u>	Periphyton Description (extent, color, condition, etc.): <u>Brown film on everything</u>
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)		
Scum(s) <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)		
Description of Scum(s)		
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other		
Description of Observed Use(s) (include numbers) or Indicators of Use(s)		
Objectionable Deposits <input type="checkbox"/> none <input checked="" type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input checked="" type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other		
Description of Objectionable Deposits (type, extent and area affected...)		
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)		
Description of Erosion		
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other		
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)		
Potential Pollution Sources <input type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other		
Description of Potential Pollution Sources		
For office use only Field Sheet Login # <u>2001-0209</u>	Unique ID # <u>W0913</u>	Revision Date June 2001 <u>E:JZZ5A0903</u>

Rivers and Streams Field Sheet		RIVERS and STREAMS Sheet 3 of 7.	
General Information (fill out prior to departure)			
Project <u>South Coastal</u>	General weather conditions last 3 days at: _____ http://tgv5.nws.noaa.gov/box/clstns.htm		
SARIS # <u>94 57650</u>	date: _____	'SkyC': _____	'WxType': _____
River <u>Jones River</u>	<u>See sheet 1</u>		
Town <u>Kingston</u>			
Station ID # <u>JR103</u>	Sampling Crew full names (initials ok for year round DWM employees)		
	Lead: <u>G. DeCesare</u>	Others: <u>Weansten Kinas Chase</u>	
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Date <u>9/26/01</u>	Time (24 hr.) <u>9:18</u>	Photos taken? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Description of Station Access (include posted signs)			
<u>Park in wide breakdown lane.</u>			
Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.]			
<u>Route 106 Bridge - center of river - upstream side</u>			
Staff gage reading and source/type (if available) <u>N/A</u>			
Estimated water velocity <input type="checkbox"/> none (0 fps) <input checked="" type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)			
Current Weather <input type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input checked="" type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input checked="" type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input type="checkbox"/> Low (estimate minus ____ feet) <input checked="" type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus ____ feet)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____
Water Clarity (check all that apply) <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky		Water Color (check all that apply) <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input checked="" type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____	
Presence of Algae (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input checked="" type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Suspended <input checked="" type="checkbox"/> Floating		Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged	
Algae Description (general type, extent, color, condition, and location): <u>suspended in water</u> <u>+ mats on surface</u>		Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Arctostaphylos, Sparganium, Lemna,</u> <u>Pontederic, Polygonum</u>	
Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached (on rocks, bottom) <input type="checkbox"/> Epiphyton (on plants) <input type="checkbox"/> Filamentous slime <input type="checkbox"/> Green/brown benthic mat <input checked="" type="checkbox"/> Green/brown rocks <input type="checkbox"/> Brown/rusty floc			
Periphyton Description (extent, color, condition, etc.):			
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Scum(s) <input checked="" type="checkbox"/> yes <input type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)			
Description of Scum(s) <u>dust on blanket</u>			
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other			
Description of Observed Use(s) (include numbers) or Indicators of Use(s)			
Objectionable Deposits <input type="checkbox"/> none <input type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input checked="" type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other			
Description of Objectionable Deposits (type, extent and area affected...)			
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)			
Description of Erosion			
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other			
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)			
Potential Pollution Sources <input type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other			
Description of Potential Pollution Sources <u>road run-off</u>			
For office use only Field Sheet Login # <u>2001-0253</u>		Unique ID # <u>W0913</u>	
		Revision Date June 2001 <u>E: JZSAVA03</u>	

Massachusetts Department of Environmental Protection/Division of Watershed Management
Rivers and Streams Field Sheet

Rivers and Streams
Sheet 6 of 7

General Information (fill out prior to departure)

Project South Coastal General weather conditions last 3 days at: See Sheet 1 <http://grv5.nws.noaa.gov/en/box/ctans.htm>
 SARIS # 94 57650 date: _____ 'Sky': _____ 'WxType': _____ 'Tpcpn': _____
 River Jones River
 Town Kingston
 Station ID # JR103 Sampling Crew full names (initials ok for year round DWM employees)
 Lead: G. DeCesare Others: Weinstein, Cooke

Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)
 Date 10/24/01 Time (24 hr.) 1120 Photos taken? yes no

Description of Station Access (include posted signs)
Park in wide breakdown lane.

Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.]
Route 106 Bridge - center of river - upstream side

Staff gage reading and source type (if available) N/A

Estimated water velocity low (0 fps) low (0-1 fps) medium (1-5 fps) high (>5 fps) very low flow

Current Weather <input type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input checked="" type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input checked="" type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input checked="" type="checkbox"/> Low (estimate minus ___ feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus ___ feet)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other	Water Clarity (check all that apply) <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	Water Color (check all that apply) <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input checked="" type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other
--	---	--	--	---	---

Presence of Algae (check all that apply) <input checked="" type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Suspended <input type="checkbox"/> Floating	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input checked="" type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Attached (on rocks, bottom) <input type="checkbox"/> Epiphyton (on plants) <input type="checkbox"/> Filamentous slime <input type="checkbox"/> Green/brown benthic mat <input type="checkbox"/> Green/brown rocks <input type="checkbox"/> Brown/rusty flocc
Algae Description (general type, extent, color, condition, and location): _____ _____ _____		Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Mostly decaying</u>
		Periphyton Description (extent, color, condition, etc.): <u>Can't tell from Bridge today</u>

Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Scum(s) yes no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)
 Description of Scum(s) dust sheen

Observed Use(s) (include indications of use even if use not observed) none swimming boating water intake fishing other
 Description of Observed Use(s) (include numbers) or Indicators of Use(s)

Objectionable Deposits none floating sunken garbage/trash aquatic weeds flocculent mass (rust colored or other) other
 Description of Objectionable Deposits (type, extent and area affected...)
decaying weeds

Shoreline Erosion yes no (describe any shoreline erosion observed, note location; look for existing and potential slope failures, landslides.)
 Description of Erosion

Wildlife Sightings none fish mammals birds reptiles (snakes, turtles) waterfowl amphibians (frogs, salamanders) other
 Description of Wildlife Sightings (include numbers) or Indicators of Use(s)

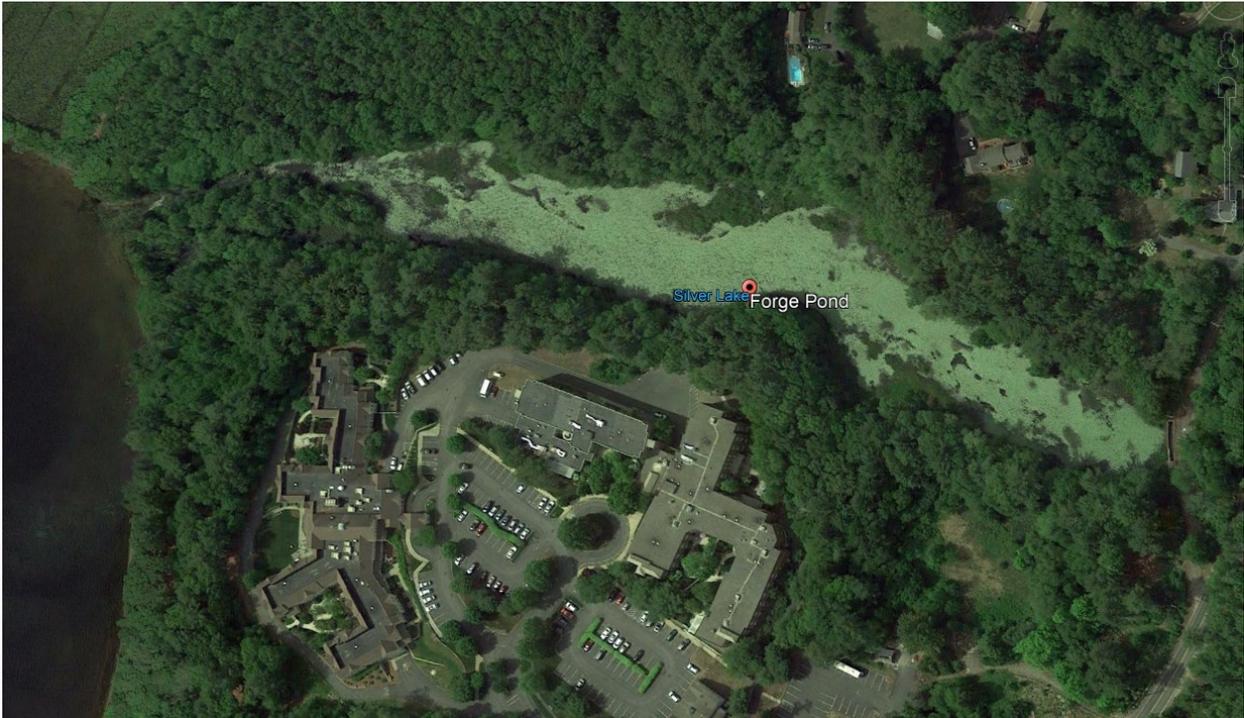
Potential Pollution Sources none waste outfall pipes garbage/trash dumping land clearing green lawns shoreline residences other
 Description of Potential Pollution Sources
road runoff

For office use only Field Sheet Login # 2001-0283 Unique ID # W0913 Revision Date June 2001
E:72 19A 1903

Google Earth image of Forge Pond, the impounded upstream portion of the Jones River MA94-12 AU, 8/24/2013
(Google Earth Pro Undated):



Google Earth image of Forge Pond, the impounded upstream portion of the Jones River MA94-12 AU, 6/6/2015
(Google Earth Pro Undated):



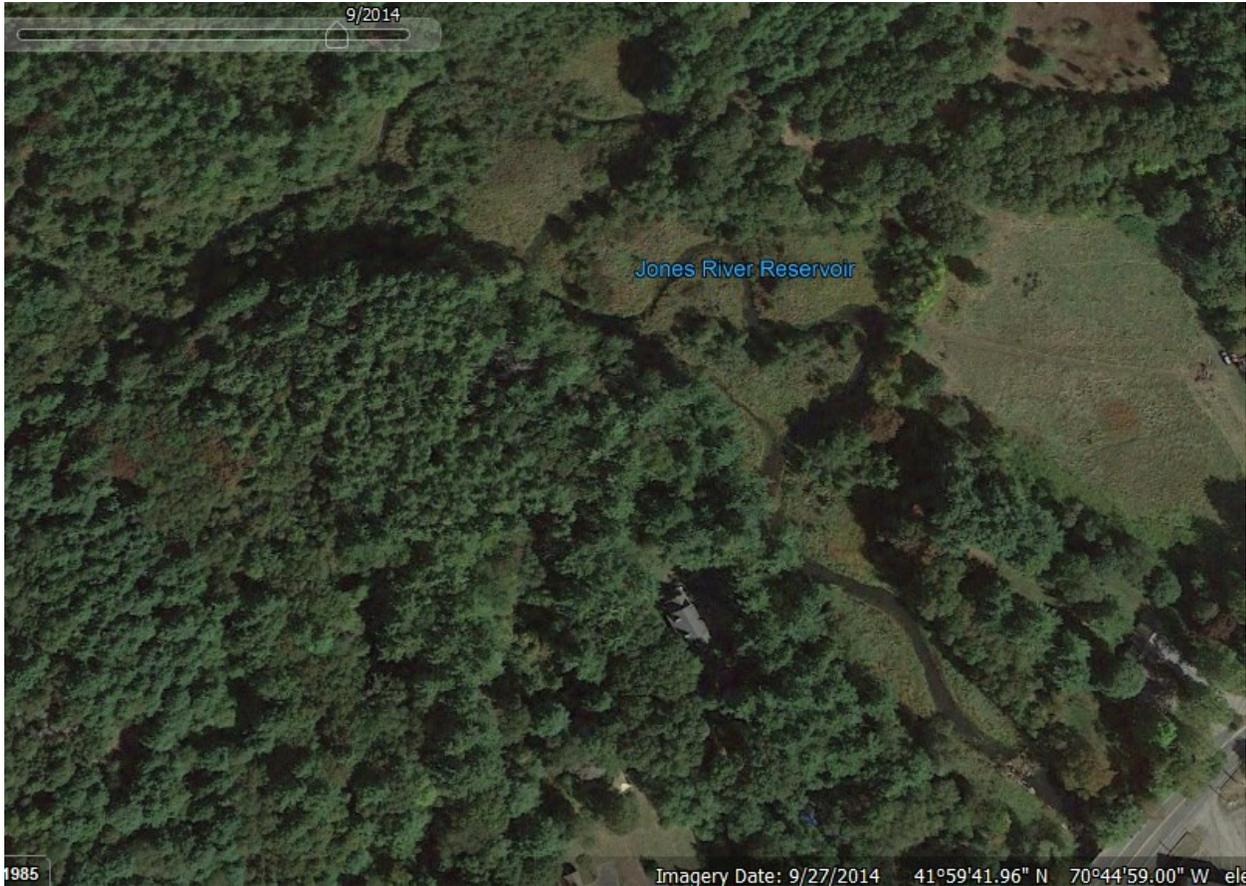
Google Earth image of Forge Pond, the impounded upstream portion of the Jones River MA94-12 AU, 10/5/2018 (Google Earth Pro Undated):



Google Earth image upstream of the Wapping Road crossing at one of its fullest stages visible in recent satellite images, 4/9/2008 (Google Earth Pro Undated):



Google Earth image upstream of the Wapping Road crossing with some indication of aquatic vegetation growth, 9/27/2014 (Google Earth Pro Undated):



Recommendations

2022 Recommendations
ALU & AES & REC: water quality and aquatic macrophyte surveys should be conducted throughout the AU to reevaluate use attainment in light of current water diversion practices (Silver Lake at the upstream end of this AU serves as a drinking water source for municipalities in the Taunton watershed, and flow regulation for water withdrawals has led to low flow issues in the Jones River).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

The freshwater portion of the Jones River (from the outlet of Silver Lake, Kingston to former dam [NATID: MA00396] near Wapping Road, Kingston) is designated as a Class B, Warm Water, High Quality Water in the Massachusetts Surface Water Quality Standards (314 CMR 4.00). The Massachusetts Department of Fish and Game (DFG), Division of Fisheries and Wildlife, identified the Jones River mainstem as a Coldwater Fish Resource (CFR) in 2021 based on fish sampling data collected in the river near Elm Street, Kingston on June 6, 2020. DFG's sample date is outside the period specified in MassDEP's Cold Water designation procedures (i.e., July 1st to September 15th). Jones River is therefore not designated as a Cold Water in the Massachusetts Surface Water Quality Standards, but all CFRs identified by DFG are protected as existing use Cold Waters pursuant to 314 CMR 4.06(1)(d)7.

No new data are available to assess the status of the Aquatic Life Use for this Jones River AU (MA94-12), so it will continue to be assessed as Not Supporting with the Dewatering, Dissolved Oxygen, and Fish Passage Barrier impairments all being carried forward.

Public comment submitted by Jones River Watershed Association as part of the 2018/20 IR



781-585-2322 • 55 LANDING ROAD, KINGSTON, MASSACHUSETTS 02364 • WWW.JONESRIVER.ORG

Memo
 Comment on 2018/2020 Integrated Waters List
 21 June 2021

In reference to the materials posted to the Mass.gov website requesting comments on the above referenced updated Integrated Waters List, we offer the following comments on the South Coastal Basin, Jones River and tributary waters.

1. Our Primary comment is that the entirety of the Jones River Mainstem from Kingston Bay into Silver Lake has been re-classified a CFR or ColdWater Fishery Resource, as of, if not prior to February 2021. See <https://www.mass.gov/info-details/coldwater-fish-resources> including First, Second (Laundry), Third, and Furnace Brooks, part of Spring Brook and part of Bassett's Brook. It is no longer a "WWF". The Elm Street Dam and Fishway (MA94-13 and MA 94-14) was removed by November 2019, and complied with all ten state, federal, and local permits.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in this Jones River AU (MA94-12); therefore, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

As described in detail in the 2022 CALM guidance document (MassDEP 2022b), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. The Jones River AU (MA94-12) downstream of Silver Lake was first listed as impaired for Aquatic Plants (Macrophytes) in the 2008 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP’s summer 2001 water quality surveys in which sampling occurred five times each at the Forge Pond dam’s spillway (JR104) and upstream of the Wapping Rd (Rt 106) bridge (JR103), Kingston. During these surveys, very dense aquatic macrophytes were observed at both the upstream (n=5/5) and downstream locations, (n=2/5) and the non-rooted, floating species, *Lemna/Utricularia* spp., were observed at both sites (MassDEP 2001). Google Earth images from August 2013, June 2015, and October 2018 at Forge Pond and potentially September 2014 upstream of Wapping Rd show high amounts of plant coverage (Google Earth Pro Undated). The Aesthetics Use for this Jones River AU (MA94-12) will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of several non-rooted, floating, aquatic macrophyte species in two impounded portions; Forge Pond alone comprises roughly 7.1% of this Jones River AU (MA94-12) and although it is difficult to determine an exact impacted length of the river upstream of Wapping Rd, it is likely that the impacted area, combined with Forge Pond, comprises >10% the length of this river AU, while the Aquatic Plants (Macrophytes) impairment is being delisted as a pollutant and added back as a non-pollutant. The Algae and Turbidity impairments are being carried forward.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022b) the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. The Jones River AU (MA94-12) downstream of Silver Lake was first listed as impaired for Aquatic Plants (Macrophytes) in the 2008 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP’s summer 2001 water quality surveys in which sampling occurred five times each at the Forge Pond dam’s spillway (JR104) and upstream of the Wapping Rd (Rt 106) bridge (JR103), Kingston. During these surveys, very dense aquatic macrophytes were observed at both the upstream (n=5/5) and downstream locations, (n=2/5) and the non-rooted, floating species, <i>Lemna/Utricularia</i> spp., were observed at both sites (MassDEP 2001). Google Earth images from August 2013, June 2015, and October 2018 at Forge Pond and potentially September 2014 upstream of Wapping Rd show high amounts of plant coverage (Google Earth Pro Undated). The Primary Contact Recreation Use for this Jones River AU (MA94-12) will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of several non-rooted, floating, aquatic macrophyte species in two impounded portions; Forge Pond alone comprises roughly 7.1% of this Jones River AU (MA94-12) and although it is difficult to determine an exact impacted length of the river upstream of Wapping Rd, it is likely that the impacted area, combined with Forge Pond, comprises >10% the length of this river AU, while the Aquatic Plants (Macrophytes) impairment is being delisted as a pollutant and added back as a non-pollutant. The Algae and Turbidity impairments are being carried forward.</p>	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

As described in detail in the 2022 CALM guidance document (MassDEP 2022b) the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. The Jones River AU (MA94-12) downstream of Silver Lake was first listed as impaired for Aquatic Plants (Macrophytes) in the 2008 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP's summer 2001 water quality surveys in which sampling occurred five times each at the Forge Pond dam's spillway (JR104) and upstream of the Wapping Rd (Rt 106) bridge (JR103), Kingston. During these surveys, very dense aquatic macrophytes were observed at both the upstream (n=5/5) and downstream locations, (n=2/5) and the non-rooted, floating species, *Lemna/Utricularia* spp., were observed at both sites (MassDEP 2001). Google Earth images from August 2013, June 2015, and October 2018 at Forge Pond and potentially September 2014 upstream of Wapping Rd show high amounts of plant coverage (Google Earth Pro Undated).

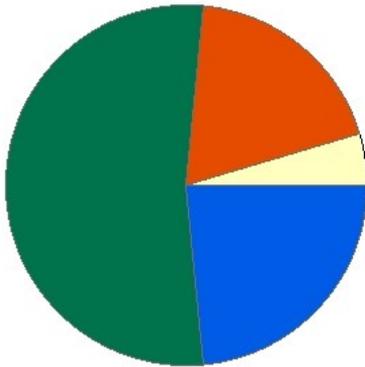
The Secondary Contact Recreation Use for this Jones River AU (MA94-12) will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of several non-rooted, floating, aquatic macrophyte species in two impounded portions; Forge Pond alone comprises roughly 7.1% of this Jones River AU (MA94-12) and although it is difficult to determine an exact impacted length of the river upstream of Wapping Rd, it is likely that the impacted area, combined with Forge Pond, comprises >10% the length of this river AU, while the Aquatic Plants (Macrophytes) impairment is being delisted as a pollutant and added back as a non-pollutant. The Algae and Turbidity impairments are being carried forward.

Jones River (MA94-13)

Location:	From former dam (NATID: MA00396) near Wapping Road, Kingston to former dam (NATID: MA00395) at Elm Street, Kingston.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B: WWF

Jones River - MA94-13

Watershed Area: 20.07 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	20.07	10.26	7.84	3.95
Agriculture	4.6%	5.3%	8.5%	9%
Developed	18.9%	21.2%	11.4%	11.5%
Natural	53%	50.9%	44.8%	43.9%
Wetland	23.5%	22.7%	35.3%	35.7%
Impervious Cover	7.8%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Aquatic Plants (Macrophytes)*)		Changed
5	5	(Dewatering*)		Unchanged
5	5	Algae		Unchanged
5	5	Dissolved Oxygen		Unchanged
5	5	Nutrient/Eutrophication Biological Indicators		Added
5	5	Turbidity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Water Diversions (Y)			X	X	X
(Dewatering*)	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
(Dewatering*)	Water Diversions (Y)	X				
Algae	Water Diversions (Y)			X	X	X

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Dissolved Oxygen	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
Dissolved Oxygen	Water Diversions (Y)	X				
Nutrient/Eutrophication Biological Indicators	Water Diversions (Y)			X	X	X
Turbidity	Water Diversions (Y)			X	X	X

Supporting Information for Removed Impairments

2018/20 Removed Impairment	Removal Reason	Removal Comment
Aquatic Plants (Macrophytes)	Not caused by a pollutant (4c)	As described in detail in the 2022 CALM guidance document (MassDEP 2022b), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. The Jones River AU (MA94-13) between the former dam near Wapping Road and the dam at Elm Street in Kingston was first listed as impaired for Noxious Aquatic Plants in 2006 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP's summer 2001 water quality surveys in which sampling was conducted 5 times from the catwalk along the metal Elm St bridge, Kingston (JR102). During these surveys, very dense aquatic macrophytes were observed on 3 site visits (out of 5) and vegetation included the non-rooted, floating species, <i>Lemna/Utricularia</i> spp. (MassDEP 2001). Google Earth images from August 2013, September 2014, and October 2020 show high amounts of plant coverage (including instances where only a narrow channel is visible) in the impounded portion of the Jones River upstream of Elm St (constituting roughly 25% or more of the AU) (Google Earth Pro Undated). Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of two non-rooted, floating, aquatic macrophyte species in the impounded portion of the Jones River (MA94-13) upstream of Elm St. Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since roughly 25% of the AU was covered in aquatic macrophytes in recent years.

Aquatic Plants (Macrophytes)

Fieldsheets for MassDEP Station JR102, catwalk along metal road bridge at Elm St, Kingston (MassDEP 2001):

General Information (fill out prior to departure)		plymouth, MA Sheet <u>1</u> of <u>10</u>	
Project <u>South Coast 01</u>	General weather conditions last 3 days at: <u>Wilmington</u> <small>http://tgrv5.nws.noaa.gov/wr/bas/clstns.htm</small>		
SARIS # _____	date: <u>6/26</u>	'SkyC': <u>0.0</u>	'WxType': <u>F</u>
River <u>Jones River</u>	<u>6/25</u>	<u>1.8</u>	<u>F</u>
Town <u>Kingston</u>	<u>6/24</u>	<u>9.2</u>	<u>RF</u>
Station ID # <u>SR-102</u>	Sampling Crew full names (initials ok for year round DWM employees)		
Lead: <u>G. DeCesare</u> Others: <u>Jim Blair, Erica Mathis</u>			
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Date <u>6/27/01</u>	Time (24 hr.) <u>9:00</u>	Photos taken? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Description of Station Access (include posted signs) <u>SAMPSON Park (parking)/Fence Memorial Forest</u>			
Station Description (describe precisely where samples are taken and general riparian condition (canopy cover, artificial banks, vegetation types, etc.)) <u>Elm St. Bridge - Cat walk along metal road bridge</u>			
Staff gage reading and source/type (if available)			
Estimated water velocity <input type="checkbox"/> none (0 fps) <input checked="" type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-3 fps) <input type="checkbox"/> high (>3 fps)			
Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input checked="" type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input checked="" type="checkbox"/> Calm (0-1 mph) <input type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input type="checkbox"/> Low (estimate minus ___ feet) <input checked="" type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus ___ feet)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____
Phytoplankton Presence (check all that apply) <input type="checkbox"/> None <input checked="" type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Suspended <input type="checkbox"/> Floating	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input checked="" type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Attached on rocks or bottom <input checked="" type="checkbox"/> Attached on plants	
Phytoplankton Description (general type, extent, color, condition, and location): <u>Brown</u>	Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>nuphar, pontederia, sparganium, utricularia, milfoil, lemma</u>	<input type="checkbox"/> Filamentous <input type="checkbox"/> Slimes <input type="checkbox"/> Thin films <input type="checkbox"/> Floe <input type="checkbox"/> Filamentous <input type="checkbox"/> Slimes <input checked="" type="checkbox"/> Thin films <input type="checkbox"/> Floe	
Periphyton Description (extent, color, condition, etc.): <u>Brown</u>			
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Scum(s) <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)			
Description of Scum(s)			
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other			
Description of Observed Use(s) (include numbers) or Indicators of Use(s)			
Objectionable Deposits <input checked="" type="checkbox"/> none <input type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input checked="" type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other			
Description of Objectionable Deposits (type, extent and area affected...) <u>excess macrophytes</u>			
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)			
Description of Erosion			
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other			
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)			
Potential Pollution Sources <input checked="" type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other			
Description of Potential Pollution Sources			
For office use only Field Sheet Login # <u>2001-0132</u>		Unique ID # <u>WD912</u>	
		Revision Date June 2001 <u>E: JZ BAUGOS</u> <u>rc</u>	

General Information (fill out prior to departure)		Sheet <u>1</u> of <u>1</u>	
Project <u>South Coastal</u>		General weather conditions last 3 days at: _____ http://fgsv5.nws.noaa.gov/forecast.htm	
SARIS # _____		date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcn': _____	
River <u>Jones River</u>		_____	
Town <u>Kingston</u>		_____	
Station ID # <u>JR 102</u>		Sampling Crew full names (initials ok for year round DWM employees)	
_____		Lead: <u>Delesare</u> Others: <u>Bourque / Connor</u>	
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Date <u>7/25/01</u>		Time (24 hr.) <u>8:50</u>	
Description of Station Access (include posted signs)		Photos taken? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<u>Elm St. Bridge</u>		_____	
Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.])			
<u>Cat Walk - Center Stream</u>			
Staff gage reading and source/type (if available)			
Estimated water velocity <input type="checkbox"/> none (0 fps) <input checked="" type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)			
Current Weather	Air Temperature (°F)	Wind Conditions	Odor
<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> 20-30	<input type="checkbox"/> Calm (0-1 mph)	<input checked="" type="checkbox"/> None
<input type="checkbox"/> Partly sunny	<input type="checkbox"/> 30-40	<input type="checkbox"/> Slight breeze (1-5 mph)	<input type="checkbox"/> Sulfide (rotten egg)
<input type="checkbox"/> Partly cloudy	<input type="checkbox"/> 40-50	<input checked="" type="checkbox"/> Moderate winds (5-15 mph)	<input type="checkbox"/> Fishy
<input type="checkbox"/> Mostly cloudy	<input type="checkbox"/> 50-60	<input type="checkbox"/> Strong gusts (15-25 mph)	<input type="checkbox"/> Septic
<input type="checkbox"/> Overcast	<input type="checkbox"/> 60-70	<input type="checkbox"/> Storm winds (> 25 mph)	<input type="checkbox"/> Chlorine
<input type="checkbox"/> Foggy	<input checked="" type="checkbox"/> 70-80	River Water Level	<input type="checkbox"/> Petroleum
<input type="checkbox"/> Drizzly	<input type="checkbox"/> 80-90	<input type="checkbox"/> Low (estimate minus ___ feet)	<input type="checkbox"/> Musty (basement)
<input type="checkbox"/> Light rain	<input type="checkbox"/> 90-100	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Rotting vegetables
<input type="checkbox"/> Heavy rain		<input type="checkbox"/> High (estimate plus ___ feet)	<input type="checkbox"/> Other _____
<input type="checkbox"/> Sleet			
<input type="checkbox"/> Snow			
Water Clarity (check all that apply)	Water Color (check all that apply)		
<input type="checkbox"/> Clear	<input type="checkbox"/> Clear/Blue		
<input type="checkbox"/> Slightly turbid	<input type="checkbox"/> Grayish		
<input checked="" type="checkbox"/> Highly cloudy	<input type="checkbox"/> Brownish		
<input type="checkbox"/> Suspended solids/murky	<input type="checkbox"/> Blackish		
	<input type="checkbox"/> Light yellow/tan		
	<input type="checkbox"/> Dark tan		
	<input type="checkbox"/> Light green tint		
	<input type="checkbox"/> Green		
	<input type="checkbox"/> Blue-green		
	<input type="checkbox"/> Reddish		
	<input type="checkbox"/> Other _____		
Phytoplankton Presence (check all that apply)	Density of Aquatic Plants (check all that apply)	Presence of Periphyton (check all that apply)	
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None	
<input type="checkbox"/> Sparse (0-25%)	<input type="checkbox"/> Unobservable (note why in description)	<input type="checkbox"/> Unobservable (note why in description)	
<input checked="" type="checkbox"/> Moderate (25-75%)	<input type="checkbox"/> Sparse (0-25%)	<input type="checkbox"/> Sparse (0-25%)	
<input type="checkbox"/> Dense (75-100%)	<input type="checkbox"/> Moderate (25-75%)	<input checked="" type="checkbox"/> Moderate (25-75%)	
<input checked="" type="checkbox"/> Suspended	<input checked="" type="checkbox"/> Emergent	<input checked="" type="checkbox"/> Dense (75-100%)	
<input type="checkbox"/> Floating	<input checked="" type="checkbox"/> Floating	<input type="checkbox"/> Attached on rocks or bottom	
	<input type="checkbox"/> Submerged	<input checked="" type="checkbox"/> Attached on plants	
Phytoplankton Description (general type, extent, color, condition, and location):	Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]):	Periphyton Description (extent, color, condition, etc.):	
<u>green in water column</u>	<u>Lemna, Sparganium, Potamogeton, Potentilla</u>	<u>green brown stringy filamentous thick film on everything</u>	
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)			
Scum(s) <input checked="" type="checkbox"/> yes <input type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)			
Description of Scum(s) <u>thick algal mats + filamentous</u>			
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other			
Description of Observed Use(s) (include numbers) or Indicators of Use(s)			
Objectionable Deposits <input type="checkbox"/> none <input checked="" type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other			
Description of Objectionable Deposits (type, extent and area affected...) <u>algae</u>			
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location; look for existing and potential slope failures, landslides.)			
Description of Erosion			
Wildlife Sightings <input type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input checked="" type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other			
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)			
Potential Pollution Sources <input type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other			
Description of Potential Pollution Sources			
For office use only Field Sheet Login # <u>2001-0184</u>		Unique ID # <u>WR912</u> Revision Date <u>June 2001</u>	
		<u>E: JZ 19 AUG 03</u>	

8/29/2001 field sheet (date illegible in scan):

Sheet <u>1</u> of <u>1</u>							
General Information (fill out prior to departure)							
Project <u>X South Coastal</u>	General weather conditions last 3 days at: <u>http://tgv5.nws.noaa.gov/box/clsm.htm</u>						
SARIS # <u>X 57650</u>	date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcpn': _____						
River <u>X Jones River</u>							
Town <u>X Kingston</u>	<u>See sheet 1</u>						
Station ID # <u>X JR-102</u>	Sampling Crew full names (initials ok for year round DWM employees) Lead: <u>X G. De Casase</u> Others: <u>McCarthy, Baumgartner</u>						
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)							
Date <u>X 8/29/01</u> Time (24 hr.) <u>11:20</u>	Photos taken? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no						
Description of Station Access (include posted signs) <u>X Sampson Park (Barking) / Faunce Memorial Forest</u>							
Station Description (describe precisely where samples are taken and general riparian condition, canopy cover, artificial banks, vegetation types, etc.) <u>X Elm St. Bridge - catwalk along metal road bridge</u>							
Staff gage reading and source/type (if available)							
Estimated water velocity <input type="checkbox"/> none (0 fps) <input type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)							
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:20%;"> Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow </td> <td style="width:20%;"> Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input checked="" type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100 </td> <td style="width:20%;"> Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input type="checkbox"/> Slight breeze (1-5 mph) <input checked="" type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) </td> <td style="width:20%;"> Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____ </td> <td style="width:20%;"> Water Clarity (check all that apply) <input type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input checked="" type="checkbox"/> Highly cloudy <input checked="" type="checkbox"/> Suspended solids/murky </td> <td style="width:20%;"> Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input checked="" type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____ </td> </tr> </table>	Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input checked="" type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input type="checkbox"/> Slight breeze (1-5 mph) <input checked="" type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input checked="" type="checkbox"/> Highly cloudy <input checked="" type="checkbox"/> Suspended solids/murky	Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input checked="" type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____	River Water Level <input type="checkbox"/> Low (estimate minus _____ feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus _____ feet)
Current Weather <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input checked="" type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input type="checkbox"/> Calm (0-1 mph) <input type="checkbox"/> Slight breeze (1-5 mph) <input checked="" type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input checked="" type="checkbox"/> Highly cloudy <input checked="" type="checkbox"/> Suspended solids/murky	Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input checked="" type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____		
Phytoplankton Presence (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Suspended <input checked="" type="checkbox"/> Floating	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input type="checkbox"/> Submerged	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input checked="" type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached on rocks or bottom <input checked="" type="checkbox"/> Attached on plants					
Phytoplankton Description (general type, extent, color, condition, and location): <u>Filamentous green</u> <u>Brown in water column</u> <u>bubbly green mats on surface</u>	Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Lemna, Sparganium, Pontederia, Potamogeton</u>	<input checked="" type="checkbox"/> Filamentous <input checked="" type="checkbox"/> Slimes <input type="checkbox"/> Thin films <input type="checkbox"/> Floe	<input checked="" type="checkbox"/> Filamentous <input type="checkbox"/> Slimes <input type="checkbox"/> Thin films <input type="checkbox"/> Floe	Periphyton Description (extent, color, condition, etc.): <u>Filamentous green + brown</u>			
Scum(s) <input checked="" type="checkbox"/> yes <input type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics) Description of Scum(s) <u>Algal</u>							
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other Description of Observed Use(s) (include numbers) or Indicators of Use(s)							
Objectionable Deposits <input type="checkbox"/> none <input type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input checked="" type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other Description of Objectionable Deposits (type, extent and area affected...)							
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location; look for existing and potential slope failures, landslides.) Description of Erosion							
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other Description of Wildlife Sightings (include numbers) or Indicators of Use(s)							
Potential Pollution Sources <input type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other Description of Potential Pollution Sources <u>Road/Bidy run-off</u>							
For office use only Field Sheet Login #	Unique ID #						
<u>2001-0210</u>	<u>WP912 E:J225Aug03</u>						
Revision Date June 2001							

Sheet 1 of 7

General Information (fill out prior to departure)

Project South Coastal General weather conditions last 3 days at: http://hgv3.nws.noaa.gov/er/clsas.htm
 SARIS # 94 57650 date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcpu': _____
 River Jones River See Sheet 1
 Town Kingston
 Station ID # JR102 Sampling Crew full names (initials ok for year round DWM employees)
 Lead: G. DeCesare Others: Weinstien, Kirs, Chase

Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Date 9/26/01 Time (24 hr.) 0940 Photos taken? yes no
 Description of Station Access (include posted signs)
Sampson Park (parking)/Faunce Memorial Forest
 Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.]
Elm Street Bridge - catwalk along metal road bridge
 Staff gage reading and source/type (if available) N/A
 Estimated water velocity none (0 fps) low (0-1 fps) medium (1-5 fps) high (>5 fps)

Current Weather <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	Air Temperature (°F) <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input type="checkbox"/> 50-60 <input checked="" type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	Wind Conditions <input checked="" type="checkbox"/> Calm (0-1 mph) <input type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) River Water Level <input type="checkbox"/> Low (estimate minus ___ feet) <input checked="" type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus ___ feet)	Odor <input checked="" type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	Water Clarity (check all that apply) <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	Water Color <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input checked="" type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____
Presence of Algae (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input checked="" type="checkbox"/> Sparse (0-25%) <input type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input type="checkbox"/> Suspended <input checked="" type="checkbox"/> Floating Algae Description (general type, extent, color, condition, and location): <u>green</u>	Density of Aquatic Plants (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Emergent <input checked="" type="checkbox"/> Floating <input checked="" type="checkbox"/> Submerged Aquatic Plant Description (list plants in general vicinity of station; note genus and species if known and location [streambed or near bank]): <u>Vallisneria, Sparganium, Potamogeton, Myriophyllum.</u>	Presence of Periphyton (check all that apply) <input type="checkbox"/> None <input type="checkbox"/> Unobservable (note why in description) <input type="checkbox"/> Sparse (0-25%) <input checked="" type="checkbox"/> Moderate (25-75%) <input type="checkbox"/> Dense (75-100%) <input checked="" type="checkbox"/> Attached (on rocks, bottom) <input checked="" type="checkbox"/> Epiphyton (on plants) <input checked="" type="checkbox"/> Filamentous slime <input checked="" type="checkbox"/> Green/brown benthic mat <input type="checkbox"/> Green/brown rocks <input type="checkbox"/> Brown/rusty floc Periphyton Description (extent, color, condition, etc.): <u>green/brown on rocks</u>			

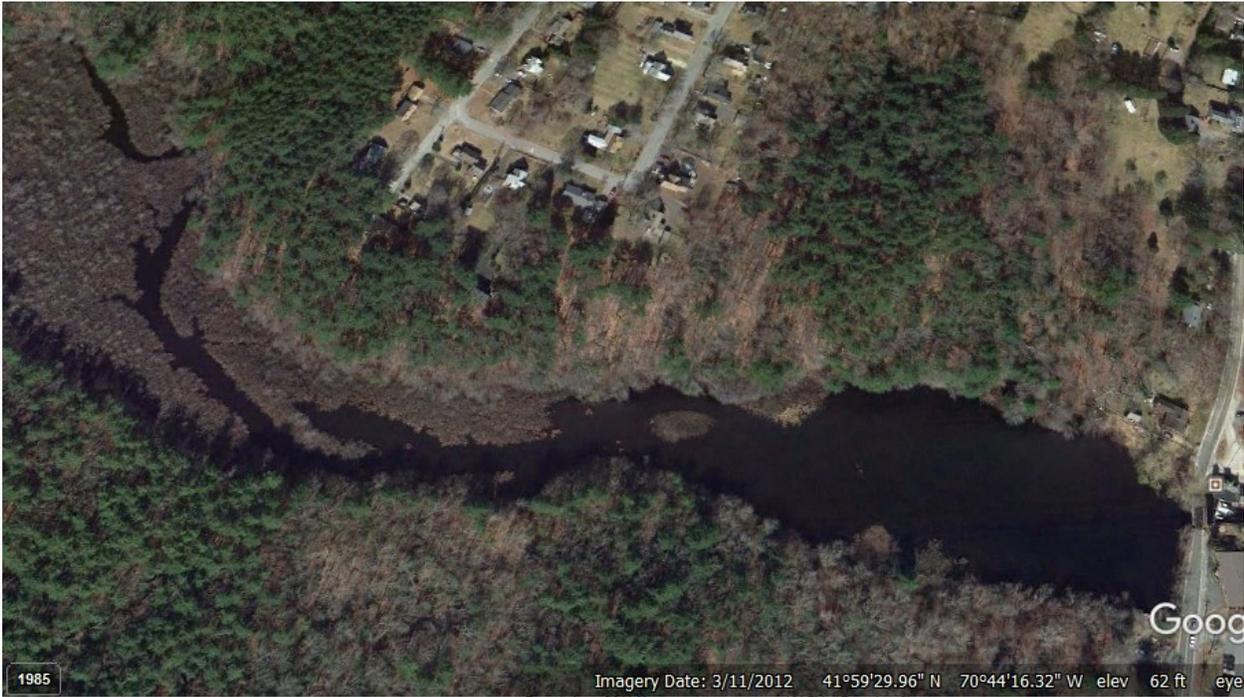
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)

Scum(s) yes no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)
 Description of Scum(s)
 Observed Use(s) (include indications of use even if use not observed) none swimming boating water intake fishing other
 Description of Observed Use(s) (include numbers) or Indicators of Use(s)
 Objectionable Deposits none floating sunken garbage/trash aquatic weeds flocculent mass (rust colored or other) other
 Description of Objectionable Deposits (type, extent and area affected...)
 Shoreline Erosion yes no (describe any shoreline erosion observed, note location: look for existing and potential slope failures, landslides.)
 Description of Erosion
 Wildlife Sightings none fish mammals birds reptiles (snakes, turtles) waterfowl amphibians (frogs, salamanders) other
 Description of Wildlife Sightings (include numbers) or Indicators of Use(s)
 Potential Pollution Sources none waste outfall pipes garbage/trash dumping land clearing green lawns shoreline residences other
 Description of Potential Pollution Sources

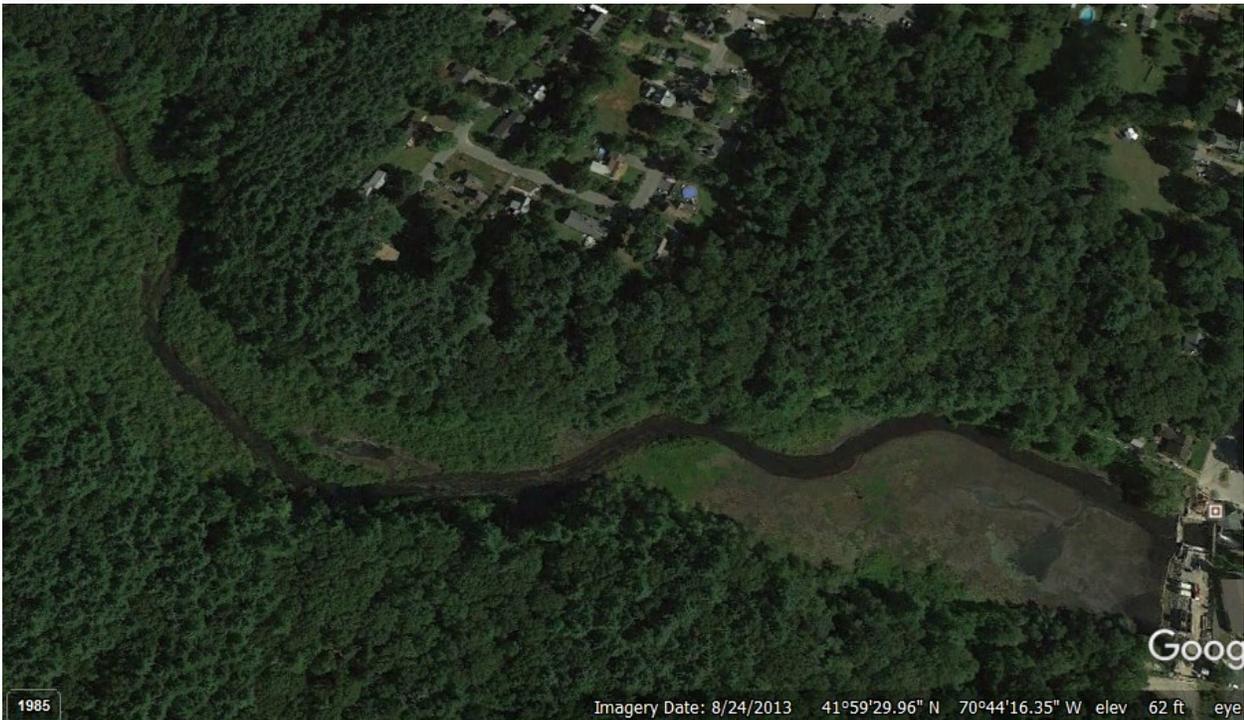
For office use only Field Sheet Login # 2001-0254 Unique ID # W0912 E. JZ 25A11003 Revision Date June 2001

Sheet <u>1</u> of <u>1</u>															
General Information (fill out prior to departure)															
Project <u>South Coastal</u>	General weather conditions last 3 days at: <u>http://ngsv5.nws.noaa.gov/er/box/cistmz.htm</u>														
SARIS # <u>94 57650</u>	date: _____ 'SkyC': _____ 'WxType': _____ 'Tpcpn': _____														
River <u>Jones River</u>	<u>SD Sheet 1</u>														
Town <u>Kingston</u>															
Station ID # <u>JR102</u>	Sampling Crew full names (initials ok for year round DWM employees) Lead: <u>G. DeCesare</u> Others: <u>Weinstein Cooke</u>														
Station Information (fill out at station, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)															
Date <u>10/24/01</u> Time (24 hr.) <u>11:40</u>	Photos taken? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no														
Description of Station Access (include posted signs) <u>Sampson Park (parking)/Faunce Memorial Forest</u>															
Station Description (describe precisely where samples are taken and general riparian condition [canopy cover, artificial banks, vegetation types, etc.] <u>Elm Street Bridge - catwalk along metal road bridge</u>															
Staff gage reading and source/type (if available) <u>N/A</u>															
Estimated water velocity <input type="checkbox"/> none (0 fps) <input checked="" type="checkbox"/> low (0-1 fps) <input type="checkbox"/> medium (1-5 fps) <input type="checkbox"/> high (>5 fps)															
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:15%;">Current Weather</th> <th style="width:15%;">Air Temperature (°F)</th> <th style="width:15%;">Wind Conditions</th> <th style="width:15%;">Odor</th> <th style="width:15%;">Water Clarity (check all that apply)</th> <th style="width:15%;">Water Color (check all that apply)</th> </tr> <tr> <td> <input type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input checked="" type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow </td> <td> <input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input checked="" type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100 </td> <td> <input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph) </td> <td> <input type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____ </td> <td> <input type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky </td> <td> <input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____ </td> </tr> </table>	Current Weather	Air Temperature (°F)	Wind Conditions	Odor	Water Clarity (check all that apply)	Water Color (check all that apply)	<input type="checkbox"/> Clear <input type="checkbox"/> Partly sunny <input type="checkbox"/> Partly cloudy <input type="checkbox"/> Mostly cloudy <input checked="" type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Drizzly <input type="checkbox"/> Light rain <input type="checkbox"/> Heavy rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow	<input type="checkbox"/> 20-30 <input type="checkbox"/> 30-40 <input type="checkbox"/> 40-50 <input checked="" type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> 80-90 <input type="checkbox"/> 90-100	<input type="checkbox"/> Calm (0-1 mph) <input checked="" type="checkbox"/> Slight breeze (1-5 mph) <input type="checkbox"/> Moderate winds (5-15 mph) <input type="checkbox"/> Strong gusts (15-25 mph) <input type="checkbox"/> Storm winds (> 25 mph)	<input type="checkbox"/> None <input type="checkbox"/> Sulfide (rotten egg) <input type="checkbox"/> Fishy <input type="checkbox"/> Septic <input type="checkbox"/> Chlorine <input type="checkbox"/> Petroleum <input type="checkbox"/> Musty (basement) <input type="checkbox"/> Rotting vegetables <input type="checkbox"/> Other _____	<input type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input type="checkbox"/> Highly cloudy <input type="checkbox"/> Suspended solids/murky	<input type="checkbox"/> Clear/Blue <input type="checkbox"/> Grayish <input type="checkbox"/> Brownish <input type="checkbox"/> Blackish <input type="checkbox"/> Light yellow/tan <input type="checkbox"/> Dark tan <input type="checkbox"/> Light green tint <input type="checkbox"/> Green <input type="checkbox"/> Blue-green <input type="checkbox"/> Reddish <input type="checkbox"/> Other _____	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:100%;">River Water Level</th> </tr> <tr> <td> <input type="checkbox"/> Low (estimate minus _____ feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus _____ feet) </td> </tr> </table>	River Water Level	<input type="checkbox"/> Low (estimate minus _____ feet) <input type="checkbox"/> Normal <input type="checkbox"/> High (estimate plus _____ feet)
Current Weather	Air Temperature (°F)	Wind Conditions	Odor	Water Clarity (check all that apply)	Water Color (check all that apply)										
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Periphyton Description (extent, color, condition, etc.):															
Sampling Location Information (fill out for the visible stream reach, check multiple boxes if applicable, DETERMINE LEFT OR RIGHT BANK BY LOOKING UPSTREAM)															
Scum(s) <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (include oil sheens, pollen/dust blankets and similar floating layers that reduce aesthetics)															
Description of Scum(s)															
Observed Use(s) (include indications of use even if use not observed) <input checked="" type="checkbox"/> none <input type="checkbox"/> swimming <input type="checkbox"/> boating <input type="checkbox"/> water intake <input type="checkbox"/> fishing <input type="checkbox"/> other															
Description of Observed Use(s) (include numbers) or Indicators of Use(s)															
Objectionable Deposits <input checked="" type="checkbox"/> none <input type="checkbox"/> floating <input type="checkbox"/> sunken <input type="checkbox"/> garbage/trash <input type="checkbox"/> aquatic weeds <input type="checkbox"/> flocculent mass (rust colored or other) <input type="checkbox"/> other															
Description of Objectionable Deposits (type, extent and area affected...)															
Shoreline Erosion <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (describe any shoreline erosion observed, note location; look for existing and potential slope failures, landslides)															
Description of Erosion															
Wildlife Sightings <input checked="" type="checkbox"/> none <input type="checkbox"/> fish <input type="checkbox"/> mammals <input type="checkbox"/> birds <input type="checkbox"/> reptiles (snakes, turtles) <input type="checkbox"/> waterfowl <input type="checkbox"/> amphibians (frogs, salamanders) <input type="checkbox"/> other															
Description of Wildlife Sightings (include numbers) or Indicators of Use(s)															
Potential Pollution Sources <input checked="" type="checkbox"/> none <input type="checkbox"/> waste outfall pipes <input type="checkbox"/> garbage/trash dumping <input type="checkbox"/> land clearing <input type="checkbox"/> green lawns <input type="checkbox"/> shoreline residences <input type="checkbox"/> other															
Description of Potential Pollution Sources <u>road run off</u>															
For office use only Field Sheet Login # <u>2001-0284</u>	Unique ID # <u>WD912</u> Revision Date <u>June 2001</u>														
	<u>E: 22 19AUG 03</u>														

Google Earth image of the impounded portion of the Jones River (MA94-13) upstream of Elm St, Kingston while clear of vegetation, 3/11/2012 (Google Earth Pro Undated):



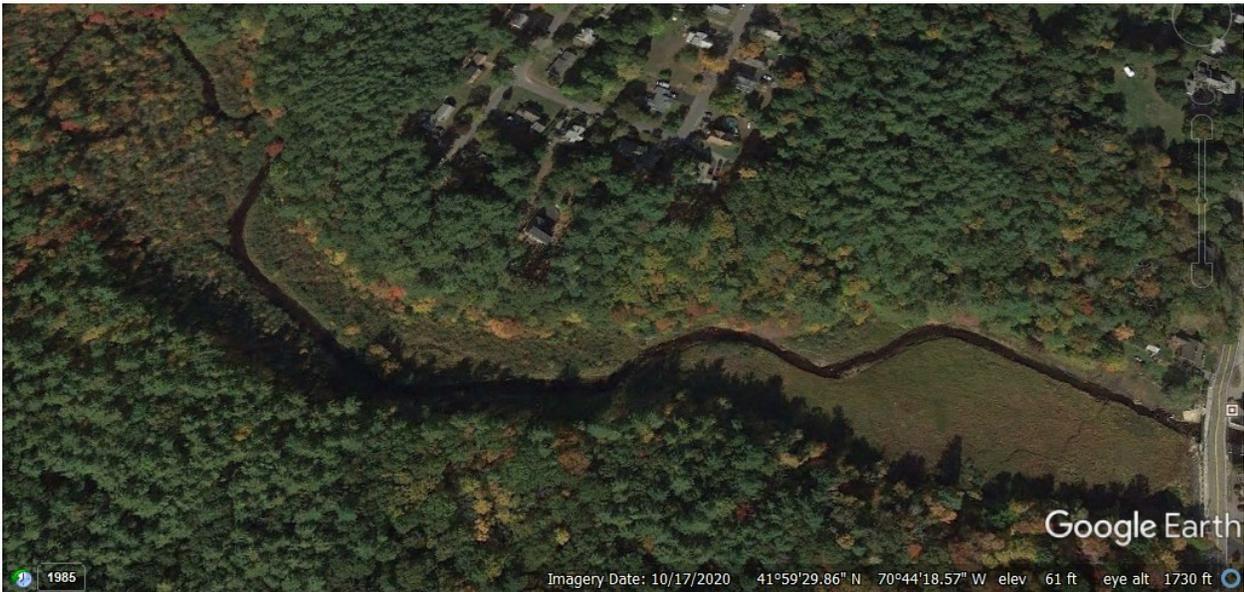
Google Earth image of the impounded portion of the Jones River (MA94-13) upstream of Elm St, Kingston, 8/24/2013 (Google Earth Pro Undated):



Google Earth image of the impounded portion of the Jones River (MA94-13) upstream of Elm St, Kingston, 9/27/2014 (Google Earth Pro Undated):



Google Earth image of the impounded portion of the Jones River (MA94-13) upstream of Elm St, Kingston, 10/17/2020 (Google Earth Pro Undated):



Recommendations

2022 Recommendations

ALU, AES, REC: Conduct follow-up water quality monitoring in this Jones River AU (MA94-13) upstream of the Elm Street bridge, Kingston (MassDEP 2001 station, JR102) which might provide justification for removal of the Algae, Aquatic Plants (Macrophytes) Dissolved Oxygen, Nutrient/Eutrophication Biological Indicators, and Turbidity impairments (on the Aquatic Life, Aesthetics, and Recreational uses) since the Elm Street dam has been removed.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>MassDFG biologists conducted backpack electrofishing at one site in a low gradient reach at the upstream end of this Jones River AU (MA94-13), downstream of the Wapping Rd. crossing in Kingston (Sample ID 7775) in September 2018. The sample was comprised of seven species including two fluvial specialist species (tessellated darter and one rainbow trout without its size recorded) as well as three macrohabitat generalist species moderately tolerant to environmental perturbations. At the downstream end of the AU the Jones River Watershed Association was awarded \$100,000 to support the removal of a head-of-tide dam at Elm Street in Kingston (DER 2019a). After 300 years of being dammed, the Jones River now flows freely at Elm Street in Kingston with the removal of Elm Street dam in late summer/fall of 2019. The Elm Street Dam was removed to restore habitat and improve connectivity to over 24 miles of river habitat for target species.</p> <p>The freshwater portion of the Jones River (from the outlet of Silver Lake, Kingston to former dam [NATID: MA00396] near Wapping Road, Kingston) is designated as a Class B, Warm Water, High Quality Water in the Massachusetts Surface Water Quality Standards (314 CMR 4.00). The Massachusetts Department of Fish and Game (DFG), Division of Fisheries and Wildlife, identified the Jones River mainstem as a Coldwater Fish Resource (CFR) in 2021 based on fish sampling data collected in the river near Elm Street, Kingston on June 6, 2020. DFG's sample date is outside the period specified in MassDEP's Cold Water designation procedures (i.e., July 1st to September 15th). Jones River is therefore not designated as a Cold Water in the Massachusetts Surface Water Quality Standards, but all CFRs identified by DFG are protected as existing use Cold Waters pursuant to 314 CMR 4.06(1)(d)7.</p> <p>The Aquatic Life Use this for Jones River AU (MA94-13) will continue to be assessed as Not Supporting. While the results of the fish sampling in September 2018 and habitat improvements with the Elm Street Dam removal are indicative of good/improved conditions, the Dewatering and Dissolved Oxygen impairments are both being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7775	MassDFG	Fish Community	Jones River	Wapping Rd. crossing downstream, Kingston	41.99242	-70.74821

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, CP = Chain Pickerel, GSF = Green Sunfish, LMB = Largemouth Bass, RP = Redfin Pickerel, RT = Rainbow Trout, TD = Tessellated Darter]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
7775	09/14/18	BP	TP	L	7	41	2%	2	56%	2%	3	15%	No	No	AE, CP, GSF, LMB, RP, RT, TD,

Public comment submitted by Jones River Watershed Association as part of the 2018/20 IR

781-585-2322 • 55 LANDING ROAD, KINGSTON, MASSACHUSETTS 02364 • WWW.JONESRIVER.ORG

Memo
 Comment on 2018/2020 Integrated Waters List
 21 June 2021

In reference to the materials posted to the Mass.gov website requesting comments on the above referenced updated Integrated Waters List, we offer the following comments on the South Coastal Basin, Jones River and tributary waters.

