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

Appendix 11
French River Basin
Assessment and Listing Decision Summary

Prepared by:
Watershed Planning Program
Division of Watershed Management, Bureau of Water Resources
Massachusetts Department of Environmental Protection

Commonwealth of Massachusetts
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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.

Table of Contents

2022 Cycle Impairment Changes

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Bartons Brook	MA42-08	3	3	None		Unchanged
Bouchard Pond	MA42003	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Buffum Pond	MA42004	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Buffumville Lake	MA42005	4a	4a	(Non-Native Aquatic Plants*)		Unchanged
Buffumville Lake	MA42005	4a	4a	Mercury in Fish Tissue	33880	Unchanged
Burncoat Brook	MA42-07	5	5	Benthic Macroinvertebrates		Unchanged
Burncoat Brook	MA42-07	5	5	Escherichia Coli (E. Coli)		Unchanged
Burncoat Pond	MA42007	3	3	None		Unchanged
Carbuncle Pond	MA42008	5	5	Harmful Algal Blooms		Unchanged
Cedar Meadow Pond	MA42009	4c	4c	(Fanwort*)		Added
Cedar Meadow Pond	MA42009	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Dresser Hill Pond	MA42014	4a	4a	Turbidity	2360	Unchanged
Dutton Pond	MA42015	4a	4a	Nutrient/Eutrophication Biological Indicators	2354	Unchanged
Dutton Pond	MA42015	4a	4a	Phosphorus, Total	2354	Unchanged
Easterbrook Pond	MA42017	3	3	None		Unchanged
French River	MA42-03	5	5	Mercury in Fish Tissue		Unchanged
French River	MA42-04	5	5	Mercury in Fish Tissue		Unchanged
French River	MA42-05	5	5	(Curly-leaf Pondweed*)		Added
French River	MA42-05	5	5	(Flow Regime Modification*)		Unchanged
French River	MA42-05	5	5	(Non-Native Aquatic Plants*)		Added
French River	MA42-05	5	5	Benthic Macroinvertebrates		Unchanged
French River	MA42-06	5	5	(Curly-leaf Pondweed*)		Added
French River	MA42-06	5	5	Benthic Macroinvertebrates		Unchanged
French River	MA42-06	5	5	Cause Unknown [Sediment Screening Value (Exceedance)]		Unchanged
French River	MA42-06	5	5	Escherichia Coli (E. Coli)		Added
French River	MA42-06	5	5	Nutrients		Unchanged
Gore Pond	MA42018	4a	4a	(Non-Native Aquatic Plants*)		Unchanged
Gore Pond	MA42018	4a	4a	Algae	2361	Unchanged
Gore Pond	MA42018	4a	4a	Dissolved Oxygen	2361	Unchanged
Gore Pond	MA42018	4a	4a	Turbidity	2361	Unchanged
Granite Reservoir	MA42019	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Greenville Pond	MA42023	4a	4a	(Water Chestnut*)		Added
Greenville Pond	MA42023	4a	4a	Turbidity	2355	Unchanged
Greenville Pond West	MA42022	3	3	None		Unchanged
Grindstone Brook	MA42-18	5	5	Escherichia Coli (E. Coli)		Unchanged
Hayden Pond	MA42024	3	3	None		Unchanged
Henshaw Pond	MA42025	3	3	None		Unchanged
Hudson Pond	MA42029	4a	4a	(Aquatic Plants (Macrophytes)*)		Unchanged
Hudson Pond	MA42029	4a	4a	Nutrient/Eutrophication Biological Indicators	2363	Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Hultered Pond	MA42072	3	3	None		Unchanged
Jones Pond	MA42030	4a	4a	(Aquatic Plants (Macrophytes)*)		Unchanged
Jones Pond	MA42030	4a	4a	Nutrient/Eutrophication Biological Indicators	2364	Unchanged
Larner Pond	MA42068	4c	4c	(Aquatic Plants (Macrophytes)*)		Unchanged
Larner Pond	MA42068	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Little Nugget Lake	MA42032	3	3	None		Unchanged
Little River	MA42-13	5	5	Benthic Macroinvertebrates		Unchanged
Little River	MA42-13	5	5	Dissolved Oxygen		Unchanged
Little River	MA42-14	3	2	None		Unchanged
Little River	MA42-21	--	2	None		Unchanged
Low Pond	MA42033	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Lowes Pond	MA42034	4a	4a	Nutrient/Eutrophication Biological Indicators	2366	Unchanged
Mckinstry Pond	MA42035	4a	4a	Nutrient/Eutrophication Biological Indicators	2367	Unchanged
Merino Pond	MA42036	3	3	None		Unchanged
Mill Brook	MA42-10	2	2	None		Unchanged
Mine Brook	MA42-16	3	3	None		Unchanged
Mosquito Pond	MA42060	4c	4c	(Aquatic Plants (Macrophytes)*)		Unchanged
New Pond	MA42037	3	3	None		Unchanged
Nipmuck Pond	MA42039	3	3	None		Unchanged
Packard Pond	MA42040	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Peter Pond	MA42042	3	3	None		Unchanged
Pierpoint Meadow Pond	MA42043	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Pikes Pond	MA42044	4a	4a	Turbidity	2371	Unchanged
Putnam Pond	MA42046	3	3	None		Unchanged
Robinson Pond	MA42047	3	3	None		Unchanged
Rochdale Pond	MA42048	4a	4a	Nutrient/Eutrophication Biological Indicators	2356	Unchanged
Sargent Pond	MA42049	4c	5	(Non-Native Aquatic Plants*)		Unchanged
Sargent Pond	MA42049	4c	5	Mercury in Fish Tissue		Added
Shepherd Pond	MA42051	4c	4c	(Aquatic Plants (Macrophytes)*)		Unchanged
Slaters Pond	MA42053	3	3	None		Unchanged
Snow Pond	MA42054	3	3	None		Unchanged
Stiles Reservoir	MA42055	3	3	None		Unchanged
Sucker Brook	MA42-15	5	5	Benthic Macroinvertebrates		Unchanged
Sucker Brook	MA42-15	5	5	Escherichia Coli (E. Coli)		Unchanged
Town Meadow Brook	MA42-02	3	3	None		Unchanged
Unnamed Tributary	MA42-01	2	2	None		Unchanged
Unnamed Tributary	MA42-12	3	3	None		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Unnamed Tributary	MA42-19	3	2	None		Unchanged
Unnamed Tributary	MA42-22	--	5	Benthic Macroinvertebrates		Added
Unnamed Tributary	MA42-22	--	5	Dissolved Oxygen		Added
Unnamed Tributary	MA42-22	--	5	Lack of a Coldwater Assemblage		Added
Unnamed Tributary	MA42-22	--	5	Temperature		Added
Wallis Pond	MA42062	4a	4a	(Aquatic Plants (Macrophytes)*)		Unchanged
Wallis Pond	MA42062	4a	4a	Dissolved Oxygen	2375	Unchanged
Wallis Pond	MA42062	4a	4a	Nutrient/Eutrophication Biological Indicators	2375	Unchanged
Watson Millpond	MA42063	3	3	None		Unchanged
Webster Lake	MA42064	5	5	(Asian Clam*)		Added
Webster Lake	MA42064	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Unchanged
Webster Lake	MA42064	5	5	(Fanwort*)		Added
Webster Lake	MA42064	5	5	(Non-Native Aquatic Plants*)		Unchanged
Webster Lake	MA42064	5	5	(Non-Native Fish/Shellfish/Zooplankton*)		Removed
Webster Lake	MA42064	5	5	Dissolved Oxygen		Unchanged
Wee Laddie Pond	MA42065	3	3	None		Unchanged
Wellington Brook	MA42-11	5	5	Escherichia Coli (E. Coli)		Unchanged
Wellington Brook	MA42-11	5	5	Lack of a Coldwater Assemblage		Added
Wellington Brook	MA42-11	5	5	Temperature		Added