1. Our Primary comment is that the entirety of the Jones River Mainstem from Kingston Bay into Silver Lake has been re-classified a CFR or ColdWater Fishery Resource, as of, if not prior to February 2021. See <https://www.mass.gov/info-details/coldwater-fish-resources> Including First, Second (Laundry), Third, and Furnace Brooks, part of Spring Brook and part of Bassett's Brook. It is no longer a "WWF". The Elm Street Dam and Fishway (MA94-13 and MA 94-14) was removed by November 2019, and complied with all ten state, federal, and local permits.

Habitat and Flow Data (anthropogenic alterations)

The Division of Ecological Restoration worked together with Jones River Watershed Association, the Division of Marine Fisheries, the NOAA Restoration Center, US Fish and Wildlife Service, the Town of Kingston, and private dam owners to remove the Wapping Road Dam on the Jones River in Kingston, MA (DER 2011a, DER 2011b). The demolition of the 47-foot wide and 6-foot tall dam was completed on September 20, 2011 (Meserve 2010). The Wapping Road Dam was built in the 1920's to serve as a hydropower dam for a sawmill and textile factory. The removal of this dam has led to the opening of more than 22 mainstem and tributary miles to river herring, American eel, and other native fish (Meserve 2010). Downstream, the Jones River Watershed Association was awarded \$100,000 to support the removal of a head-of-tide dam at Elm Street in Kingston (DER 2019a). After 300 years of being dammed, the Jones River in Kingston is now flowing freely in Kingston at Elm Street with the removal of Elm Street dam in late summer/fall of 2019. The Elm Street Dam was removed to restore habitat and improve connectivity to over 24 miles of river habitat for target species (see images below) (DER 2019c).



Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in this Jones River AU (MA94-13); therefore, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022b), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. This Jones River AU (MA94-13) between the former dam near Wapping Road and the dam at Elm Street in Kingston was first listed as impaired for Noxious Aquatic Plants in 2006 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP's summer 2001 water quality surveys in which sampling was conducted five times from the catwalk along the metal Elm St bridge, Kingston (JR102). During these surveys, very dense aquatic macrophytes were observed on three site visits (out of five) and vegetation included the non-rooted, floating species, <i>Lemna/Utricularia</i> spp. (MassDEP 2001). Google Earth images from August 2013, September 2014, and October 2020 show high amounts of plant coverage (including instances where only a narrow channel is visible) in the impounded portion of the Jones River upstream of Elm St (constituting roughly 25% or more of the AU) (Google Earth Pro Undated).</p> <p>The Aesthetics Use for this Jones River (MA94-13) will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of two non-rooted, floating, aquatic macrophyte species in the impounded portion of the river upstream of Elm St. Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since roughly 25% of the AU was covered in aquatic macrophytes in recent years. The Algae and Turbidity impairments are also being carried forward.</p>	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022b), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. This Jones River AU (MA94-13) between the former dam near Wapping Road and the dam at Elm Street in Kingston was first listed as impaired for Noxious Aquatic Plants in 2006 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP's summer 2001 water quality surveys in which sampling was conducted five times from the catwalk along the metal Elm St bridge, Kingston (JR102). During these surveys, very dense aquatic macrophytes were observed on three site visits (out of five) and vegetation included the non-rooted, floating species, <i>Lemna/Utricularia</i> spp. (MassDEP 2001). Google Earth images from August 2013, September 2014, and October 2020 show high amounts of plant coverage (including instances where only a narrow channel is visible) in the impounded portion of the river upstream of Elm St (constituting roughly 25% or more of the AU) (Google Earth Pro Undated).</p> <p>The Primary Contact Recreation Use for this Jones River AU (MA94-13) will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of two non-rooted, floating, aquatic macrophyte species in the impounded portion of the river (upstream of Elm St). Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since roughly 25% of the AU was covered in aquatic macrophytes in recent years. The Algae and Turbidity impairments are also being carried forward.</p>	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As described in detail in the 2022 CALM guidance document (MassDEP 2022b), the mapping of Aquatic Plants (Macrophytes) impairments as a pollutant is being reevaluated. This Jones River AU (MA94-13) between the former dam near Wapping Road and the dam at Elm Street in Kingston was first listed as impaired for Noxious Aquatic Plants in 2006 and this cause was remapped to Aquatic Plants (Macrophytes) during the 2010 IR cycle (MassDEP 2015). The impairment was based on observations made during MassDEP's summer 2001 water quality surveys in which sampling was conducted five times from the catwalk along the metal Elm St bridge, Kingston (JR102). During these surveys, very dense aquatic macrophytes were observed on three site visits (out of five) and vegetation included the non-rooted, floating species, <i>Lemna/Utricularia</i> spp. (MassDEP 2001). Google Earth images from August 2013, September 2014, and October 2020 show high amounts of plant coverage (including instances where only a narrow channel is visible) in the impounded portion of the river upstream of Elm St (constituting roughly 25% or more of the AU) (Google Earth Pro Undated).</p> <p>The Secondary Contact Recreation Use for this Jones River AU (MA94-13) will continue to be assessed as Not Supporting. Nutrient/Eutrophication Biological Indicators is being added as an impairment based on the presence of two non-rooted, floating, aquatic macrophyte species in the impounded portion of the river upstream of Elm St. Additionally, Aquatic Plants (Macrophytes) is being delisted as a pollutant and added again as a non-pollutant since roughly 25% of the AU was covered in aquatic macrophytes in recent years. The Algae and Turbidity impairments are also being carried forward.</p>	

Jones River (MA94-14)

Location:	From former dam (NATID: MA00395) at Elm Street, Kingston to mouth at Kingston Bay, Kingston.
AU Type:	ESTUARY
AU Size:	0.09 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Fecal Coliform	61734	Unchanged
5	5	Fish Bioassessments		Unchanged
5	5	Nutrient/Eutrophication Biological Indicators		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X			
Fish Bioassessments	Source Unknown (N)	X					
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X					

Recommendations

2022 Recommendations
AES: Conduct surveys downstream of Elm Street and the location of the old dam to see if macrophyte coverage and the presence of filamentous green algae within the smelt spawning area (i.e., the reach below the location of the former Elm Street Dam to slightly downstream from Rt. 3A) is still of concern.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing at one site in a low gradient reach at the upstream end of this Jones River AU (MA94-14), above Main St. in Kingston (Sample ID 7776) in September 2018. The sample was comprised almost entirely by American eel although one each of redfin pickerel (a macrohabitat generalist moderately tolerant to environmental perturbations), fourspine stickleback, and a sea lamprey were also present. MassDEP staff recorded observations of algae at two locations in the summer of 2011 as part of a Bacteria Source Tracking (BST) project in this Jones River AU (MA94-14). From up to downstream these sites are as follows: at the railroad bridge approximately 1000ft upstream of Rt 3. in Kingston (W2318) and close to the downstream end of the AU at the harbor master dock off the eastern end of River St. in Kingston (W2322). No dense/very dense filamentous algae was observed at either site (n=1 and 2, respectively).
 Too limited data are available to update the status of the Aquatic Life Use of this Jones River AU (MA94-14) so it will continue to be assessed as Not Supporting. The Fish Bioassessments (due to sharp declines in the smelt population) and Nutrient/Eutrophication Biological Indicators impairments are both being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7776	MassDFG	Fish Community	Jones River	above Main St., Kingston	41.99001	-70.72408
W2318	MassDEP	Water Quality	Jones River	[at railroad bridge approximately 1000 feet upstream of Route 3, east of Landing Road, Kingston]	41.996096	-70.723112
W2322	MassDEP	Water Quality	Jones River	[harbor master dock off eastern end of River Street, Kingston]	41.998025	-70.709983

Biological Monitoring Information

Fish Community Data (DELTS or population loss estimates only)

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, FSS = Fourspine Stickleback, RP = Redfin Pickerel, SL = Sea Lamprey]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
7776	09/14/18	BP	TP	L	4	229	0%	0	0%	0%	1	0%	No	No	AE, FSS, RP, SL,

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2318	2011	--	--	--	--	--	--	--	--	1	0
W2322	2011	--	--	--	--	--	--	--	--	2	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in this Jones River AU (MA94-14); therefore, the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Jones River (MA94-14): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0667 sq mi (76%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0667 sq mi (76%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area ≥ 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB43.2	Kingston Bay, North	Prohibited	0.00205	2.3%
CCB44.0	Jones River	Prohibited	0.06469	73.9%

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

MassDEP staff conducted very limited water quality sampling at three sites on this Jones River AU (MA94-14) as part of a bacteria source tracking (BST) project during the summer of 2011. The sites are described from upstream to downstream as follows: in Kingston at the railroad bridge approximately 1000ft upstream of Rt. 3 (W2318, n=1), at Rt. 3 (W2321, n=1), and at the harbor master dock off the eastern end of River Street (W2322, n=2). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews at any of the sites.

Too limited data/information were collected at the three sites on this Jones River AU (MA94-14), so the Aesthetics Use is assessed as having Insufficient Information. The Alert for macrophyte coverage and dense algae documented in 2006 just downstream of the former Elm Street dam and the presence of filamentous green algae within the smelt spawning area (i.e., the reach below the location of the former Elm Street Dam to slightly downstream from Rt. 3A) (MassDEP Undated 7) is being carried forward although these conditions have hopefully changed with the removal of Elm Street dam in late summer/fall of 2019 (DER 2019c). Recommendations will be made to conduct additional monitoring to reevaluate this concern.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2318	MassDEP	Water Quality	Jones River	[at railroad bridge approximately 1000 feet upstream of Route 3, east of Landing Road, Kingston]	41.996096	-70.723112
W2321	MassDEP	Water Quality	Jones River	[Route 3, Kingston]	41.997178	-70.721207
W2322	MassDEP	Water Quality	Jones River	[harbor master dock off eastern end of River Street, Kingston]	41.998025	-70.709983

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2318	Jones River	2011	1	MassDEP aesthetics observations for station W2318 on Jones River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=1).
W2321	Jones River	2011	1	MassDEP aesthetics observations for station W2321 on Jones River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=1).
W2322	Jones River	2011	2	MassDEP aesthetics observations for station W2322 on Jones River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2318	2011	1	1	0
W2321	2011	1	0	0
W2322	2011	2	2	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2318	Jones River	2011	Color	None	1	1
W2318	Jones River	2011	Objectionable Deposits	Not Applicable (N/A)	1	1
W2318	Jones River	2011	Odor	None	1	1
W2318	Jones River	2011	Scum	Not Applicable (N/A)	1	1
W2318	Jones River	2011	Turbidity	Moderately Turbid	1	1
W2321	Jones River	2011	Color	None	1	1
W2321	Jones River	2011	Objectionable Deposits	Not Applicable (N/A)	1	1
W2321	Jones River	2011	Odor	Other	1	1
W2321	Jones River	2011	Scum	Not Applicable (N/A)	1	1
W2321	Jones River	2011	Turbidity	Highly Turbid	1	1
W2322	Jones River	2011	Color	None	2	2
W2322	Jones River	2011	Objectionable Deposits	Not Applicable (N/A)	2	2
W2322	Jones River	2011	Odor	None	2	2
W2322	Jones River	2011	Scum	Not Applicable (N/A)	2	2
W2322	Jones River	2011	Turbidity	Highly Turbid	1	2
W2322	Jones River	2011	Turbidity	Moderately Turbid	1	2

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>MassDEP staff collected a single Enterococci bacteria sample at the downstream end of this Jones River AU (MA94-14) at the harbor master dock off the eastern end of River Street in Kingston (W2322) (n=1) as part of a Bacteria Source Tracking (BST) project in August 2011. The sample concentration was 52 CFU/100mL. Additional intermittent BST efforts throughout the AU in 2011-2013 & 2016 documented Enterococcus concentrations ranging from 10 to 703 MPN/100ml (it should be noted that all BST data are not in the MassDEP WPP Monitoring database, so are not presented in bacteria tables below). A hotspot was identified in the Jones River just downstream of the Halls Brook tributary (MA94-57), consequently source tracking efforts focused on Halls Brook and its drainage area. Source tracking samples were also collected from a number of unnamed tributaries and drain outfall pipes discharging (in wet weather conditions) directly to the Jones, but no correctable sources of bacteria were ever found.</p> <p>Too limited Enterococci data are available to evaluate the Primary Contact Recreation Use for this Jones River AU (MA94-14) so it is assessed as having Insufficient Information. An Alert for elevated Enterococci concentrations documented sporadically throughout the AU as part of the BST project is being added and the Alert for macrophyte coverage and dense algae documented in 2006 just downstream of the former Elm Street dam (MassDEP Undated 7) is being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2322	MassDEP	Water Quality	Jones River	[harbor master dock off eastern end of River Street, Kingston]	41.998025	-70.709983

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis)** (MassDEP Undated 8) (MassDEP Undated 5)

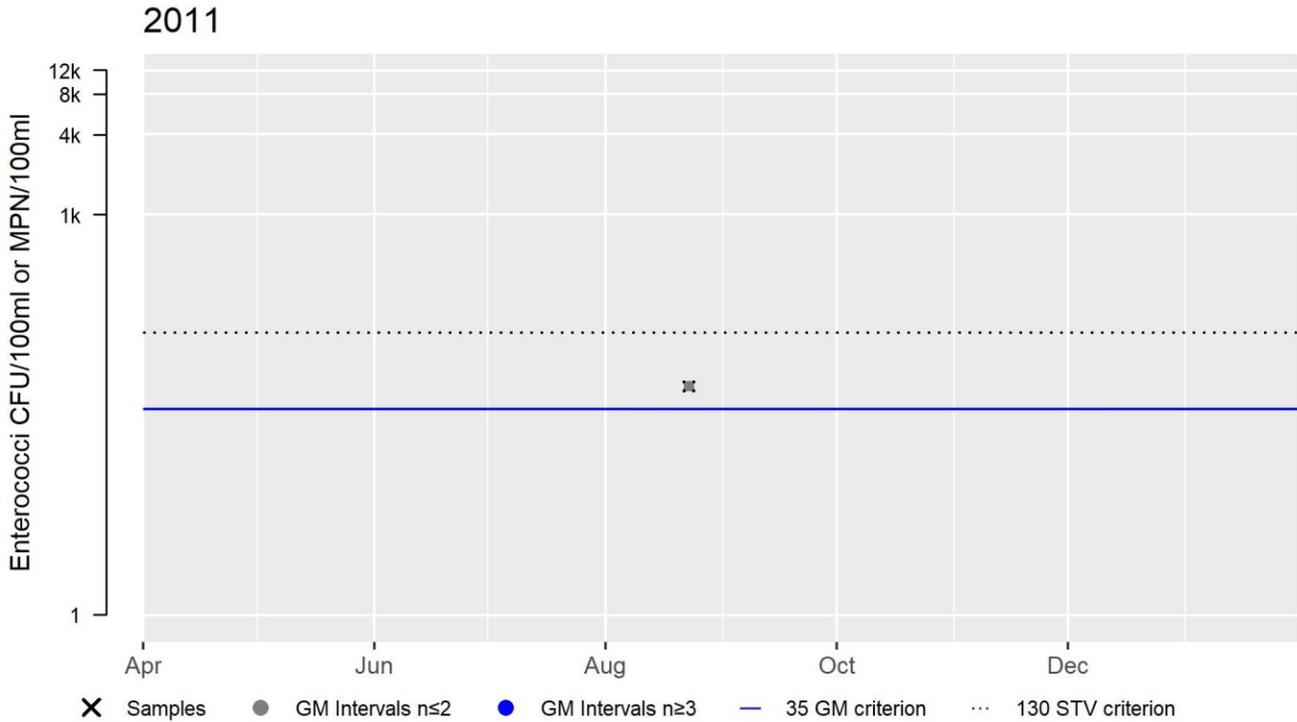
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2322	MassDEP	Enterococci	08/23/11	08/23/11	1	52	52	52

W2322 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	52
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary

BST work was conducted in 2011-2013 & 2016 at 5 sites on the Jones River AU (MA94-14), with E.coli concentrations ranging 145 to 2,014MPN and Enterococcus concentrations ranging 10 to 703MPN. A hotspot was identified just downstream of the Halls Brook tributary (MA94-57); consequently source tracking efforts focused on Halls Brook and its drainage area. Additional source tracking over the same time-span, found the Tussock Brook tributary (MA94-67 & MA94-68) to Halls Brook to be the most significant contributor of bacteria to Halls Brook and thus the Jones River, however human marker analysis at the downstream end of Tussock Brook in 2011 indicated “no evidence” of a human source. E.coli concentrations at the downstream end of Halls Brook, close to the confluence with the Jones River, ranged 213 to 2,481MPN with a max enterococcus concentration of 529MPN. Samples were also collected from a number of unnamed tributaries and also drain outfall pipes discharging (in wet weather conditions) directly to the Jones, but no correctable sources were ever found.

*Shellfish Growing Area Classifications***MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)**
(MassDEP Undated 6)

Summary
Jones River (MA94-14): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0667 sq mi (76%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>MassDEP staff collected a single Enterococci bacteria sample at the downstream end of this Jones River AU (MA94-14) at the harbor master dock off the eastern end of River Street in Kingston (W2322) (n=1) as part of a Bacteria Source Tracking (BST) project in August 2011. The Enterococci concentration was 52 MPN/100mL. Additional intermittent BST efforts throughout the AU in 2011-2013 & 2016 documented Enterococcus concentrations ranging from 10 to 703 MPN/100ml (it should be noted that all BST data are not in the MassDEP WPP Monitoring database, so are not presented in bacteria tables below). A hotspot was identified in the Jones River just downstream of the Halls Brook tributary (MA94-57), consequently source tracking efforts focused on Halls Brook and its drainage area. Source tracking samples were also collected from a number of unnamed tributaries and drain outfall pipes discharging (in wet weather conditions) directly to the Jones, but no correctable sources of bacteria were ever found.</p> <p>Too limited Enterococci data are available to evaluate the Secondary Contact Recreation Use for this Jones River AU (MA94-14) so it is assessed as having Insufficient Information. An Alert for elevated Enterococci concentrations documented sporadically throughout the AU as part of the BST project is being added and the Alert for macrophyte coverage and dense algae documented in 2006 just downstream of the former Elm Street dam (MassDEP Undated 7) is being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2322	MassDEP	Water Quality	Jones River	[harbor master dock off eastern end of River Street, Kingston]	41.998025	-70.709983

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis)** (MassDEP Undated 8) (MassDEP Undated 5)

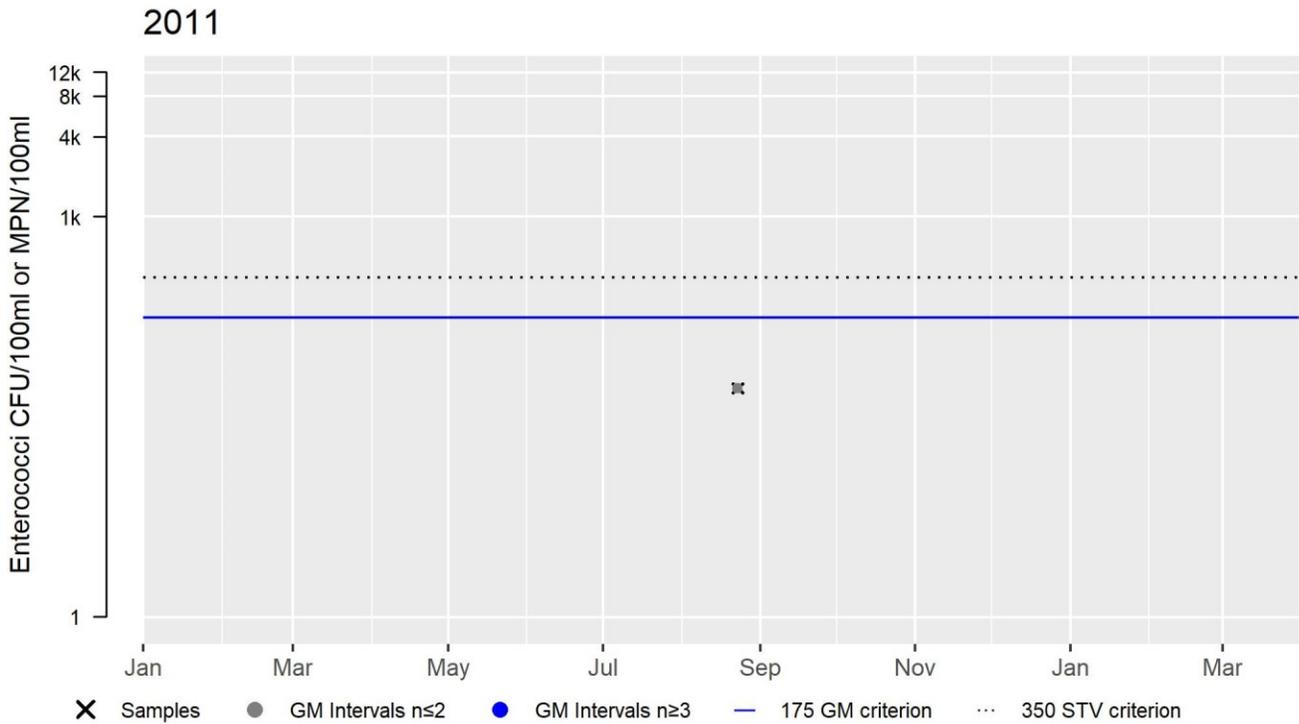
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2322	MassDEP	Enterococci	08/23/11	08/23/11	1	52	52	52

W2322 Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	52
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Jones River (MA94-14): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0667 sq mi (76%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Keene Pond (MA94079)

Location:	Duxbury.
AU Type:	FRESHWATER LAKE
AU Size:	11 ACRES
Classification/Qualifier:	B

No usable data were available for Keene Pond (MA94079) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Lily Pond (MA94179)

Location:	Cohasset.
AU Type:	FRESHWATER LAKE
AU Size:	50 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Lily Pond (MA94179) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)		Unchanged
5	5	(Fanwort*)		Unchanged
5	5	(Non-Native Aquatic Plants*)		Unchanged
5	5	Transparency / Clarity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Curly-leaf Pondweed*)	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		X	X	X
Transparency / Clarity	Source Unknown (N)			X	X	X

Little Harbor (MA94-20)

Location:	Cohasset.
AU Type:	ESTUARY
AU Size:	0.27 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	2586	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X			
Fecal Coliform	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO) (Y)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Little Harbor (MA94-20), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Little Harbor (MA94-20), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Little Harbor (MA94-20): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.2562 sq mi (94%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.2562 sq mi (94%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB11.0	Little Harbor	Prohibited	0.25617	94.2%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Little Harbor (MA94-20), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent Enterococci data are available for Little Harbor (MA94-20), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Little Harbor (MA94-20): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.2562 sq mi (94%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent Enterococci data are available for Little Harbor (MA94-20), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Little Harbor (MA94-20): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.2562 sq mi (94%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Little Herring Pond (MA94082)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	81 ACRES
Classification/Qualifier:	B

No usable data were available for Little Herring Pond (MA94082) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Little Pond (MA94182)

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

No usable data were available for Little Pond (MA94182) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Little Sandy Bottom Pond (MA94085)

Location:	Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	56 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Little Sandy Bottom Pond (MA94085) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
-3	3	None		Unchanged

Little South Pond (MA94087)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	63 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Little South Pond (MA94087) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Long Island Pond (MA94088)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	33 ACRES
Classification/Qualifier:	B

No usable data were available for Long Island Pond (MA94088) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

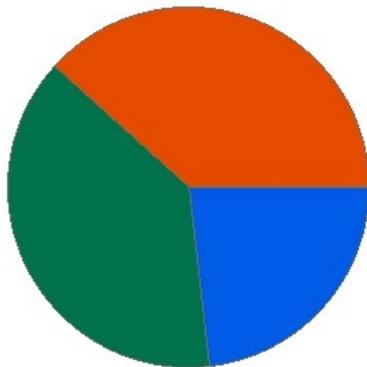
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Longwater Brook (MA94-39)

Location:	Headwaters, south of Route 3, Norwell to mouth at confluence with Drinkwater River, Hanover.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B

Longwater Brook - MA94-39

Watershed Area: 2.97 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	2.97	2.97	0.77	0.77
Agriculture	0.5%	0.5%	0.5%	0.5%
Developed	38.1%	38.1%	26.8%	26.8%
Natural	38.4%	38.4%	35.5%	35.5%
Wetland	23%	23%	37.2%	37.2%
Impervious Cover	20.3%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Escherichia Coli (E. Coli)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)				X	X
Escherichia Coli (E. Coli)	Source Unknown (N)				X	X

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary
No data are available for Longwater Brook (MA94-39), so the Aquatic Life Use is Not Assessed.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted on Longwater Brook (MA94-39), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Longwater Brook (MA94-39), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected <i>E. coli</i> bacteria samples from Longwater Brook (MA94-39) across the street from Hacketts Pond Drive (NSRWA_Longwater Brook) between July and August 2019 (n=4). Data analysis indicated that 100% of the intervals had GMs >126 CFU/100mL and all four samples exceeded the 410 CFU/100mL STV. The seasonal GM was 3427 CFU/100mL.</p> <p>Since the NSRWA <i>E. coli</i> data exceeded the use attainment impairment threshold for a single year limited frequency dataset, the Primary Contact Recreation Use for Longwater Brook AU (MA94-39) will continue to be assessed as Not Supporting, with the prior <i>Escherichia Coli</i> (<i>E. Coli</i>) impairment being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Longwater Brook	North South River Watershed Association	Water Quality	Longwater Brook	Across the street from Hacketts Pond Drive	42.146	-70.87119

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019) (MassDEP Undated 3)

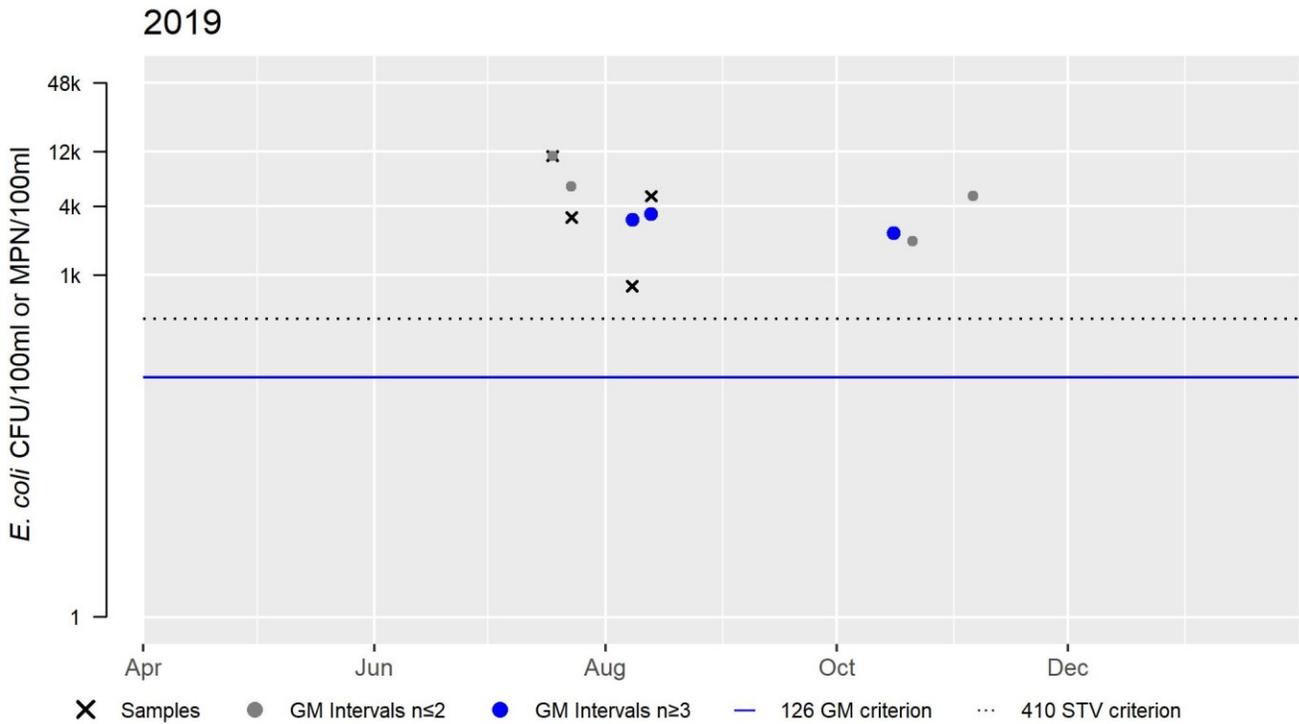
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Longwater Brook	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	800	11000	3427

NSRWA_Longwater Brook *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	3427
#GMI	3
#GMI Ex	3
%GMI Ex	100
n>STV	4
%n>STV	100

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected <i>E. coli</i> bacteria samples from Longwater Brook (MA94-39) across the street from Hacketts Pond Drive (NSRWA_Longwater Brook) between July and August 2019 (n=4). Data analysis indicated that 100% of the intervals had GMs >630 CFU/100mL and three samples exceeded the 1260 CFU/100mL STV. The overall GM was 3427 CFU/100mL.</p> <p>Since the NSRWA <i>E. coli</i> data exceeded the use attainment impairment threshold for a single year limited frequency dataset, the Secondary Contact Recreation Use for Longwater Brook AU (MA94-39) is assessed as Not Supporting, with an impairment for <i>Escherichia Coli</i> (<i>E. Coli</i>) being added.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Longwater Brook	North South River Watershed Association	Water Quality	Longwater Brook	Across the street from Hacketts Pond Drive	42.146	-70.87119

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)

(MassDEP Undated 3)

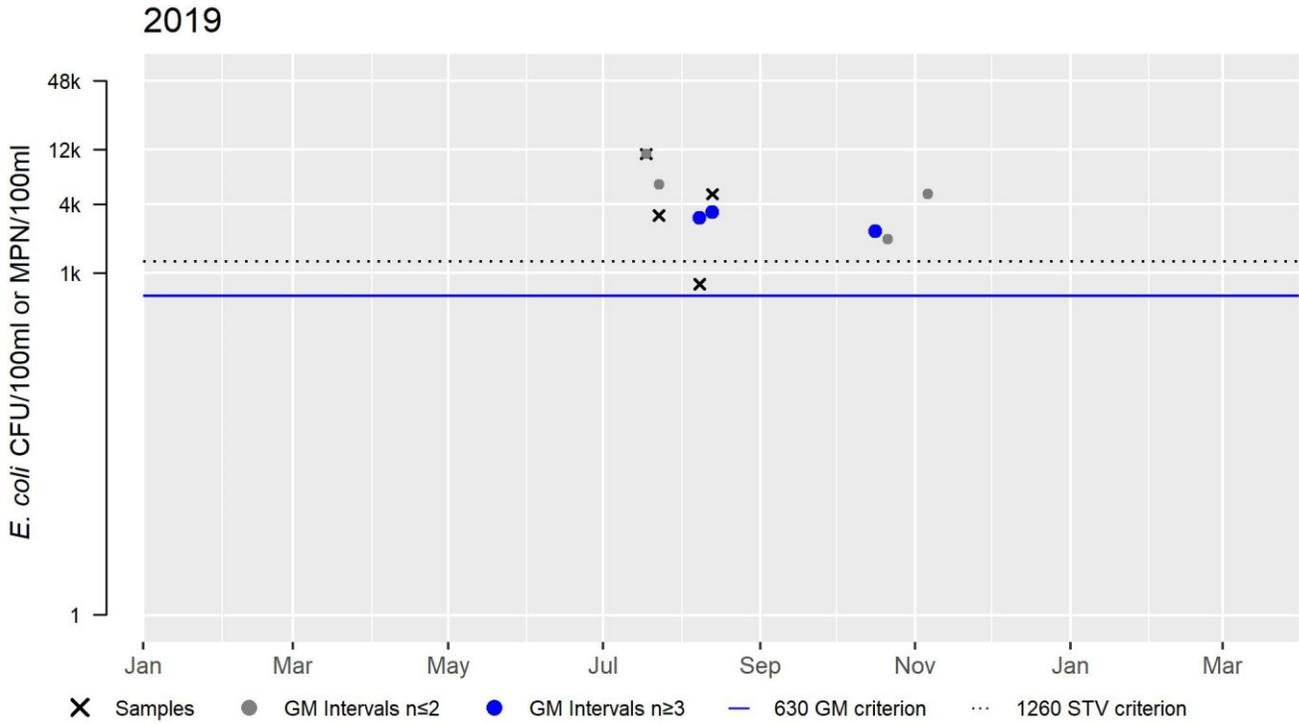
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Longwater Brook	North South River Watershed Association	E. coli	07/18/19	08/13/19	4	800	11000	3427

NSRWA_Longwater Brook *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	3427
#GMI	3
#GMI Ex	3
%GMI Ex	100
n>STV	3
%n>STV	75

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Lorings Bogs Pond (MA94089)

Location:	Duxbury.
AU Type:	FRESHWATER LAKE
AU Size:	33 ACRES
Classification/Qualifier:	B

No usable data were available for Lorings Bogs Pond (MA94089) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Lout Pond (MA94090)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	18 ACRES
Classification/Qualifier:	B

No usable data were available for Lout Pond (MA94090) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Lower Chandler Pond (MA94091)

Location:	Duxbury/Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	37 ACRES
Classification/Qualifier:	B

No usable data were available for Lower Chandler Pond (MA94091) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Maquan Pond (MA94096)

Location:	Hanson.
AU Type:	FRESHWATER LAKE
AU Size:	45 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Maquan Pond (MA94096) were reported to MassDPH for 9 days in 2017. This is not considered an extended bloom (i.e., a bloom >20 days). Too limited data are available to evaluate the Aquatic Life Use of Maquan Pond (MA94096) so it is assessed as having Insufficient Information.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Maquan Pond (MA94096), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Maquan Pond (MA94096) were reported to MassDPH for 9 days in 2017. This is not considered an extended bloom (i.e., a bloom >20 days). Too limited data are available to evaluate the Aesthetics Use of Maquan Pond (MA94096) so it is assessed as having Insufficient Information. An Alert for C-HABs, however, is being identified.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Maquan Pond (MA94096) were reported to MassDPH for 9 days in 2017. This is not considered an extended bloom (i.e., a bloom >20 days).

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Maquan Pond	Not issued or confirmed by sampling			9			0	no

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>Cyanobacteria harmful algal bloom (C-HAB) postings for Maquan Pond (MA94096) were reported to MassDPH for 9 days in 2017. This is not considered an extended bloom (i.e., a bloom >20 days).</p> <p>Too limited data are available to evaluate the Primary Contact Recreation Use of Maquan Pond (MA94096) so it is assessed as having Insufficient Information. An Alert for C-HABs, however, is being identified.</p>	

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>Cyanobacteria harmful algal bloom (C-HAB) postings for Maquan Pond (MA94096) were reported to MassDPH for 9 days in 2017. This is not considered an extended bloom (i.e., a bloom >20 days).</p> <p>Too limited data are available to evaluate the Secondary Contact Recreation Use of Maquan Pond (MA94096) so it is assessed as having Insufficient Information. An Alert for C-HABs, however, is being identified.</p>	

Morey Hole (MA94102)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	22 ACRES
Classification/Qualifier:	B

No usable data were available for Morey Hole (MA94102) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Musquashcut Brook (MA94-64)

Location:	Headwaters outlet Musquashcut Pond, Scituate to mouth at confluence with The Gulf, Scituate.
AU Type:	ESTUARY
AU Size:	0.02 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	5	Enterococcus		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Enterococcus	Source Unknown (N)					X	

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Musquashcut Brook (MA94-64), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Musquashcut Brook (MA94-64), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Musquashcut Brook (MA94-64): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.01 sq mi (47%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.01 sq mi (47%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB10.1	West Cohasset Harbor	Prohibited	0.01000	46.7%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Musquashcut Brook (MA94-64), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>The Cohasset Center for Student Coastal Research (CCSCR) staff/volunteers collected Enterococci bacteria data at several stations in Musquashcut Brook (MA94-64) during summer 2019 and summer 2020. At the upstream end of the AU at the Hatherly tide gate, eight samples were collected in 2019 (CCSCR_Hatherly) and 14 samples were collected in 2020 (CCSCR_Hatherly Tide Gate). Downstream at the Gannet tide gate, seven samples were collected in 2019 (CCSCR_Gannet Road) and 13 samples were collected in 2020 (CCSCR_Gannett Tide Gate). Data analysis indicated that 73-100% of intervals had GMs >35 CFU/100mL and 1-4 samples exceeded the 130 CFU/100mL STV. The seasonal GMs ranged from 41-85 CFU/100mL. These data met use attainment impairment thresholds for single year, moderate frequency datasets, and also met the multi-year thresholds based on the GM and cumulative GM conditions (there are essentially two pairs of sites even though the sites were all given different names) (MassDEP 2022b).</p> <p>The Primary Contact Recreation Use for this Musquashcut Brook AU (MA94-64) is assessed as Not Supporting based on the CCSCR Enterococci data collected in summers 2019 and 2020 which exceeded the use attainment impairment thresholds for moderate frequency datasets. An Enterococcus impairment is being added.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CCSCR_Gannet Road	Cohasset Center for Student Coastal Research	Water Quality	Musquashcut Pond	Tide Gate	42.225481	-70.77396
CCSCR_Gannett Tide Gate	Cohasset Center for Student Coastal Research	Water Quality	Scituate Mushquashcut	river tributary	42.225465	-70.774225
CCSCR_Hatherly	Cohasset Center for Student Coastal Research	Water Quality	Musquashcut Pond	Tide Gate	42.225402	-70.75939

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CCSCR_Hatherly Tide Gate	Cohasset Center for Student Coastal Research	Water Quality	Scituate Mushquashicut	river tributary	42.225402	-70.759385

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CCSCR 2020) (MassDEP Undated 3)

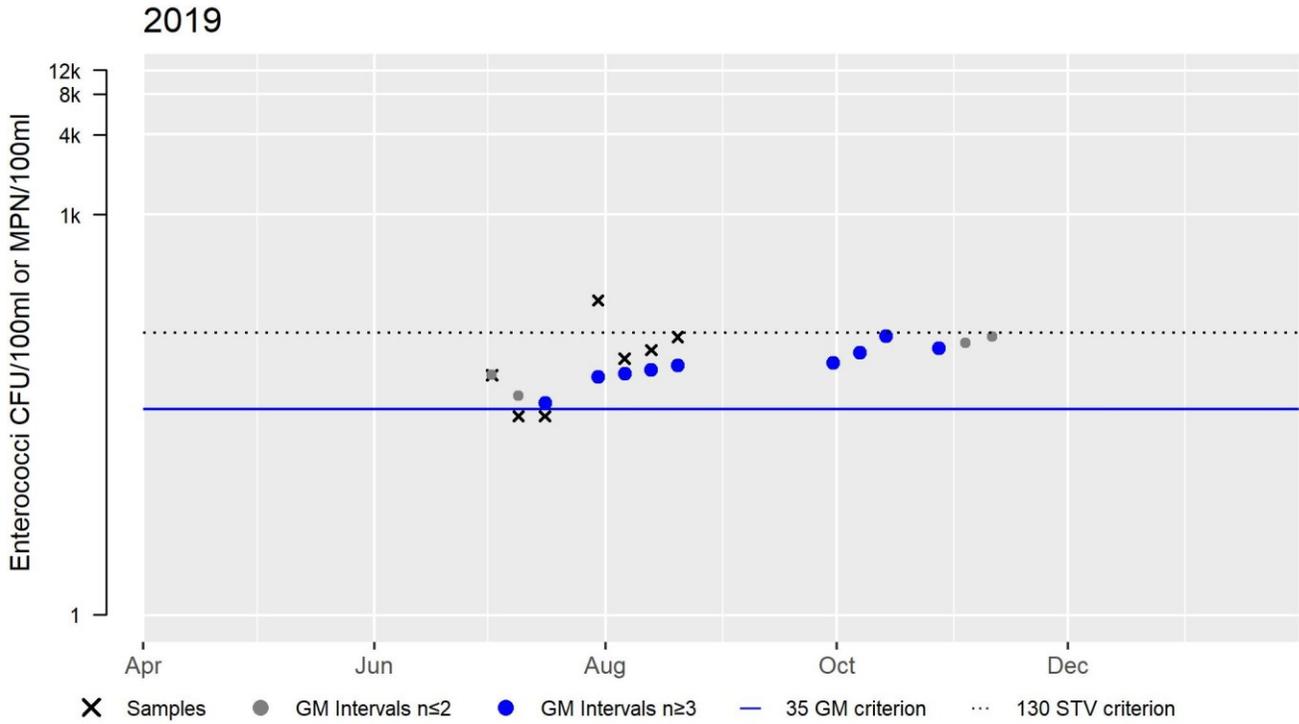
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CCSCR_Gannet Road	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	7	31	228	75
CCSCR_Gannett Tide Gate	Cohasset Center for Student Coastal Research	Enterococci	06/11/20	09/02/20	13	10	345	85
CCSCR_Hatherly	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	8	10	884	41
CCSCR_Hatherly Tide Gate	Cohasset Center for Student Coastal Research	Enterococci	06/03/20	09/02/20	14	10	487	54

CCSCR_Gannet Road Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	7
SeasGM	75
#GMI	9
#GMI Ex	9
%GMI Ex	100
n>STV	1
%n>STV	14

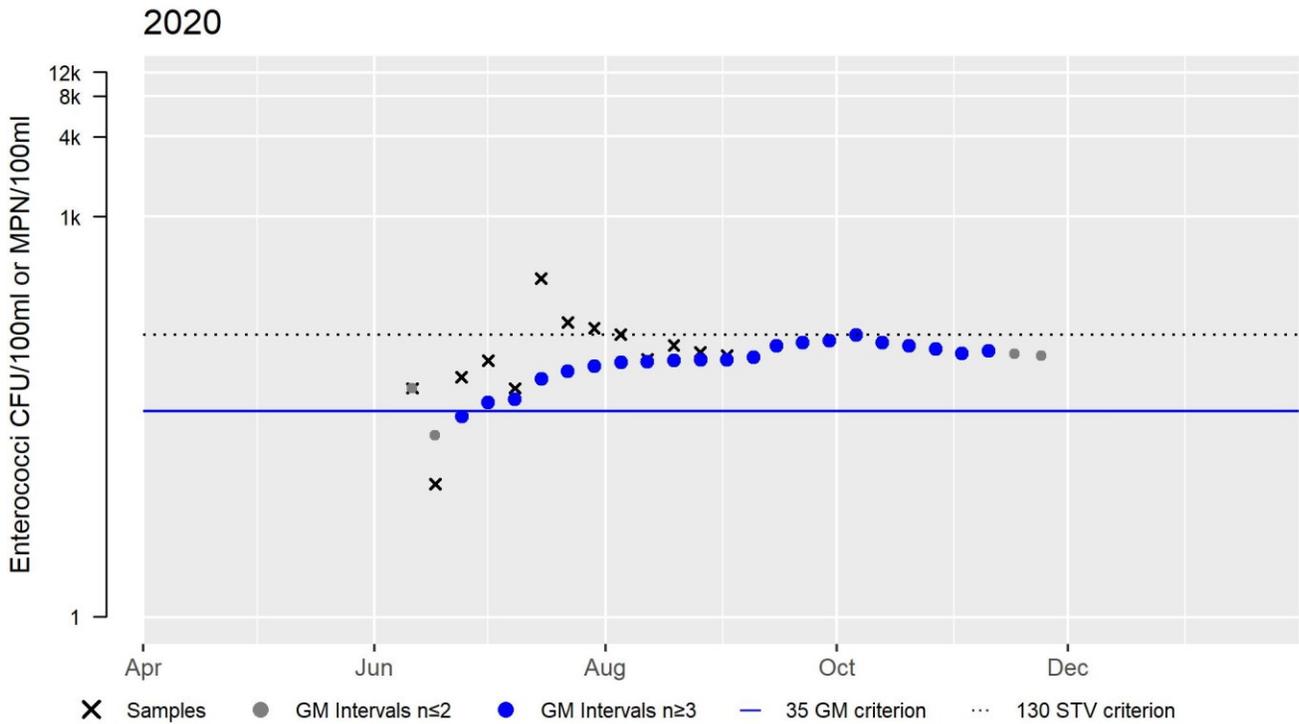
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Gannett Tide Gate Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	13
SeasGM	85
#GMI	21
#GMI Ex	20
%GMI Ex	95
n>STV	4
%n>STV	31

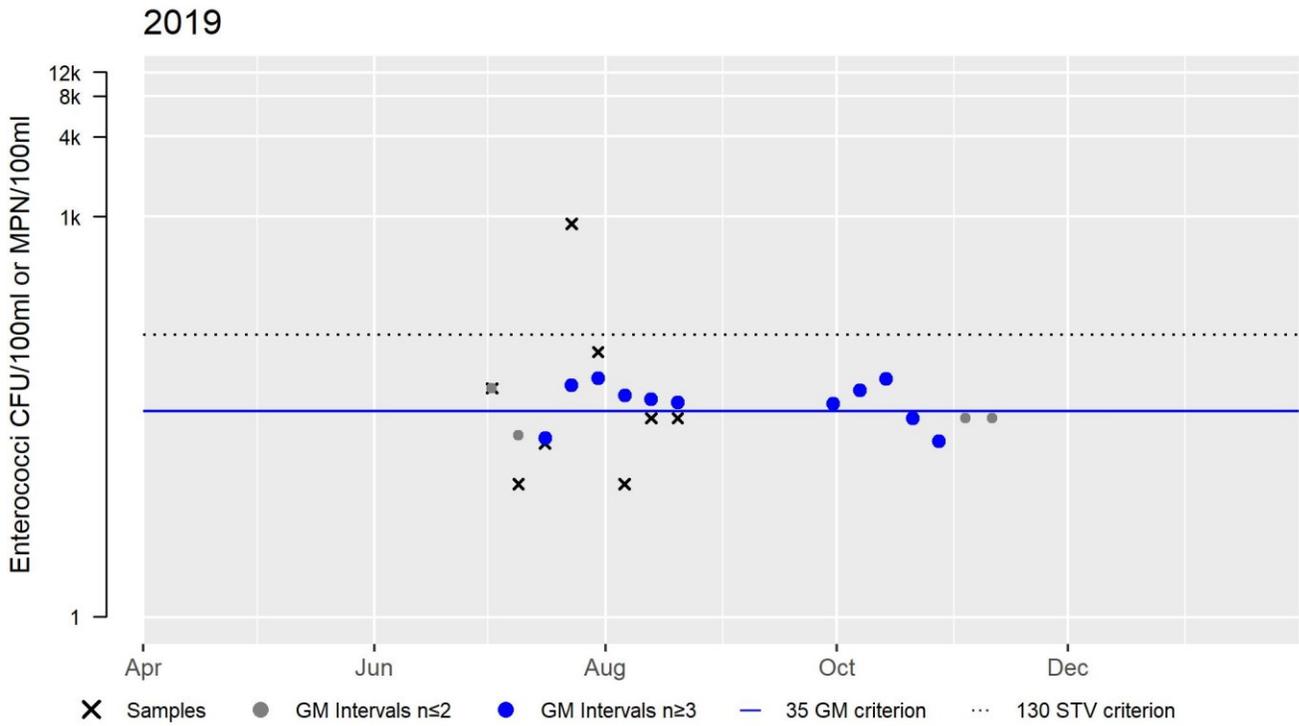
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Hatherly Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	8
SeasGM	41
#GMI	11
#GMI Ex	8
%GMI Ex	73
n>STV	1
%n>STV	12

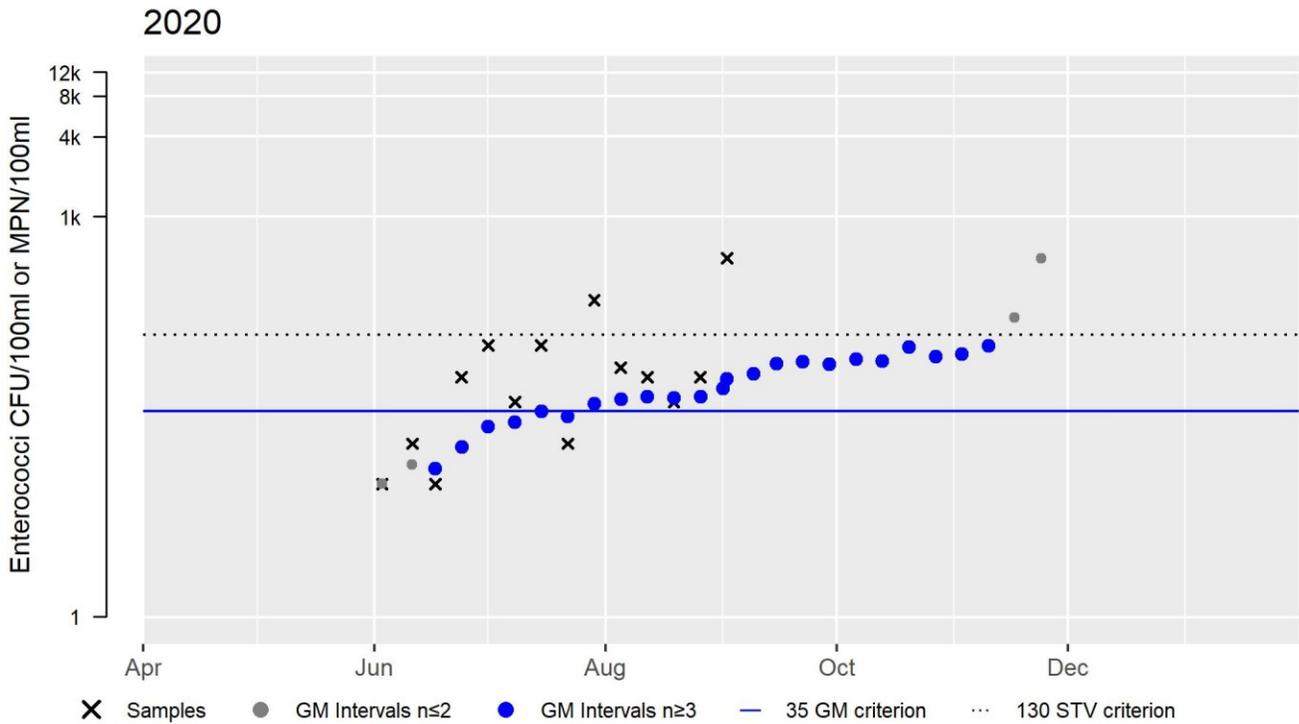
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Hatherly Tide Gate Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	14
SeasGM	54
#GMI	23
#GMI Ex	17
%GMI Ex	74
n>STV	2
%n>STV	14

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
 (MassDEP Undated 6)

Summary
Musquashcut Brook (MA94-64): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.01 sq mi (47%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

The Cohasset Center for Student Coastal Research (CCSCR) staff/volunteers collected Enterococci bacteria data at several stations in Musquashcut Brook (MA94-64) during summer 2019 and summer 2020. At the upstream end of the AU at the Hatherly tide gate, eight samples were collected in 2019 (CCSCR_Hatherly) and 14 samples were collected in 2020 (CCSCR_Hatherly Tide Gate). Downstream at the Gannet tide gate, seven samples were collected in 2019 (CCSCR_Gannet Road) and 13 samples were collected in 2020 (CCSCR_Gannett Tide Gate). Data analysis indicated that none of the intervals had GMs >175 CFU/100mL and only 0-1 samples from each station exceeded the 350 CFU/100mL STV. The overall GMs ranged from 41-85 CFU/100mL.

The Secondary Contact Recreation Use for this Musquashcut Brook AU (MA94-64) is assessed as Fully Supporting since the Enterococci data did not exceed the use attainment impairment threshold for moderate frequency datasets based on the CCSCR data collected during summers 2019 and 2020.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CCSCR_Gannet Road	Cohasset Center for Student Coastal Research	Water Quality	Musquashcut Pond	Tide Gate	42.225481	-70.77396
CCSCR_Gannett Tide Gate	Cohasset Center for Student Coastal Research	Water Quality	Scituate Mushquashcut	river tributary	42.225465	-70.774225
CCSCR_Hatherly	Cohasset Center for Student Coastal Research	Water Quality	Musquashcut Pond	Tide Gate	42.225402	-70.75939
CCSCR_Hatherly Tide Gate	Cohasset Center for Student Coastal Research	Water Quality	Scituate Mushquashcut	river tributary	42.225402	-70.759385

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

(MassDEP Undated 3)

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

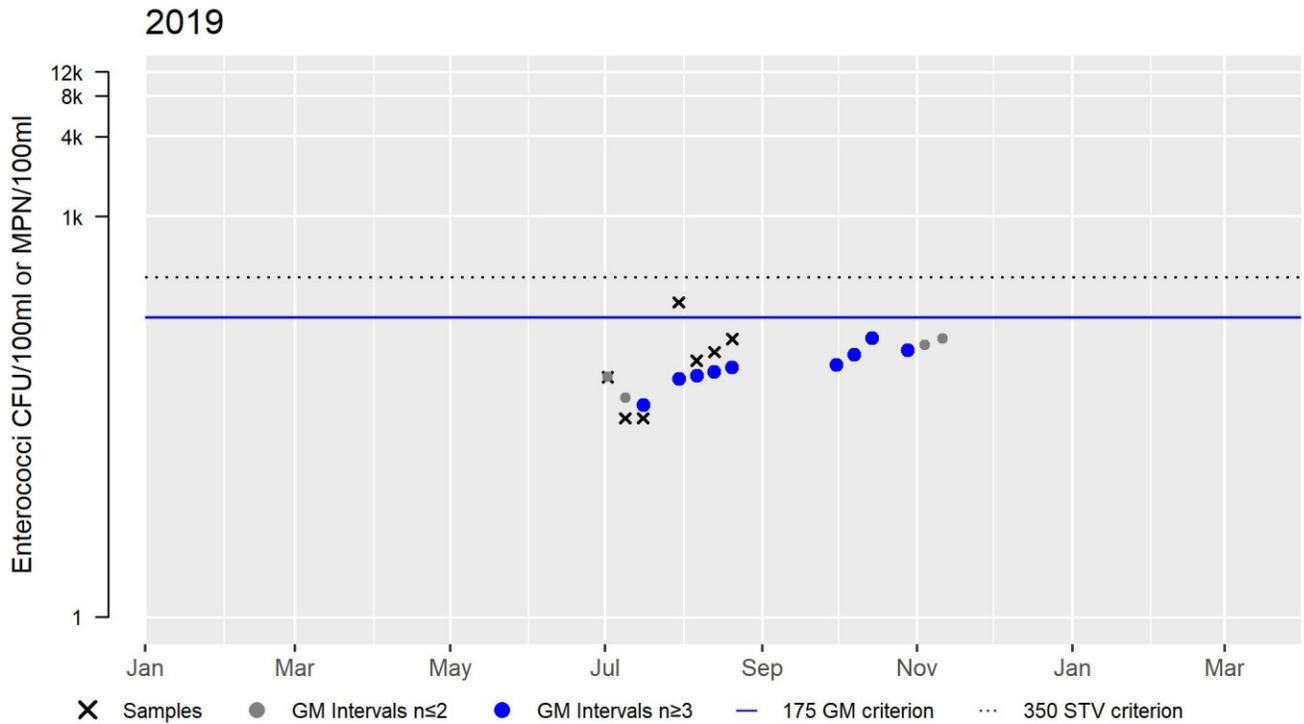
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
CCSCR_Gannet Road	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	7	31	228	75
CCSCR_Gannett Tide Gate	Cohasset Center for Student Coastal Research	Enterococci	06/11/20	09/02/20	13	10	345	85
CCSCR_Hatherly	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	8	10	884	41

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
CCSCR_Hatherly Tide Gate	Cohasset Center for Student Coastal Research	Enterococci	06/03/20	09/02/20	14	10	487	54

CCSCR_Gannet Road Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	7
SeasGM	75
#GMI	9
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

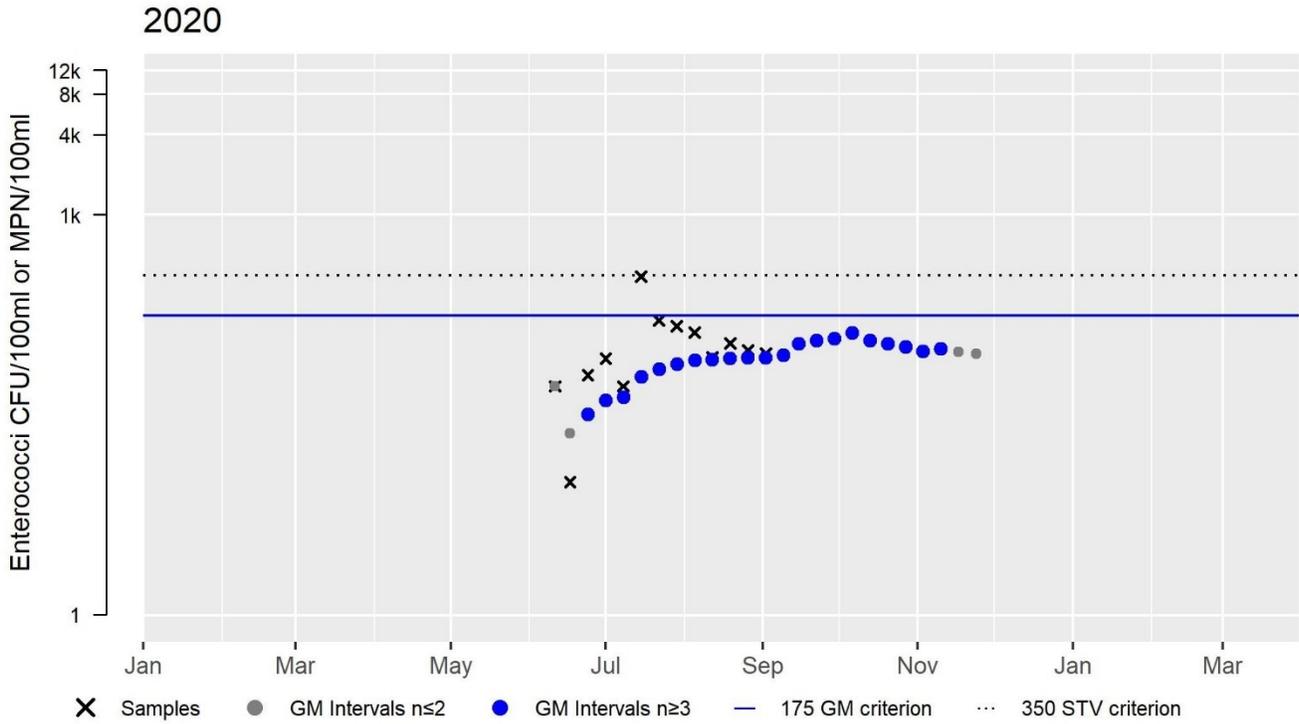
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Gannett Tide Gate Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	13
SeasGM	85
#GMI	21
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

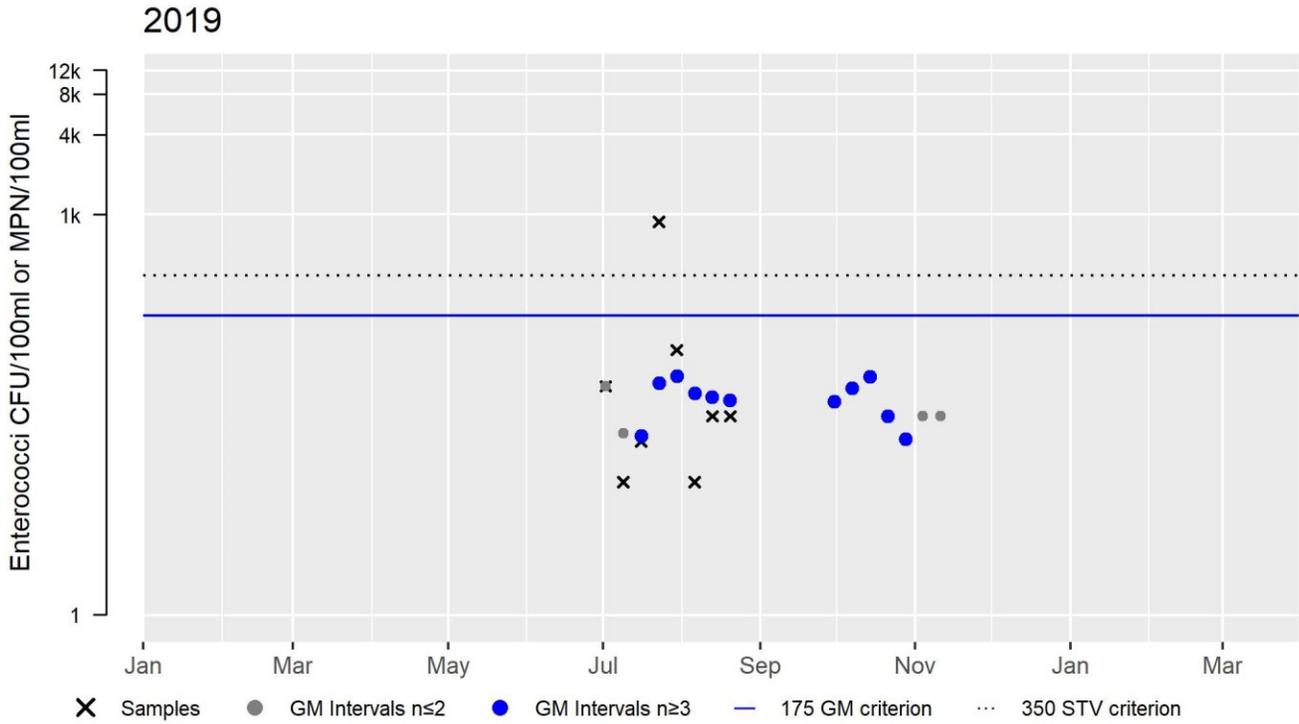
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Hatherly Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	8
SeasGM	41
#GMI	11
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	12

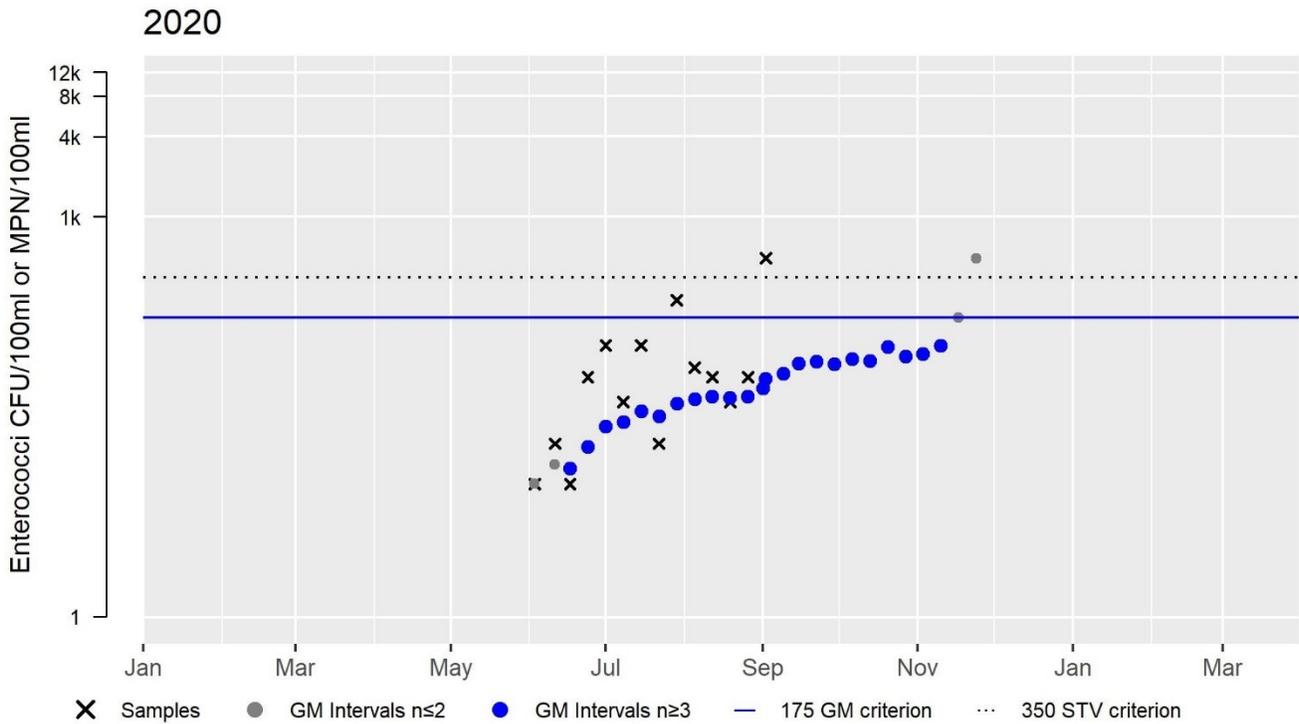
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Hatherly Tide Gate Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	14
SeasGM	54
#GMI	23
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	7

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Musquashcut Brook (MA94-64): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.01 sq mi (47%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Musquashcut Pond (MA94-33)

Location:	Scituate (formerly reported as 2004 segment: Musquashcut Pond MA94105).
AU Type:	ESTUARY
AU Size:	0.11 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Flow Regime Modification*)		Unchanged
5	5	Algae		Unchanged
5	5	Chlorophyll-a		Unchanged
5	5	Dissolved Oxygen Supersaturation		Unchanged
5	5	Enterococcus		Added
5	5	Fecal Coliform	61713	Unchanged
5	5	Phosphorus, Total		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Flow Regime Modification*)	Changes in Tidal Circulation/Flushing (Y)	X			X	X	X
Algae	Changes in Tidal Circulation/Flushing (Y)	X			X	X	X
Chlorophyll-a	Changes in Tidal Circulation/Flushing (Y)	X					
Dissolved Oxygen Supersaturation	Changes in Tidal Circulation/Flushing (Y)	X					
Enterococcus	Source Unknown (N)					X	X
Fecal Coliform	Source Unknown (N)			X			
Phosphorus, Total	Changes in Tidal Circulation/Flushing (Y)	X					

Recommendations

2022 Recommendations
REC: Conduct Enterococci bacteria sampling in Musquashcut Pond in representative location(s) at a high enough frequency to determine whether an impairment is warranted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available for Musquashcut Pond (MA94-33), so the Aquatic Life Use will continue to be assessed as Not Supporting with prior impairments for Algae, Chlorophyll-a, Dissolved Oxygen Supersaturation, Flow Regime Modification, and “Phosphorus, Total” being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Musquashcut Pond (MA94-33), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Musquashcut Pond (MA94-33): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0994 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0994 sq mi (91%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB10.1	West Cohasset Harbor	Prohibited	0.09939	91.1%

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available for Musquashcut Pond (MA94-33), so the Aesthetics Use will continue to be assessed as Not Supporting with prior impairments for Algae and Flow Regime Modification being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>The Cohasset Center for Student Coastal Research (CCSCR) staff/volunteers collected Enterococci bacteria samples in Musquashcut Pond (MA94-33) along the shoreline at four sites as follows: (CCSCR_Seaside Bridge) between July and August 2019 (n=7), (CCSCR_Seaside Close) between July and August 2019 (n=8) and between June and July 2020 (n=7), (CCSCR_Old Farm Road) in July 2019 (n=3), and just upstream of the Musquashcut Brook AU (CCSCR_Hatherly Path) between August and September 2020 (n=4). Data analysis indicated that 100% of intervals for most stations had GMs >35 CFU/100mL and the data for all stations met use attainment impairment thresholds for low/moderate frequency datasets (MassDEP 2022b). One to five samples exceeded the 130 CFU/100mL STV and the seasonal GMs for most station-years ranged from 113-1082 CFU/100mL (one GM was lower at only 33 CFU/100mL).</p> <p>The Primary Contact Recreation Use for Musquashcut Pond (MA94-33) is assessed as Not Supporting. An Enterococcus impairment is being added since the concentrations in the CCSCR samples exceeded use attainment impairment thresholds. The prior impairments for Algae and Flow Regime Modification are being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CCSCR_Hatherly Path	Cohasset Center for Student Coastal Research	Water Quality	Scituate Mushquashicut	river tributary	42.225815	-70.759052
CCSCR_Old Farm Road	Cohasset Center for Student Coastal Research	Water Quality	Musquashicut Pond	Shoreline	42.227873	-70.759401
CCSCR_Seaside Bridge	Cohasset Center for Student Coastal Research	Water Quality	Musquashicut Pond	Shoreline	42.224496	-70.752395
CCSCR_Seaside Close	Cohasset Center for Student Coastal Research	Water Quality	Musquashicut Pond	Shoreline	42.227086	-70.755302

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CCSCR 2020)
 (MassDEP Undated 3)

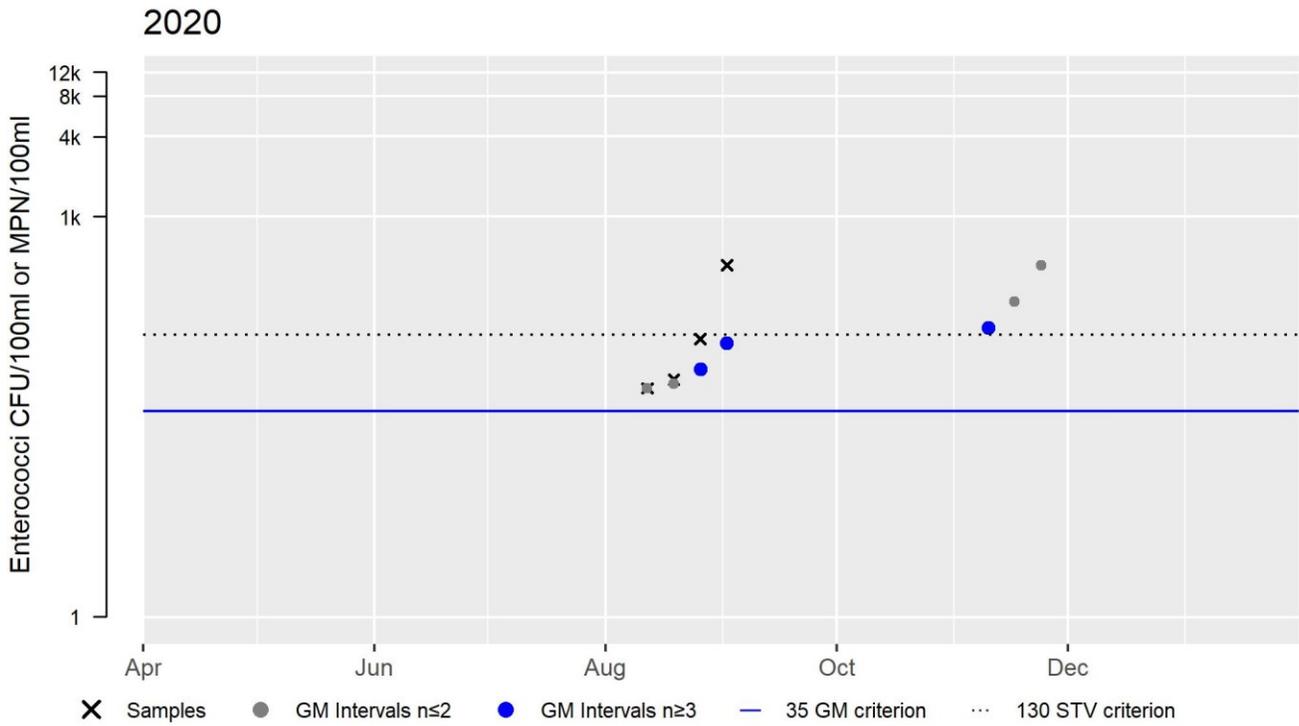
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CCSCR_Hatherly Path	Cohasset Center for Student Coastal Research	Enterococci	08/12/20	09/02/20	4	52	432	113
CCSCR_Old Farm Road	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	07/16/19	3	213	3448	1082
CCSCR_Seaside Bridge	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	7	10	6488	330
CCSCR_Seaside Close	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	8	10	1112	33
CCSCR_Seaside Close	Cohasset Center for Student Coastal Research	Enterococci	06/03/20	07/22/20	7	10	2419.6	134

CCSCR_Hatherly Path Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	113
#GMI	3
#GMI Ex	3
%GMI Ex	100
n>STV	1
%n>STV	25

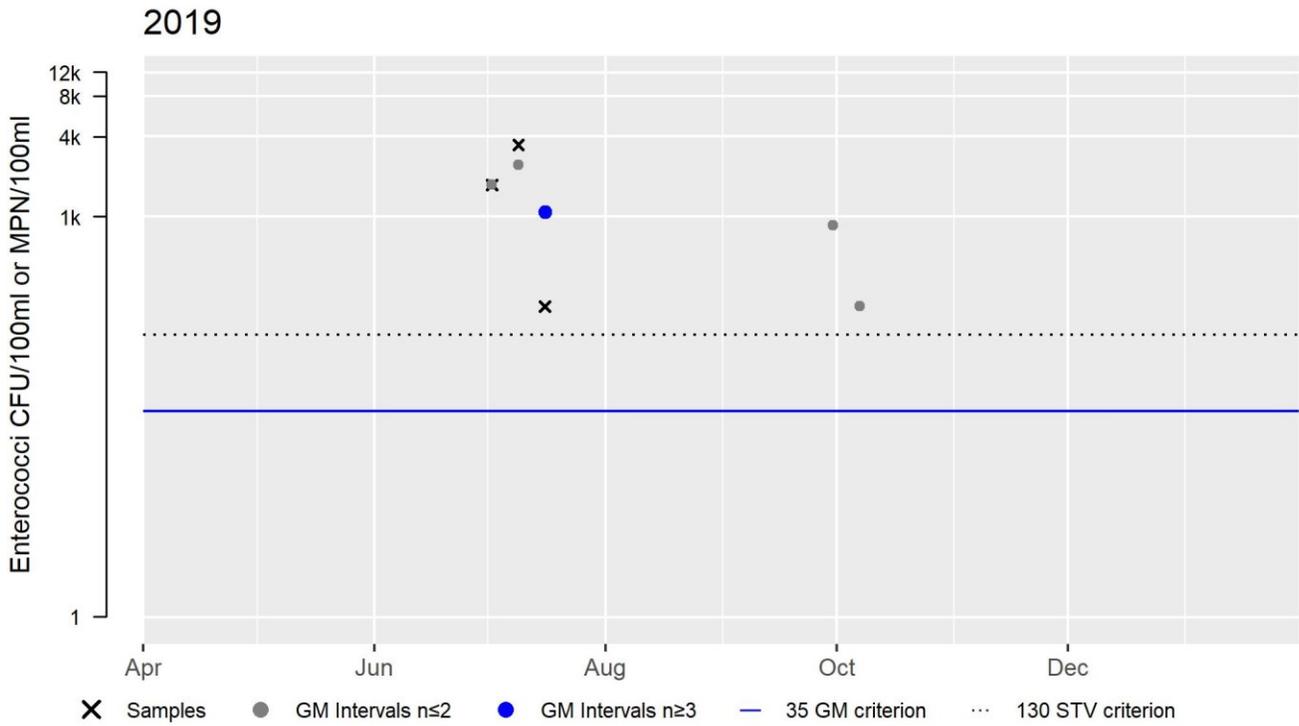
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Old Farm Road Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	3
SeasGM	1082
#GMI	1
#GMI Ex	1
%GMI Ex	100
n>STV	3
%n>STV	100

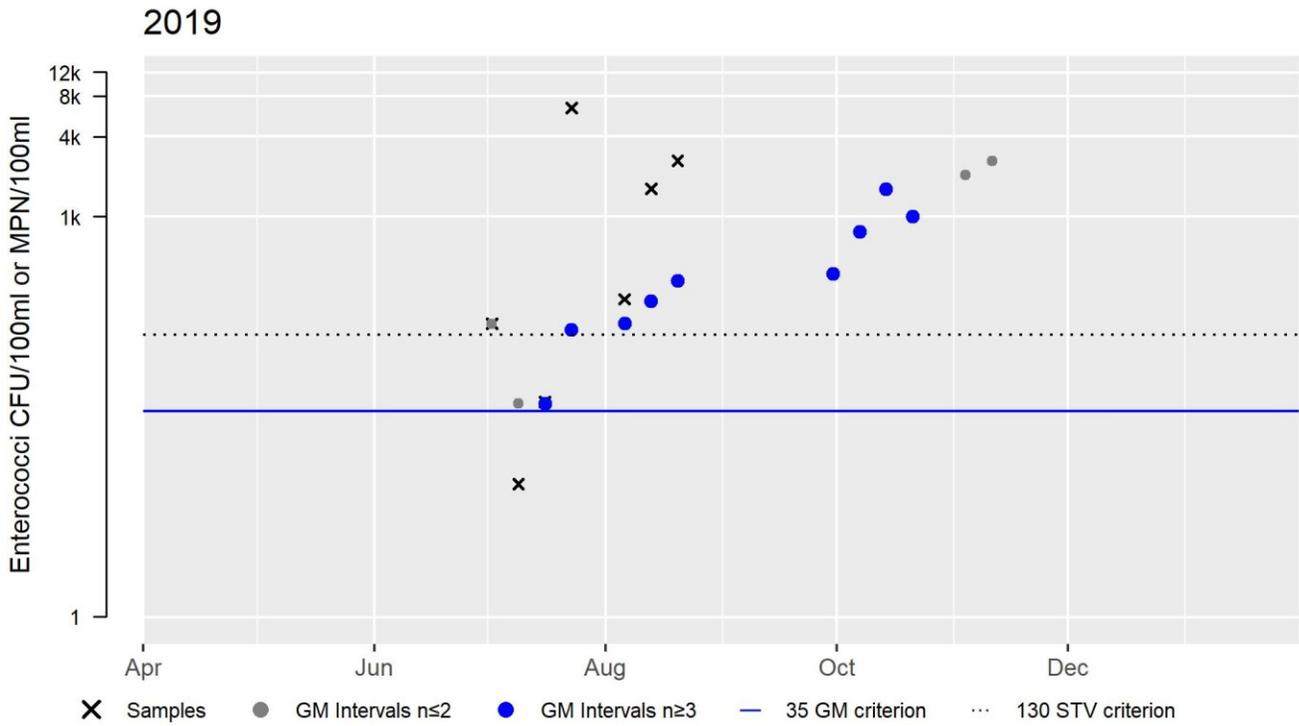
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Seaside Bridge Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	7
SeasGM	330
#GMI	9
#GMI Ex	9
%GMI Ex	100
n>STV	5
%n>STV	71

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



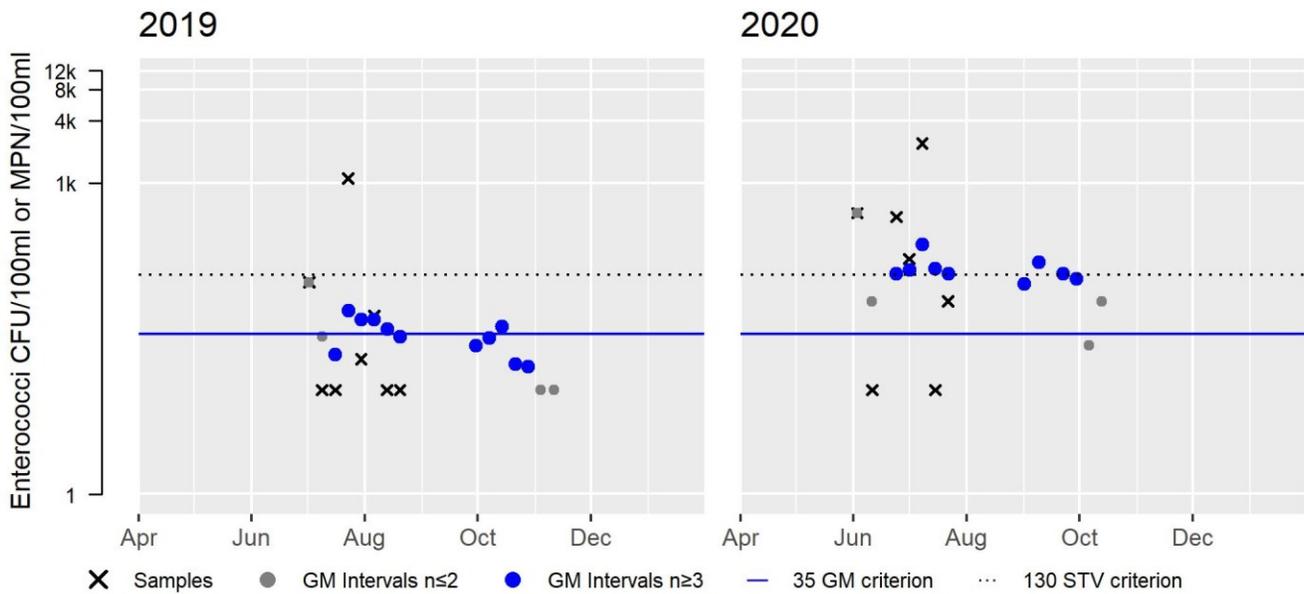
CCSCR_Seaside Close Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	8
SeasGM	33
#GMI	11
#GMI Ex	5
%GMI Ex	45
n>STV	1
%n>STV	12

Var	Res
Samples	7
SeasGM	134
#GMI	9
#GMI Ex	9
%GMI Ex	100
n>STV	4
%n>STV	57

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

Variable	Cumulative %GMI Ex (all years)
Result	70



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Musquashcut Pond (MA94-33): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0994 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary

The Cohasset Center for Student Coastal Research (CCSCR) staff/volunteers collected Enterococci bacteria samples in Musquashcut Pond (MA94-33) along the shoreline at four sites as follows: (CCSCR_Seaside Bridge) between July and August 2019 (n=7), (CCSCR_Seaside Close) between July and August 2019 (n=8) and between June and July 2020 (n=7), (CCSCR_Old Farm Road) in July 2019 (n=3), and just upstream of the Musquashcut Brook AU (CCSCR_Hatherly Path) between August and September 2020 (n=4). Data analysis indicated that two of the four sites sampled, Old Farm Road and Seaside Bridge, exceeded use attainment impairment thresholds in 2019 (67 to 100% of intervals had GMs >175 CFU/100mL in the low and moderate frequency sample sets, respectively (MassDEP 2022b).) Neither the low frequency dataset in summer 2019 at Hatherly Path nor the multi-year moderate frequency dataset in summers 2019 and 2020 at the Seaside Close sampling locations exceeded the use attainment impairment thresholds although both sites had one or more samples exceed the STV criterion of 360CFU/100mls.

The Secondary Contact Recreation Use for Musquashcut Pond (MA94-33) will continue to be assessed as Not Supporting. An Enterococcus impairment is being added since the Enterococci concentrations at two of the four CCSCR sampling locations exceeded use attainment impairment thresholds while the other two sites had at least one STV exceedance per sampling year as well. The prior impairments for Algae and Flow Regime Modification are being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CCSCR_Hatherly Path	Cohasset Center for Student Coastal Research	Water Quality	Scituate Mushquashicut	river tributary	42.225815	-70.759052
CCSCR_Old Farm Road	Cohasset Center for Student Coastal Research	Water Quality	Musquashicut Pond	Shoreline	42.227873	-70.759401
CCSCR_Seaside Bridge	Cohasset Center for Student Coastal Research	Water Quality	Musquashicut Pond	Shoreline	42.224496	-70.752395
CCSCR_Seaside Close	Cohasset Center for Student Coastal Research	Water Quality	Musquashicut Pond	Shoreline	42.227086	-70.755302

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

(MassDEP Undated 3)

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

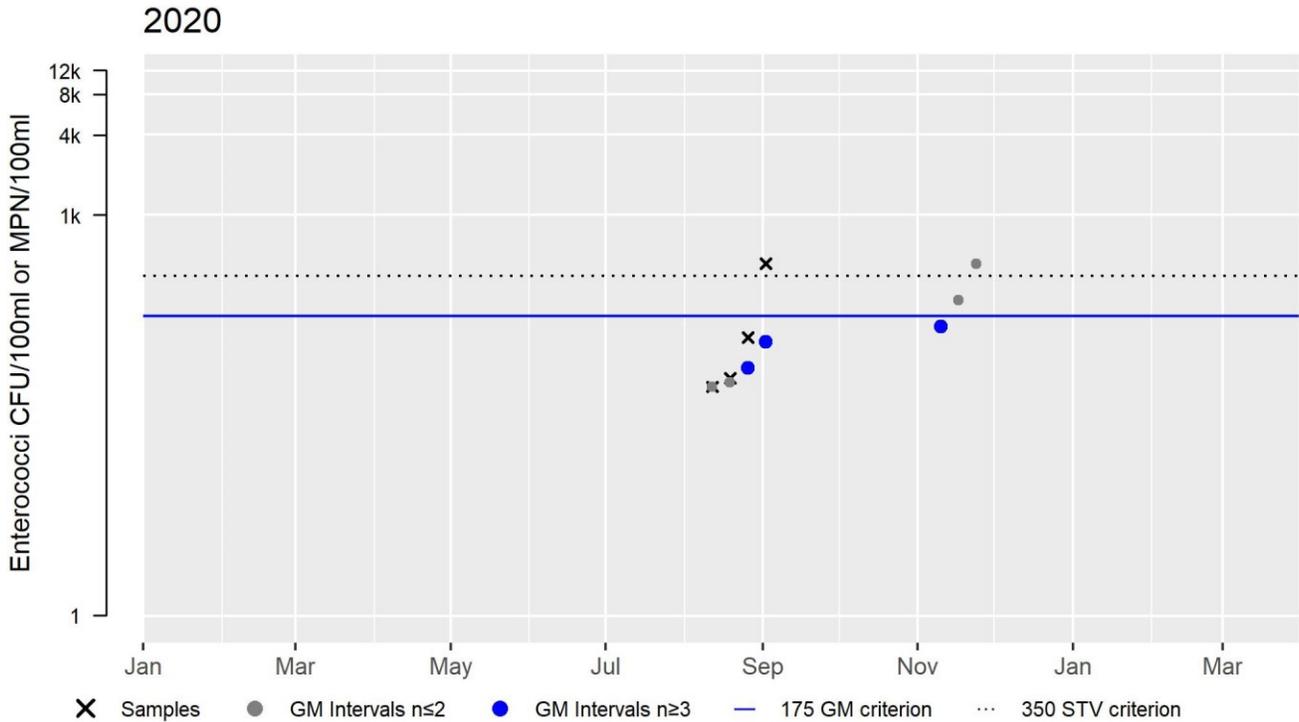
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
CCSCR_Hatherly Path	Cohasset Center for Student Coastal Research	Enterococci	08/12/20	09/02/20	4	52	432	113
CCSCR_Old Farm Road	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	07/16/19	3	213	3448	1082
CCSCR_Seaside Bridge	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	7	10	6488	330

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
CCSCR_Seaside Close	Cohasset Center for Student Coastal Research	Enterococci	07/02/19	08/20/19	8	10	1112	33
CCSCR_Seaside Close	Cohasset Center for Student Coastal Research	Enterococci	06/03/20	07/22/20	7	10	2419.6	134

CCSCR_Hatherly Path Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	4
SeasGM	113
#GMI	3
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	25

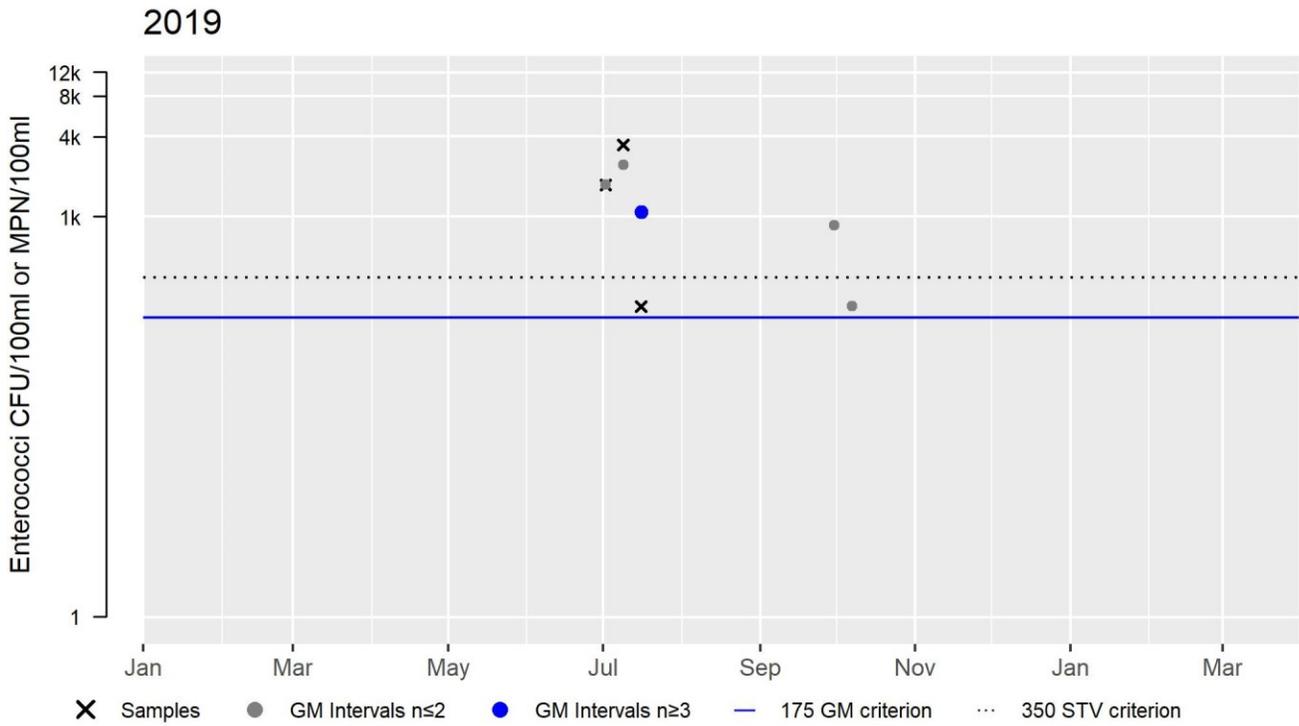
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Old Farm Road Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	3
SeasGM	1082
#GMI	1
#GMI Ex	1
%GMI Ex	100
n>STV	2
%n>STV	67

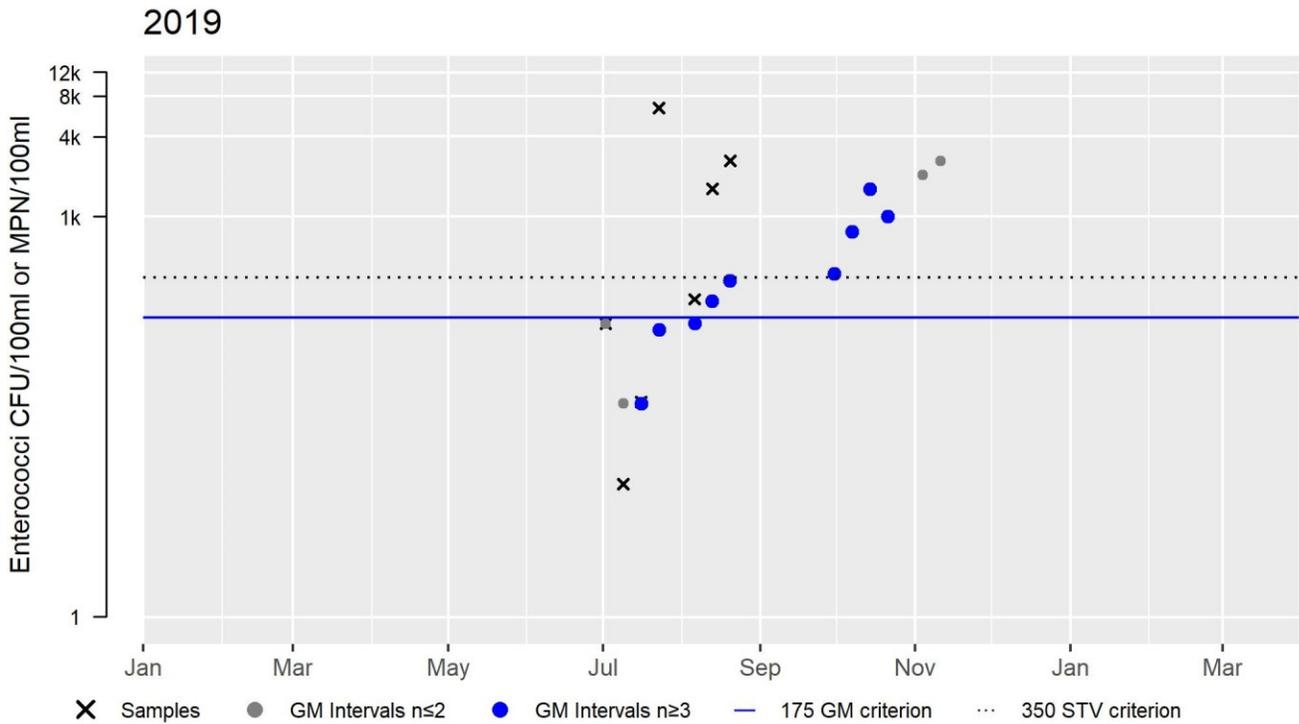
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CCSCR_Seaside Bridge Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	7
SeasGM	330
#GMI	9
#GMI Ex	6
%GMI Ex	67
n>STV	3
%n>STV	43

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



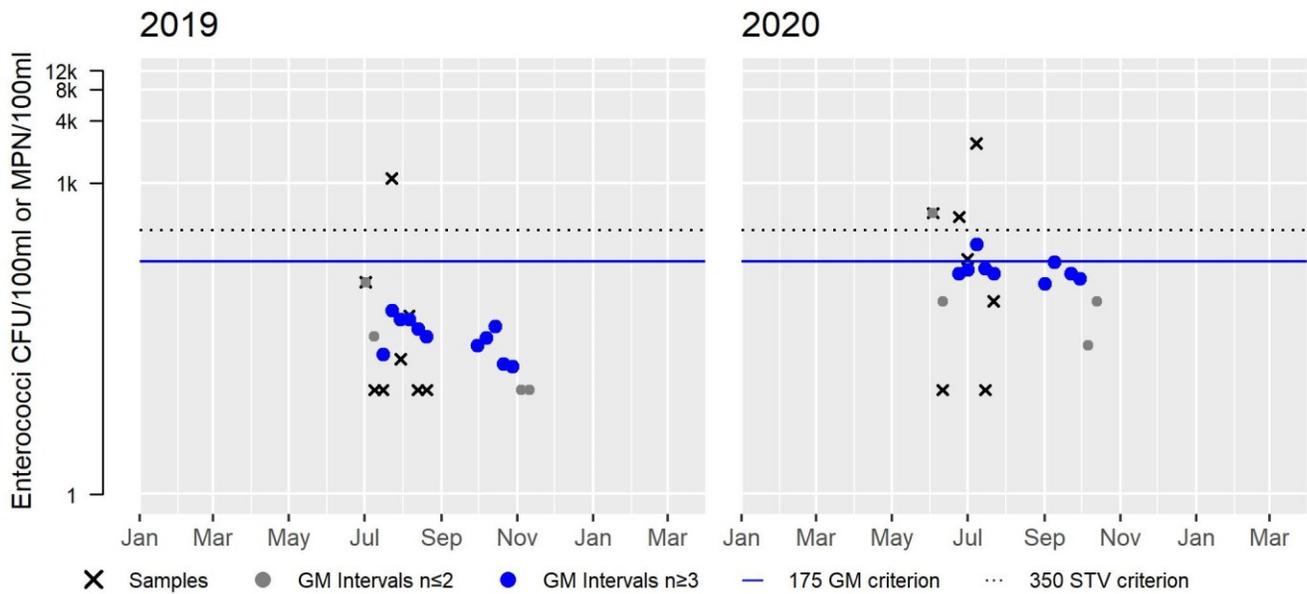
CCSCR_Seaside Close Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	8
SeasGM	33
#GMI	11
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	12

Var	Res
Samples	7
SeasGM	134
#GMI	9
#GMI Ex	1
%GMI Ex	11
n>STV	3
%n>STV	43

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

Variable	Cumulative %GMI Ex (all years)
Result	5



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Musquashcut Pond (MA94-33): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0994 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

North Hill Marsh Pond (MA94109)

Location:	Duxbury.
AU Type:	FRESHWATER LAKE
AU Size:	43 ACRES
Classification/Qualifier:	B

No usable data were available for North Hill Marsh Pond (MA94109) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

North River (MA94-05)

Location:	Headwaters, confluence of Indian Head River and Herring Brook, Hanover/Pembroke to Route 3A, Marshfield/Scituate.
AU Type:	ESTUARY
AU Size:	0.3 SQUARE MILES
Classification/Qualifier:	SA: ORW, SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Enterococcus		Added
5	5	Fecal Coliform	61725	Unchanged
5	5	Mercury in Fish Tissue		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Enterococcus	Source Unknown (N)					X	
Fecal Coliform	Source Unknown (N)			X			
Mercury in Fish Tissue	Contaminated Sediments (Y)		X				
Mercury in Fish Tissue	Illegal Dumps or Other Inappropriate Waste Disposal (Y)		X				

Recommendations

2022 Recommendations
ALU: Additional water quality data, particularly DO data, should be collected in this North River AU (MA94-05), near DEP station W0917 and further downstream, to determine whether low DO is problematic (MassDEP 2021).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No recent data are available, so the Aquatic Life Use of this North River AU (MA94-05) is Not Assessed. The Alert for low dissolved oxygen (MassDEP 2021) is being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

Since there is a site specific DPH advisory for elevated mercury in fish tissue including this North River AU (MA94-05), the Fish Consumption Use will continue to be assessed as Not Supporting with the Mercury in Fish Tissue impairment being carried forward. MA DPH advises that “No one should consume any fish from this water body” from the Forge Pond Dam on the Drinkwater River in Hanover, downstream through Factory Pond and the Indian Head River, to the Rt. 3 crossing of the North River due to mercury contamination (MassDPH 2021).

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
North River (MA94-05): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.1792 sq mi (59%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.1791 sq mi (59%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area \geq 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB5.1	North River - East	Conditionally Approved	0.00010	0.0%
MB5.2	North River West	Prohibited	0.17909	58.9%

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality sampling in this North River AU (MA94-05) on Washington Street in Hanover/Pembroke (W2651) and further downstream west of the dead-end of Corn Hill Lane in Marshfield (W2652) during the summer of 2016. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews at either site. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2/station). Too limited data/information are available to evaluate the Aesthetics Use for this North River AU (MA94-05) so it is assessed as having Insufficient Information.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2651	MassDEP	Water Quality	North River	[Washington Street, Hanover/Pembroke]	42.108562	-70.806755
W2652	MassDEP	Water Quality	North River	[west of dead-end of Corn Hill Lane, Marshfield]	42.142089	-70.783103

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2651	North River	2016	2	MassDEP aesthetics observations for station W2651 on North River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2016. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).
W2652	North River	2016	2	MassDEP aesthetics observations for station W2652 on North River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2016. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2651	2016	2	0	0
W2652	2016	2	0	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2651	North River	2016	Color	None	2	2
W2651	North River	2016	Objectionable Deposits	Not Applicable (N/A)	2	2
W2651	North River	2016	Odor	None	2	2
W2651	North River	2016	Scum	Not Applicable (N/A)	2	2
W2651	North River	2016	Turbidity	Highly Turbid	1	2
W2651	North River	2016	Turbidity	Moderately Turbid	1	2
W2652	North River	2016	Color	None	2	2
W2652	North River	2016	Objectionable Deposits	Not Applicable (N/A)	2	2
W2652	North River	2016	Odor	None	2	2
W2652	North River	2016	Scum	Not Applicable (N/A)	2	2
W2652	North River	2016	Turbidity	Highly Turbid	1	2
W2652	North River	2016	Turbidity	Moderately Turbid	1	2

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff and North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria samples in this North River AU (MA94-05) during summer 2016 and summer 2019, respectively. Stations are described from upstream to downstream as follows: in the vicinity of Washington Street in Hanover/Pembroke (DEP station W2651; NSRWA_Washington St. Bridge n=6), at the end of the Corn Hill Lane dead-end road and the edge of the marsh (DEP station W2652; NSRWA_Cornhill Lane n=6), and the most downstream station was located downstream of the Union St. Bridge on the left edge (marsh next to Norwell boat ramp) (NSRWA_Union St. Bridge, n=6). Too limited sampling was conducted in summer 2016 to evaluate. Data analysis indicated that 86-100% of the intervals for the NSRWA low frequency datasets from summer 2019 had GMs >35 CFU/100mL, and four samples from the Washington St station exceeded the 130 CFU/100mL STV but only one sample exceeded the STV at each of the two downstream stations. The seasonal GMs ranged from 41-129 CFU/100mL. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews at either site (W2651/W2652) although those data were limited (n=2/station).

Since Enterococci concentrations during summer 2019 (NSRWA sampling at three stations) exceeded the use attainment impairment threshold for a single year low frequency dataset, the Primary Contact Recreation Use for this North River AU (MA94-05) is assessed as Not Supporting. An impairment for Enterococcus is being added.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2651	MassDEP	Water Quality	North River	[Washington Street, Hanover/Pembroke]	42.108562	-70.806755
W2652	MassDEP	Water Quality	North River	[west of dead-end of Corn Hill Lane, Marshfield]	42.142089	-70.783103
NSRWA_Cornhill Lane	North South River Watershed Association	Water Quality	North River	End of road, edge of marsh	42.14191	-70.7828
NSRWA_Union St. Bridge	North South River Watershed Association	Water Quality	North River	Downstream of Union St. Bridge, left edge (marsh next to Norwell boat ramp)	42.1554	-70.77542
NSRWA_Washington St. Bridge	North South River Watershed Association	Water Quality	North River	Downstream of Washington St. Bridge, right edge	42.10852	-70.80722

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5) (NSRWA 2019) (MassDEP Undated 3)

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

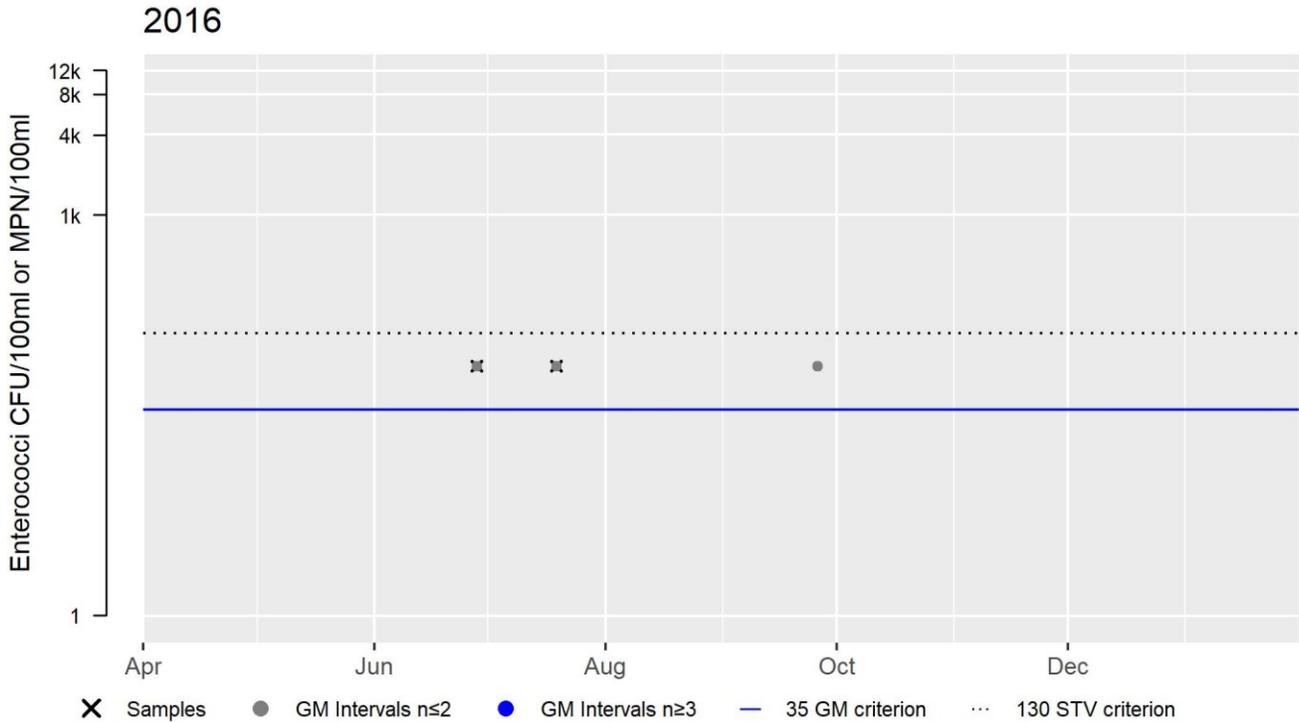
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2651	MassDEP	Enterococci	06/28/16	07/19/16	2	74	74	74
W2652	MassDEP	Enterococci	06/28/16	07/19/16	2	10	52	23
NSRWA_Cornhill Lane	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	17	600	78
NSRWA_Union St. Bridge	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	8	310	41

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Washington St. Bridge	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	24	500	129

W2651 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	74
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

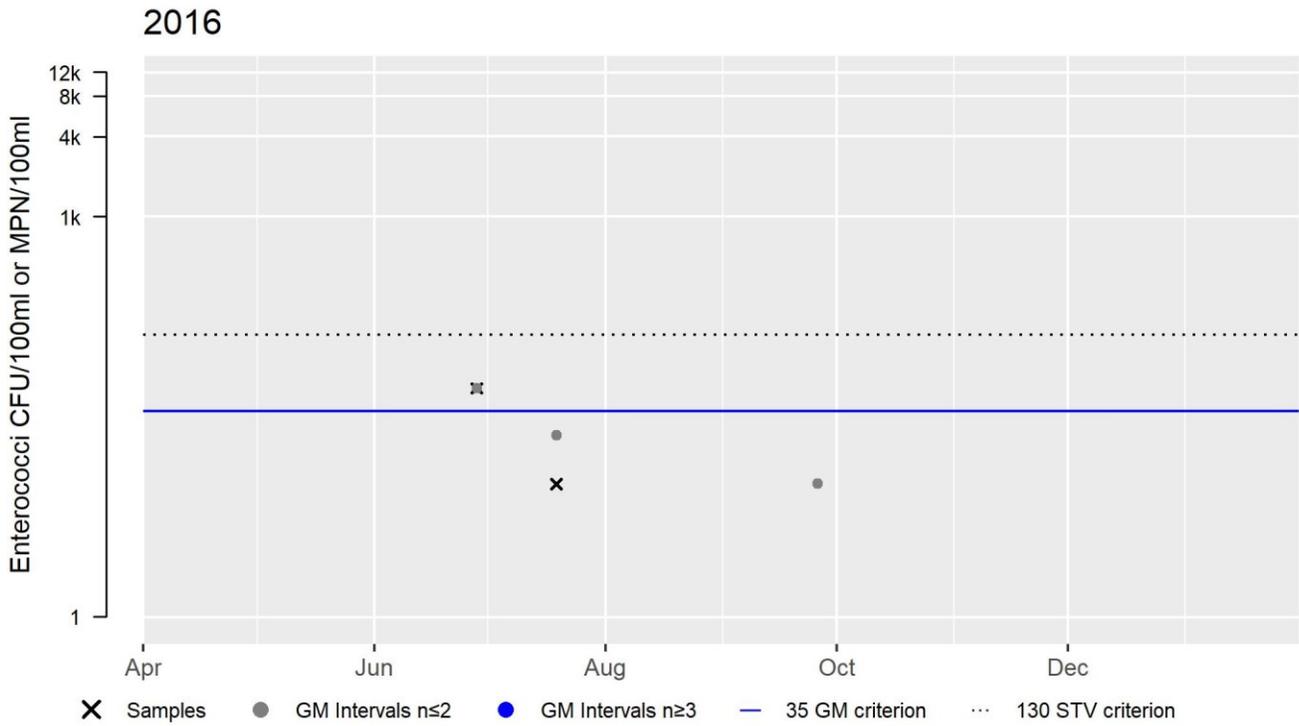
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2652 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	23
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

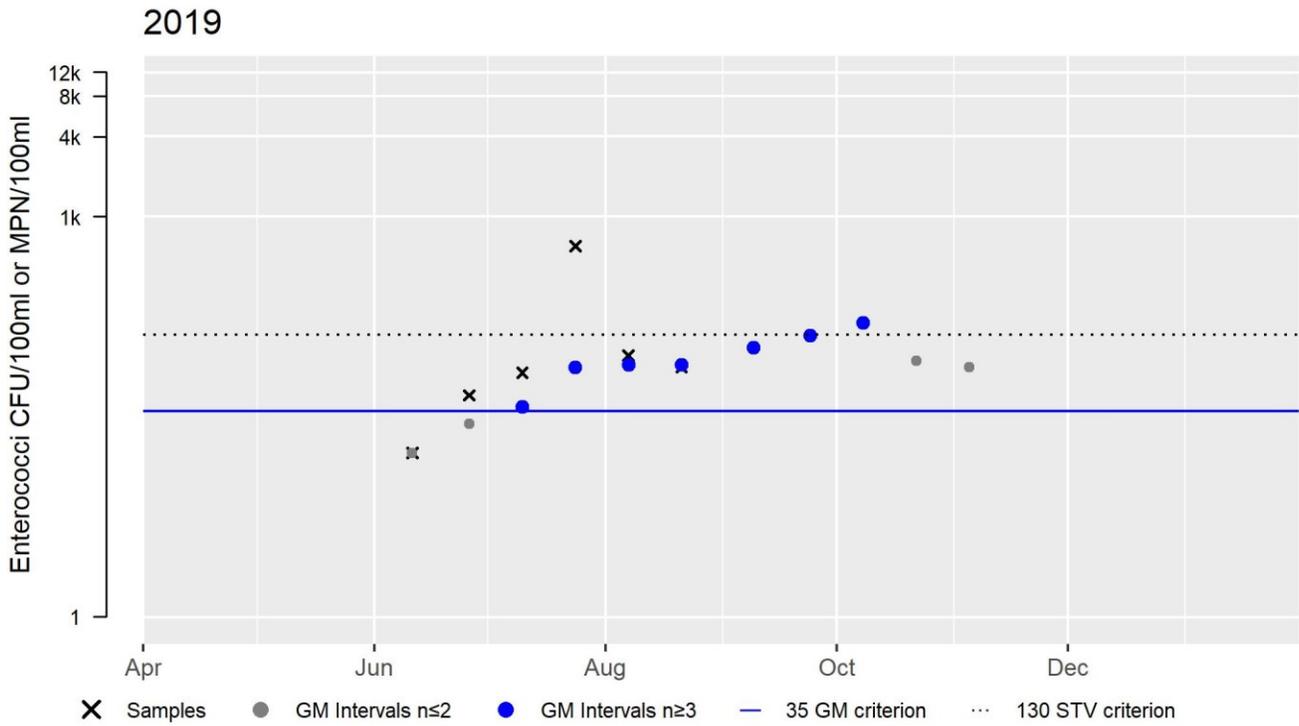
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Cornhill Lane Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	78
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	1
%n>STV	17

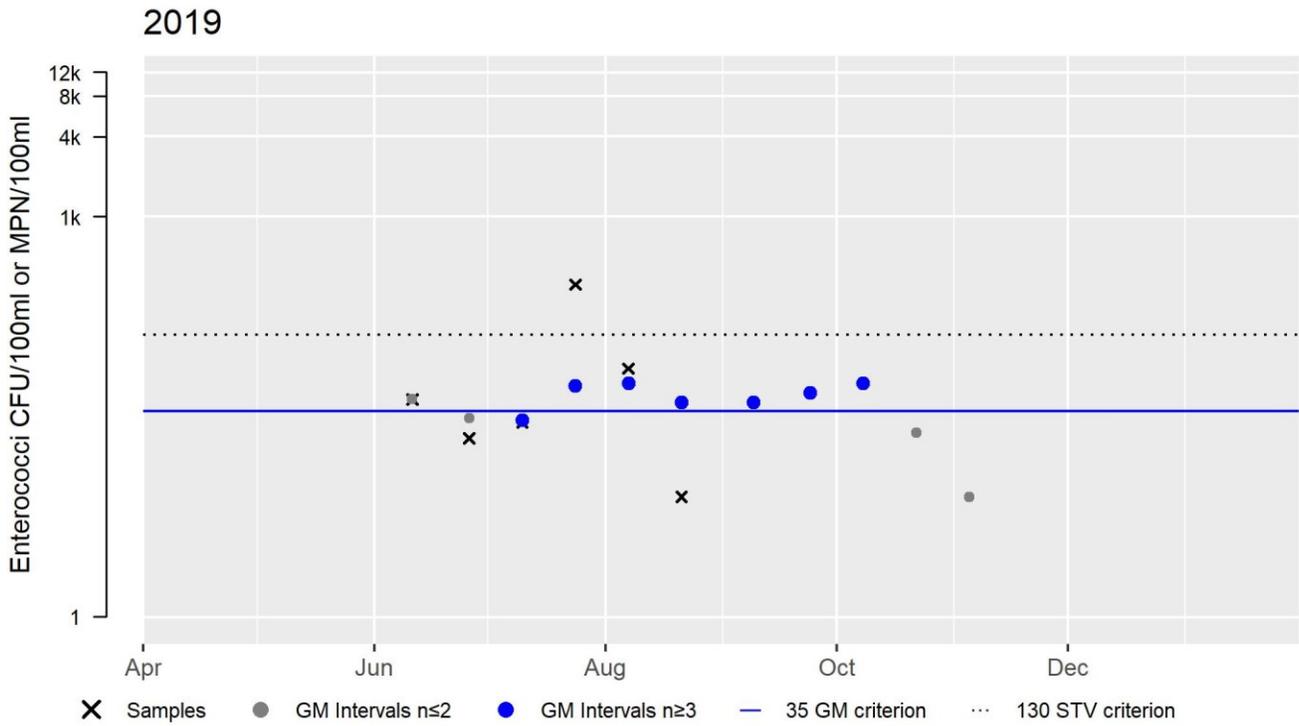
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Union St. Bridge Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	41
#GMI	7
#GMI Ex	6
%GMI Ex	86
n>STV	1
%n>STV	17

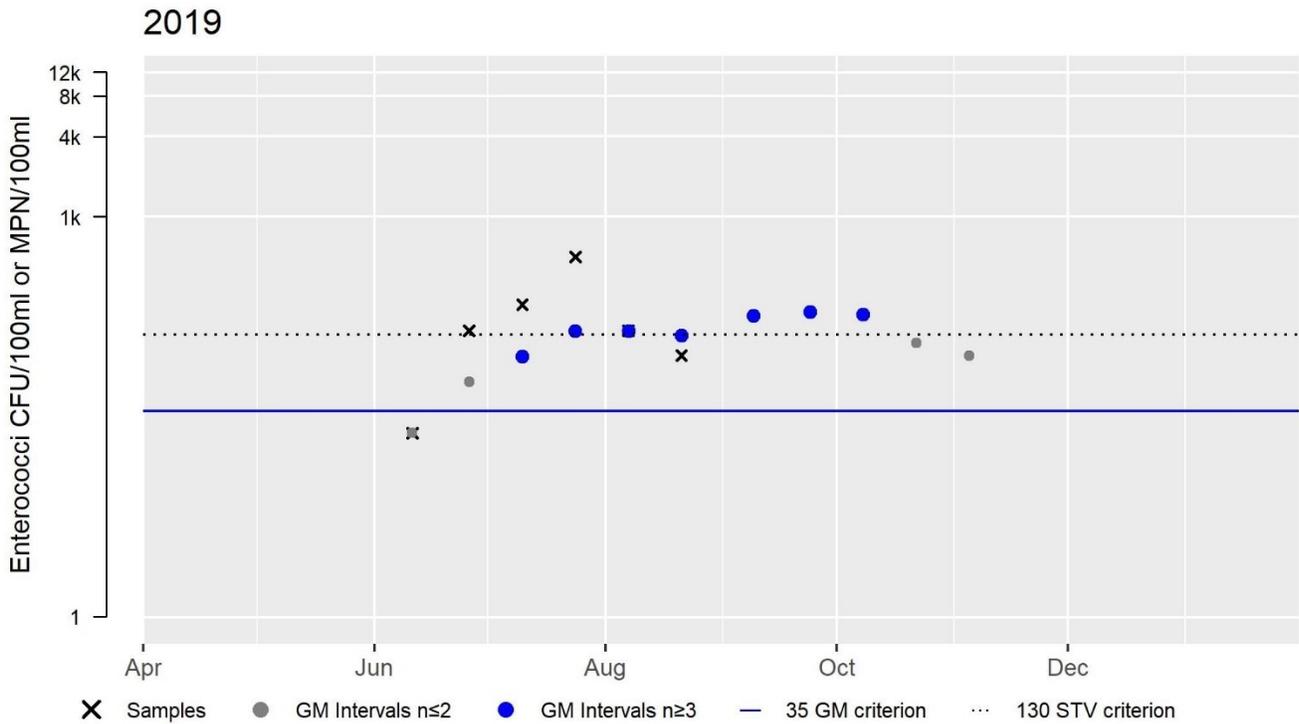
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Washington St. Bridge Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	129
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	4
%n>STV	67

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
North River (MA94-05): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.1792 sq mi (59%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff and North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria samples in this North River AU (MA94-05) during summer 2016 and summer 2019, respectively. Stations are described from upstream to downstream as follows: in the vicinity of Washington Street in Hanover/Pembroke (DEP station W2651; NSRWA_Washington St. Bridge n=6), at the end of the Corn Hill Lane dead-end road and the edge of the marsh (DEP station W2652; NSRWA_Cornhill Lane n=6), and the most downstream station was located downstream of the Union St. Bridge on the left edge (marsh next to Norwell boat ramp) (NSRWA_Union St. Bridge, n=6). Too limited sampling was conducted in summer 2016 to evaluate. Of the low frequency datasets from the three NSRWA stations collected in summer 2019, only the Washington St (most upstream) station had any intervals (43%) with GMs >175 CFU/100mL, and only one sample at each of the two upstream NSRWA stations exceeded the 350 CFU/100mL STV. The overall GMs ranged from 41-129 CFU/100mL. These data did not exceed the use attainment impairment thresholds in the 2022 CALM (MassDEP 2022b). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews at either site (W2651/W2652) although those data were limited (n=2/station).

The Secondary Contact Recreation Use for this North River AU (MA94-05) will continue to be assessed as Fully Supporting based primarily on NSRWA Enterococci data collected at three stations during summer 2019.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2651	MassDEP	Water Quality	North River	[Washington Street, Hanover/Pembroke]	42.108562	-70.806755
W2652	MassDEP	Water Quality	North River	[west of dead-end of Corn Hill Lane, Marshfield]	42.142089	-70.783103
NSRWA_Cornhill Lane	North South River Watershed Association	Water Quality	North River	End of road, edge of marsh	42.14191	-70.7828
NSRWA_Union St. Bridge	North South River Watershed Association	Water Quality	North River	Downstream of Union St. Bridge, left edge (marsh next to Norwell boat ramp)	42.1554	-70.77542
NSRWA_Washington St. Bridge	North South River Watershed Association	Water Quality	North River	Downstream of Washington St. Bridge, right edge	42.10852	-70.80722

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5) (NSRWA 2019) (MassDEP Undated 3)

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

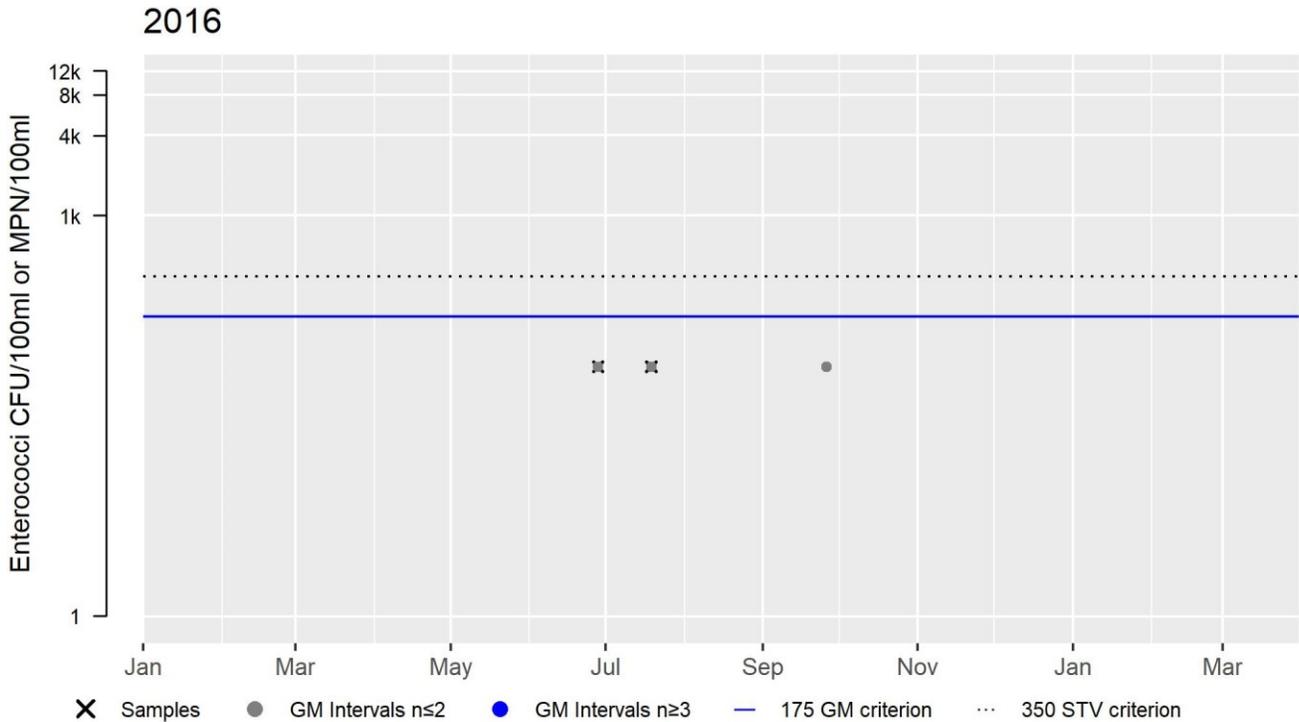
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2651	MassDEP	Enterococci	06/28/16	07/19/16	2	74	74	74
W2652	MassDEP	Enterococci	06/28/16	07/19/16	2	10	52	23

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Cornhill Lane	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	17	600	78
NSRWA_Union St. Bridge	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	8	310	41
NSRWA_Washington St. Bridge	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	24	500	129

W2651 Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	74
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

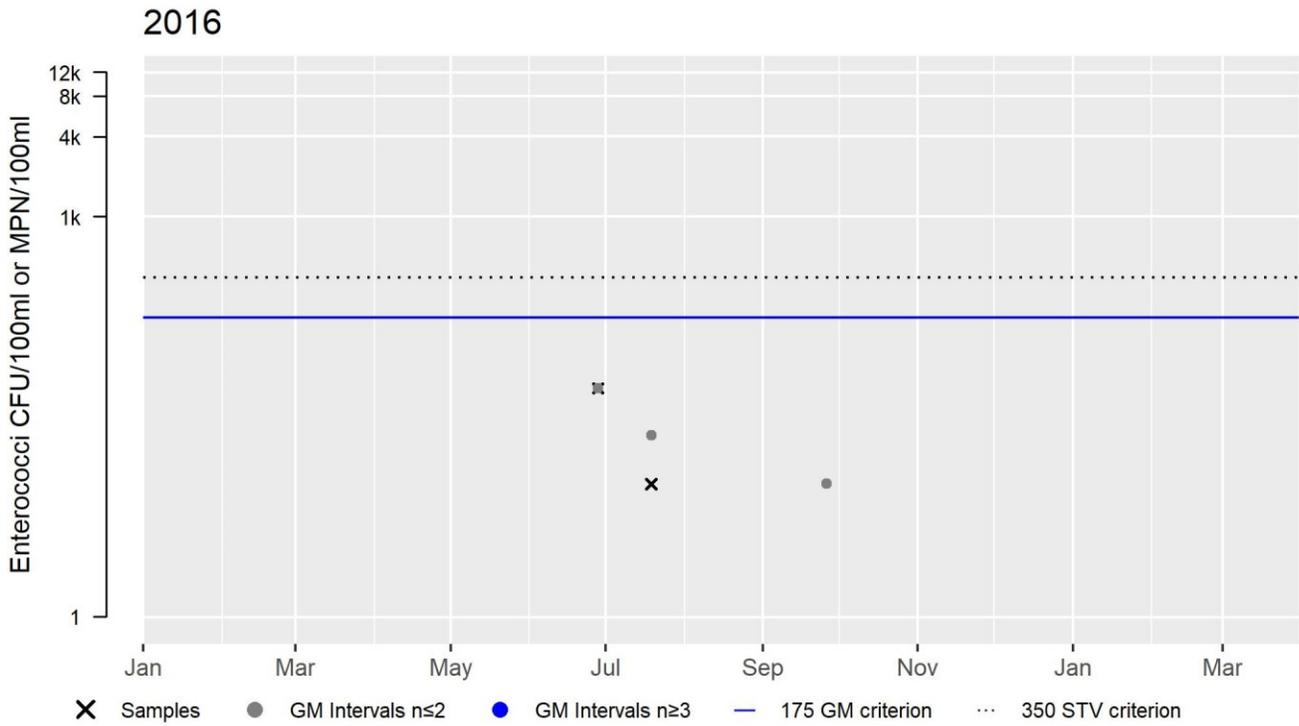
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2652 Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	23
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

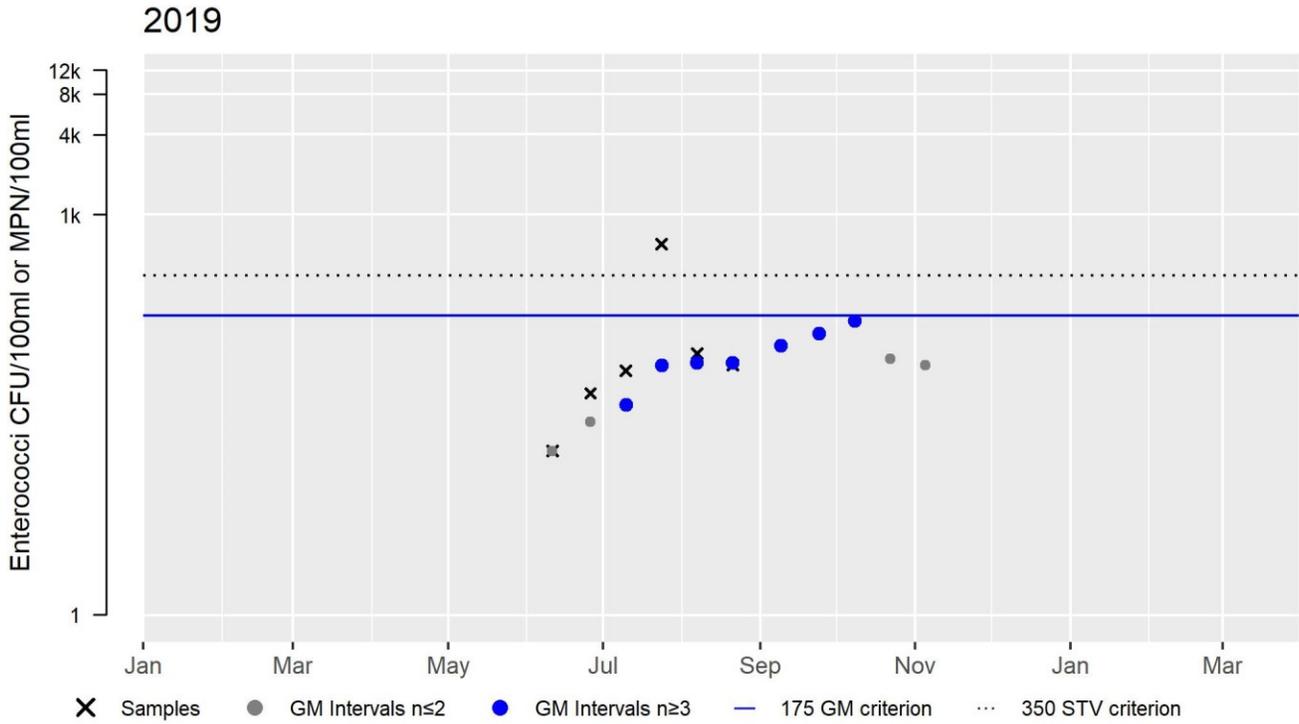
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Cornhill Lane Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	78
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

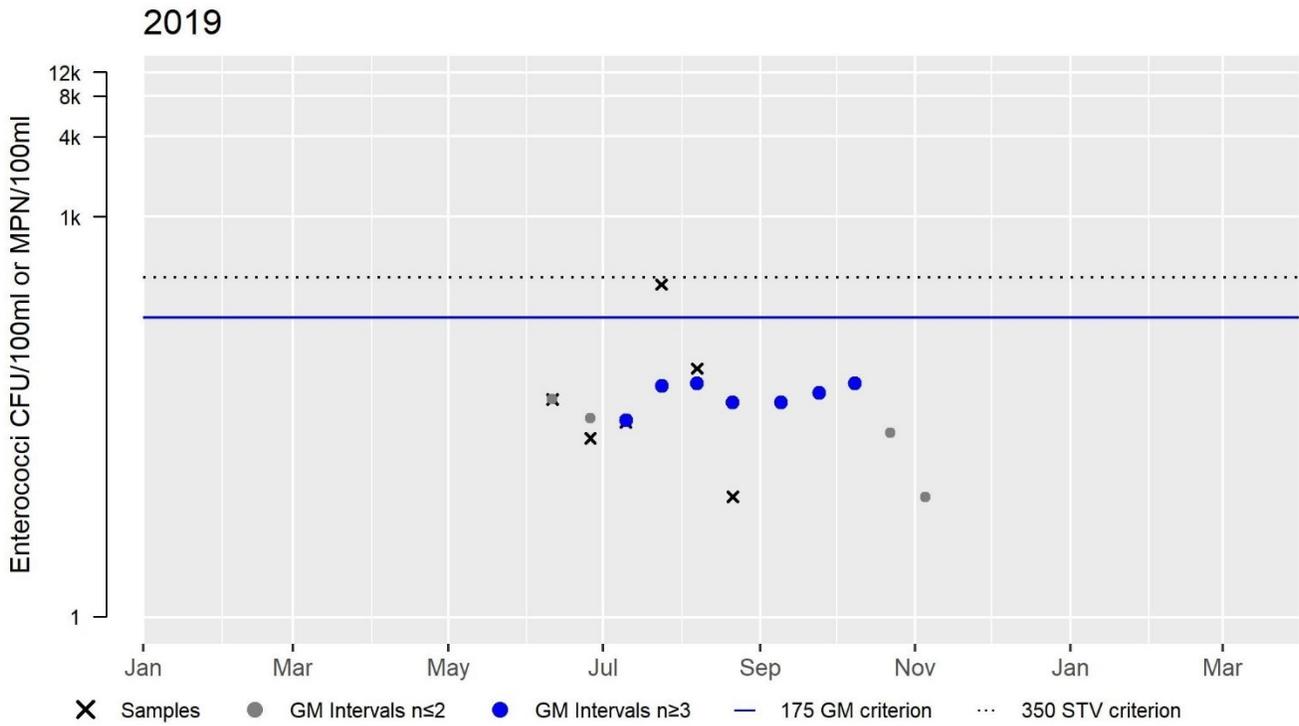
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Union St. Bridge Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	41
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

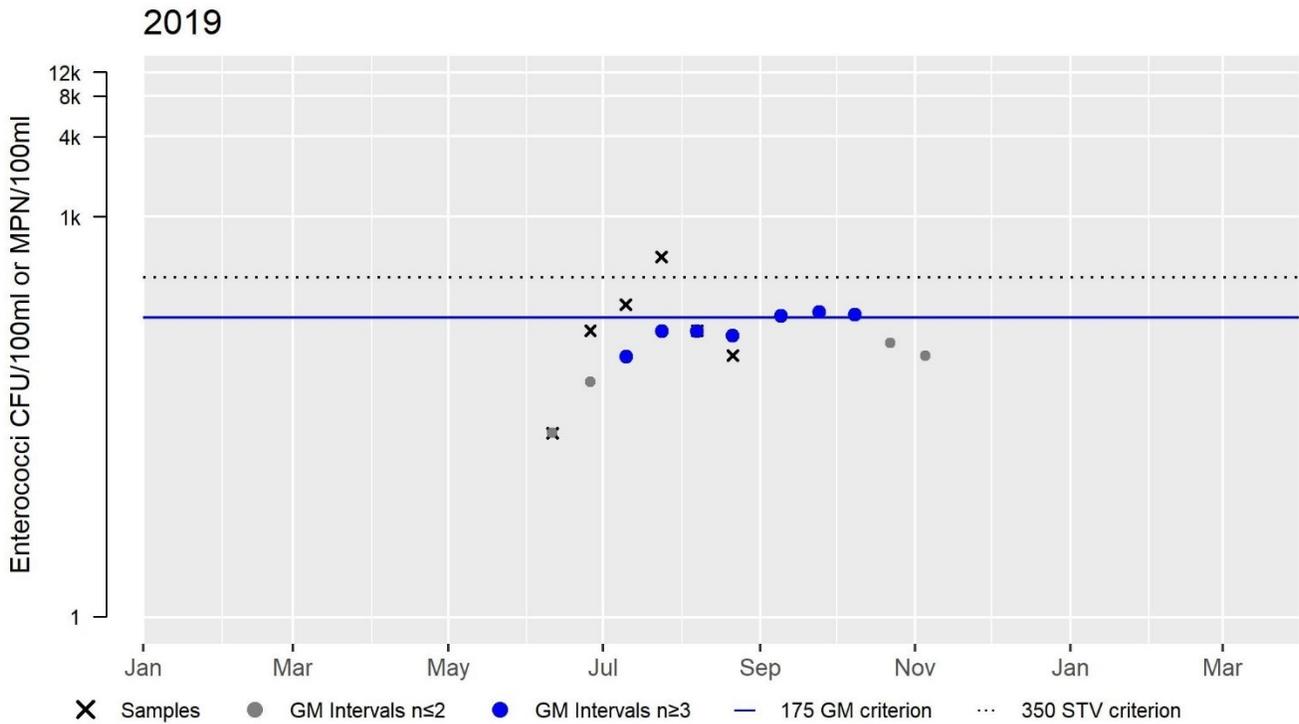
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Washington St. Bridge Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	129
#GMI	7
#GMI Ex	3
%GMI Ex	43
n>STV	1
%n>STV	17

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
North River (MA94-05): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.1792 sq mi (59%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

North River (MA94-06)

Location:	Route 3A, Marshfield/Scituate to confluence with South River/Massachusetts Bay, Marshfield/Scituate.
AU Type:	ESTUARY
AU Size:	0.54 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61730	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available, so the Aquatic Life Use of this North River AU (MA94-06) is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this North River AU (MA94-06), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
North River (MA94-06): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.4266 sq mi (78%). The approved shellfish growing area represents 0 sq mi (0%). The Shellfish Harvesting Use is assessed as not supporting because the growing area (normalized to the AU area) is <100% approved. Based on the new growing area classifications and the prior classifications, the existing Fecal Coliform impairment is being retained.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB5.1	North River - East	Conditionally Approved	0.42563	78.2%
MB5.3	Herring River	Prohibited	0.00031	0.1%
MB5.4	Un-Named Stream	Prohibited	0.00004	0.0%
MB5.5	Macomber Creek	Prohibited	0.00000	0.0%
MB6.1	South River North	Conditionally Approved	0.00063	0.1%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available, so the Aesthetics Use of this North River AU (MA94-06) is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria data in this North River AU (MA94-06) off the dock adjacent to the end of the boat ramp (NSRWA_North River Marina) and farther downstream at the end of the dock (NSRWA_Damons Point) between June and September 2019 (n=16/station). Data analysis indicated that none of the intervals had GMs >35 CFU/100mL and only one sample from the Marina station exceeded the 130 CFU/100mL STV. The seasonal GMs were 4 CFU/100mL at both sites.</p> <p>The Primary Contact Recreation Use for this North River AU (MA94-06) is assessed as Fully Supporting based on high frequency NSRWA Enterococci data collected at two stations during summer 2019.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Damons Point	North South River Watershed Association	Water Quality	North River	At end of dock	42.16025	-70.73266
NSRWA_North River Marina	North South River Watershed Association	Water Quality	North River	Off dock adjacent to end of boat ramp	42.16104	-70.74208

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019) (MassDEP Undated 3)

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

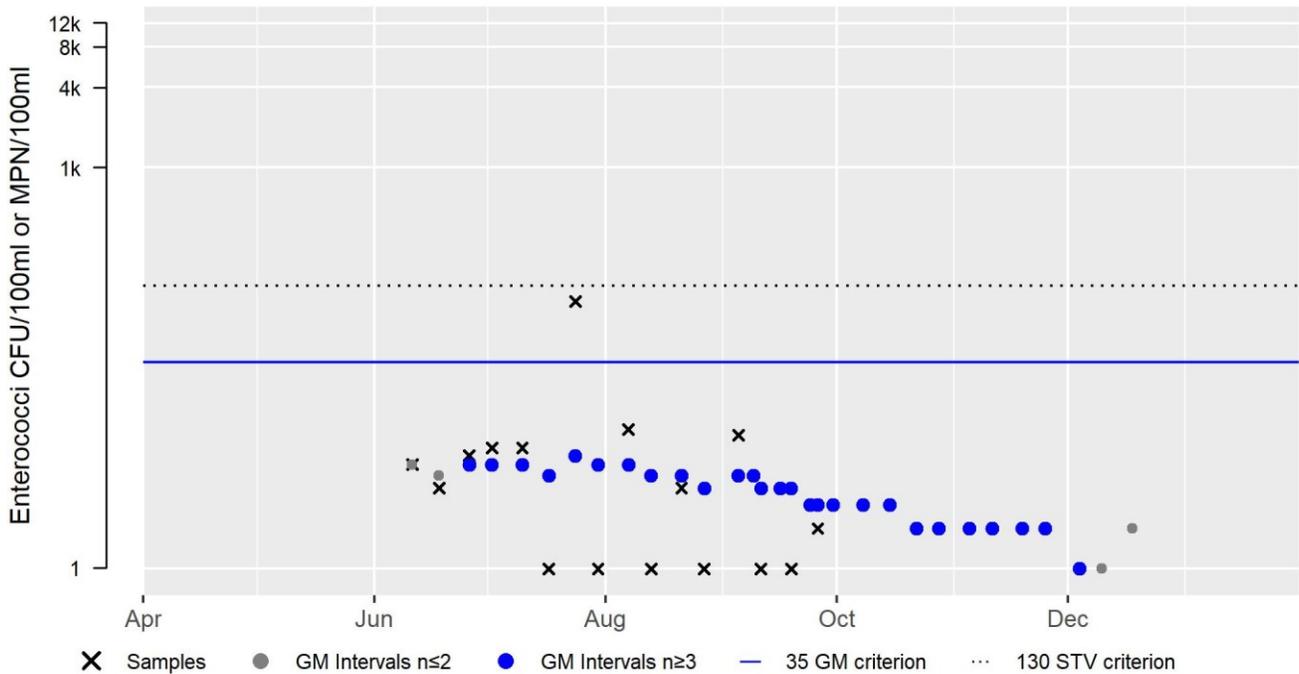
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Damons Point	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	1	100	4
NSRWA_North River Marina	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	1	160	4

NSRWA_Damons Point Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	4
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

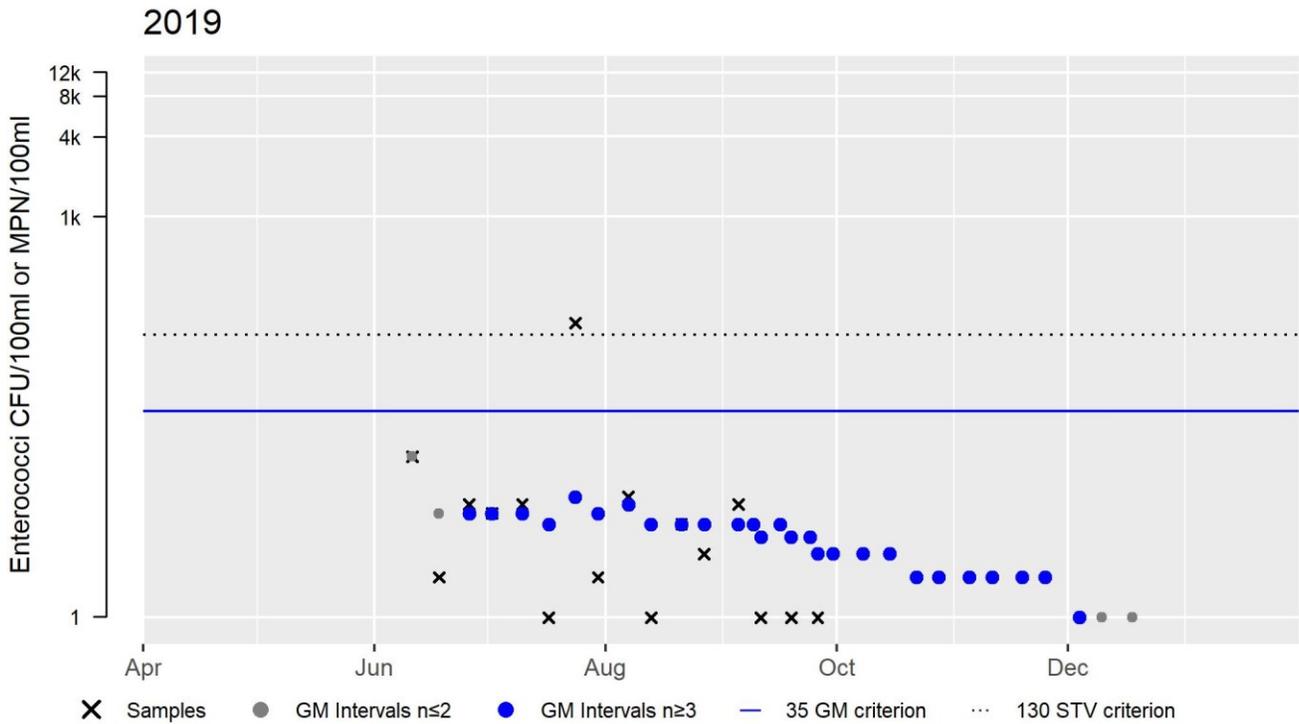
2019



NSRWA_North River Marina Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	4
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	6

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
North River (MA94-06): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.4266 sq mi (78%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria data in this North River AU (MA94-06) off the dock adjacent to the end of the boat ramp (NSRWA_North River Marina) and farther downstream at the end of the dock (NSRWA_Damons Point) between June and September 2019 (n=16/station). Data analysis indicated that none of the intervals had GMs >175 CFU/100mL and no samples exceeded the 350 CFU/100mL STV. The overall GMs were 4 CFU/100mL at both sites.

The Secondary Contact Recreation Use for this North River AU (MA94-06) is assessed as Fully Supporting based on high frequency NSRWA Enterococci data collected at two stations during summer 2019.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Damons Point	North South River Watershed Association	Water Quality	North River	At end of dock	42.16025	-70.73266
NSRWA_North River Marina	North South River Watershed Association	Water Quality	North River	Off dock adjacent to end of boat ramp	42.16104	-70.74208

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)**
(MassDEP Undated 3)

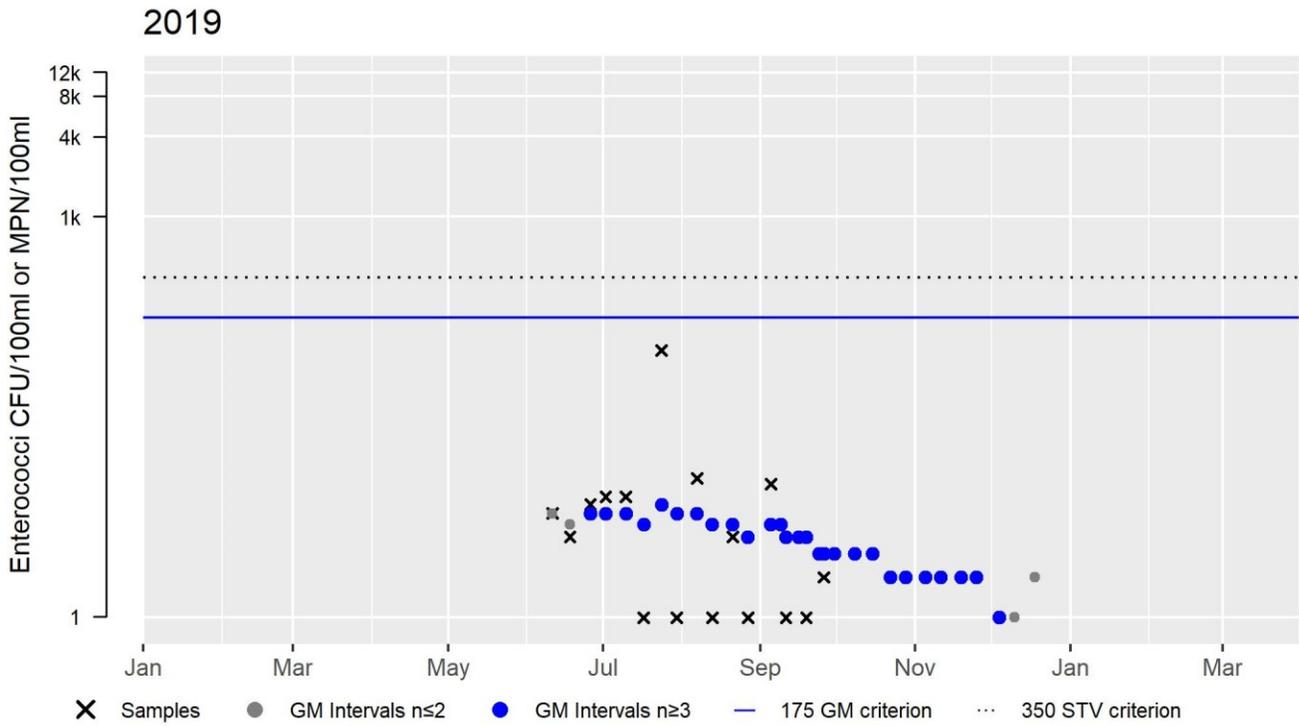
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Damons Point	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	1	100	4
NSRWA_North River Marina	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	1	160	4

NSRWA_Damons Point Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	4
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

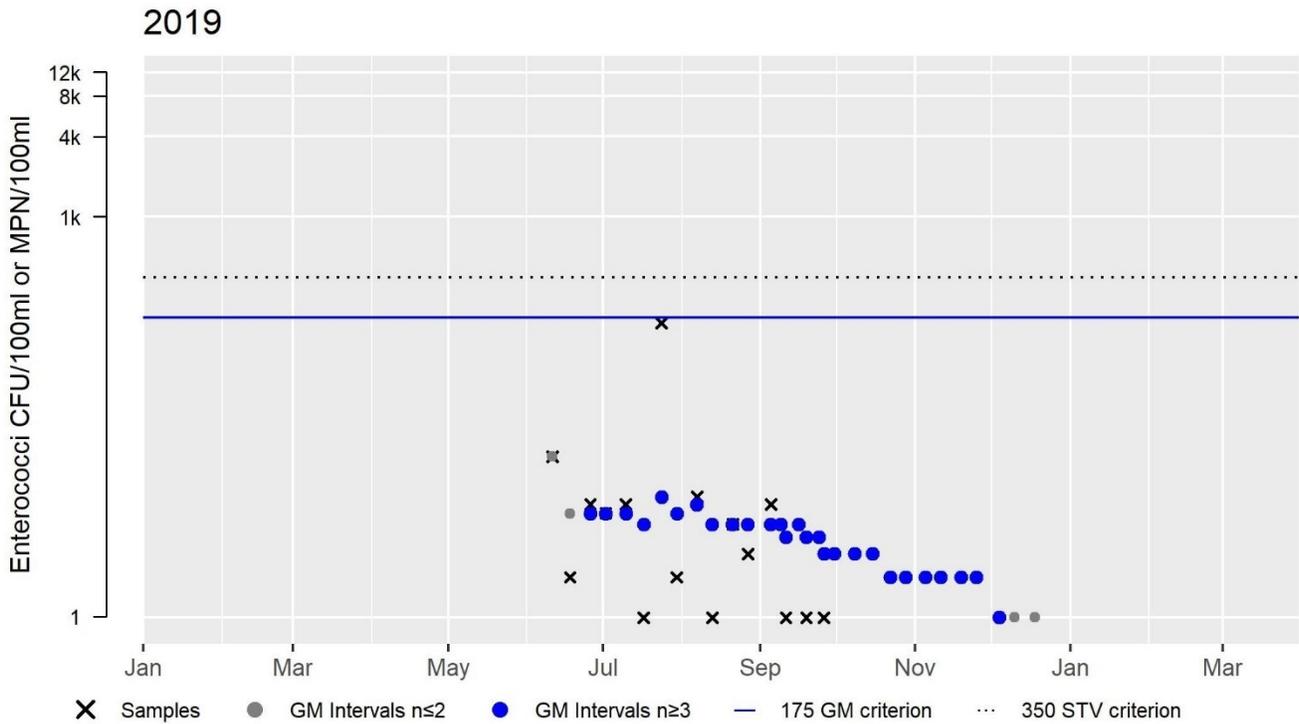
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_North River Marina Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	4
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
North River (MA94-06): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.4266 sq mi (78%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

North Triangle Pond (MA94110)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	22 ACRES
Classification/Qualifier:	B

No usable data were available for North Triangle Pond (MA94110) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Old Oaken Bucket Pond (MA94113)

Location:	Scituate.
AU Type:	FRESHWATER LAKE
AU Size:	9 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Old Oaken Bucket Pond (MA94113) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)		Unchanged
5	5	(Non-Native Aquatic Plants*)		Unchanged
5	5	Phosphorus, Total		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(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		X	X	X
Phosphorus, Total	Source Unknown (N)	X				

Oldham Pond (MA94114)

Location:	Pembroke/Hanson.
AU Type:	FRESHWATER LAKE
AU Size:	232 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Asian Clam*)		Added
5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Unchanged
5	5	(Non-Native Fish/Shellfish/Zooplankton*)		Removed
5	5	Harmful Algal Blooms		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Asian Clam*)	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				
Harmful Algal Blooms	Source Unknown (N)			X	X	X

Supporting Information for Removed Impairments

2018/20 Removed Impairment	Removal Reason	Removal Comment
Non-Native Fish/Shellfish/Zooplankton	Clarification of listing cause	Oldham Pond (MA94114) was previously impaired for Non-Native Fish/Shellfish/Zooplankton in the 2018/2020 IR cycle (MassDEP 2021). This generic impairment is now is being removed and replaced with the specific Asian Clam impairment.

Non-Native Fish/Shellfish/Zooplankton Impairment Removal

Oldham Pond (MA94114) was previously impaired for Non-Native Fish/Shellfish/Zooplankton in the 2018/2020 IR cycle (MassDEP 2021)- that generic impairment is now is being removed and replaced with the specific Asian Clam impairment.

Recommendations

2022 Recommendations
ALU: The presence of <i>live</i> specimens of Asian clam (<i>Corbicula fluminea</i>) in Oldham Pond should be confirmed by a qualified state agency/taxonomist.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Oldham Pond (MA94114) were reported to MassDPH for 26 days in 2017. Since no other blooms were reported in recent years, a use impairment is not being made at this time. The Aquatic Life Use of Oldham Pond (MA94114) will continue to be assessed as Not Supporting. The prior "Eurasian Water Milfoil, <i>Myriophyllum Spicatum</i> " impairment is being carried forward. The generic Non-Native Fish/Shellfish/Zooplankton impairment, first identified in the 2018/2020 IR cycle (MassDEP 2021), is being removed and replaced with the specific Asian Clam impairment (note that the presence of <i>live</i> specimens of Asian Clam is needed to confirm the presence of this species in the pond). Finally, an Alert is being added for C-HABs since a bloom of extended duration (26 days) in Oldham Pond was reported to MassDPH in 2017.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Oldham Pond (MA94114), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal bloom (C-HAB) postings for Oldham Pond (MA94114) were reported to MassDPH for 26 days in 2017. The Aesthetics Use of Oldham Pond (MA94114) will continue to be assessed as Not Supporting. The Harmful Algal Blooms impairment is being carried forward since an extended bloom in 2017 was also reported.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Oldham Pond (MA94114) were reported to MassDPH for 26 days in 2017. Since no blooms were reported in recent years, an impairment decision will not be made at this time. However, an Alert is identified for C-HABs.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Oldham Pond	Not issued or confirmed by sampling			26			1	no

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary
<p>Cyanobacteria harmful algal bloom (C-HAB) postings for Oldham Pond (MA94114) were reported to MassDPH for 26 days in 2017.</p> <p>The Primary Contact Recreation Use of Oldham Pond (MA94114) will continue to be assessed as Not Supporting. The Harmful Algal Blooms impairment being carried forward since an extended bloom in 2017 was also reported.</p>

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>Cyanobacteria harmful algal bloom (C-HAB) postings for Oldham Pond (MA94114) were reported to MassDPH for 26 days in 2017.</p> <p>The Secondary Contact Recreation Use of Oldham Pond (MA94114) will continue to be assessed as Not Supporting. The Harmful Algal Blooms impairment being carried forward since an extended bloom in 2017 was also reported.</p>	

Pembroke Street South Pond (MA94117)

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

No usable data were available for Pembroke Street South Pond (MA94117) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Philips Brook (MA94-48)

Location:	Headwaters north of the Summer Street/Cross Street intersection, Duxbury to the inlet of Northwest Duxbury Pond, Duxbury.
AU Type:	RIVER
AU Size:	0.8 MILES
Classification/Qualifier:	B

No usable data were available for Philips Brook (MA94-48) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Pine Lake (MA94120)

Location:	Duxbury.
AU Type:	FRESHWATER LAKE
AU Size:	22 ACRES
Classification/Qualifier:	B

No usable data were available for Pine Lake (MA94120) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Pine Street Pond (MA94121)

Location:	Duxbury.
AU Type:	FRESHWATER LAKE
AU Size:	14 ACRES
Classification/Qualifier:	B

No usable data were available for Pine Street Pond (MA94121) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Plymouth Bay (MA94-17)

Location:	The waters southeast of a line drawn from Saquish Head to the tip of Plymouth Beach, Plymouth and west of a line from Gurnet Point to Rocky Point, Plymouth.
AU Type:	ESTUARY
AU Size:	10.3 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Fecal Coliform		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	
The Aquatic Life Use for Plymouth Bay will continue to be assessed as Fully Supporting based on the eelgrass bed habitat mapping data. As was previously reported in the 2018/20 IR reporting cycle (MassDEP 2021), while there was an increase between 1995 and 2013, there was a decrease (~9.5%) between 1995 and 2017 so an Alert was identified and is being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Plymouth Bay (MA94-17), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Plymouth Bay (MA94-17): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 10.1908 sq mi (99%). The approved shellfish growing area represents 6.374 sq mi (62%). The Shellfish Harvesting Use is assessed as not supporting because the growing area (normalized to the AU area) is <100% approved. Based on the new growing area classifications, a Fecal Coliform impairment is being added.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB41.0	Plymouth North Coastal	Approved	6.37402	61.7%
CCB41.1	Plymouth North Coastal	Prohibited	0.00009	0.0%
CCB41.2	Browns Bank	Conditionally Approved	3.81664	36.9%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Plymouth Bay (MA94-17), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>There are three beaches in Plymouth Bay, all located in the southwest corner of the bay in Plymouth (MA94-17); the names and ID codes for the beaches are as follows: Plymouth Beach 3 (ID 3063), Plymouth Beach 1 (ID 5625), and Plymouth Beach 5 (ID 5626). These beaches were usually never (or only rarely) posted with any swimming advisories between 2014 and 2019.</p> <p>The Primary Contact Recreation Use for Plymouth Bay (MA94-17) is assessed as Fully Supporting since there were very few, if any, swimming advisory postings at the Plymouth 3, 1, and 5 beaches between 2014 and 2019.</p>	

Beach Postings

MassDPH Beach Posting Data Summary (% Bathing Season Posted 2014-2019) (Bailey, Logan February 2, 2021) (MassDEP Undated 3)

Beach ID	Beach Name/Town	Left Boundary (Latitude)	Left Boundary (Longitude)	Right Boundary (Latitude)	Right Boundary (Longitude)	2014	2015	2016	2017	2018	2019	# years > 10%
3063	Plymouth Beach - 3/Plymouth	41.94661	-70.62750	41.94569	-70.62620	0%	0%	1%	0%	0%	0%	0
5625	Plymouth Beach - 1/Plymouth	41.94569	-70.62620	41.94368	-70.62420	0%	0%	1%	0%	0%	0%	0
5626	Plymouth Beach - 5/Plymouth	41.94476	-70.62520	41.94169	-70.62070	0%	0%	0%	0%	0%	0%	0

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Plymouth Bay (MA94-17): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 10.1908 sq mi (99%). The approved shellfish growing area represents 6.374 sq mi (62%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>There are three beaches in Plymouth Bay, all located in the southwest corner of the bay in Plymouth (MA94-17); the names and ID codes for the beaches are as follows: Plymouth Beach 3 (ID 3063), Plymouth Beach 1 (ID 5625), and Plymouth Beach 5 (ID 5626). These beaches were usually never (or only rarely) posted with any swimming advisories between 2014 and 2019.</p> <p>The Secondary Contact Recreation Use for Plymouth Bay (MA94-17) is assessed as Fully Supporting since there were very few, if any, swimming advisory postings at the Plymouth 3, 1, and 5 beaches between 2014 and 2019.</p>	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Plymouth Bay (MA94-17): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 10.1908 sq mi (99%). The approved shellfish growing area represents 6.374 sq mi (62%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Plymouth Harbor (MA94-16)

Location:	The waters south of a line drawn from the tip of Plymouth Beach to High Cliff, Plymouth.
AU Type:	ESTUARY
AU Size:	2.53 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Estuarine Bioassessments		Unchanged
5	5	Fecal Coliform	61737	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Estuarine Bioassessments	Source Unknown (N)	X					
Fecal Coliform	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X			
Fecal Coliform	Municipal Point Source Discharges (Y)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As was previously reported in the 2018/20 IR reporting cycle (MassDEP 2021) while there was a very small increase in eelgrass bed habitat between 1995 and 2013 in Plymouth Harbor (MA94-16), there was a large decrease (~28%) between 1995 and 2017. No other recent data are available. It is being noted however that the Department of Marine & Environmental Affairs partnered with the Massachusetts Division of Ecological Restoration and the National Oceanic and Atmospheric Administration on permitting and construction efforts leading to the restoration of Wellingsley Brook in Plymouth (Wellingsley Brook is a tributary of Plymouth Harbor MA94-16). The project involved the removal of three low head dams (ranging in size from 3 to 5 feet), along with restoration of the channel with pools and riffles, large woody habitat, and streambank plantings. The project was completed in October 2012, allowing restoration of habitat for sea-run native brook trout (Thomas-Blate 2021).</p> <p>The Aquatic Life Use for Plymouth Harbor (MA94-16) will continue to be assessed as Not Supporting with the Estuarine Bioassessments impairment (for the eelgrass bed habitat loss) being carried forward.</p>	

Biological Monitoring Information

Habitat and Flow Data (anthropogenic alterations)

The Department of Marine & Environmental Affairs partnered with the Massachusetts Division of Ecological Restoration and the National Oceanic and Atmospheric Administration on permitting and construction efforts leading to the restoration

of Wellingsley Brook in Plymouth (Wellingsley Brook is a tributary of Plymouth Harbor MA94-16). The project involved the removal of three low head dams (ranging in size from 3 to 5 feet), along with restoration of the channel with pools and riffles, large woody habitat, and streambank plantings. The project was completed in October 2012, allowing restoration of habitat for sea-run native brook trout (Thomas-Blate 2021).

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Plymouth Harbor (MA94-16), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Plymouth Harbor (MA94-16): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 2.4938 sq mi (99%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 2.4938 sq mi (99%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area ≥ 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB42.1	Inner Plymouth Harbor	Prohibited	2.49380	98.5%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Plymouth Harbor (MA94-16), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent Enterococci bacteria data are available to assess the Primary Contact Recreation Use for Plymouth Harbor (MA94-16) so it is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Plymouth Harbor (MA94-16): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 2.4938 sq mi (99%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent Enterococci bacteria data are available to assess the Secondary Contact Recreation Use for Plymouth Harbor (MA94-16) so it is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

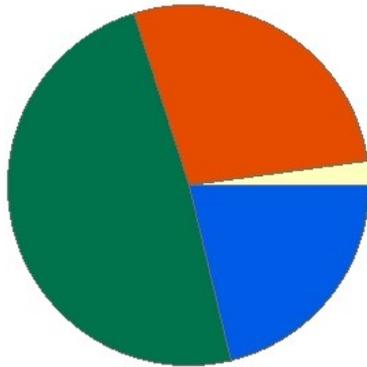
Summary
Plymouth Harbor (MA94-16): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 2.4938 sq mi (99%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Pudding Brook (MA94-60)

Location:	Headwaters, perennial portion, east of Hemlock Drive, Pembroke to inlet of Reservoir, southwest of Pleasant Street, Pembroke.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

Pudding Brook - MA94-60

Watershed Area: 3.32 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	3.32	3.32	0.92	0.92
Agriculture	2.2%	2.2%	1.5%	1.5%
Developed	27.7%	27.7%	15.6%	15.6%
Natural	48.9%	48.9%	41.6%	41.6%
Wetland	21.2%	21.2%	41.3%	41.3%
Impervious Cover	14.9%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	2	None		Unchanged

Recommendations

2022 Recommendations
ALU: Conduct additional clean metals sampling in Pudding Brook to determine the extent of any potential lead contamination.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDEP staff conducted fish (Sample ID 5083), benthic (Station B0857) and water quality (W2399) surveys of Pudding Brook (MA94-60) roughly 175 ft upstream/north of Spring Street in Pembroke during summer 2013 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The September fish sample (n=54) was collected via backpack electrofishing and did not contain any fluvial species but was comprised of 59% intolerant/moderately tolerant macrohabitat generalists, which is acceptable for a presumed Warmwater Fishery. Field staff noted that sampling was “difficult” because the stream was “very brushy” (MassDFG 2020). It should be noted that MassDFG considers this AU to be a Coldwater Fisheries Resource (CFR), but the only sample (Sample ID 2791) their staff collected in this stream was in the intermittent portion of Pudding Brook, upstream of the MA94-60 AU (the sample at that location was comprised exclusively of multiple age classes of Eastern brook trout). The July benthic sample had an IBI score of 63, indicating that conditions were satisfactory for a low gradient location. Probes were deployed three times, for a total of 12 days, to measure dissolved oxygen (DO) and the minimum recorded measurement was good at 7.0mg/L. Continuous temperature measurements were recorded over 107 days in the summer index period. The 7DADM never exceeded 27.7°C (maximum 7DADM 25.6°C) and the maximum 24-hr rolling average temperature was good at 25.0°C. Other water quality data are summarized as follows and were generally indicative of good conditions: pH ranged from 6.4-6.7 S.U. (n=3), there was no indication of nutrient enrichment (seasonal average total phosphorus concentrations was 0.028 mg/L with n=4, maximum diel DO shift was 0.7mg/L, maximum DO saturation was 93.0%, no observations of excessive filamentous algae during the seven site visits), there were no exceedances among three aluminum samples (because dissolved Al data were compared to the total recoverable Al criteria, exceedances cannot be ruled out, however), and the maximum total ammonia nitrogen (TAN) was 0.080 mg/L (n=3). Among five chloride samples, the maximum concentration was 90mg/L, and similarly, the maximum specific conductance measurement was 351µs/cm (n=3). One of three clean metals samples violated its chronic lead criterion with a Toxic Unit (TU) of 3.3. The Aquatic Life Use of Pudding Brook (MA94-60) is assessed as Fully Supporting based primarily on fish and benthic survey data collected during summer 2013 documenting conditions acceptable for a presumed warmwater fishery. An Alert is being identified for the chronic lead criterion exceedance (TU 3.3) in one of the three samples.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5083	MassDEP	Fish Community	Pudding Brook	~175 ft US/N of Spring St xing, just W of Duxbury	42.08658	-70.75695
B0857	MassDEP	Benthic	Pudding Brook/	[approximately 55 meters upstream/north from Spring Street, Pembroke, MA]	42.086583	-70.756947
W2399	MassDEP	Water Quality	Pudding Brook	[approximately 175 feet upstream/north from Spring Street, Pembroke]	42.086583	-70.756947

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 4)

[Index Biological Condition Class: E= Exceptional, S= Satisfactory, MD= Moderately Degraded, SD= Severely Degraded; High Gradient IBI Thresholds: E= 100-75, S= 74-55, MD= 54-35, SD= 34-0; Low Gradient IBI Thresholds: E= 100-81, S= 80-62, MD= 61-38, SD= 37-0; R qualifier = Rarefaction (100ct) <55]

Station Code	Collection Date	Collection Method	Index Type	Organism Count	Index Score	Index Biological Condition Class
B0857	07/16/13	RBP multihab	Statewide_Low_Gradient	301	63	S

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, BB = Brown Bullhead, BS = Banded Sunfish, CP = Chain Pickerel, P = Pumpkinseed, RP = Redfin Pickerel, SD = Swamp Darter]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5083	09/20/13	BP	TP		7	54	0%	0	0%	13%	5	59%	Yes	Yes	AE, BB, BS, CP, P, RP, SD,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2399	2013	3	12	7	7.2	7.4	0.7	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2399	05/29/13	09/25/13	3	7.5	7.9	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2399	06/01/13	09/15/13	107	106	25.0	26.3	25.6	24.0	83	7	22	4	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Most Deploys 3-5 Days in Length; Day Count= total # of days over all deploys; Max Daily Mean= Maximum 24-Hour Average, XDADM= 3-5 Day Average of the Daily Maxima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2399	2013	3	12	20.8	21.9	21.2	20.1	3	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3 °C
W2399	06/01/13	09/15/13	107	5136	25.0	377	196	0
W2399	06/27/13	09/03/13	68	577	20.9	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2399	05/29/13	09/25/13	5	3	21.0	17.9	1	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2399	05/29/13	09/25/13	3	6.4	6.7	1	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)**MassDEP Nutrient Enrichment Indicator Data (2011-2018).** (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2399	2013	4	0.014	0.042	0.028	0.7	0.5	93.0	6.7	7	0

Toxics and other pollutants (metals, ammonia, chloride, chlorine)

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 5)

[CMC= Criterion Maximum Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CMC TU >1	Cd CMC TU >1	Cr III CMC TU >1	Cu CMC TU >1	Pb CMC TU >1	Ni CMC TU >1	Ag CMC TU >1	Zn CMC TU >1
W2399	2013	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 5)

[CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CCC TU >1	Cd CCC TU >1	Cr III CCC TU >1	Cu CCC TU >1	Pb CCC TU >1	Ni CCC TU >1	Se CCC TU >1	Zn CCC TU >1
W2399	2013	3	0	0	0	0	1	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Selected TU Calculations. (MassDEP Undated 8) (MassDEP Undated 5)

[CMC= Criterion Maximum Concentration, CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Sample Date	Cd CMC TU	Cd CCC TU	Cu CMC TU	Cu CCC TU	Pb CMC TU	Pb CCC TU
W2399	06/14/13	0.3	0.5	0.7	0.89	0.1	3.3
W2399	07/26/13	0.2	0.5	0.1	0.16	0.0	0.2
W2399	09/20/13	0.1	0.3	0.3	0.37	0.0	0.2

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Since only dissolved aluminum data were available, these data were compared to the default freshwater criteria for total recoverable aluminum (TRA), presented in Appendix E of MassDEP's 2022 CALM. As dissolved Al is a fraction of TRA, an exceedance count of 0 does not rule out violations of the TRA criteria. CMC= Criterion Maximum Concentration, CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Dissolved Al Count	Al Min (mg/L)	Al Max (mg/L)	Al Avg (mg/L)	Al CMC TU Max	Al CCC TU Max	Al CMC TU >1	Al CCC TU >1
W2399	2013	3	0.005	0.23	0.085	0.2	0.5	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[TAN= NH3 + NH4+]

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2399	2013	3	0.020	0.080	0.050	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2399	2013	3	62	90	74	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Start Date	End Date	SpCond Count	SpCond Min ($\mu\text{s/cm}$)	SpCond Max ($\mu\text{s/cm}$)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2399	05/29/13	09/25/13	3	292	351	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Pudding Brook (MA94-60), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality (W2399) sampling in Pudding Brook (MA94-60) in Pembroke approximately 175 feet upstream/north of Spring Street during the summer of 2013. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews (n=8). The Aesthetics Use of Pudding Brook (MA94-60) is assessed as Fully Supporting based on the lack of objectionable conditions at the site sampled by MassDEP during summer 2013.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2399	MassDEP	Water Quality	Pudding Brook	[approximately 175 feet upstream/north from Spring Street, Pembroke]	42.086583	-70.756947

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2399	Pudding Brook	2013	8	MassDEP aesthetics observations for station W2399/MAP2-410 on Pudding Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2013.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2399	2013	8	7	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2399	Pudding Brook	2013	Color	Light Yellow/Tan	6	8
W2399	Pudding Brook	2013	Color	None	2	8
W2399	Pudding Brook	2013	Objectionable Deposits	No	8	8
W2399	Pudding Brook	2013	Odor	None	8	8
W2399	Pudding Brook	2013	Scum	No	6	8
W2399	Pudding Brook	2013	Scum	Yes	2	8
W2399	Pudding Brook	2013	Turbidity	None	7	8
W2399	Pudding Brook	2013	Turbidity	NR	1	8

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>MassDEP staff collected <i>E. coli</i> bacteria samples in Pudding Brook (MA94-60) approximately 175 feet upstream/north of Spring Street in Pembroke (W2399) between May and September 2013 (n=5). Data analysis indicated that none of the intervals had GMs >126 CFU/100mL and only one sample exceeded the 410 CFU/100mL STV. The seasonal GM was 56 CFU/100mL. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during any of the site visits (n=8).</p> <p>The Primary Contact Recreation Use for Pudding Brook (MA94-60) is assessed as Fully Supporting based primarily on MassDEP <i>E. coli</i> samples that did not exceed the use attainment impairment threshold for a single year, limited frequency dataset, as well as on the lack of objectionable conditions observed by field crews during summer 2013.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2399	MassDEP	Water Quality	Pudding Brook	[approximately 175 feet upstream/north from Spring Street, Pembroke]	42.086583	-70.756947

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

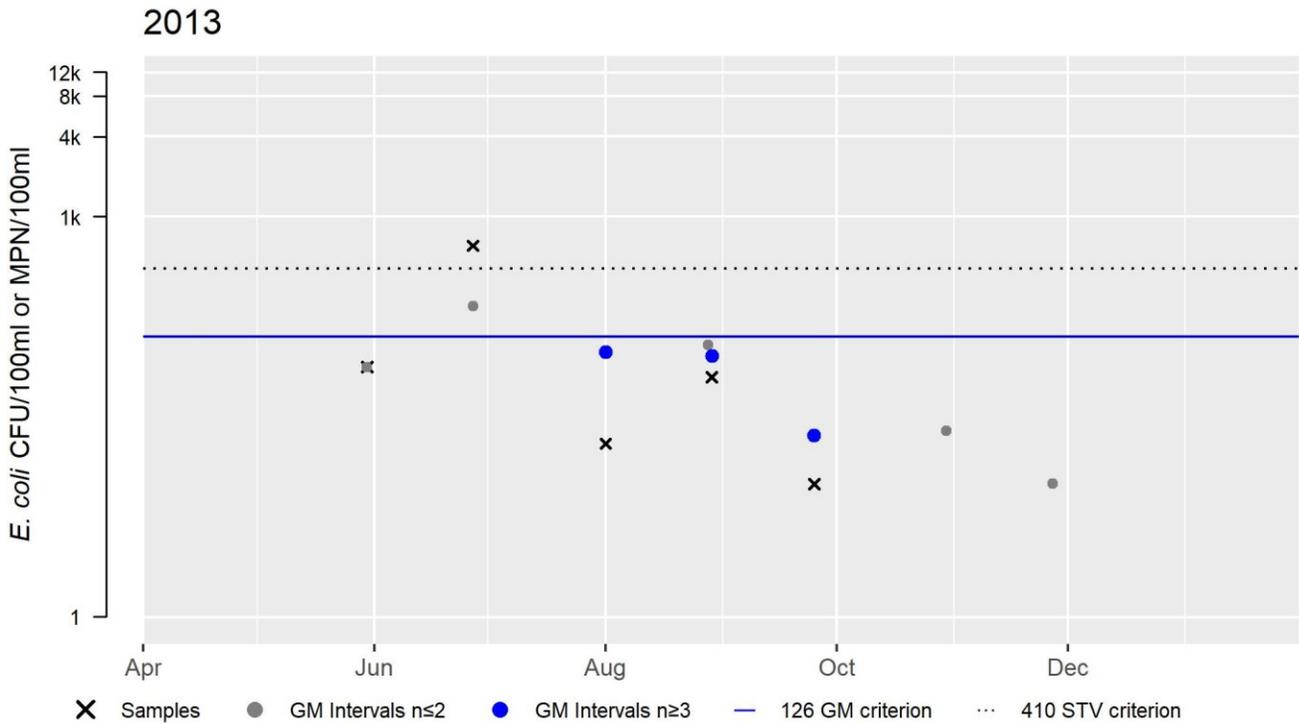
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2399	MassDEP	<i>E. coli</i>	05/30/13	09/25/13	5	10	605	56

W2399 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	56
#GMI	3
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	20

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>MassDEP staff collected <i>E. coli</i> bacteria samples in Pudding Brook (MA94-60) approximately 175 feet upstream/north of Spring Street in Pembroke (W2399) between May and September 2013 (n=5). Data analysis indicated that none of the intervals had GMs >630 CFU/100mL and none of the samples exceeded the 1260 CFU/100mL STV. The overall GM was 56 CFU/100mL. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during any of the site visits (n=8).</p> <p>The Secondary Contact Recreation Use for Pudding Brook (MA94-60) is assessed as Fully Supporting based primarily on MassDEP <i>E. coli</i> samples that did not exceed the use attainment impairment threshold for a single year, limited frequency dataset, as well as on the lack of objectionable conditions observed by field crews during summer 2013.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2399	MassDEP	Water Quality	Pudding Brook	[approximately 175 feet upstream/north from Spring Street, Pembroke]	42.086583	-70.756947

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis)** (MassDEP Undated 8) (MassDEP Undated 5)

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

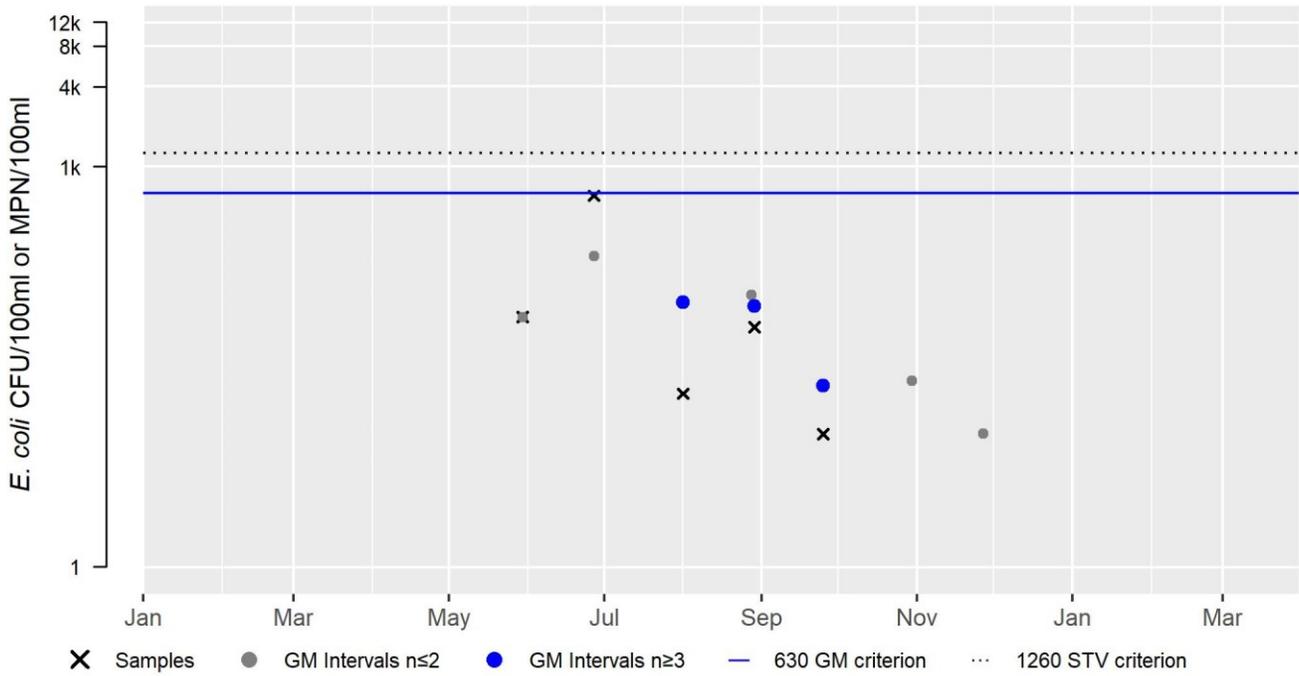
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2399	MassDEP	E. coli	05/30/13	09/25/13	5	10	605	56

W2399 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	56
#GMI	3
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

2013



Reeds Millpond (MA94126)

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

No usable data were available for Reeds Millpond (MA94126) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Reservoir (MA94127)

Location:	Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	16 ACRES
Classification/Qualifier:	B

No usable data were available for Reservoir (MA94127) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Flow Regime Modification*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Flow Regime Modification*)	Source Unknown (N)	X		X	X	X

Reservoir (MA94186)

Location:	Scituate (formerly part of 2014 segment: First Herring Brook MA94-25).
AU Type:	FRESHWATER LAKE
AU Size:	63 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Reservoir (MA94186) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Round Pond (MA94131)

Location:	Duxbury.
AU Type:	FRESHWATER LAKE
AU Size:	7 ACRES
Classification/Qualifier:	B

No usable data were available for Round Pond (MA94131) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Russell Millpond (MA94132)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	42 ACRES
Classification/Qualifier:	B

No usable data were available for Russell Millpond (MA94132) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Algae		Unchanged
5	5	Dissolved Oxygen		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Algae	Source Unknown (N)	X		X	X	X
Dissolved Oxygen	Source Unknown (N)	X				

Russell Pond (MA94133)

Location:	Kingston.
AU Type:	FRESHWATER LAKE
AU Size:	11 ACRES
Classification/Qualifier:	B

No usable data were available for Russell Pond (MA94133) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Savery Pond (MA94136)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	29 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Harmful Algal Blooms		Unchanged
5	5	Nutrient/Eutrophication Biological Indicators		Unchanged
5	5	Phosphorus, Total		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Harmful Algal Blooms	Agriculture (N)			X	X	X
Harmful Algal Blooms	Source Unknown (N)			X	X	X
Nutrient/Eutrophication Biological Indicators	Agriculture (N)	X				
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X				
Phosphorus, Total	Agriculture (N)	X				
Phosphorus, Total	Source Unknown (N)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Evaluation of the Town of Plymouth's Savery Pond (MA94136) monitoring was conducted and reported on as part of the 2018/2020 IR update (MassDEP 2021). The Aquatic Life Use for Savery Pond (MA94136) will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators and "Phosphorus, Total" impairments being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Savery Pond (MA94136), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Savery Pond (MA94136) were reported to MassDPH for 14 days in 2015, 27 days in 2016 and 42 days in 2017. The Aesthetics Use for Savery Pond (MA94136) will continue to be assessed as Not Supporting since blooms >20 days in duration were also reported in two recent years. The Harmful Algal Blooms impairment is being carried forward.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Savery Pond (MA94136) were reported to MassDPH for 14 days in 2015, 27 days in 2016 and 42 days in 2017. Since blooms >20 days in duration were reported in two years, the Primary/Secondary Contact Recreation Uses and Aesthetics Use continue to be assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Savery Pond	Not issued or confirmed by sampling	14	27	42			2	no

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Savery Pond (MA94136) were reported to MassDPH for 14 days in 2015, 27 days in 2016 and 42 days in 2017. The Primary Contact Recreation Use for Savery Pond (MA94136) will continue to be assessed as Not Supporting since blooms >20 days in duration were reported in two recent years. The Harmful Algal Blooms impairment is being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Savery Pond (MA94136) were reported to MassDPH for 14 days in 2015, 27 days in 2016 and 42 days in 2017. The Secondary Contact Recreation Use for Savery Pond (MA94136) will continue to be assessed as Not Supporting since blooms >20 days in duration were reported in two recent years. The Harmful Algal Blooms impairment is being carried forward.	

Scituate Harbor (MA94-02)

Location:	The waters west of a line across the mouth of Scituate Harbor, from the elbow of the jetty southeast off Lighthouse Point to the jetty northeast of the U.S. Coast Guard Station, Scituate.
AU Type:	ESTUARY
AU Size:	0.32 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Estuarine Bioassessments		Unchanged
5	5	Fecal Coliform	61715	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Estuarine Bioassessments	Source Unknown (N)	X					
Fecal Coliform	Municipal Point Source Discharges (Y)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
As was previously reported in the 2018/20 IR reporting cycle (MassDEP 2021) an estimated 0.013 square miles of eelgrass coverage was mapped in 2015-2017 which is less (~17%) than the eelgrass coverage found in 1995 (0.019 square miles). No other recent data have been collected. The Aquatic Life Use for Scituate Harbor (MA94-02) will continue to be assessed as Not Supporting with the prior Estuarine Bioassessments impairment being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Scituate Harbor (MA94-02), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

Scituate Harbor (MA94-02): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.2942 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.2941 sq mi (91%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB4.0	Scituate South Coastal	Approved	0.00000	0.0%
MB7.0	Scituate Harbor	Prohibited	0.29413	91.1%
MB8.0	Scituate North Coastal	Approved	0.00002	0.0%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Scituate Harbor (MA94-02), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	
MassDPH beach posting data indicates that for most years from 2014-2019, Scituate Lighthouse Beach was usually posted no more than 7% of the season (except for 2019 when it was posted 12% of the season). The Primary Contact Recreation Use of Scituate Harbor is assessed as Fully Supporting since there were few swimming advisory beach postings (2014-2019) at the Scituate Lighthouse Beach. An Alert, however, is being identified since postings at Scituate Lighthouse Beach exceeded 10% of the season in the most recent year of record (2019).	

Beach Postings

MassDPH Beach Posting Data Summary (% Bathing Season Posted 2014-2019) (Bailey, Logan February 2, 2021) (MassDEP Undated 3)

Beach ID	Beach Name/Town	Left Boundary (Latitude)	Left Boundary (Longitude)	Right Boundary (Latitude)	Right Boundary (Longitude)	2014	2015	2016	2017	2018	2019	# years > 10%
3136	Scituate Lighthouse/Scituate	42.20461	-70.71640	42.20415	-70.71570	2%	6%	7%	2%	4%	12%	1

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Scituate Harbor (MA94-02): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.2942 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDPH beach posting data indicates that for most years from 2014-2019, Scituate Lighthouse Beach was usually posted no more than 7% of the season (except for 2019 when it was posted 12% of the season). The Secondary Contact Recreation Use of Scituate Harbor is assessed as Fully Supporting since there were few swimming advisory beach postings (2014-2019) at the Scituate Lighthouse Beach.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Scituate Harbor (MA94-02): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.2942 sq mi (91%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Second Herring Brook (MA94-26)

Location:	Headwaters, outlet Turner Pond, Norwell (excluding the approximately 0.3 mile through Torrey Pond) to the tidal zone near a wooden walk bridge approximately 205 meters downstream from Second Herring Brook Pond Dam (NATID: MA02171), Norwell (area associated with North River Corridor designated as ORW).
AU Type:	RIVER
AU Size:	1.6 MILES
Classification/Qualifier:	B: ORW ('ORW' applies only to portion in North River Corridor)

No usable data were available for Second Herring Brook (MA94-26) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Second Herring Brook (MA94-31)

Location:	From the tidal zone near a wooden walk bridge approximately 205 meters downstream from the Second Herring Brook Pond Dam (NATID: MA02171), Norwell to mouth at confluence with the North River, Norwell.
AU Type:	ESTUARY
AU Size:	0.002 SQUARE MILES
Classification/Qualifier:	SA: ORW

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61721	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aquatic Life Use for Second Herring Brook (MA94-31) so it is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in Second Herring Brook (MA94-31); therefore, the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
Second Herring Brook (MA94-31): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0013 sq mi (54%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0013 sq mi (54%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB5.2	North River West	Prohibited	0.00133	54.1%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for Second Herring Brook (MA94-31) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available to assess the status of the Primary Contact Recreation Use for Second Herring Brook (MA94-31) so it is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Second Herring Brook (MA94-31): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0013 sq mi (54%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available to assess the status of the Secondary Contact Recreation Use for Second Herring Brook (MA94-31) so it is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Second Herring Brook (MA94-31): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0013 sq mi (54%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Shallow Pond (MA94140)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	19 ACRES
Classification/Qualifier:	B

No usable data were available for Shallow Pond (MA94140) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Ship Pond (MA94142)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	11 ACRES
Classification/Qualifier:	B

No usable data were available for Ship Pond (MA94142) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Silver Lake (MA94143)

Location:	Pembroke/Plympton/Kingston.
AU Type:	FRESHWATER LAKE
AU Size:	616 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Silver Lake (MA94143) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Unchanged
5	5	(Flow Regime Modification*)		Unchanged
5	5	Dissolved Oxygen		Unchanged

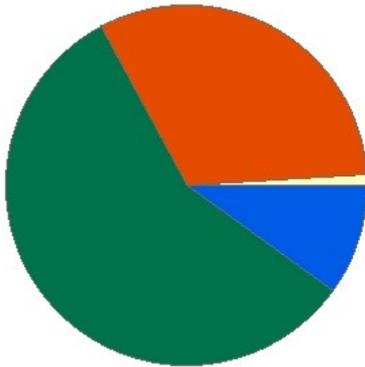
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
(Flow Regime Modification*)	Water Diversions (Y)	X				
Dissolved Oxygen	Source Unknown (N)	X				

Smelt Brook (MA94-54)

Location:	Headwaters outlet Smelt Pond, Kingston to tidal portion north of Route 3A, Kingston (through former 2016 segment: Foundry Pond MA94038).
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B

Smelt Brook - MA94-54

Watershed Area: 2.85 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	2.85	2.85	0.58	0.58
Agriculture	1%	1%	4.7%	4.7%
Developed	31.8%	31.8%	20.8%	20.8%
Natural	57.2%	57.2%	57.4%	57.4%
Wetland	9.9%	10%	17.1%	17.1%
Impervious Cover	15.8%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Unchanged
5	5	Turbidity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Turbidity	Source Unknown (N)			X	X	X

Recommendations

2022 Recommendations

AES: Take Secchi depth measurements in this Smelt Brook AU (MA94-54) to confirm if there is a still an issue with turbidity.; REC: Take Secchi depth measurements in this Smelt Brook AU (MA94-54) to confirm if there is a still an issue with turbidity.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
As was previously reported, the Foundry Pond Dam in Kingston does not allow passage (passage score of 10—no possible passage) for rainbow smelt and American eel along this Smelt Brook AU (MA94-54). MassDEP staff collected extremely limited water quality data in this Smelt Brook AU (MA95-54) as part of bacteria source tracking (BST) efforts during summer 2011, at the downstream end of the AU ~200 feet downstream of Main Street (Rt. 3A), Kingston (Station W2319; n=2). There were no observations of excessive filamentous algae recorded during either of these site visits. The Aquatic Life Use for this Smelt Brook AU (MA94-54) will continue to be assessed as Not Supporting with the Fish Passage Barrier impairment being carried forward.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2319	MassDEP	Water Quality	Smelt Brook	[approximately 200 feet downstream of Main Street (Route 3A), Kingston]	41.987834	-70.707868

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2319	2011	--	--	--	--	--	--	--	--	2	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in Smelt Brook (MA94-54); therefore, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality sampling at one site on this Smelt Brook AU (MA94-54) twice during the summer of 2011, approximately 200 feet downstream of Main Street (Route 3A) (W2319). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews. Insufficient information is available to evaluate any changes so the Aesthetics Use for this Smelt Brook AU (MA94-54) will continue to be assessed as Not Supporting with the Turbidity impairment being carried forward. The original listing of turbidity was based on estimated transparency being below the safety criterion of a 4' Secchi disk depth made during the 1996 synoptic survey in the Foundry Pond impoundment of Smelt Brook on 11 September 1996 (MassDEP 2002).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2319	MassDEP	Water Quality	Smelt Brook	[approximately 200 feet downstream of Main Street (Route 3A), Kingston]	41.987834	-70.707868

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2319	Smelt Brook	2011	2	MassDEP aesthetics observations for station W2319 on Smelt Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2319	2011	2	2	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2319	Smelt Brook	2011	Color	None	2	2
W2319	Smelt Brook	2011	Objectionable Deposits	Not Applicable (N/A)	2	2
W2319	Smelt Brook	2011	Odor	None	2	2
W2319	Smelt Brook	2011	Scum	Not Applicable (N/A)	2	2
W2319	Smelt Brook	2011	Turbidity	None	1	2
W2319	Smelt Brook	2011	Turbidity	Slightly Turbid	1	2

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff collected *E. coli* and Enterococci bacteria samples at this Smelt Brook AU (MA94-54) for the purposes of bacteria source tracking (BST), ~200 ft downstream of Main St. (Rt. 3A) in Kingston (W2319) between June and August 2011 (n=2 for *E. coli*) and in August 2011 (n=1 for Enterococci). *E. coli* concentrations were 10 and 23 CFU/100ml and Enterococci was 109 CFU/100ml, with no samples exceeding the respective STV criterion. These *E. coli* and Enterococci data are too limited to evaluate under 2022 CALM guidance (MassDEP 2022b).

Insufficient information is available to evaluate any changes so the Primary Contact Recreational Use for this Smelt Brook AU (MA94-54) will continue to be assessed as Not Supporting with the Turbidity impairment being carried forward. The original listing of turbidity was based on estimated transparency being below the safety criterion of a 4' Secchi disk depth made during the 1996 synoptic survey in the Foundry Pond impoundment of Smelt Brook on 11 September 1996 (MassDEP 2002).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2319	MassDEP	Water Quality	Smelt Brook	[approximately 200 feet downstream of Main Street (Route 3A), Kingston]	41.987834	-70.707868

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

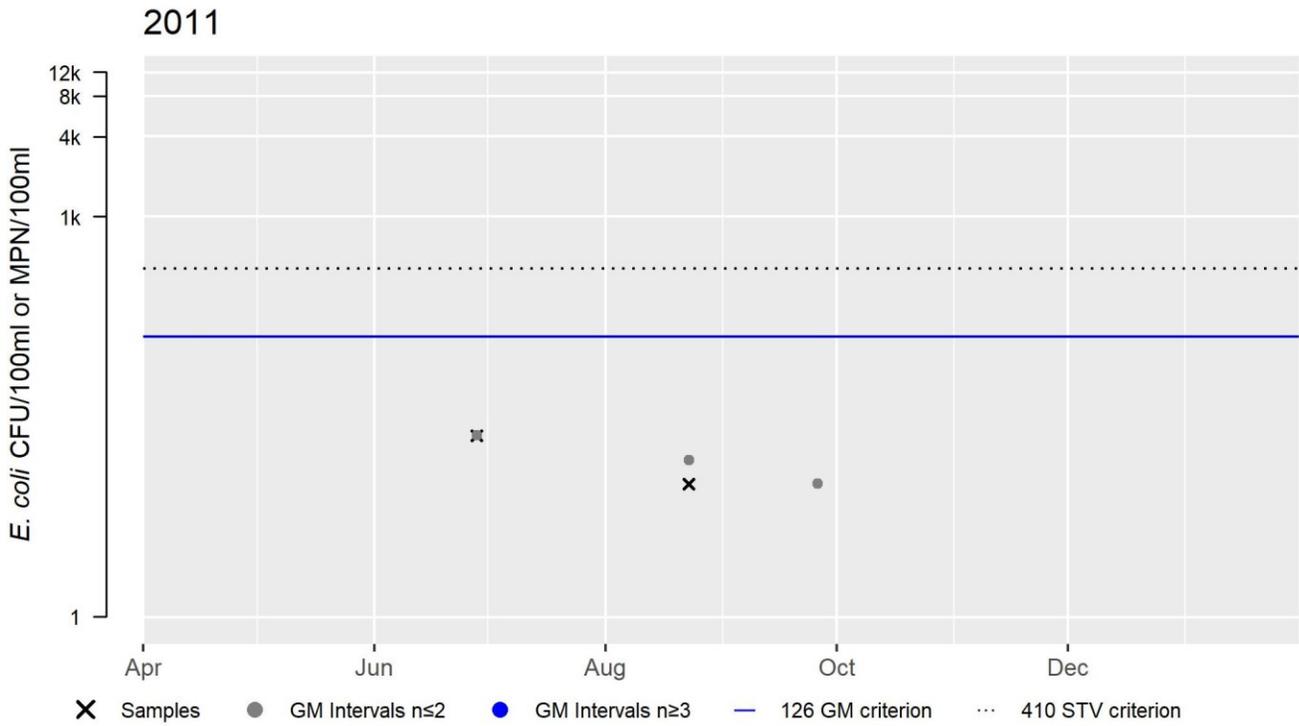
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2319	MassDEP	<i>E. coli</i>	06/28/11	08/23/11	2	10	23	15
W2319	MassDEP	Enterococci	08/23/11	08/23/11	1	109	109	109

W2319 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	15
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

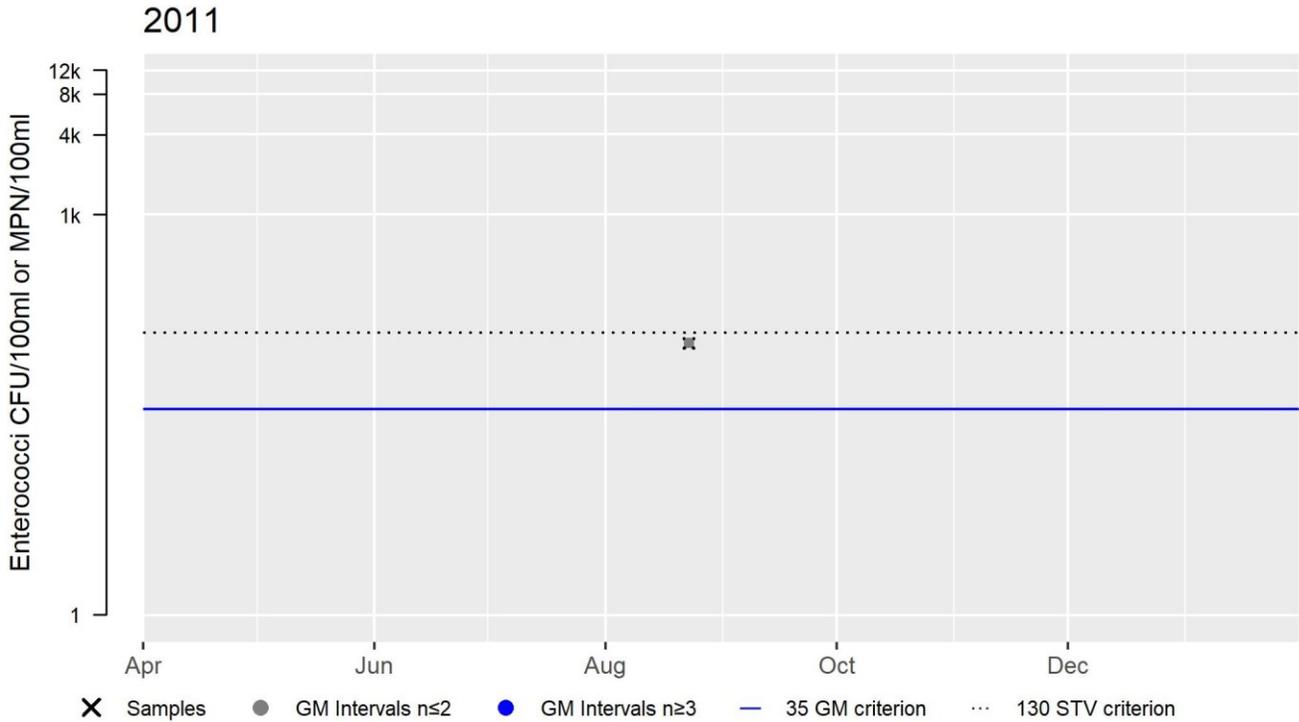
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2319 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	109
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>MassDEP staff collected <i>E. coli</i> bacteria samples at this Smelt Brook AU (MA94-54) for the purposes of bacteria source tracking (BST), ~200 ft downstream of Main St. (Rt. 3A) in Kingston (W2319) between June and August 2011 (n=2). <i>E. coli</i> concentrations were 10 and 23 CFU/100ml, with no samples exceeding the STV criterion. These <i>E. coli</i> data are too limited to evaluate under 2022 CALM guidance (MassDEP 2022b).</p> <p>Insufficient information is available to evaluate any changes so the Secondary Contact Recreational Use for this Smelt Brook AU (MA94-54) will continue to be assessed as Not Supporting with the Turbidity impairment being carried forward. The original listing of turbidity was based on estimated transparency being below the safety criterion of a 4' Secchi disk depth made during the 1996 synoptic survey in the Foundry Pond impoundment of Smelt Brook on 11 September 1996 (MassDEP 2002).</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2319	MassDEP	Water Quality	Smelt Brook	[approximately 200 feet downstream of Main Street (Route 3A), Kingston]	41.987834	-70.707868

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis)** (MassDEP Undated 8) (MassDEP Undated 5)

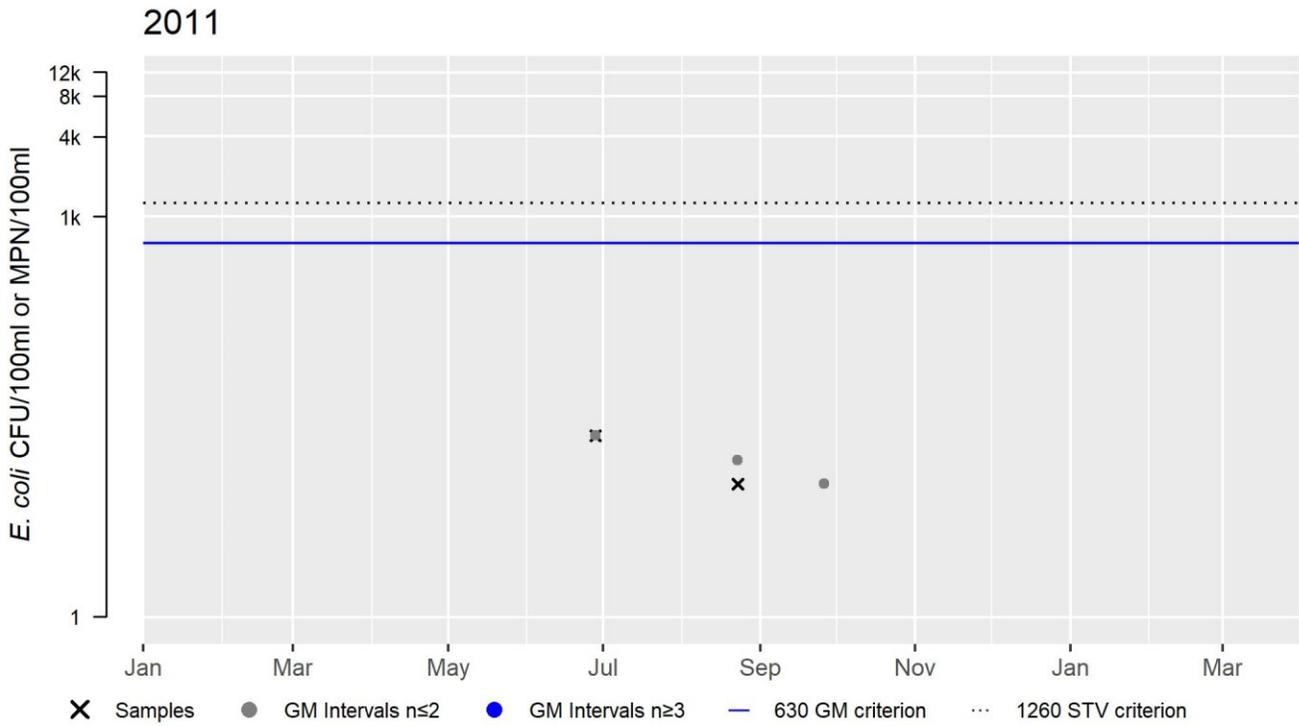
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2319	MassDEP	E. coli	06/28/11	08/23/11	2	10	23	15

W2319 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	15
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Smelt Brook (MA94-56)

Location:	Tidal portion north of Route 3A, Kingston to mouth at confluence with Jones River, Kingston.
AU Type:	ESTUARY
AU Size:	0.01 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aquatic Life Use for this Smelt Brook AU (MA94-56) so it is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in this Smelt Brook AU (MA94-56); therefore, the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Smelt Brook (MA94-56): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0039 sq mi (64%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0039 sq mi (64%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area >= 0.0001 sq mi.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB44.0	Jones River	Prohibited	0.00389	63.7%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for this Smelt Brook AU (MA94-56) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available to assess the Primary Contact Recreation Use for this Smelt Brook AU (MA94-56) so it is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Smelt Brook (MA94-56): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0039 sq mi (64%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available to assess the Secondary Contact Recreation Use for Smelt Brook (MA94-56) so it is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Smelt Brook (MA94-56): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0039 sq mi (64%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Smelt Pond (MA94184)

Location:	Kingston.
AU Type:	FRESHWATER LAKE
AU Size:	45 ACRES
Classification/Qualifier:	B

No usable data were available for Smelt Pond (MA94184) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged
4c	4c	(Fish Passage Barrier*)		Unchanged
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

South River (MA94-08)

Location:	Headwaters, outlet unnamed pond north of Congress Street, Duxbury to downstream of fish ladder at Veterans Memorial Park, near Main Street (Route 3A), Marshfield (through former 2014 segment: South River Pond MA94148).
AU Type:	RIVER
AU Size:	4.9 MILES
Classification/Qualifier:	B: ORW

No usable data were available for South River (MA94-08) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fish Passage Barrier*)		Unchanged
5	5	Dissolved Oxygen		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Dissolved Oxygen	Agriculture (N)	X				
Dissolved Oxygen	Source Unknown (N)	X				

South River (MA94-09)

Location:	From downstream of fish ladder at Veterans Memorial Park near Main Street (Route 3A), Marshfield to mouth at confluence with North River/Massachusetts Bay, Marshfield/Scituate.
AU Type:	ESTUARY
AU Size:	0.63 SQUARE MILES
Classification/Qualifier:	SA: ORW, SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Enterococcus	61728	Unchanged
4a	4a	Fecal Coliform	61728	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Enterococcus	Source Unknown (N)					X	
Fecal Coliform	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X			

Recommendations

2022 Recommendations
REC: Conduct additional Enterococcus bacteria sampling (ideally high frequency) at locations in the upper reaches of this South River AU (MA94-09) including NSRWA_Willow St. Bridge site to better evaluate use attainment status and determine if an impairment is warranted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for this South River AU (MA94-09), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this South River AU (MA94-09), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
South River (MA94-09): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5519 sq mi (88%). The approved shellfish growing area represents 0 sq mi (0%). The Shellfish Harvesting Use is assessed as not supporting because the growing area (normalized to the AU area) is < 100% approved. Based on the new growing area classifications and the prior classifications, the existing Fecal Coliform impairment is being retained.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB5.1	North River - East	Conditionally Approved	0.00435	0.7%
MB6.0	South River South	Prohibited	0.17685	28.2%
MB6.1	South River North	Conditionally Approved	0.37072	59.1%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No recent data are available for this South River AU (MA94-09), so the Aesthetics Use is Not Assessed. The prior Alert for a dramatic growth of filamentous green algae occurring at the upstream end of this AU during the smelt spawning season (MassDEP 2006) is being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria samples during summer 2019 in this South River AU (MA94-09) at three locations described from upstream to downstream as follows: upstream of the Willow St bridge on the left edge (NSRWA_Willow St. Bridge; n=6), downstream of the Julian St. bridge on the right edge (NSRWA_Julian St. Bridge; n=16), and at the edge of intertidal, straight out from the parking area near the confluence with the North River (NSRWA_North River Mouth; n=6). Data analysis indicated that 100% of the intervals at site NSRWA_Willow St. Bridge and none of the intervals at the other sites had GMs >35 CFU/100mL. Three samples from this most upstream station also exceeded the 130 CFU/100mL STV (but only 0-1 samples exceeded the STV at the downstream stations). The seasonal GMs were 190, 8, and 1 CFU/100mL from upstream to downstream, respectively. The Primary Contact Recreation Use of this South River AU (MA94-09) will continue to be assessed as Not Supporting, with the Enterococcus impairment being carried forward since one of three NSRWA Enterococci monitoring stations had data that exceeded the use attainment impairment threshold for a single-year dataset (low frequency for station NSRWA_Willow St. Bridge) during summer 2019. The prior Alert for a dramatic growth of filamentous green algae occurring at the upstream end of this AU during the smelt spawning season (MassDEP 2006) is being carried forward.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Julian St. Bridge	North South River Watershed Association	Water Quality	South River	Downstream of bridge, right edge	42.13145	-70.68796
NSRWA_North River Mouth	North South River Watershed Association	Water Quality	North River	Edge of intertidal, straight out from parking area	42.16189	-70.70764
NSRWA_Willow St. Bridge	North South River Watershed Association	Water Quality	South River	Upstream of bridge, left edge	42.09319	-70.71249

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)

(MassDEP Undated 3)

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

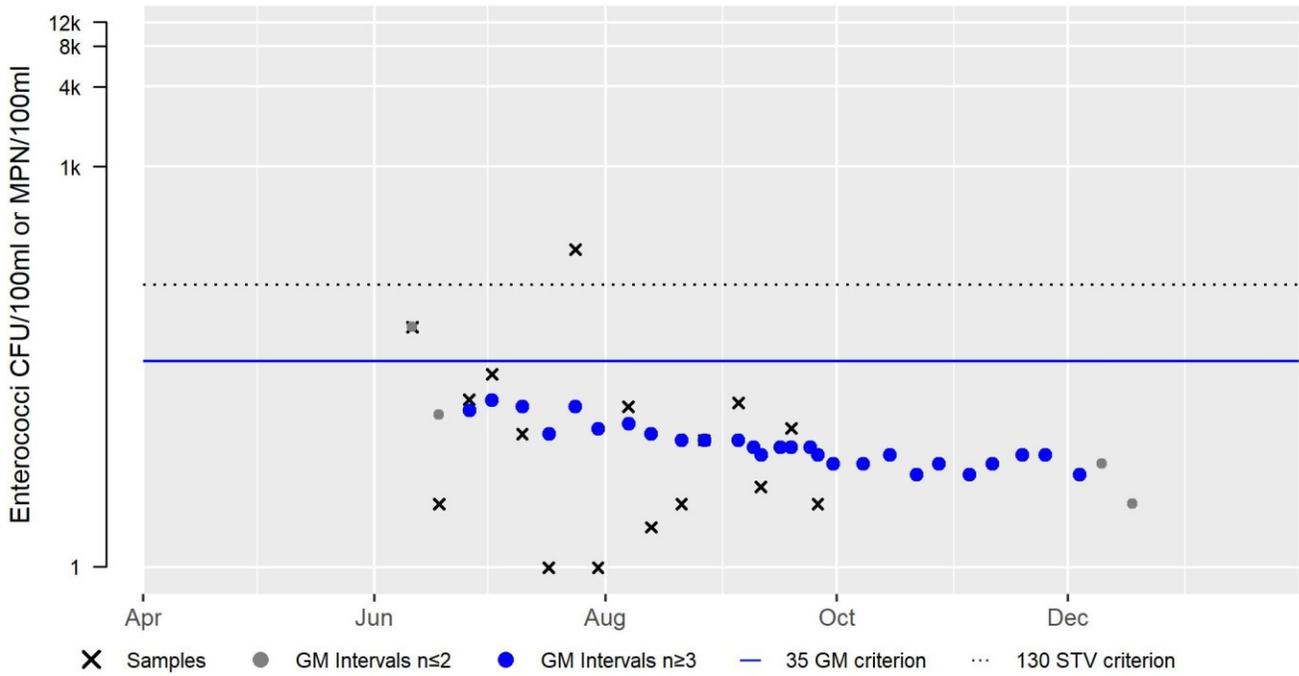
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
NSRWA_Julian St. Bridge	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	1	240	8
NSRWA_North River Mouth	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	1	11	1
NSRWA_Willow St. Bridge	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	80	600	190

NSRWA_Julian St. Bridge Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	8
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	6

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

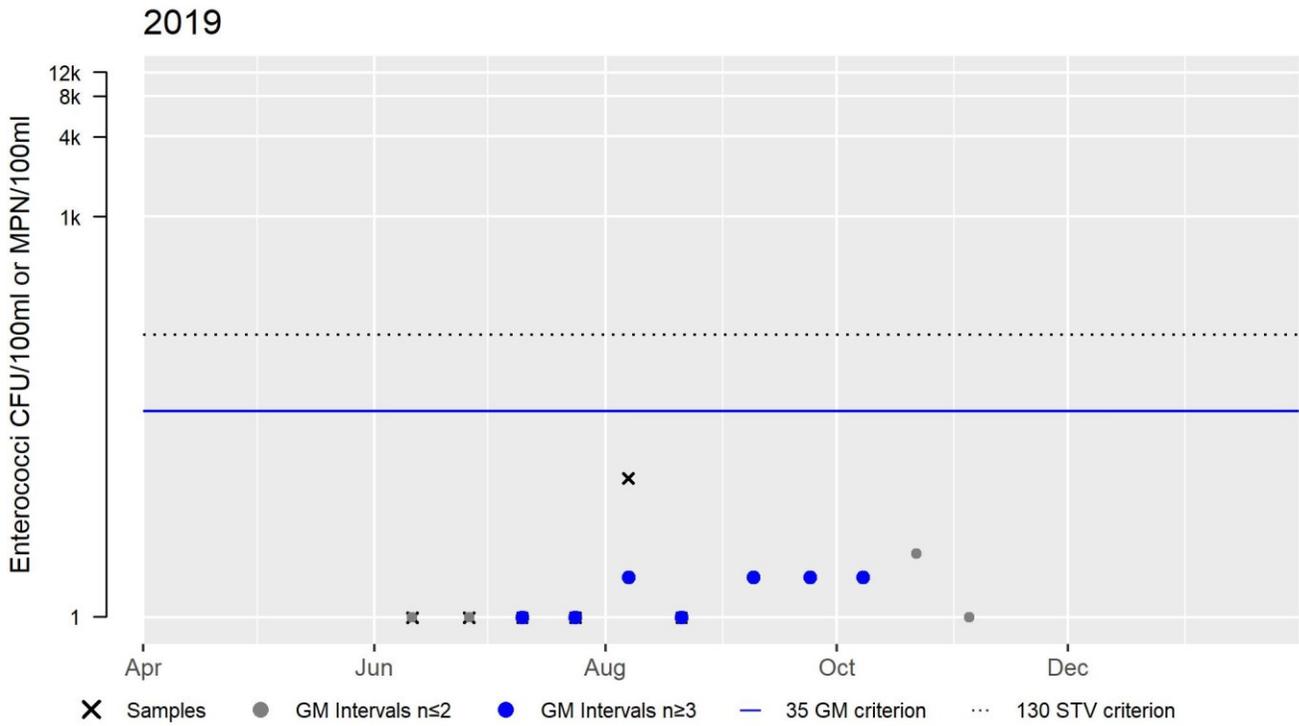
2019



NSRWA_North River Mouth Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	1
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

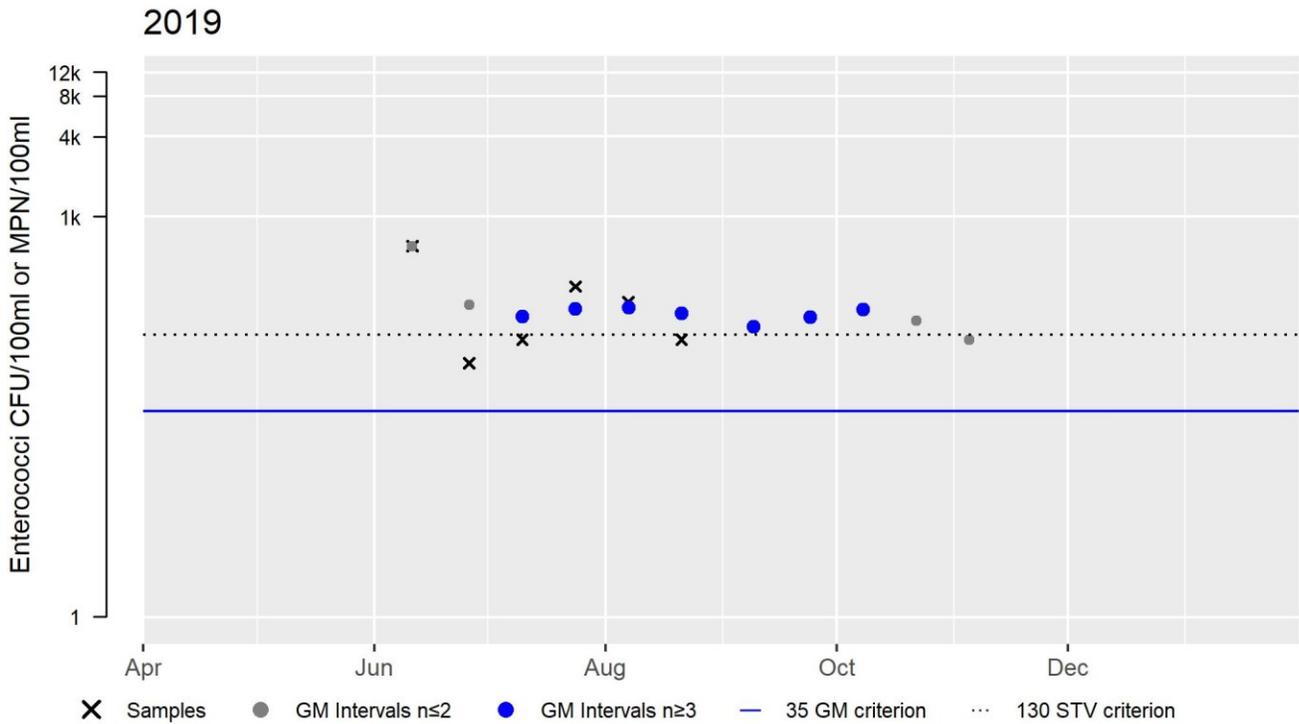
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Willow St. Bridge Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	190
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	3
%n>STV	50

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
South River (MA94-09): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5519 sq mi (88%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	YES

2022 Use Attainment Summary

North South River Watershed Association (NSRWA) staff/volunteers collected Enterococci bacteria samples during summer 2019 in this South River AU (MA94-09) at three locations described from upstream to downstream as follows: upstream of the Willow St bridge on the left edge (NSRWA_Willow St. Bridge; n=6), downstream of the Julian St bridge on the right edge (NSRWA_Julian St. Bridge; n=16), and at the edge of intertidal, straight out from the parking area near the confluence with the North River (NSRWA_North River Mouth; n=6). Data analysis indicated that 86% of the intervals at site NSRWA_Willow St. Bridge and none of the intervals at the other sites had GMs >175 CFU/100mL. One sample from this most upstream station also exceeded the 350 CFU/100mL STV (but none at the downstream stations). The overall GMs were 190, 8, and 1 CFU/100mL from upstream to downstream, respectively.

The Secondary Contact Recreation Use of this South River AU (MA94-09) is assessed as Fully Supporting, since two of three NSRWA Enterococci monitoring stations had data indicating use attainment (including one site with high frequency data). An Alert for Enterococcus at the most upstream station (NSRWA_Willow St. Bridge), however is being identified and additional high frequency sampling at this site is being recommended. The prior Alert for a dramatic growth of filamentous green algae occurring at the upstream end of this AU during the smelt spawning season (MassDEP 2006) is also being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
NSRWA_Julian St. Bridge	North South River Watershed Association	Water Quality	South River	Downstream of bridge, right edge	42.13145	-70.68796
NSRWA_North River Mouth	North South River Watershed Association	Water Quality	North River	Edge of intertidal, straight out from parking area	42.16189	-70.70764
NSRWA_Willow St. Bridge	North South River Watershed Association	Water Quality	South River	Upstream of bridge, left edge	42.09319	-70.71249

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (NSRWA 2019)**

(MassDEP Undated 3)

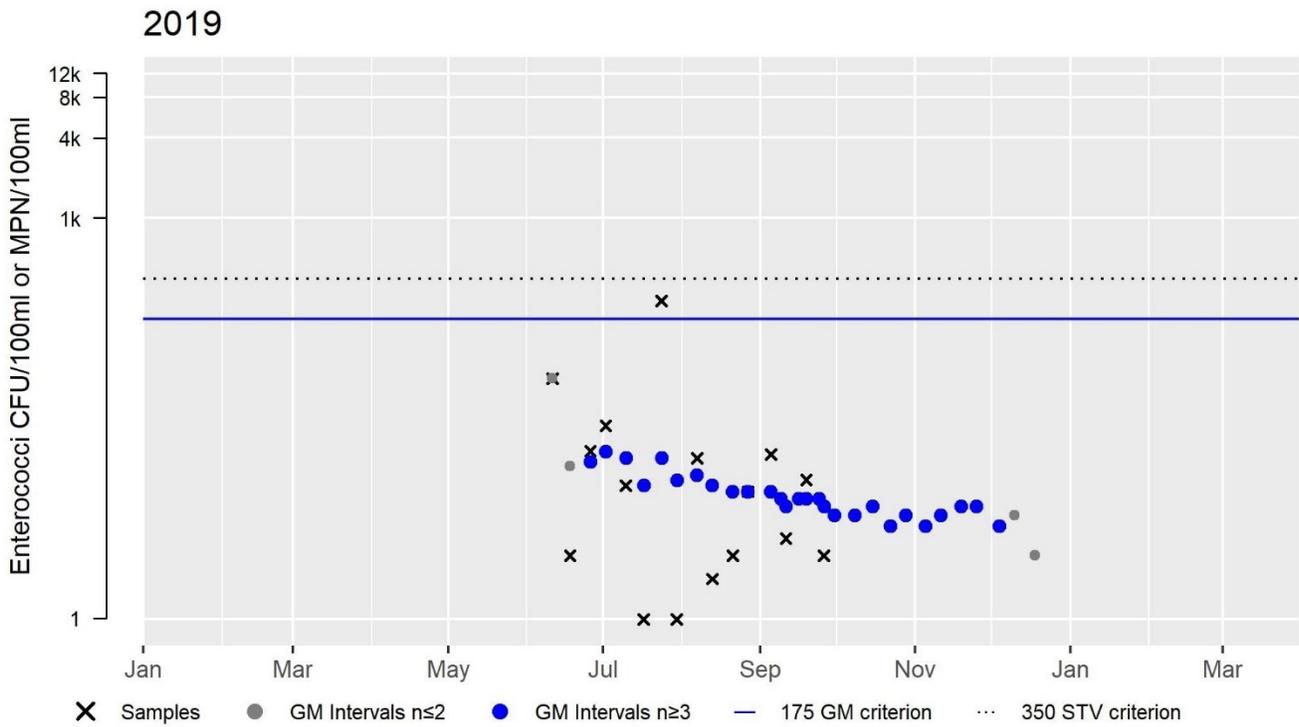
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
NSRWA_Julian St. Bridge	North South River Watershed Association	Enterococci	06/11/19	09/26/19	16	1	240	8
NSRWA_North River Mouth	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	1	11	1
NSRWA_Willow St. Bridge	North South River Watershed Association	Enterococci	06/11/19	08/21/19	6	80	600	190

NSRWA_Julian St. Bridge Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	8
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

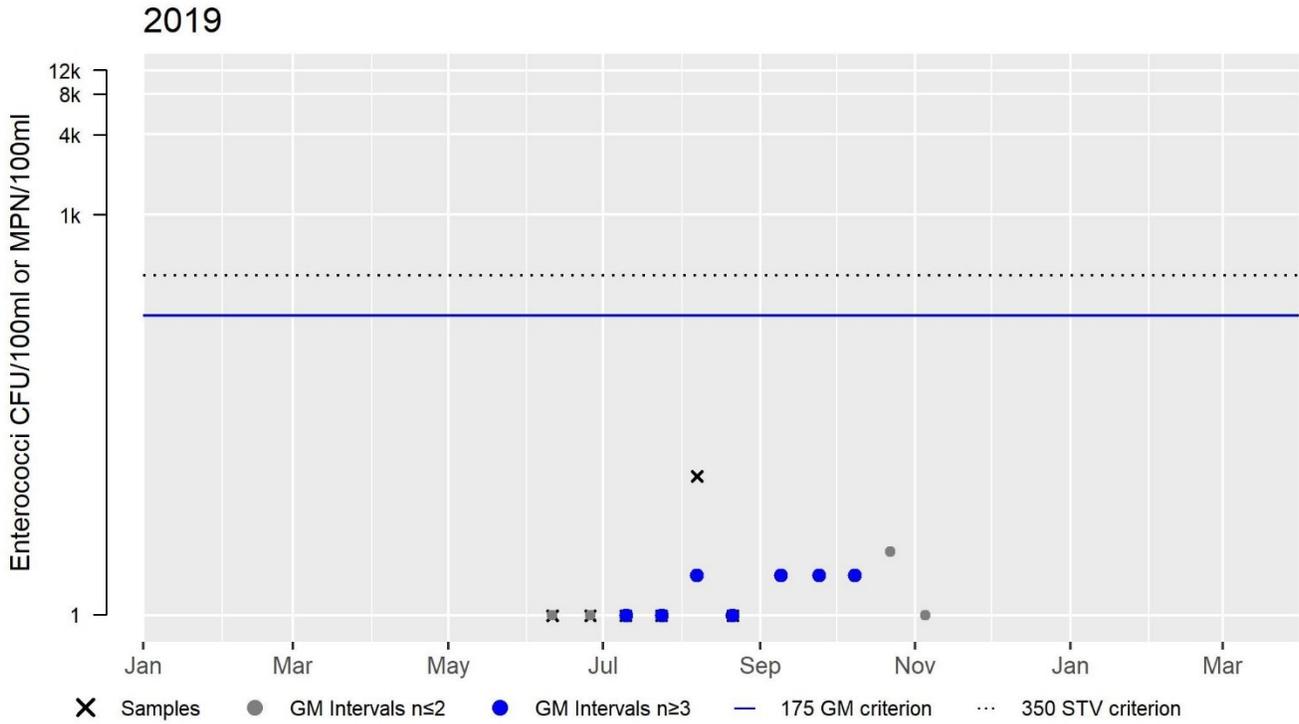
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_North River Mouth Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	1
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

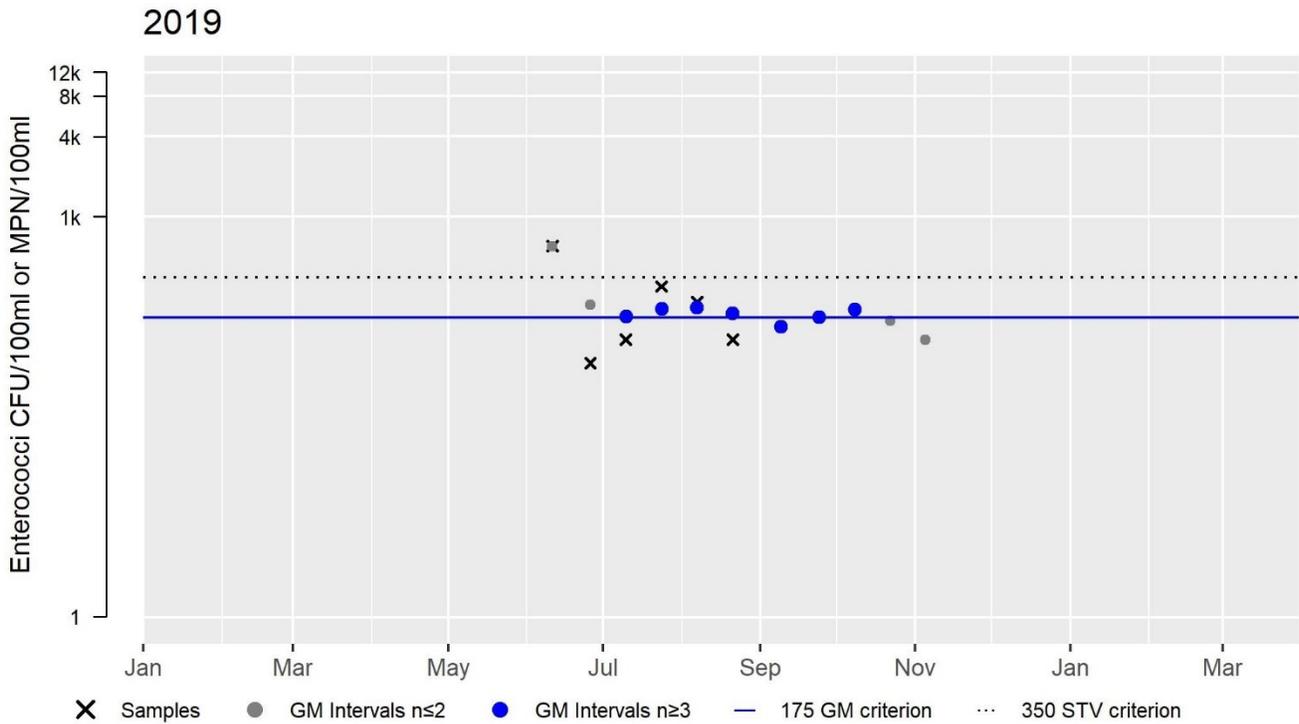
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



NSRWA_Willow St. Bridge Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	190
#GMI	7
#GMI Ex	6
%GMI Ex	86
n>STV	1
%n>STV	17

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
South River (MA94-09): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.5519 sq mi (88%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

South Triangle Pond (MA94149)

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

No usable data were available for South Triangle Pond (MA94149) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Studleys Pond (MA94151)

Location:	Rockland.
AU Type:	FRESHWATER LAKE
AU Size:	25 ACRES
Classification/Qualifier:	B: WWF (impoundment on river designated B/WWF)

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Fecal Coliform		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)				X	

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Studleys Pond (MA94151) so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Studleys Pond (MA94151), so the Fish Consumption Use Is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Studleys Pond (MA94151) so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

Two bacteria samples were collected from the outlet of the Studleys Pond AU (MA94151) in 2012, for the purposes of bacteria source tracking (BST) in the AU downstream (French Stream). The maximum dry weather *E. coli* concentration at the outlet was 488 MPN/100ml. These data are too limited to assess, per the 2022 CALM guidance (MassDEP 2022b). The Primary Contact Recreation Use of Studleys Pond (MA94151) will continue to be assessed as Not Supporting, with the Fecal Coliform impairment being carried forward.

Bacteria Data

MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary
Two samples were collected from the outlet of the Studleys Pond AU (MA94151) in 2012, as part of the BST work for the AU downstream (French Stream). The max dry weather <i>E. coli</i> concentration at the outlet was 488 MPN.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
Two bacteria samples were collected from the outlet of the Studleys Pond AU (MA94151) in 2012, for the purposes of bacteria source tracking (BST) in the AU downstream (French Stream). The maximum dry weather <i>E. coli</i> concentration at the outlet was 488 MPN/100ml. These data are too limited to assess, per the 2022 CALM guidance (MassDEP 2022b). Too limited data are available to evaluate the Secondary Contact Recreation Use of Studleys Pond AU (MA94151) so it is assessed as having Insufficient Information.	

Tack Factory Pond (MA94152)

Location:	Scituate.
AU Type:	FRESHWATER LAKE
AU Size:	8 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Tack Factory Pond (MA94152) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

The Gulf (MA94-19)

Location:	Headwaters, outlet Hunters Pond, Scituate to confluence with Cohasset Cove just north of Border Street, Cohasset.
AU Type:	ESTUARY
AU Size:	0.13 SQUARE MILES
Classification/Qualifier:	SB: SFR

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Fecal Coliform	61710	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Shellfish Harvesting	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fecal Coliform	Source Unknown (N)			X			

Recommendations

2022 Recommendations
ALU: Conduct water quality surveys of The Gulf to evaluate water quality conditions (especially DO) post-removal of the Hunters Pond Dam which was formerly located at the upstream end of this AU (MA94-19).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>UMass-Amherst students collected water quality data from 2015-2017 at one station in The Gulf (MA94-19) as part of a study evaluating the effects of the Hunters Pond Dam (as previously reported, the dam was formerly located at the upstream end of this AU but was removed in 2017 (MassDEP 2021)). Data were collected 23m downstream of the dam (Station UMassA_HUNDS1). Probes were deployed to record Dissolved Oxygen (DO) measurements during four 4-6 day periods in Sept 2015 and July/Sept 2016. The XDADMin DO concentration was <5.0mg/L one time during most of the deploys and the 1-day minima were <4.0mg/L four times during two of the 2016 deploys. It should be noted that most of the deploys occurred during the 2016 drought (Drought Management Task Force 2021). Continuous temperature measurements were recorded over periods of 21-106 days during the summer index periods in 2015-2017. None of the 7DADMs exceeded 27.7 °C (maximum 7DADM 27.2 °C) and none of the maximum 24-hr rolling average temperatures exceeded 28.3°C (maximum 24-hr rolling average 27.7°C). Surface pH measurements (n=6) ranged from 6.0-6.8 S.U. Because data were collected by UMass-Amherst students before the Hunters Pond Dam was demolished, and mostly during a historic drought, too limited data are available to evaluate current conditions so the Aquatic Life Use of The Gulf (MA94-19) is assessed as having Insufficient Information. An Alert is being identified for low DO with a recommendation for additional monitoring.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
UMassA_HUNDS1	UMass Amherst	Water Quality	Bound Brook	23m downstream dam	42.22325	-70.788733

Physico-chemical Water Quality Information

DO, pH, Temperature

UMass Amherst Dam Study Short-term Continuous Dissolved Oxygen Data (2015-2017). (UMass-Amherst 2018) (MassDEP Undated 3)

[Note: X= 7 (or # of deploy days if less than seven days); XDADMin= XDay Average of the Daily Minima, XDADA= XDay Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
UMassA_HUNDS1	09/05/15	09/10/15	6	4.4	5.4	5.8	1.1	1	2	0	0	0	0
UMassA_HUNDS1	07/02/16	07/06/16	5	4.5	4.7	5	0.9	1	5	1	5	1	0
UMassA_HUNDS1	09/01/16	09/04/16	4	1.3	2	3.2	3.7	1	4	0	0	1	4
UMassA_HUNDS1	09/26/16	09/30/16	5	3.2	3.6	4.5	2.5	1	5	0	0	1	4

UMass Amherst Dam Study Long-term Continuous Temperature Data (Summer Index 2014-2017). (UMass-Amherst 2018) (MassDEP Undated 3)

[Summer Index is June 1 – Sept 15; 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Index Count	Max 24hr Rolling Avg Temp (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier2 7DADA >21	Count WW 7DADM >27.7
UMassA_HUNDS1	06/30/15	12/31/15	78	24.9	25.8	24.8	24.7	72	71	0
UMassA_HUNDS1	01/01/16	12/31/16	106	27.7	29.7	27.2	27.0	104	91	0
UMassA_HUNDS1	01/01/17	06/21/17	21	23.4	24.7	21.9	21.6	8	7	0

UMass Amherst Dam Study Discrete pH Data (2016-2017). (UMass-Amherst 2018) (MassDEP Undated 3)

Station Code	Start Date	End Date	Sample Depth	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
UMassA_HUNDS1	07/01/16	10/01/16	Surface	6	6.0	6.8	2	0

Fish Consumption

2022 Use Attainment	Alert
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Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in The Gulf (MA94-19), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
The Gulf (MA94-19): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.1042 sq mi (83%). The sum of the approved, conditionally approved, and restricted shellfish growing areas represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.1042 sq mi (83%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of prohibited and approved, conditionally approved, and/or restricted. Alert due to prohibited area ≥ 0.0001 sq mi. There is insufficient information available to delist the existing Fecal Coliform impairment so the Shellfish Harvesting Use is evaluated as not supporting.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
MB10.1	West Cohasset Harbor	Prohibited	0.10417	82.8%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for The Gulf (MA94-19), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for The Gulf (MA94-19), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
The Gulf (MA94-19): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.1042 sq mi (83%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than "approved", the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for The Gulf (MA94-19), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

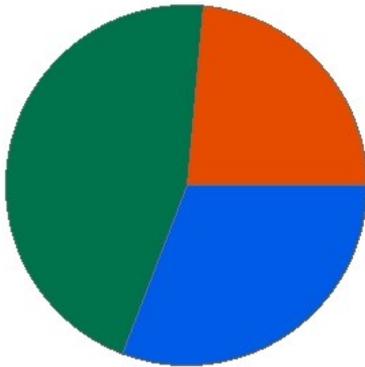
Summary
The Gulf (MA94-19): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.1042 sq mi (83%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Third Herring Brook (MA94-27)

Location:	Headwaters, outlet Jacobs Pond, Norwell/Hanover to mouth at confluence with North River, Norwell/Hanover (area associated with North River Corridor designated as ORW).
AU Type:	RIVER
AU Size:	5.3 MILES
Classification/Qualifier:	B: ORW ('ORW' applies only to portion in North River Corridor)

Third Herring Brook - MA94-27

Watershed Area: 10.33 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	10.33	6.41	2.48	1.88
Agriculture	0.9%	0.9%	1.1%	0.9%
Developed	23.3%	24%	13.8%	13.6%
Natural	45.2%	45.4%	35.2%	35%
Wetland	30.5%	29.8%	49.8%	50.4%
Impervious Cover	12.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	5	(Fish Passage Barrier*)		Unchanged
4c	5	Escherichia Coli (E. Coli)		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Escherichia Coli (E. Coli)	Source Unknown (N)				X	

Recommendations

2022 Recommendations
REC: Conduct additional bacteria sampling in Third Herring Brook (MA94-27), including data of sufficient frequency at stations W0922 and W1509, to better assess status of Primary and Secondary Contact Recreational uses.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>The MA Division of Ecological Restoration (DER) partnered with the North and South Rivers Watershed Association (NSRWA), NOAA Restoration Center, the Massachusetts Bays National Estuary Partnership (MassBays), US Fish & Wildlife Service, and private dam owners on the Third Herring Brook restoration project. The project included the removal of three dams on Third Herring Brook (from upstream to downstream, Peterson Pond Dam, Tack Factory Pond Dam, and Mill Pond Dam, all located in Hanover. The final stages of the project were completed in November 2020 with the removal of the Peterson Pond Dam, which allowed passage upstream towards Jacobs Pond. According to DER, the Third Herring Brook restoration project has improved water quality, river health, and, in total, reconnected 10 miles of river habitat to the tidal North River, benefitting such fish species as wild brook trout and river herring. DER, NSRWA, and MassBays are monitoring the Third Herring Brook system and collecting data on sediment movement following the Peterson Pond Dam removal (DER 2021). Although the removal of the three most downstream dams has restored some diadromous fish habitat, according to DMF biologists three barriers to diadromous fish passage remain along the AU (Chase, Brad 2020) from upstream to downstream: the Jacobs Pond Dam (owned by the Town of Norwell) and the Rt. 123 culvert (state owned road) both given passage scores of 10 (no possible passage) and the Upper Peterson Pond Dam (a concrete flume owned by the Hanover Mall, which impedes passage during low flow conditions) with a passage score of 5 (restricted passage); all with population scores of 3 and the targeted species being river herring and American eel. MassDFG biologists conducted backpack electrofishing at eight locations in Third Herring Brook (MA94-27) on the Norwell/Hanover line, between 2017-2019, and MassDEP staff conducted limited water quality monitoring at three locations (stations names start with "W") from 2016-2017 as part of Bacteria Source Tracking efforts. From upstream to downstream, these sites can be described as follows: above Peterson Pond Dam and above movie theatre (Sample 7785), below Peterson Pond Dam (Sample 7784), in back of YMCA tennis courts (Sample 7786), Tiffany Rd/East St crossing (Station W0922), upstream of 100 m above old Tack Factory Dam site (Samples 8555/8561), then a cluster of samples collected at the old Tack Factory Pond site off Tiffany Rd (Samples 7028/8512/8554, Station W2741), and the most downstream water quality station at the Broadway/River St bridge (W1509). Most of the fish samples were total pickup, but the samples upstream of the old Tack Factory Pond site (8555/8561) were selective pickup (SP) for trout. Several samples besides the SP samples also contained adult Eastern brook trout, an intolerant cold-water, fluvial species. Most of the total pickup samples included 18-56% intolerant/moderately tolerant macrohabitat generalist species, which is acceptable for a Class B (presumed warm) water. Although DFG considers Third Herring Brook to be a Coldwater Fisheries Resource (CFR), there are no records of trout smaller than 140 mm ever having been collected (MassDFG 2020). During several site visits to MassDEP stations W0922 (in 2016), W2741 (in 2017), and W1509 (in 2016 and 2017), there were no observations of any excessive filamentous algae.</p> <p>Although the fish community data were indicative of generally good conditions, the Aquatic Life Use for Third Herring Brook (MA94-27) will continue to be assessed as Not Supporting. The Fish Passage Barrier impairment is being carried forward because of the remaining diadromous fish barriers posed by Jacobs Pond Dam, Rt. 123 culvert and the Upper Peterson's Pond Dam.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7028	MassDFG	Fish Community	Third Herring Brook	Old Tack Factory Pond Site off Tiffany Rd, Norwell/Hanover	42.12293	-70.80913
7784	MassDFG	Fish Community	Third Herring Brook	Below Peterson Pond Dam, Norwell/Hanover	42.14268	-70.83714

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7785	MassDFG	Fish Community	Third Herring Brook	above Peterson Pond Dam, Above movie theatre, Norwell/Hanover	42.14549	-70.83738
7786	MassDFG	Fish Community	Third Herring Brook	in back of YMCA tennis courts, Norwell/Hanover	42.13920	-70.83522
8512	MassDFG	Fish Community	Third Herring Brook	old Tack Factory Dam Site, Norwell	42.12260	-70.80907
8554	MassDFG	Fish Community	Third Herring Brook	above old tack factory pond dam site, Norwell	42.12250	-70.80924
8555	MassDFG	Fish Community	Third Herring Brook	from 100 meters from old dam to above unnamed tributary, Norwell	42.12349	-70.80880
8561	MassDFG	Fish Community	Third Herring Brook	above 100 meter from old tack factory Dam site, Norwell	42.12344	-70.80882
W0922	MassDEP	Water Quality	Third Herring Brook	[Tiffany Road/East Street crossing, Norwell/Hanover]	42.130444	-70.816438
W1509	MassDEP	Water Quality	Third Herring Brook	[Broadway/River Street bridge, Hanover/Norwell]	42.117216	-70.809245
W2741	MassDEP	Water Quality	Third Herring Brook	[west of Tiffany Road, within stream channel just upstream of old dam location, Norwell]	42.122784	-70.809074

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: A = Alewife, AE = American Eel, B = Bluegill, BB = Brown Bullhead, BT = Brown Trout, CP = Chain Pickerel, EBT = Brook Trout, GS = Golden Shiner, P = Pumpkinseed, RP = Redfin Pickerel, TD = Tessellated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
7028	09/12/17	BP	TP		8	60	2%	2	5%	2%	2	28%	No	Yes	AE, B, BB, EBT, GS, P, RP, WS,
7784	07/12/18	BP	TP	L	7	135	0%	0	0%	0%	3	56%	No	Yes	AE, B, BB, CP, GS, P, RP,
7785	07/12/18	BP	TP	L	3	13	0%	0	0%	0%	2	38%	Yes	Yes	AE, CP, P,
7786	07/12/18	BP	TP	L	5	53	0%	0	0%	0%	2	38%	Yes	Yes	AE, B, BB, P, RP,
8512	06/05/19	BP	TP		3	16	19%	2	44%	19%	0	0%	No	Yes	AE, EBT, WS,
8554	09/26/19	BP	TP		5	57	4%	2	47%	4%	2	18%	No	Yes	AE, EBT, P, RP, WS,

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
8555	09/26/19	BP	SP		2	8	100%	2	100%	100%	0	0%	No	Yes	BT, EBT,
8561	06/05/19	BP	SP		7	27	63%	4	81%	63%	2	15%	No	Yes	A, AE, BT, EBT, RP, TD, WS,

Habitat and Flow Data (anthropogenic alterations)

The Division of Ecological Restoration partnered with the North and South Rivers Watershed Association (NSRWA), NOAA Restoration Center, the Massachusetts Bays National Estuary Partnership (MassBays), US Fish & Wildlife Service, and private dam owners on the Third Herring Brook restoration project. The project included the removal of three dams on Third Herring Brook (from upstream to downstream, Peterson Pond Dam, Tack Factory Pond Dam, and Mill Pond Dam, all located in Hanover). The final stages of the project were completed in November 2020 with the removal of the Peterson Pond Dam. This removal allowed passage upstream to Jacobs Pond. In 2016, the Tack Factory Pond Dam was removed, which was originally built to power a manufacturing plant. The Mill Pond Dam was formerly owned by the South Shore YMCA and was the project’s first dam removal, completed in 2014. The Third Herring Brook restoration project has improved water quality, river health, and, in total, reconnected 10 miles of river habitat to the tidal North River, benefitting such fish species as wild brook trout and river herring. DER, NSRWA, and MassBays are monitoring the Third Herring Brook system and collecting data on sediment movement following the Peterson Pond Dam removal (DER 2021).

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W0922	2016	--	--	--	--	--	--	--	--	3	0
W1509	2016	--	--	--	--	--	--	--	--	3	0
W1509	2017	--	--	--	--	--	--	--	--	2	0
W2741	2017	--	--	--	--	--	--	--	--	2	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Third Herring Brook (MA94-27), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>MassDEP staff conducted water quality sampling at three sites on Third Herring Brook (MA94-27) during the summers of 2016 and 2017. The sites are described from upstream to downstream as follows: at the Tiffany Road/East Street crossing in Norwell/Hanover in 2016 (W0922, n=3), west of Tiffany Road, within the stream channel just upstream of the old dam location in Norwell in 2017 (W2741, n=2), and at the Broadway/River Street bridge in Hanover/Norwell in 2016 and 2017 (W1509 n=3 and 2, respectively). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews at any of the stations.</p> <p>The Aesthetics Use of Third Herring Brook (MA94-27) is assessed as Fully Supporting based on the lack of objectionable conditions observed at three locations by MassDEP staff during summers 2016 and/or 2017.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0922	MassDEP	Water Quality	Third Herring Brook	[Tiffany Road/East Street crossing, Norwell/Hanover]	42.130444	-70.816438
W1509	MassDEP	Water Quality	Third Herring Brook	[Broadway/River Street bridge, Hanover/Norwell]	42.117216	-70.809245
W2741	MassDEP	Water Quality	Third Herring Brook	[west of Tiffany Road, within stream channel just upstream of old dam location, Norwell]	42.122784	-70.809074

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0922	Third Herring Brook	2016	3	MassDEP aesthetics observations for station W0922 on Third Herring Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2016.
W1509	Third Herring Brook	2016	3	MassDEP aesthetics observations for station W1509 on Third Herring Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2016.
W1509	Third Herring Brook	2017	2	MassDEP aesthetics observations for station W1509 on Third Herring Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2017. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2741	Third Herring Brook	2017	2	MassDEP aesthetics observations for station W2741 on Third Herring Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2017. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0922	2016	3	3	0
W1509	2016	3	3	0
W1509	2017	2	2	0
W2741	2017	2	2	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0922	Third Herring Brook	2016	Color	Brownish	1	3
W0922	Third Herring Brook	2016	Color	Light Yellow/Tan	2	3
W0922	Third Herring Brook	2016	Objectionable Deposits	Not Applicable (N/A)	3	3
W0922	Third Herring Brook	2016	Odor	Musty (Basement)	2	3
W0922	Third Herring Brook	2016	Odor	None	1	3
W0922	Third Herring Brook	2016	Scum	Not Applicable (N/A)	3	3
W0922	Third Herring Brook	2016	Turbidity	Moderately Turbid	2	3
W0922	Third Herring Brook	2016	Turbidity	Slightly Turbid	1	3
W1509	Third Herring Brook	2016	Color	Light Yellow/Tan	3	3
W1509	Third Herring Brook	2016	Objectionable Deposits	Not Applicable (N/A)	3	3
W1509	Third Herring Brook	2016	Odor	None	3	3
W1509	Third Herring Brook	2016	Scum	Not Applicable (N/A)	3	3
W1509	Third Herring Brook	2016	Turbidity	Moderately Turbid	1	3

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W1509	Third Herring Brook	2016	Turbidity	Slightly Turbid	2	3
W1509	Third Herring Brook	2017	Color	Light Yellow/Tan	1	2
W1509	Third Herring Brook	2017	Color	None	1	2
W1509	Third Herring Brook	2017	Objectionable Deposits	Not Applicable (N/A)	2	2
W1509	Third Herring Brook	2017	Odor	None	2	2
W1509	Third Herring Brook	2017	Scum	Not Applicable (N/A)	2	2
W1509	Third Herring Brook	2017	Turbidity	Moderately Turbid	1	2
W1509	Third Herring Brook	2017	Turbidity	Slightly Turbid	1	2
W2741	Third Herring Brook	2017	Color	Light Yellow/Tan	1	2
W2741	Third Herring Brook	2017	Color	None	1	2
W2741	Third Herring Brook	2017	Objectionable Deposits	Not Applicable (N/A)	2	2
W2741	Third Herring Brook	2017	Odor	None	2	2
W2741	Third Herring Brook	2017	Scum	Not Applicable (N/A)	2	2
W2741	Third Herring Brook	2017	Turbidity	Moderately Turbid	1	2
W2741	Third Herring Brook	2017	Turbidity	Slightly Turbid	1	2

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff collected limited *E. coli* and Enterococci bacteria samples for the purposes of bacteria source tracking (BST) in Third Herring Brook (MA94-27) at locations described from upstream to downstream as follows: at the Tiffany Road/East Street crossing in Norwell/Hanover (W0922) between June and August 2016 (n=3 for *E. coli*), west of Tiffany Road, within the stream channel just upstream of the old Tack Factory Dam location in Norwell (W2741) in August and September 2017 (n=2), and at the Broadway/River Street bridge in Hanover/Norwell (W1509) between June and August 2016 (n=3), and August and September 2017 (n=2). Data analysis indicated that 100% of intervals for the stations with sufficient *E. coli* data to evaluate (W0922 and W1509 2016 data) had GMs >126 CFU/100mL. None of the samples from W0922 exceeded the 410 CFU/100mL STV for *E. coli* but all three samples from W1509 exceeded the STV. The seasonal GMs were 290 and 632 CFU/100mL, respectively. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews at any of the three stations in any sampling year. Samples were collected for BST human marker analysis at Broadway/River St in 2016, with a result of "no evidence" of a human sewage source.

The Primary Contact Recreation Use of Third Herring Brook (MA94-27) is assessed as Not Supporting based on limited MassDEP *E. coli* data collected at stations W0922 and W1509 during summer 2016. An impairment for *Escherichia Coli* (*E. Coli*) is being added. Additional bacteria sampling is being recommended, however, since these data were so limited.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0922	MassDEP	Water Quality	Third Herring Brook	[Tiffany Road/East Street crossing, Norwell/Hanover]	42.130444	-70.816438
W1509	MassDEP	Water Quality	Third Herring Brook	[Broadway/River Street bridge, Hanover/Norwell]	42.117216	-70.809245
W2741	MassDEP	Water Quality	Third Herring Brook	[west of Tiffany Road, within stream channel just upstream of old dam location, Norwell]	42.122784	-70.809074

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

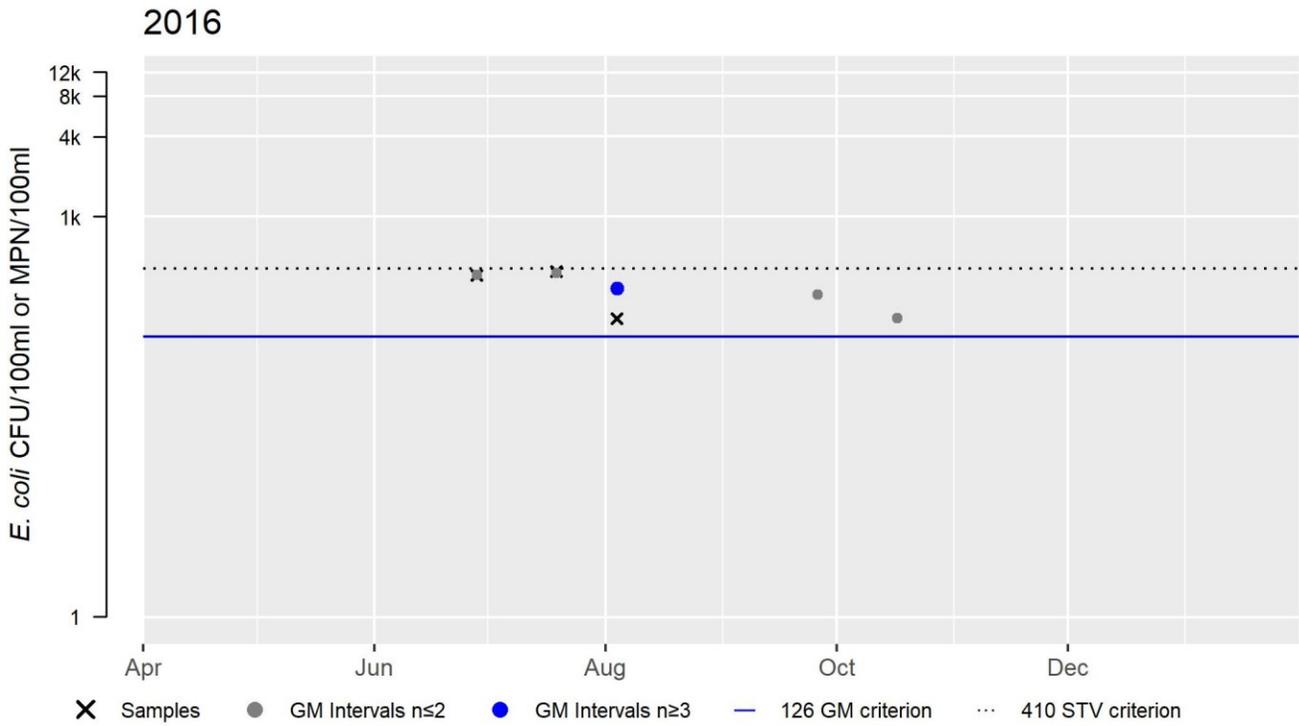
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0922	MassDEP	<i>E. coli</i>	06/28/16	08/04/16	3	173	387	290
W1509	MassDEP	<i>E. coli</i>	06/28/16	08/04/16	3	579	712	632
W1509	MassDEP	Enterococci	10/26/16	10/26/16	1	31	31	31
W1509	MassDEP	<i>E. coli</i>	08/03/17	09/12/17	2	93	326	174
W2741	MassDEP	<i>E. coli</i>	08/03/17	09/12/17	2	110	121	115

W0922 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	3
SeasGM	290
#GMI	1
#GMI Ex	1
%GMI Ex	100
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



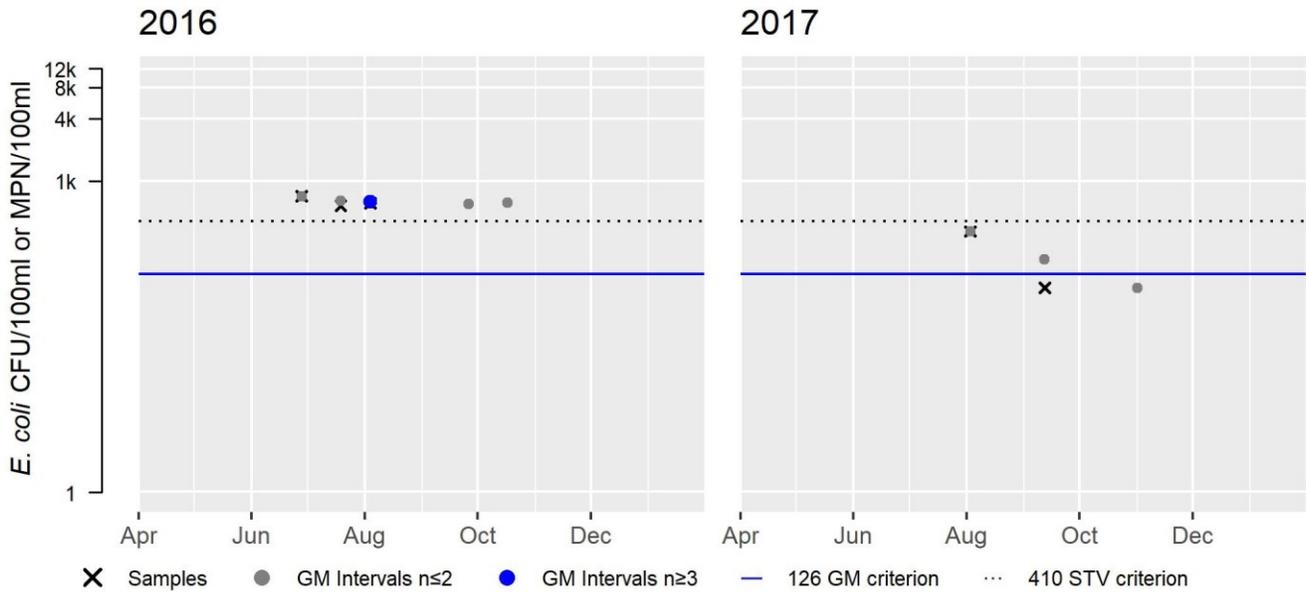
W1509 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	3
SeasGM	632
#GMI	1
#GMI Ex	1
%GMI Ex	100
n>STV	3
%n>STV	100

Var	Res
Samples	2
SeasGM	174
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

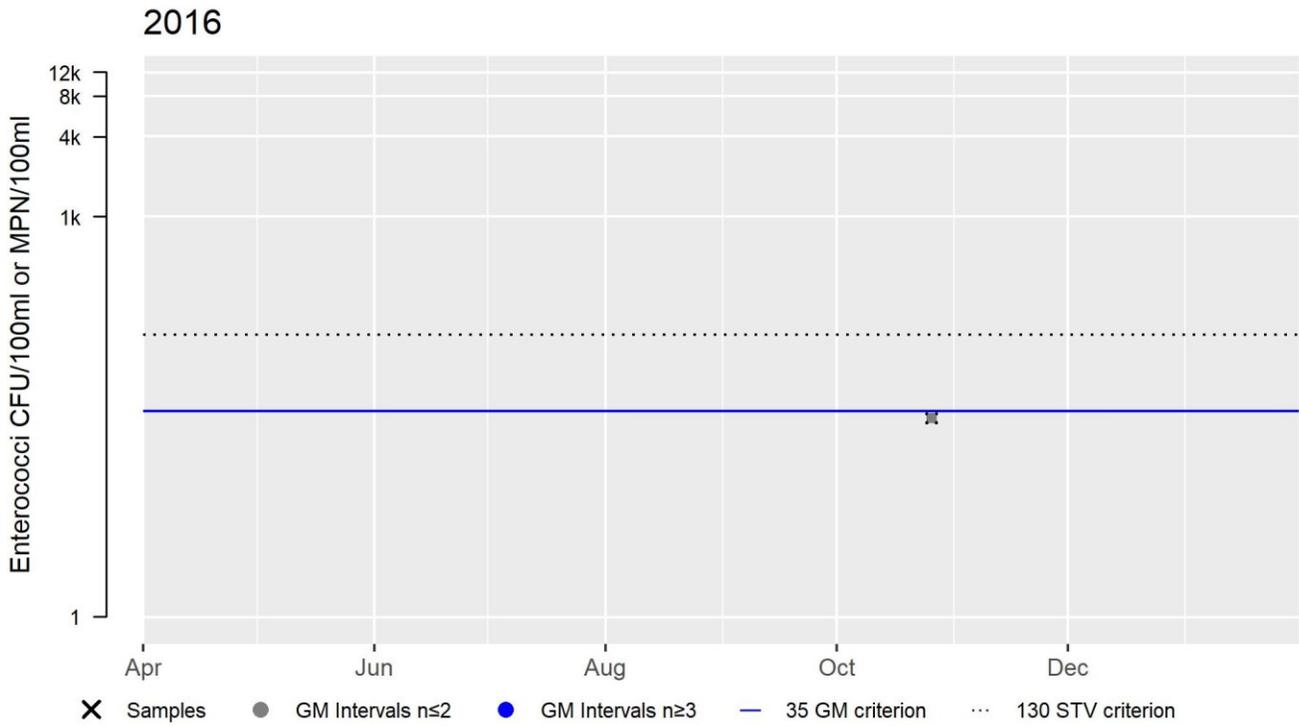
Variable	Cumulative %GMI Ex (all years)
Result	100



W1509 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	31
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

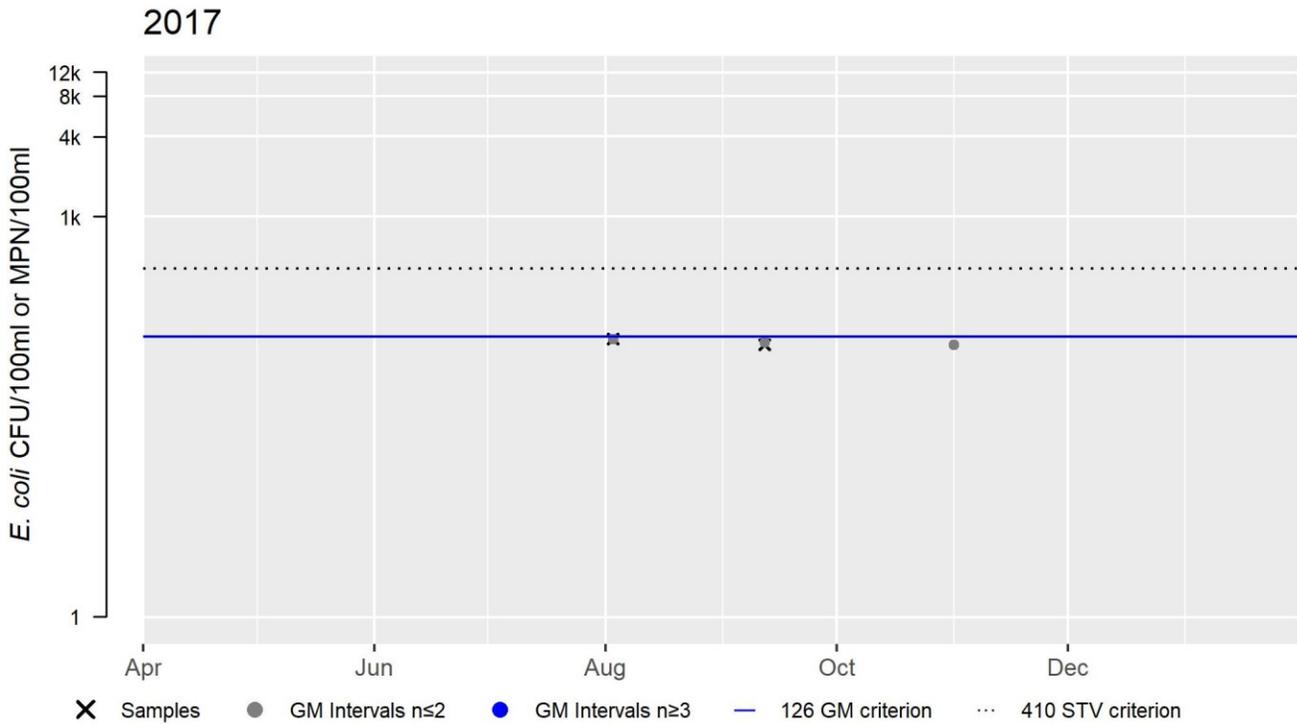
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2741 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	115
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary

BST work was conducted in 2016 & 2017 at 5 sites on the Third Herring Brook AU (MA94-27), with *E. coli* concentrations ranging 110-3,873MPN. Hotspots were situated in the areas of South St & Broadway/River St. It should also be noted that sites in the middle of the AU were selected to bracket the old "Tack Factory Dam", which was removed in December 2016. Dry weather bacteria concentrations did not appear to be affected by the dam removal, meeting the single sample standard before and after the removal. Samples were collected for human marker analysis at Broadway/River St in 2016, with a result of "no evidence" of a human source. Additional work was conducted in 2016-2018 on a couple of unnamed tributaries, with a max *E. coli* concentration of 1,414MPN found on a tributary locally known as "Copeland Tannery Brook" (not an AU), which discharges to Third Herring Brook downstream of Meadow Brook Rd. Despite the elevated bacteria concentrations on this tributary, no correctable sources were ever found.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>MassDEP staff collected limited <i>E. coli</i> bacteria samples for the purposes of bacteria source tracking (BST) in Third Herring Brook (MA94-27) at locations described from upstream to downstream as follows: at the Tiffany Road/East Street crossing in Norwell/Hanover (W0922) between June and August 2016 (n=3), west of Tiffany Road, within the stream channel just upstream of the old Tack Factory Dam location in Norwell (W2741) in August and September 2017 (n=2), and at the Broadway/River Street bridge in Hanover/Norwell (W1509) between June and August 2016 (n=3), and August and September 2017 (n=2). Data analysis indicated that for the stations with sufficient <i>E. coli</i> data to evaluate (W0922 and W1509 2016 data) can be summarized as follows: at W0922 none of the intervals had GMs >630 CFU/100mL but at W1509 100% of the intervals had GMs >630 CFU/100mL and none of the samples at either station exceeded the 1260 CFU/100mL STV. The overall GMs were 290 and 632 CFU/100mL, respectively. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews at any of the three stations in any sampling year. Samples were collected for BST human marker analysis at Broadway/River St in 2016, with a result of "no evidence" of a human sewage source.</p> <p>Because the MassDEP <i>E. coli</i> bacteria data were so limited and the analyses from the two stations with sufficient data indicated different use attainment outcomes, the Secondary Contact Recreation Use for Third Herring Brook (MA94-27) is assessed as having Insufficient Information. An Alert is being identified for elevated <i>E. coli</i> at station W1509 and additional monitoring is being recommended.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0922	MassDEP	Water Quality	Third Herring Brook	[Tiffany Road/East Street crossing, Norwell/Hanover]	42.130444	-70.816438
W1509	MassDEP	Water Quality	Third Herring Brook	[Broadway/River Street bridge, Hanover/Norwell]	42.117216	-70.809245
W2741	MassDEP	Water Quality	Third Herring Brook	[west of Tiffany Road, within stream channel just upstream of old dam location, Norwell]	42.122784	-70.809074

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

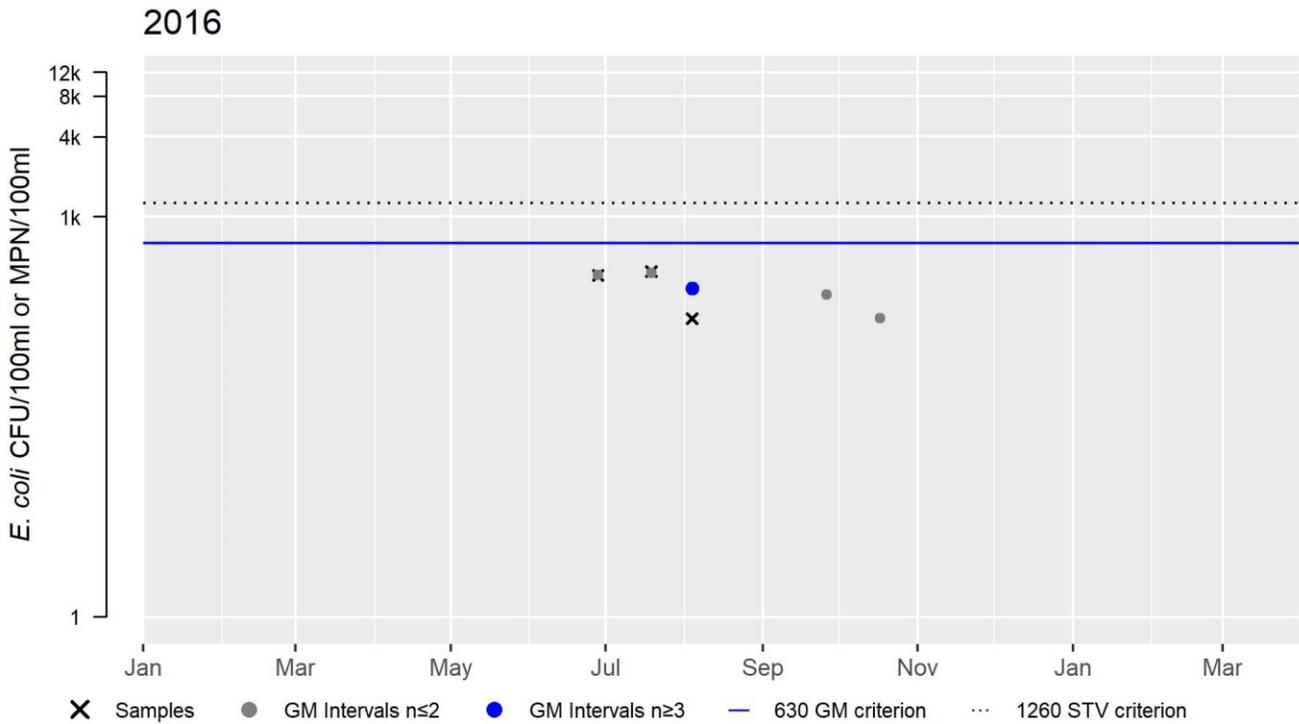
[Result units are CFU/100mL or MPN/100mL]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W0922	MassDEP	E. coli	06/28/16	08/04/16	3	173	387	290
W1509	MassDEP	E. coli	06/28/16	08/04/16	3	579	712	632
W1509	MassDEP	E. coli	08/03/17	09/12/17	2	93	326	174
W2741	MassDEP	E. coli	08/03/17	09/12/17	2	110	121	115

W0922 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	3
SeasGM	290
#GMI	1
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



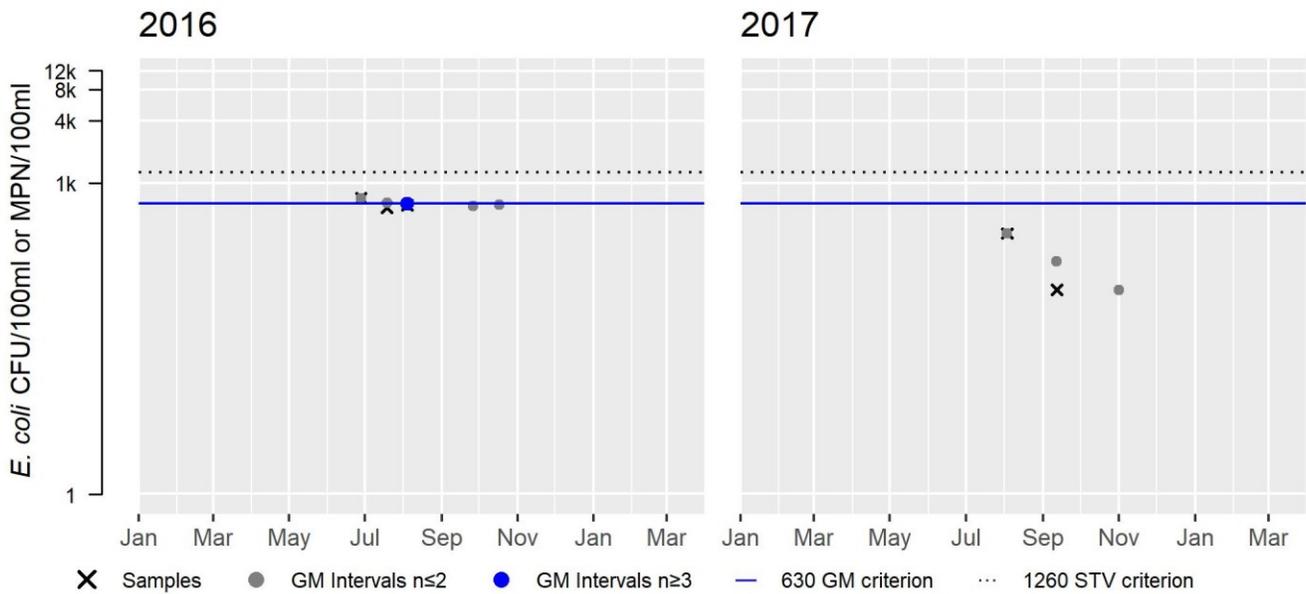
W1509 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	3
SeasGM	632
#GMI	1
#GMI Ex	1
%GMI Ex	100
n>STV	0
%n>STV	0

Var	Res
Samples	2
SeasGM	174
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

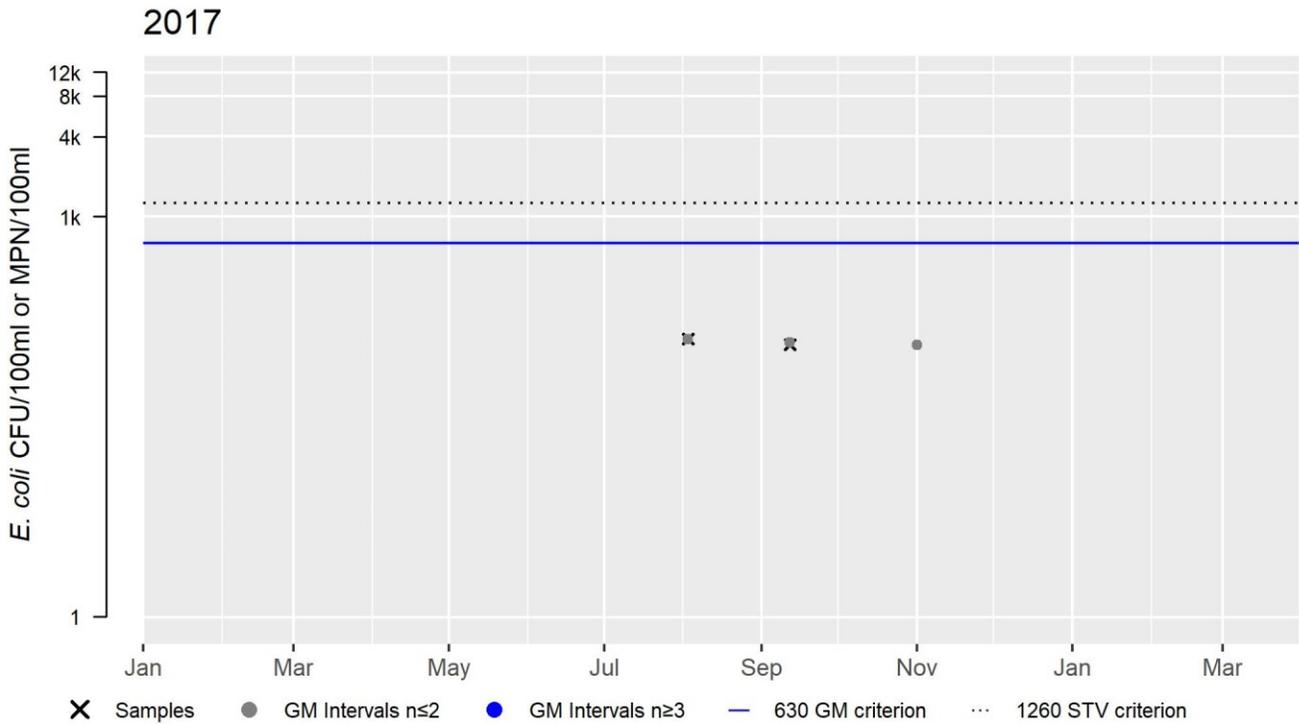
Variable	Cumulative %GMI Ex (all years)
Result	100



W2741 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	115
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Torrey Pond (MA94157)

Location:	Norwell.
AU Type:	FRESHWATER LAKE
AU Size:	19 ACRES
Classification/Qualifier:	B

No usable data were available for Torrey Pond (MA94157) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fanwort*)		Unchanged
4c	4c	(Fish Passage Barrier*)		Unchanged

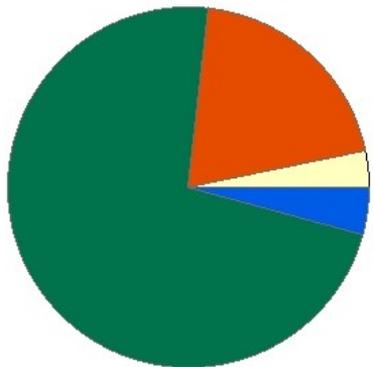
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Town Brook (MA94-42)

Location:	Headwaters, outlet Billington Sea, Plymouth to just upstream of the Route 3A bridge, Plymouth (excluding the approximately 0.07 mile through Arms House Pond).
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B

Town Brook - MA94-42

Watershed Area: 8.98 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	8.98	6.43	2.11	1.73
Agriculture	3.2%	4.2%	11.8%	13.3%
Developed	20.1%	26.2%	13.8%	15.8%
Natural	72.6%	64.5%	64.4%	60.6%
Wetland	4.2%	5.1%	9.9%	10.2%
Impervious Cover	10.8%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Curly-leaf Pondweed*)		Unchanged
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(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				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>As was previously reported in the 2018/20 IR reporting cycle (MassDEP 2021) infestations of two non-native aquatic macrophyte species, <i>Myriophyllum heterophyllum</i> and <i>Potamogeton crispus</i> were confirmed in Town Brook (MA94-42) in 2017. In July 2019 MassDFG biologists conducted backpack electrofishing in two low gradient sites in the middle reaches of the brook as follows: downstream of Billington Street in Plymouth (Sample ID 8518) and upstream of Boy Scout Bridge in Plymouth. The samples (n=73 and 19, respectively) both contained fluvial fish as well as intolerant/moderately tolerant macrohabitat generalist species. DFG also noted hundreds of young-of-year herring in the brook at the Billington Street. Significant Town Brook habitat restoration projects include several dam removals, replacement of a fish ladder, and replacement of a bridge to restore natural riverine conditions to the brook in Plymouth (Milone & MacBroom Undated). The Town of Plymouth's Department of Marine and Environmental Affairs and NOAA's Office of Habitat Conservation together provided more than \$12.7 million in funding for the Town Brook restoration projects (NOAA Fisheries Undated). In 2002, the removal of the Billington Street dam became the first dam removal in the Commonwealth of Massachusetts with the primary goal of restoring habitat for migratory fish (NOAA Fisheries Undated). Prior to the removal of the Off Billington Street Dam in 2013, less than five percent of fish were passing the old fish ladder. During winter 2014-2015, the Plymco Dam removal was completed as well as the construction of a new bridge (DER 2016). A bridge with a wider culvert was built over the brook upstream of the former dam, and the site is now considered fully passable for migratory fish (NOAA Fisheries Undated). On April 22, 2019, DER joined Governor Baker, Congressman Keating, US Fish and Wildlife Service, NOAA Fisheries, the Town of Plymouth, and other partners in celebration of the last major step in the Town Brook Restoration. The Holmes Dam was removed, and the Newfield Street Bridge was replaced (DER 2019b). The project improves public safety and helps the Town of Plymouth build resilience to climate change.</p> <p>Despite the much improved habitat quality conditions, the Aquatic Life Use for Town Brook (MA94-42) will continue to be assessed as Not Supporting with the Curly-leaf Pondweed and Non-Native Aquatic Plants impairments being carried forward.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
8518	MassDFG	Fish Community	Town Brook	Below Off Billington Street, Plymouth	41.94995	-70.67406
8519	MassDFG	Fish Community	Town Brook	Above Boy Scout Bridge, Plymouth	41.95109	-70.67289

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: A = Alewife, AE = American Eel, BB = Brown Bullhead, LMB = Largemouth Bass, P = Pumpkinseed, RT = Rainbow Trout, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
8518	07/10/19	BP	TP	L	4	73	0%	1	4%	0%	3	96%	Yes	No	A, LMB, P, WS,
8519	07/10/19	BP	TP	L	6	19	5%	2	16%	5%	2	58%	No	No	A, AE, BB, P, RT, WS,

Habitat and Flow Data (anthropogenic alterations)

The Town Brook Restoration has resulted in the successful design, permitting, and construction of several dam removals, replacement of a fish ladder, and replacement of a bridge to restore natural riverine conditions to the brook, located in Plymouth (Milone & MacBroom Undated). The Town of Plymouth’s Department of Marine and Environmental Affairs and NOAA’s Office of Habitat Conservation together provided more than \$12.7 million in funding for the Town Brook restoration projects (NOAA Fisheries Undated). During winter 2014-2015, the Plymco Dam removal was completed as well as the construction of a new bridge (DER 2016). Prior to the removal of the Off Billington Street Dam in 2013, less than five percent of fish were passing the old fish ladder. A bridge with a wider culvert was built over the brook upstream of the former dam, and the site is now considered fully passable for migratory fish (NOAA Fisheries Undated). In 2002, the removal of the Billington Street dam became the first dam removal in the Commonwealth of Massachusetts with the primary goal of restoring habitat for migratory fish (NOAA Fisheries Undated) On April 22, 2019, DER joined Governor Baker, Congressman Keating, US Fish and Wildlife Service, NOAA Fisheries, the Town of Plymouth and other partners in celebration of the last major step in the Town Brook Restoration. The Holmes Dam was removed, and the Newfield Street Bridge was replaced (DER 2019b). The project improves public safety and helps the Town of Plymouth build resilience to climate change.

Data Source for pictures: (NOAA Fisheries Undated)



Construction to remove the original dam, rebuild the bridge, and remove contaminated sediment.

Plymco Dam construction to remove the original dam



Billing Street Dam construction

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics monitoring has been conducted in Town Brook (MA94-42); therefore, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available to assess the status of the Aesthetic Use for Town Brook (MA94-42) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent <i>E. coli</i> or Enterococci bacteria data are available to assess the Primary Contact Recreation Use for Town Brook (MA94-42) so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent <i>E. coli</i> bacteria data are available to assess the Secondary Contact Recreation Use for Town Brook (MA94-42) so it is Not Assessed.	

Triangle Pond (MA94160)

Location:	Plymouth.
AU Type:	FRESHWATER LAKE
AU Size:	14 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Harmful Algal Blooms		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Harmful Algal Blooms	Source Unknown (N)			X	X	X

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>Evaluation of the Town of Plymouth’s Triangle Pond (MA94160) monitoring was conducted and reported on as part of the 2018/2020 IR update (MassDEP 2021). The Aquatic Life Use for Triangle Pond (MA94160) will continue to be assessed as Fully Supporting based on the Town of Plymouth’s September 2015 data.</p>	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
<p>No fish toxics monitoring has been conducted in Triangle Pond (MA94160); therefore, the Fish Consumption Use is Not Assessed.</p>	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>Cyanobacteria harmful algal blooms (C-HAB) postings for Triangle Pond (MA94160) were reported to MassDPH for 86 days in 2019. The Aesthetics Use for Triangle Pond (MA94160) is assessed as Not Supporting since blooms >20 days in duration were reported in a recent year. A Harmful Algal Blooms impairment is being added.</p>	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Triangle Pond (MA94160) were reported to MassDPH for 86 days in 2019. Since blooms >20 days in duration were reported in a recent year, the Primary/Secondary Contact Recreation Uses and Aesthetics Use are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Triangle Pond	Not issued or confirmed by sampling					86	1	no

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal blooms (C-HAB) postings for Triangle Pond (MA94160) were reported to MassDPH for 86 days in 2019. The Primary Contact Recreation Use for Triangle Pond (MA94160) is assessed as Not Supporting since blooms >20 days in duration were reported in a recent year. A Harmful Algal Blooms impairment is being added.	

Secondary Contact Recreation

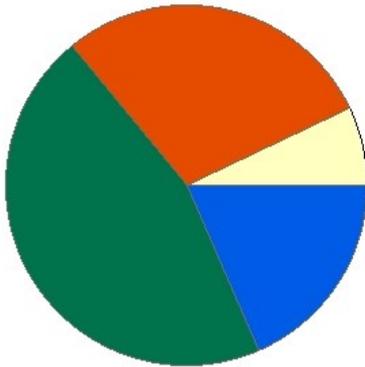
2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria harmful algal blooms (C-HAB) postings for Triangle Pond (MA94160) were reported to MassDPH for 86 days in 2019. The Secondary Contact Recreation Use for Triangle Pond (MA94160) is assessed as Not Supporting since blooms >20 days in duration were reported in a recent year. A Harmful Algal Blooms impairment is being added.	

Tussock Brook (MA94-67)

Location:	Headwaters, north of Woodbridge Road, Duxbury to tidal portion west of Route 3, Kingston.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B

Tussock Brook - MA94-67

Watershed Area: 0.68 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	0.68	0.68	0.15	0.15
Agriculture	7%	7%	0%	0%
Developed	28.9%	28.9%	25.6%	25.6%
Natural	45.7%	45.7%	40.8%	40.8%
Wetland	18.5%	18.5%	33.6%	33.6%
Impervious Cover	16.6%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
--	3	None		Unchanged

Recommendations

2022 Recommendations

ALU: JRWA noted in their comment on the draft 2022 IR that discussions are underway for a habitat restoration project in this Tussock Brook AU (MA94-67). MassDEP WPP should be kept apprised of any progress on this project.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	

MassDEP staff conducted extremely limited water quality sampling in this Tussock Brook AU (MA94-67) as part of bacteria source tracking efforts during summers 2011 and 2012 at two locations described from upstream to downstream as follows: from outlet of the approximately 6 acre unnamed impoundment, east of Rt. 3, straddling the Kingston/Duxbury border (Station W2314; n=2 in both years) and upstream Rt. 3, Kingston (upstream of tide gate) in 2012 (Station W2371). When recorded, there were no observations of excessive filamentous algae recorded during these site visits.

Too limited information is available to evaluate the Aquatic Life Use for this Tussock Brook AU (MA94-67), so it is assessed as having Insufficient Information.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2314	MassDEP	Water Quality	Tussock Brook	[from outlet of the approximately 6 acre unnamed impoundment, east of Route 3, straddling the Kingston/Duxbury border]	42.003955	-70.722156
W2371	MassDEP	Water Quality	Tussock Brook	[upstream at Route 3, Kingston (upstream of tidegate)]	41.999749	-70.722019

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2314	2011	--	--	--	--	--	--	--	--	2	0
W2314	2012	--	--	--	--	--	--	--	--	1	0
W2371	2012	--	--	--	--	--	--	--	--	2	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Tussock Brook AU (MA94-67); therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	

MassDEP staff conducted extremely limited water quality sampling in this Tussock Brook AU (MA94-67) at two sites during the summers of 2011 and 2012 from up to downstream as follows: from the outlet of the approximately 6 acre unnamed impoundment, east of Rt. 3, straddling the Kingston/Duxbury border in 2011 and 2012 (W2314, n=2 in both years) and farther downstream upstream at Rt. 3 in Kingston (upstream of tide gate) in 2012 (W2371 n=2). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recording during MassDEP field sampling crews at either site during either summer. Too limited data are available to evaluate the Aesthetics Use for this Tussock Brook AU (MA94-67) so it is assessed as having Insufficient Information.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2314	MassDEP	Water Quality	Tussock Brook	[from outlet of the approximately 6 acre unnamed impoundment, east of Route 3, straddling the Kingston/Duxbury border]	42.003955	-70.722156
W2371	MassDEP	Water Quality	Tussock Brook	[upstream at Route 3, Kingston (upstream of tidegate)]	41.999749	-70.722019

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2314	Tussock Brook	2011	2	MassDEP aesthetics observations for station W2314 on Tussock Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).
W2314	Tussock Brook	2012	2	MassDEP aesthetics observations for station W2314 on Tussock Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2012. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).
W2371	Tussock Brook	2012	2	MassDEP aesthetics observations for station W2371 on Tussock Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2012. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2314	2011	2	2	0
W2314	2012	2	1	0
W2371	2012	2	2	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2314	Tussock Brook	2011	Color	None	2	2
W2314	Tussock Brook	2011	Objectionable Deposits	Not Applicable (N/A)	2	2
W2314	Tussock Brook	2011	Odor	Other	1	2
W2314	Tussock Brook	2011	Odor	Sulfide (rotten egg)	1	2
W2314	Tussock Brook	2011	Scum	Not Applicable (N/A)	2	2
W2314	Tussock Brook	2011	Turbidity	Moderately Turbid	1	2
W2314	Tussock Brook	2011	Turbidity	Slightly Turbid	1	2
W2314	Tussock Brook	2012	Color	None	1	2
W2314	Tussock Brook	2012	Color	NR	1	2
W2314	Tussock Brook	2012	Objectionable Deposits	Not Applicable (N/A)	2	2
W2314	Tussock Brook	2012	Odor	NR	1	2
W2314	Tussock Brook	2012	Odor	Other	1	2
W2314	Tussock Brook	2012	Scum	Not Applicable (N/A)	2	2
W2314	Tussock Brook	2012	Turbidity	NR	1	2
W2314	Tussock Brook	2012	Turbidity	Slightly Turbid	1	2
W2371	Tussock Brook	2012	Color	Light Yellow/Tan	2	2
W2371	Tussock Brook	2012	Objectionable Deposits	Not Applicable (N/A)	2	2
W2371	Tussock Brook	2012	Odor	None	2	2
W2371	Tussock Brook	2012	Scum	Not Applicable (N/A)	2	2
W2371	Tussock Brook	2012	Turbidity	Slightly Turbid	2	2

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>MassDEP staff collected bacteria samples from this Tussock Brook AU (MA94-67) for the purposes of bacteria source tracking (BST) at the outlet of the approximately 6 acre unnamed impoundment east of Rt.3, straddling the Kingston/Duxbury border (W2314) in June and August 2011 (n=2 for <i>E. coli</i>, n=1 for Enterococci in August) and in June and September 2012 (n=2 for <i>E. coli</i>). <i>E. coli</i> samples were also collected upstream of Rt.3 in Kingston (upstream of tide gate) (W2371) in July and August 2012 (n=2). <i>E. coli</i> concentrations ranged from 10 to 408 MPN/100ml and the Enterococci concentration was 10 MPN/100ml at the upstream site (W2314) while <i>E. coli</i> concentrations were much higher (1,330 and 3,080 MPN/100ml) at the downstream site (W2371). These data were too limited to evaluate under 2022 CALM guidance (MassDEP 2022b), however. Additional BST sampling between 2011 and 2016 documented a maximum <i>E. coli</i> concentration of 12,997 MPN/100ml upstream of the tide gate (at W2371) (it should be noted that all BST data are not in the MassDEP WPP Monitoring database, so are not presented in bacteria tables below); BST sampling consequently focused on two main tributaries to Tussock Brook as well as some highway drainage ditches and storm drain outfall pipes. No correctable sources were ever found; though the parcel of land between Park St and Loring St (including a tributary) was identified as the most significant contributor of bacteria to Tussock Brook during wet weather events.</p> <p>Too limited bacteria data are available to evaluate the Primary Contact Recreation Use for this Tussock Brook AU (MA94-67) so it is assessed as having Insufficient Information. An Alert for elevated <i>E. coli</i> bacteria is being identified, however, with concentrations that exceeded the STV criterion of 410 MPN/100ml upstream of Rt.3 (upstream of tide gate) (W2371).</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2314	MassDEP	Water Quality	Tussock Brook	[from outlet of the approximately 6 acre unnamed impoundment, east of Route 3, straddling the Kingston/Duxbury border]	42.003955	-70.722156
W2371	MassDEP	Water Quality	Tussock Brook	[upstream at Route 3, Kingston (upstream of tidegate)]	41.999749	-70.722019

*Bacteria Data***Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)**

[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
W2314	MassDEP	E. coli	06/28/11	08/23/11	2	10	183	43
W2314	MassDEP	Enterococci	08/23/11	08/23/11	1	10	10	10
W2314	MassDEP	E. coli	06/12/12	09/05/12	2	167	408	261
W2371	MassDEP	E. coli	07/17/12	08/08/12	2	1330	3080	2024

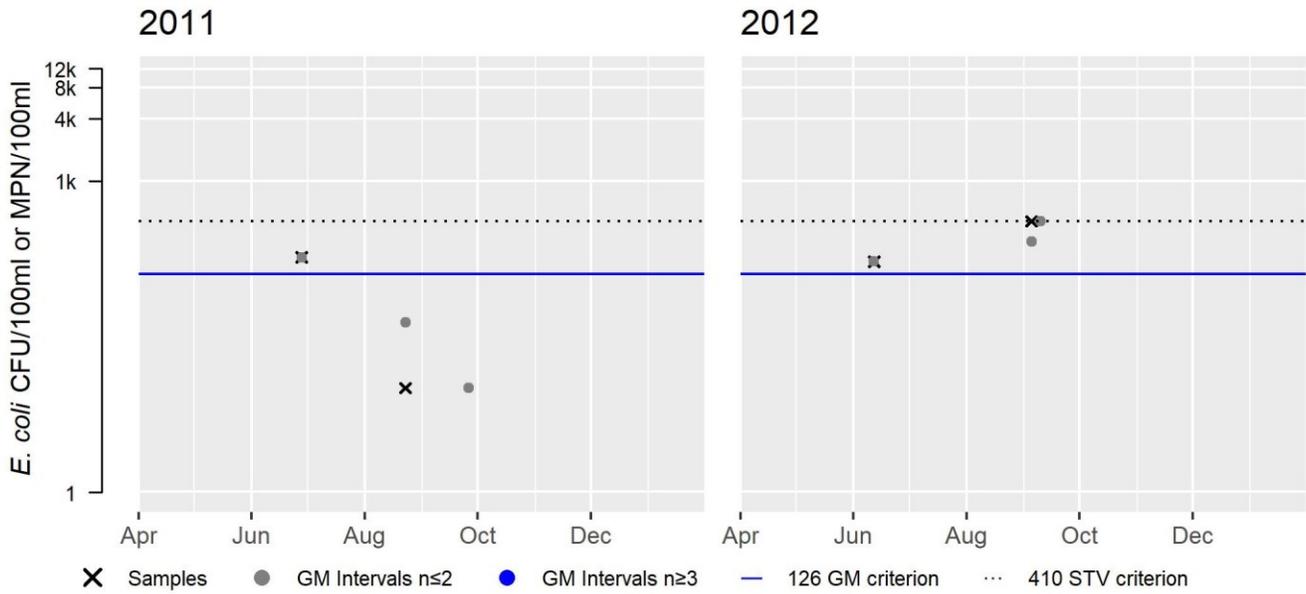
W2314 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	43
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	2
SeasGM	261
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

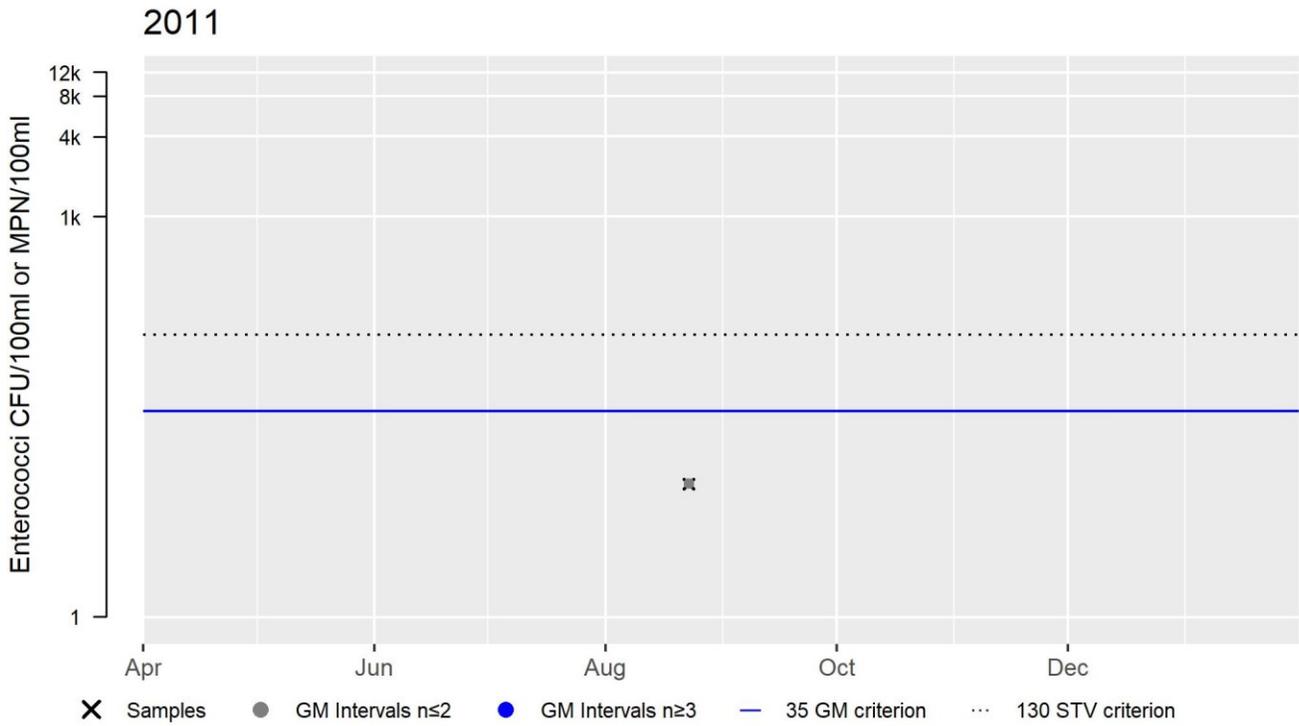
Variable	Cumulative %GMI Ex (all years)
Result	0



W2314 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	10
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

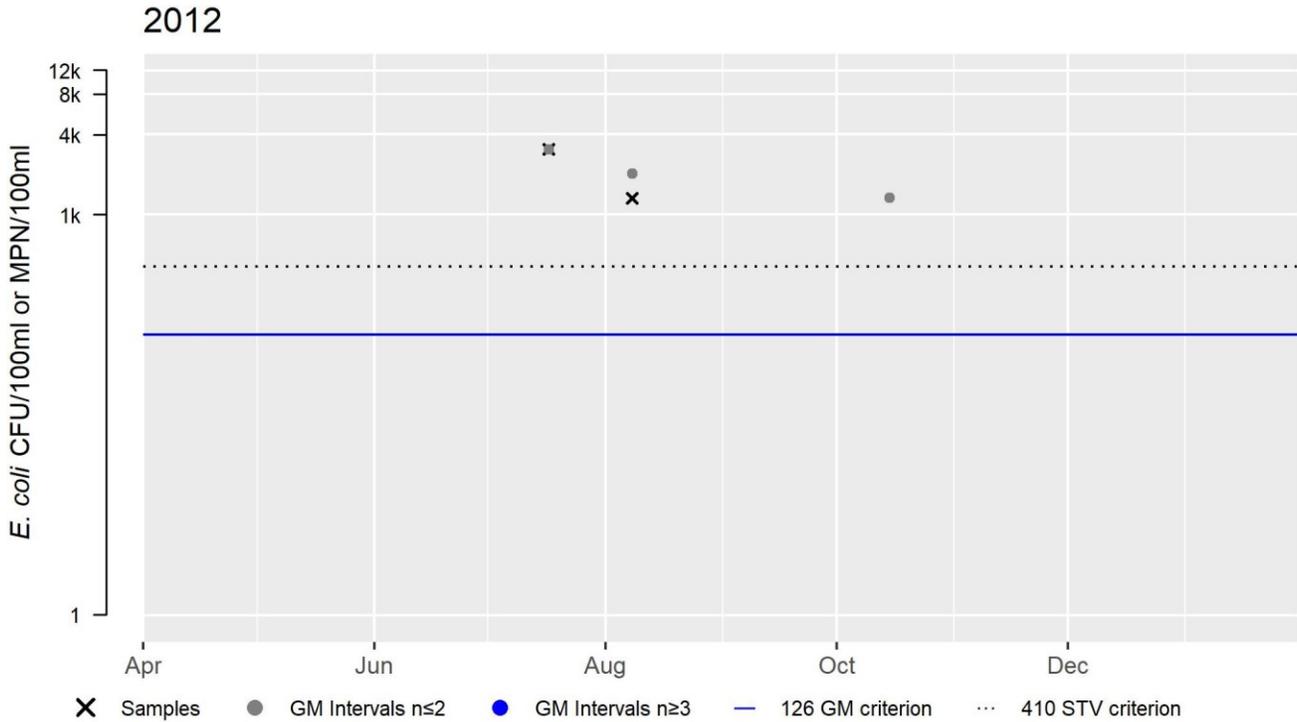
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2371 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	2024
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	2
%n>STV	100

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary
BST work was conducted in 2011-2013 & 2016 at 2 sites on the Tussock Brook AU (MA94-67), with <i>E.coli</i> concentrations just upstream of tide gate/Rt.3 ranging 1,333 to 12,997MPN. Additional source tracking over the same time range focused on two main tributaries as well as some highway drainage ditches and stormdrain outfall pipes, for a total of 10 additional sites. No correctable sources were ever found; though the parcel of land between Park St and Loring St (including a tributary) was identified as the most significant contributor of bacteria to Tussock Brook during wet weather events.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

MassDEP staff collected bacteria samples from this Tussock Brook AU (MA94-67) for the purposes of bacteria source tracking (BST) at the outlet of the approximately 6 acre unnamed impoundment east of Rt.3, straddling the Kingston/Duxbury border (W2314) in June and August 2011 (n=2 for *E. coli*, n=1 for Enterococci in August) and in June and September 2012 (n=2 for *E. coli*). *E. coli* samples were also collected upstream of Rt.3 in Kingston (upstream of tide gate) (W2371) in July and August 2012 (n=2). *E. coli* concentrations ranged from 10 to 408 MPN/100ml and the Enterococci concentration was 10 MPN/100ml at the upstream site (W2314) while *E. coli* concentrations were much higher (1,330 and 3,080 MPN/100ml) at the downstream site (W2371). These data were too limited to evaluate under 2022 CALM guidance (MassDEP 2022b), however. Additional BST sampling between 2011 and 2016 documented a maximum *E. coli* concentration of 12,997 MPN/100ml upstream of the tide gate (at W2371) (it should be noted that all BST data are not in the MassDEP WPP Monitoring database, so are not presented in bacteria tables below); BST sampling consequently focused on two main tributaries to Tussock Brook as well as some highway drainage ditches and storm drain outfall pipes. No correctable sources were ever found; though the parcel of land between Park St and Loring St (including a tributary) was identified as the most significant contributor of bacteria to Tussock Brook during wet weather events.

Too limited bacteria data are available to evaluate the Secondary Contact Recreation Use for this Tussock Brook AU (MA94-67) so it is assessed as having Insufficient Information. An Alert for elevated *E. coli* bacteria is being identified, however, with concentrations that exceeded the STV criterion of 1,260 MPN/100ml upstream of Rt.3 (upstream of tide gate) (W2371).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2314	MassDEP	Water Quality	Tussock Brook	[from outlet of the approximately 6 acre unnamed impoundment, east of Route 3, straddling the Kingston/Duxbury border]	42.003955	-70.722156
W2371	MassDEP	Water Quality	Tussock Brook	[upstream at Route 3, Kingston (upstream of tidegate)]	41.999749	-70.722019

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

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

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2314	MassDEP	<i>E. coli</i>	06/28/11	08/23/11	2	10	183	43
W2314	MassDEP	<i>E. coli</i>	06/12/12	09/05/12	2	167	408	261
W2371	MassDEP	<i>E. coli</i>	07/17/12	08/08/12	2	1330	3080	2024

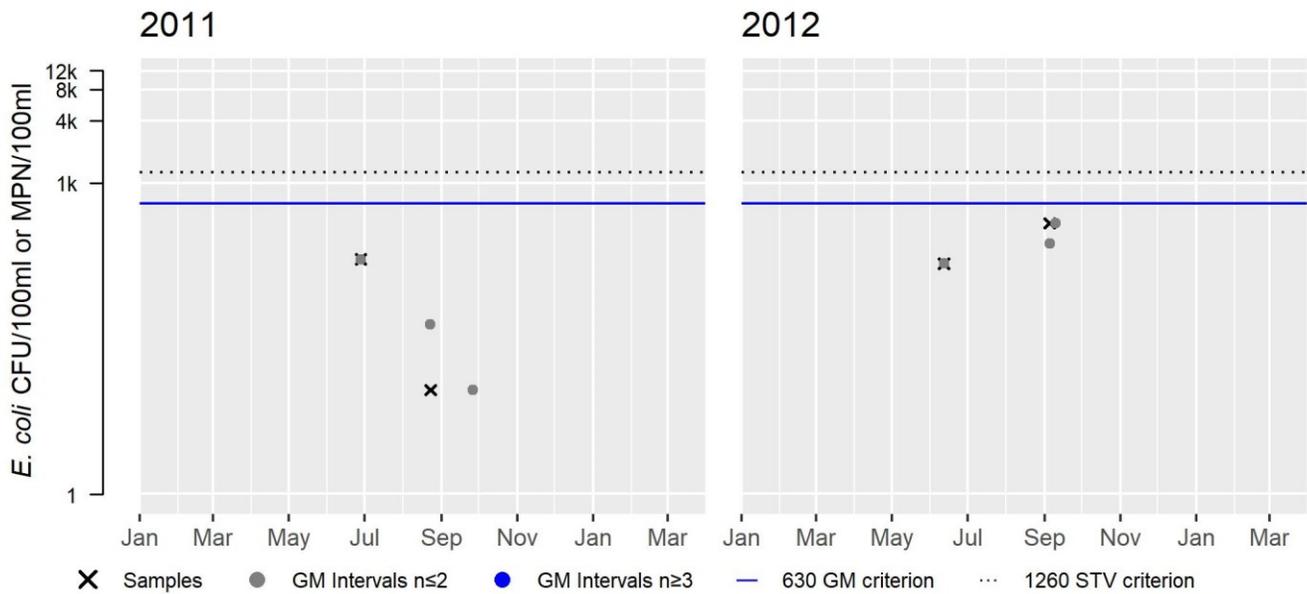
W2314 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	43
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	2
SeasGM	261
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

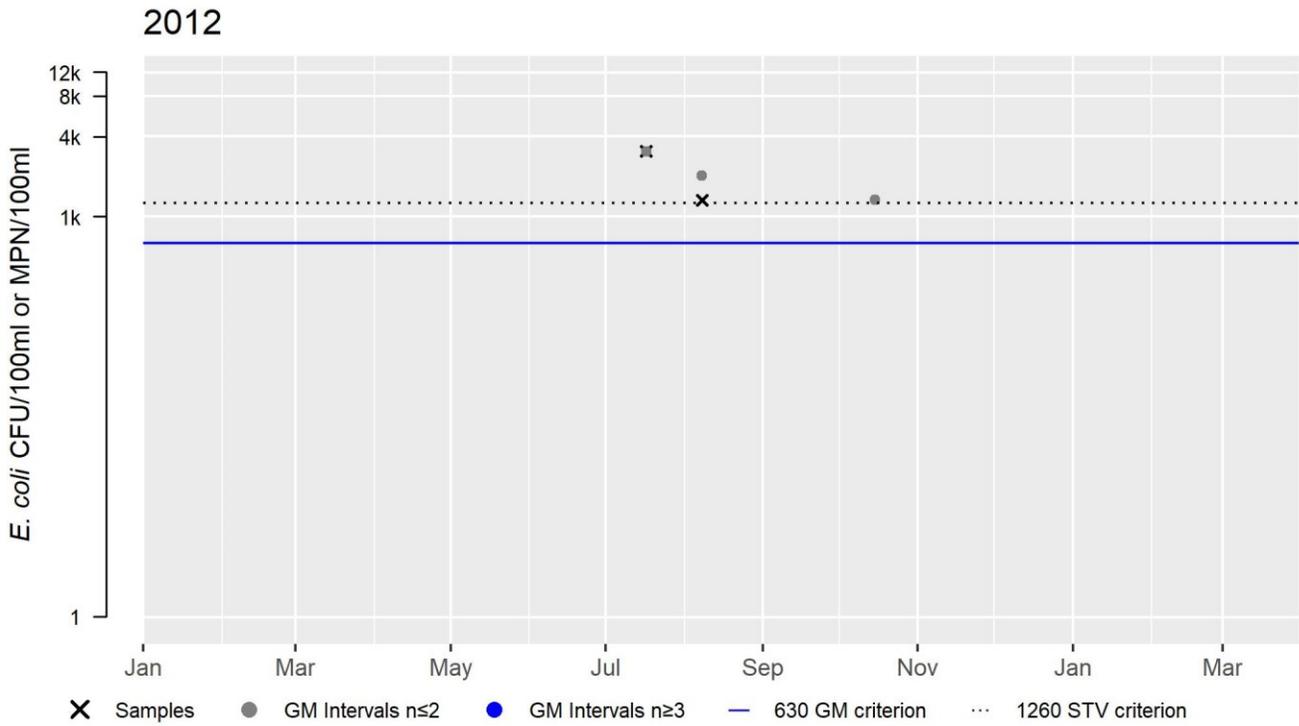
Variable	Cumulative %GMI Ex (all years)
Result	0



W2371 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	2
SeasGM	2024
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	2
%n>STV	100

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



Tussock Brook (MA94-68)

Location:	tidal portion west of Route 3, Kingston to mouth at confluence Halls Brook, Kingston
AU Type:	ESTUARY
AU Size:	0.001 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
--	2	None		Unchanged

Recommendations

2022 Recommendations
ALU & REC: Additional water quality sampling should be conducted on Tussock Brook (MA94-68) once the tidegate at Rt.3 is removed.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
MassDEP staff conducted extremely limited water quality sampling in this Tussock Brook AU (MA94-68) as part of bacteria source tracking efforts during summer 2012, downstream/west of Rt. 3 and the tide gate, Kingston (W2317, n=2). There were no observations of excessive filamentous algae recorded during either of these site visits. Too limited information is available to evaluate the Aquatic Life Use for this Tussock Brook AU (MA94-68), so it is assessed as having Insufficient Information.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2317	MassDEP	Water Quality	Tussock Brook	[downstream/west of Route 3 and the tidegate, Kingston]	41.999373	-70.722464

Physico-chemical Water Quality Information

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2317	2012	--	--	--	--	--	--	--	--	2	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Tussock Brook AU (MA94-68); therefore the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
Tussock Brook (MA94-68): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0001 sq mi (14%). The approved shellfish growing area represents 0 sq mi (0%). The prohibited shellfish growing area represents 0.0001 sq mi (14%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited. Alert due to prohibited area \geq 0.0001 sq mi.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB44.0	Jones River	Prohibited	0.00007	14.2%

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
<p>MassDEP staff conducted limited water quality sampling in this Tussock Brook AU (MA94-68) in Kingston downstream/west of Rt. 3 and the tide gate (W2317) during the summers of 2011 (n=2) and 2012 (n=3). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during either summer.</p> <p>The Aesthetics Use for this Tussock Brook AU (MA94-68) is assessed Fully Supporting based on the general lack of objectionable conditions noted by MassDEP staff during the summers of 2011 and 2012.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2317	MassDEP	Water Quality	Tussock Brook	[downstream/west of Route 3 and the tidegate, Kingston]	41.999373	-70.722464

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 5)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2317	Tussock Brook	2011	2	MassDEP aesthetics observations for station W2317 on Tussock Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2011. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=2).
W2317	Tussock Brook	2012	3	MassDEP aesthetics observations for station W2317 on Tussock Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by MassDEP field sampling crews during summer 2012.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2317	2011	2	0	0
W2317	2012	3	2	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 8)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2317	Tussock Brook	2011	Color	None	1	2
W2317	Tussock Brook	2011	Color	NR	1	2
W2317	Tussock Brook	2011	Objectionable Deposits	Not Applicable (N/A)	2	2
W2317	Tussock Brook	2011	Odor	NR	1	2
W2317	Tussock Brook	2011	Odor	Other	1	2
W2317	Tussock Brook	2011	Scum	Not Applicable (N/A)	2	2
W2317	Tussock Brook	2011	Turbidity	Highly Turbid	1	2
W2317	Tussock Brook	2011	Turbidity	NR	1	2
W2317	Tussock Brook	2012	Color	Light Yellow/Tan	2	3
W2317	Tussock Brook	2012	Color	NR	1	3
W2317	Tussock Brook	2012	Objectionable Deposits	Not Applicable (N/A)	3	3
W2317	Tussock Brook	2012	Odor	None	2	3
W2317	Tussock Brook	2012	Odor	NR	1	3
W2317	Tussock Brook	2012	Scum	Not Applicable (N/A)	3	3
W2317	Tussock Brook	2012	Turbidity	Moderately Turbid	1	3
W2317	Tussock Brook	2012	Turbidity	NR	1	3
W2317	Tussock Brook	2012	Turbidity	Slightly Turbid	1	3

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

MassDEP staff collected Enterococci bacteria samples in this Tussock Brook AU (MA94-68) downstream/west of Rt. 3 and the tide gate in Kingston (W2317) in August 2011 (n=1) and August 2012 (n=1) for the purposes of bacteria source tracking (BST). Enterococci concentrations were 3,200 and 920 MPN/100ml respectively, both exceeding the 130 MPN/100ml STV. These data were too limited to evaluate under 2022 CALM guidance (MassDEP 2022b), however. BST Human Marker analyses in 2011 and 2012 indicated “no evidence” and “inconclusive evidence” of a human sewage source, respectively, and no correctable sources were ever found. Bacteria concentrations were sometimes noted to be comparatively higher than upstream of the tide gate/Rt.3 (i.e., W2371 in the upstream AU MA94-67), which led to a theory that sediment resuspension at the tide gate could be exacerbating bacteria concentrations in the water column downstream. A 2011 restoration plan developed by the Jones River Watershed Association prioritized the removal of this tide-gate (Jones River Watershed Association 2011), though it currently still stands. Too limited data are available to evaluate the Primary Contact Recreation Use for this Tussock Brook AU (MA94-68) so it is assessed as having Insufficient Information. An Alert for elevated Enterococci is being identified.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2317	MassDEP	Water Quality	Tussock Brook	[downstream/west of Route 3 and the tidegate, Kingston]	41.999373	-70.722464

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

[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
W2317	MassDEP	Enterococci	08/31/11	08/31/11	1	3200	3200	3200
W2317	MassDEP	Enterococci	08/22/12	08/22/12	1	920	920	920

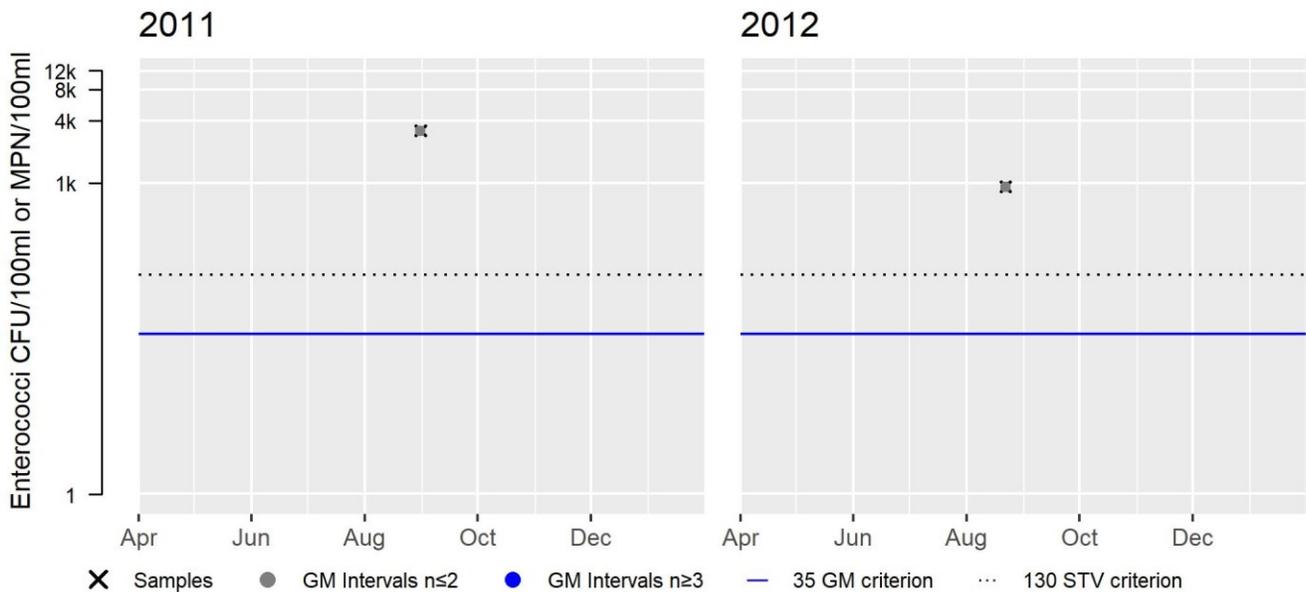
W2317 Enterococci (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	3200
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	100

Var	Res
Samples	1
SeasGM	920
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	100

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

Variable	Cumulative %GMI Ex (all years)
Result	0



MassDEP Bacteria Source Tracking (BST) Summary Statement for 2011-2019 (MassDEP Undated 1)

Summary

BST work was conducted in 2011-2013 intermittently at 1 site on the Tussock Brook AU (downstream of Rt.3 and the dam/tide gate) (MA94-68), with E.coli concentrations ranging 884 to >24,196MPN and with a max Enterococcus of 3,076MPN. Human Marker analysis was run on samples taken at the same site in both 2011 and 2012; results indicated “no evidence” and “inconclusive evidence” of a human source respectively. Additional source tracking over the same time-span focused on the upstream Tussock Brook AU (MA94-67), but no correctable sources were ever found. Bacteria concentrations were sometimes noted to be comparatively lower, directly upstream of the tide gate/Rt.3 compared to downstream, which led to a theory that sediment resuspension at the tide gate could be exacerbating bacteria concentrations in the water column downstream.

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Summary
Tussock Brook (MA94-68): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0001 sq mi (14%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than "approved", the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
<p>MassDEP staff collected Enterococci bacteria samples in this Tussock Brook AU (MA94-68) downstream/west of Rt. 3 and the tide gate in Kingston (W2317) in August 2011 (n=1) and August 2012 (n=1) for the purposes of bacteria source tracking (BST). Enterococci concentrations were 3,200 and 920 MPN/100ml respectively, both exceeding the 350 MPN/100ml STV. These data were too limited to evaluate under 2022 CALM guidance (MassDEP 2022b), however. BST Human Marker analyses in 2011 and 2012 indicated "no evidence" and "inconclusive evidence" of a human sewage source, respectively, and no correctable sources were ever found. Bacteria concentrations were sometimes noted to be comparatively higher than upstream of the tide gate/Rt.3 (i.e., W2371 in the upstream AU MA94-67), which led to a theory that sediment resuspension at the tide gate could be exacerbating bacteria concentrations in the water column downstream. A 2011 restoration plan developed by the Jones River Watershed Association prioritized the removal of this tide-gate (Jones River Watershed Association 2011) though it currently still stands.</p> <p>Too limited data are available to evaluate the Secondary Contact Recreation Use for this Tussock Brook AU (MA94-68) so it is assessed as having Insufficient Information. An Alert for elevated Enterococci is being identified.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2317	MassDEP	Water Quality	Tussock Brook	[downstream/west of Route 3 and the tidegate, Kingston]	41.999373	-70.722464

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 5)

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

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100mL or MPN/100mL)	Maximum Sample Result (CFU/100mL or MPN/100mL)	Seasonal Geometric Mean (CFU/100mL or MPN/100mL)
W2317	MassDEP	Enterococci	08/31/11	08/31/11	1	3200	3200	3200
W2317	MassDEP	Enterococci	08/22/12	08/22/12	1	920	920	920

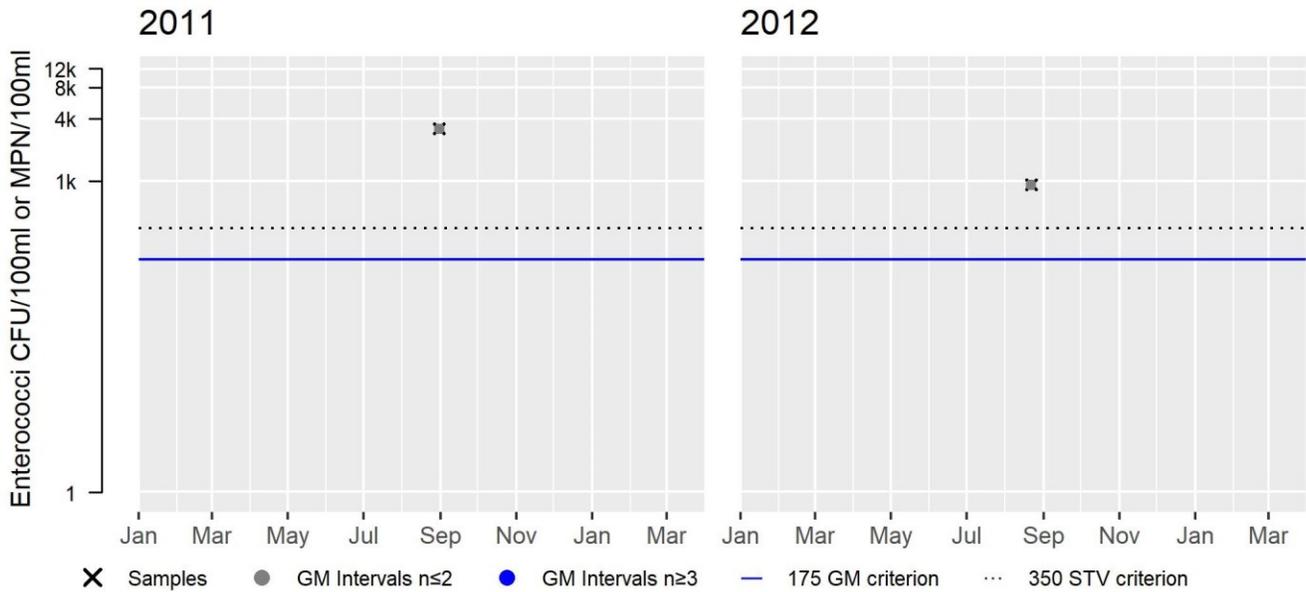
W2317 Enterococci (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	3200
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	100

Var	Res
Samples	1
SeasGM	920
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	100

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exceedances; %GMI Ex = percent GMI Exceedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

Variable	Cumulative %GMI Ex (all years)
Result	0



Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

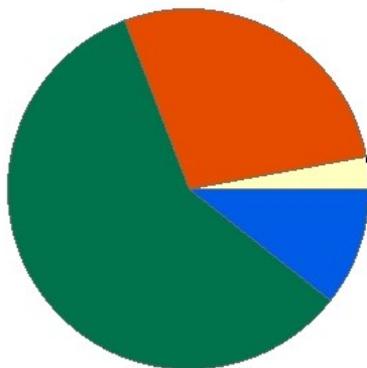
Summary
Tussock Brook (MA94-68): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0.0001 sq mi (14%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Unnamed Tributary (MA94-35)

Location:	Unnamed tributary to Eel River, from outlet cranberry bog south of Valley Road, Plymouth to mouth at confluence with Eel River, Plymouth (through former 2014 segment: Forge Pond MA94036).
AU Type:	RIVER
AU Size:	2.4 MILES
Classification/Qualifier:	B

Unnamed Tributary - MA94-35

Watershed Area: 7.62 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	7.62	7.05	0.53	0.53
Agriculture	2.9%	3.1%	11.3%	11.3%
Developed	27.9%	27.3%	10.8%	10.8%
Natural	58.6%	58.1%	41.7%	41.7%
Wetland	10.6%	11.4%	36.2%	36.2%
Impervious Cover	8.6%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Recommendations

2022 Recommendations
ALU: This Unnamed Tributary AU (MA94-35) to the Eel River should be protected as a Tier 1 Cold Water Existing Use.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>MassDFG biologists conducted backpack electrofishing at one location in the middle of this Unnamed Tributary AU (MA94-35) to the Eel River in July 2019, below carriage road crossing above power lines Sandwich Road, Plymouth (Sample 8520). The sample was comprised almost entirely by fluvial fish (96% of sample) including slimy sculpin and multiple age classes of Eastern brook trout (which dominated the sample). MassDFG considers this AU to be a Coldwater Fisheries Resource (CFR).</p> <p>The Aquatic Life Use for this Unnamed Tributary AU (MA94-35) will continue to be assessed as Not Supporting with the Fish Passage Barrier impairment being carried forward (diadromous fish passage obstruction at the Howland Pond/Clifford Road Dam at the downstream end of this AU as previously reported in the 2018/2020 IR (MassDEP 2021)). This stream however, warrants protection as a Tier 1 Cold Water Existing Use given the presence of slimy sculpin and multiple age classes of Eastern brook trout in July 2019 which are indicative of otherwise excellent habitat and water quality conditions.</p>	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
8520	MassDFG	Fish Community	Eel River South Branch	below carriage road crossing above power lines Sandwich Road, Plymouth	41.91387	-70.60606

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 2)

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net]

[Species List: AE = American Eel, EBT = Brook Trout, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
8520	07/11/19	BP	TP	3	108	93	50	207	82	11	96%	96%	No	Yes	AE, EBT, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Unnamed Tributary AU (MA94-35); therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
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Not Assessed	YES
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for this Unnamed Tributary AU (MA95-35) so it is Not Assessed. The Alert for dense macrophytes (observations made in 2006) is being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available to assess the status of the Primary Contact Recreation Use for this Unnamed Tributary AU (MA95-35) so it is Not Assessed. The Alert for dense macrophytes (observations made in 2006) is being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available to assess the status of the Secondary Contact Recreation Use for this Unnamed Tributary AU (MA95-35) so it is Not Assessed. The Alert for dense macrophytes (observations made in 2006) is being carried forward.	

Unnamed Tributary (MA94-43)

Location:	Unnamed tributary to Great Herring Pond, headwaters outlet Little Herring Pond, Plymouth to mouth at inlet of Great Herring Pond, Plymouth.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA94-43) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Unnamed Tributary (MA94-45)

Location:	Unnamed tributary to Duxbury Bay, source north of Route 3/Cherry Street intersection, Plymouth to mouth at inlet of Duxbury Bay, Plymouth.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA94-45) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

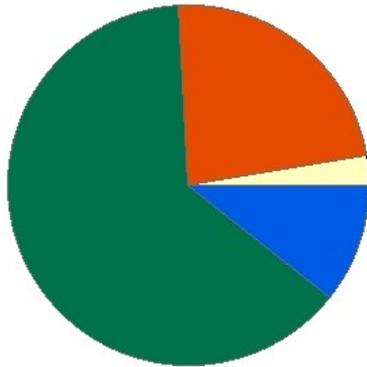
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Unnamed Tributary (MA94-53)

Location:	Unnamed tributary to Furnace Brook, headwaters outlet Russell Pond, Kingston to mouth at outlet of Soules Pond at headwaters of Furnace Brook, Kingston.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B

Unnamed Tributary - MA94-53

Watershed Area: 1.62 square miles



Percent Agriculture
 Percent Natural
 Percent Developed
 Percent Wetland

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.62	1.62	0.61	0.61
Agriculture	2.6%	2.6%	6.6%	6.6%
Developed	23.3%	23.3%	13.6%	13.6%
Natural	63.4%	63.4%	60.9%	60.9%
Wetland	10.7%	10.7%	18.8%	18.8%
Impervious Cover	9.7%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Recommendations

2022 Recommendations

ALU: Track developments on a project to breach the Sylvia Place Pond Dam, abandon the existing fish ladder, and construct a channel connecting the pond to the downstream Bryant Mill Pond on this Unnamed Tributary AU (MA94-53). This dam is the lone major barrier to fish migrating up the downstream Furnace Brook AU, through this AU, and up to spawning habitat in Russell Pond.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>According to DMF biologists, there are six areas throughout this Unnamed Tributary (MA94-53, note that this Unnamed Tributary AU is called Furnace Brook by DMF) to Furnace Brook which could potentially cause passage limitation to diadromous fish ultimately trying to reach Russell Pond. The targeted species are river herring and American eel with a population score of “4” at all locations. From upstream to downstream: The Russell Pond channel (immediately downstream of Russell Pond) was given a passage score of 2, on a 0-10 scale, indicating that the channel is only a minor obstruction to the passage of diadromous fish. DMF notes that this man-made "nature-like" channel needs maintenance to improve passage. The Sylvia Place Pond Dam (located within the 26-acre Stewart/Pearson Preserve owned by the Wildlands Trust of Southeastern Massachusetts) was given a passage score of 6, indicating that the dam restricts the passage of diadromous fish. DMF biologists noted that the fishway (immediately downstream of the dam) is a very old design and is "degraded". According to the certificate on the draft environmental impact report (EOEEA 2020), a project consisting of a dam breach, abandonment of the existing fish ladder, and construction of a channel connecting the pond to the downstream Bryant Mill Pond is being planned. DMF biologists report that the project has not yet gone forward due to design delays and local concerns (Chase May 11, 2021). The fishway downstream of the Sylvia Place Pond Dam (which flows into Bryant Mill Pond) is known as the “Wildlands Trust stream weirs”, and although their condition was identified to be poor, the fishway was noted to be “passable” and was assigned a passage score of 0 (no obstruction). The Bryant Mill Pond Dam (NATID# MA02134) with existing fishway, located just upstream of Sylvia Place Road, in Kingston, was given a passage score of 1, indicating that it is only a minor obstruction to diadromous fish. DMF notes that the fishway needs maintenance, but that passage was adequate when it was inspected in 2020. The existing fishway from Sylvia Place Road to Elm Street (Route 80) was given a passage score of 3 indicating that it is only a minor obstruction to diadromous fish. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020. Downstream of Elm Street, the Soules Pond Dam was given a passage score of 3 indicating that it is also only a minor obstruction to diadromous fish. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020.</p> <p>The Aquatic Life Use for this Unnamed Tributary (MA94-53) will continue to be assessed as Not Supporting based on the barrier to diadromous fish passage at the Sylvia Place Pond Dam. The Fish Passage Barrier impairment is being carried forward. Progress on the breach project for this dam should be tracked.</p>	

Biological Monitoring Information

Habitat and Flow Data (anthropogenic alterations)

MassDMF Status of Priority Diadromous Fish Passage Barriers. (Chase, Brad 2020)

Assessment Summary

According to DMF biologists, there are six areas which could potentially cause passage limitation to diadromous fish throughout this Unnamed Tributary (AU MA94-53) to Furnace Brook (called Furnace Brook by DMF). The targeted species are river herring and American eel with a population score of "4" at all locations. From upstream to downstream: The Russell Pond channel (immediately downstream of Russell Pond) was given a passage score of "2", on a 0-10 scale, indicating that the channel is only a minor obstruction to the passage of diadromous fish. DMF notes that this man-made "nature-like" channel needs maintenance to improve passage. The Sylvia Place Pond Dam (located within the 26-acre Stewart/Pearson Preserve owned by the Wildlands Trust of Southeastern Massachusetts) was given a passage score of "6", indicating that the dam restricts the passage of diadromous fish. DMF biologists noted that the fishway (immediately downstream of the dam) is a very old design and is "degraded". According to the certificate on the draft environmental impact report (EOEEA 2020), a project consisting of a dam breach, abandonment of the existing fish ladder, and construction of a channel connecting the pond to the downstream Bryant Mill Pond is being planned. DMF biologists report that the project has not yet gone forward due to design delays and local concerns (Chase May 11, 2021). The fishway downstream of the Sylvia Place Pond Dam (which flows into Bryant Mill Pond) is known as the "Wildlands Trust stream weirs", and although their condition was identified to be poor, the fishway was noted to be "passable" and was assigned a passage score of "0" (no obstruction). The Bryant Mill Pond Dam (NATID# MA02134) with existing fishway, located just upstream of Sylvia Place Road, in Kingston, was given a passage score of "1", indicating that it is only a minor obstruction to diadromous fish. DMF notes that the fishway needs maintenance but that passage was adequate when it was inspected in 2020. The existing fishway from Sylvia Place Road to Elm Street (Route 80) was given a passage score of "3" indicating that it is only a minor obstruction to diadromous fish. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020. Downstream of Elm Street, the Soules Pond Dam was given a passage score of "3" indicating that it is only a minor obstruction to diadromous fish. DMF noted that the fishway could use redesign/maintenance when it was inspected in 2020. The Aquatic Life Use for the unnamed tributary (known locally as Furnace Brook) (Assessment Unit MA94-53) will remain assessed as Not Supporting, based on the barrier to diadromous fish passage at the Sylvia Place Pond Dam.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Unnamed Tributary (known locally as Furnace Brook) AU (MA94-53); therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetic Use for this Unnamed Tributary (known locally as Furnace Brook) AU (MA95-53) so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> or Enterococci bacteria data are available to assess the status of the Primary Contact Recreation Use for this Unnamed Tributary (known locally as Furnace Brook) AU (MA95-53) so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No <i>E. coli</i> bacteria data are available to assess the status of the Secondary Contact Recreation Use for this Unnamed Tributary (known locally as Furnace Brook) AU (MA95-53) so it is Not Assessed.	

Unnamed Tributary (MA94-55)

Location:	Unnamed tributary (locally known as 'Marshfield Fairgrounds Brook') to South River, from headwaters east of Proctor Street, Marshfield to tidal portion east of Willow Street, Marshfield.
AU Type:	RIVER
AU Size:	0.8 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA94-55) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Unnamed Tributary (MA94-59)

Location:	Unnamed tributary (locally known as 'Second Brook' and 'Laundry Brook') to Jones River intersecting Brook Street, Kingston (segment includes distance through Lucas Pond).
AU Type:	RIVER
AU Size:	0.2 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA94-59) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Habitat Modification - other than Hydromodification (Y)	X				

Unnamed Tributary (MA94-61)

Location:	Unnamed tributary to Bluefish River (locally considered a portion of Bluefish River), headwaters north of Surplus Street, Duxbury to tidal portion north of Harrison Street, Duxbury.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA94-61) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Fish Passage Barrier*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				

Unnamed Tributary (MA94-62)

Location:	Unnamed tributary to Bluefish River (locally considered a portion of Bluefish River), tidal portion north of Harrison Street, Duxbury to mouth at confluence with Bluefish River, Duxbury.
AU Type:	ESTUARY
AU Size:	0.002 SQUARE MILES
Classification/Qualifier:	SA: SFO

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for this Unnamed Tributary (MA94-62), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Unnamed Tributary (MA94-62), so the Fish Consumption Use is Not Assessed.	

Shellfish Harvesting

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
Unnamed Tributary (MA94-62): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0 sq mi (2%). The approved shellfish growing area represents 0 sq mi (0%). There is insufficient information available to assess the Shellfish Harvesting Use because the growing areas within this AU are classified as either entirely prohibited or a combination of approved and prohibited.	

Shellfish Growing Area Classifications

MassDFG-Division of Marine Fisheries Shellfish Growing Area Classification Data (Bettencourt August 25, 2021) (MassDEP Undated 6)

Area Name	Waterbody/Area Description	Classification	Area (Sq. Mi.)	Area (% of AU)
CCB46.5	Bluefish River	Prohibited	0.00004	1.6%

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for this Unnamed Tributary (MA94-62), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for this Unnamed Tributary (MA94-62), so the Primary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Unnamed Tributary (MA94-62): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0 sq mi (2%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Primary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No Enterococci bacteria data are available for this Unnamed Tributary (MA94-62), so the Secondary Contact Recreation Use is Not Assessed.	

Shellfish Growing Area Classifications

MassDEP Summary Statement for MassDFG Shellfish Growing Area Classification Data (Bettencourt August 25, 2021)
(MassDEP Undated 6)

Summary
Unnamed Tributary (MA94-62): The total of all shellfish growing area classifications (Bettencourt August 25, 2021) within this AU is 0 sq mi (2%). The approved shellfish growing area represents 0 sq mi (0%). Because the total of all shellfish growing area classifications is anything less than “approved”, the Secondary Contact Recreation Use cannot be assessed for 2022 using the shellfish classification data.

Upper Chandler Pond (MA94165)

Location:	Duxbury/Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	8 ACRES
Classification/Qualifier:	B

No usable data were available for Upper Chandler Pond (MA94165) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	4c	(Non-Native Aquatic Plants*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				

Wampatuck Pond (MA94168)

Location:	Hanson.
AU Type:	FRESHWATER LAKE
AU Size:	62 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Fanwort*)		Unchanged
5	5	(Fish Passage Barrier*)		Unchanged
5	5	Chlorophyll-a		Unchanged
5	5	Dissolved Oxygen Supersaturation		Unchanged
5	5	Harmful Algal Blooms		Unchanged
5	5	Phosphorus, Total		Unchanged
5	5	Transparency / Clarity		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Fish Passage Barrier*)	Dam or Impoundment (Y)	X				
Chlorophyll-a	Source Unknown (N)	X				
Chlorophyll-a	Specialty Crop Production (N)	X				
Dissolved Oxygen Supersaturation	Source Unknown (N)	X				
Dissolved Oxygen Supersaturation	Specialty Crop Production (N)	X				
Harmful Algal Blooms	Agriculture (N)	X		X	X	X
Harmful Algal Blooms	Source Unknown (N)	X		X	X	X
Harmful Algal Blooms	Specialty Crop Production (N)	X		X	X	X
Phosphorus, Total	Source Unknown (N)	X				
Phosphorus, Total	Specialty Crop Production (N)	X				
Transparency / Clarity	Agriculture (N)			X	X	X
Transparency / Clarity	Source Unknown (N)			X	X	X

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

Cyanobacteria Harmful Algal Blooms (C-HAB postings) for Wampatuck Pond (MA94168) were reported to MassDPH for 35 days in 2016 (the advisory was confirmed based on sample analysis), an additional 71 days (without confirmatory sampling), as well as 115 days in 2017 (without confirmatory sampling).
The Aquatic Life Use for Wampatuck Pond (MA94168) will continue to be assessed as Not Supporting. Cyanobacteria harmful algal blooms continue to be problematic. The impairments for Harmful Algal Blooms, as well as Chlorophyll-*a*, Dissolved Oxygen Supersaturation, Fanwort, Fish Passage Barrier, and “Phosphorus, Total” are all being carried forward.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Wampatuck Pond (MA94168), so the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Cyanobacteria Harmful Algal Blooms (C-HAB) postings for Wampatuck Pond (MA94168) were reported to MassDPH for 35 days in 2016 (the advisory was confirmed based on sample analysis), an additional 71 days (without confirmatory sampling), as well as 115 days in 2017 (without confirmatory sampling). The Aesthetics Use for Wampatuck Pond (MA94168) will continue to be assessed as Not Supporting. Cyanobacteria harmful algal blooms continue to be problematic. Impairments for Harmful Algal Blooms and Transparency/Clarity are both being carried forward.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 3)

C-HAB Summary Statement
C-HAB postings for Wampatuck Pond (MA94168) were reported to MassDPH for 35 days in 2016 (the advisory was confirmed based on sample analysis), an additional 71 days (without confirmatory sampling), as well as 115 days in 2017 (without confirmatory sampling). Since blooms >20 days in duration were reported in two years, the Primary/Secondary Contact Recreation Uses and Aesthetics Use are assessed as Not Supporting.

Cyanobacteria Harmful Algal Bloom (C-HAB) Data (2015-2019) Provided by MassDPH (Bailey, Logan April 15, 2021)

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Wampatuck Pond	Advisory confirmed by sample analysis		35				1	yes
Wampatuck Pond	Not issued or confirmed by sampling		71	115			2	yes

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary
<p>Cyanobacteria Harmful Algal Blooms (C-HAB postings) for Wampatuck Pond (MA94168) were reported to MassDPH for 35 days in 2016 (the advisory was confirmed based on sample analysis), an additional 71 days (without confirmatory sampling), as well as 115 days in 2017 (without confirmatory sampling).</p> <p>The Primary Contact Recreation Use for Wampatuck Pond (MA94168) will continue to be assessed as Not Supporting. Cyanobacteria harmful algal blooms continue to be problematic. Impairments for Harmful Algal Blooms and Transparency/Clarity are both being carried forward.</p>

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
<p>Cyanobacteria Harmful Algal Blooms (C-HAB) postings for Wampatuck Pond (MA94168) were reported to MassDPH for 35 days in 2016 (the advisory was confirmed based on sample analysis), an additional 71 days (without confirmatory sampling), as well as 115 days in 2017 (without confirmatory sampling).</p> <p>The Secondary Contact Recreation Use for Wampatuck Pond (MA94168) will continue to be assessed as Not Supporting. Cyanobacteria harmful algal blooms continue to be problematic. Impairments for Harmful Algal Blooms and Transparency/Clarity are both being carried forward.</p>	

West Chandler Pond (MA94170)

Location:	Pembroke.
AU Type:	FRESHWATER LAKE
AU Size:	10 ACRES
Classification/Qualifier:	B

No usable data were available for West Chandler Pond (MA94170) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Winslow Cemetary Pond (MA94172)

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

No usable data were available for Winslow Cemetary Pond (MA94172) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Wright Pond (MA94174)

Location:	Duxbury.
AU Type:	FRESHWATER LAKE
AU Size:	30 ACRES
Classification/Qualifier:	B

No usable data were available for Wright Pond (MA94174) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

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