Bartons Brook (MA42-08)

Location:	Headwaters, outlet Stiles Reservoir, Leicester to mouth at inlet Greenville Pond West, Leicester.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B

No usable data were available for Bartons Brook (MA42-08) 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
3	3	None		Unchanged

Bouchard Pond (MA42003)

Location:	Leicester.
AU Type:	FRESHWATER LAKE
AU Size:	2 ACRES
Classification/Qualifier:	B

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				

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Bouchard Pond 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 Supporting	NO
2022 Use Attainment Summary	
As was previously reported, MassDEP staff noted a likely infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Bouchard Pond during a July 1994 synoptic survey. The Aquatic Life Use for Bouchard Pond will continue to be assessed as Not Supporting with the generic Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) being carried forward. A recommendation is being made, however, to conduct an aquatic macrophyte survey to confirm the presence of *M. heterophyllum* in the pond when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted a likely infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Bouchard Pond during a July 1994 synoptic survey.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Bouchard Pond when flowering heads are present.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Bouchard Pond, 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 Aesthetics Use for Bouchard Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Bouchard Pond, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Bouchard Pond, so it is Not Assessed.	

Buffum Pond (MA42004)

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

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				

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Buffum Pond 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 Supporting	NO
2022 Use Attainment Summary	
As was previously reported, MassDEP staff noted a likely infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Buffum Pond during a July 1994 synoptic survey. The Aquatic Life Use for Buffum Pond will continue to be assessed as Not Supporting with the generic Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) being carried forward. A recommendation is being made, however, to conduct an aquatic macrophyte survey to confirm the presence of *M. heterophyllum* in the pond when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff identified a likely infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Buffum Pond during a September 1994 synoptic survey.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Buffum Pond when flowering heads are present.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Buffum Pond, 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 Aesthetics Use for Buffum Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Buffum Pond, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Buffum Pond, so it is Not Assessed.	

Buffumville Lake (MA42005)

Location:	Charlton/Oxford.
AU Type:	FRESHWATER LAKE
AU Size:	199 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	(Non-Native Aquatic Plants*)		Unchanged
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
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Mercury in Fish Tissue	Atmospheric Deposition (Y)		X			
Mercury in Fish Tissue	Source Unknown (N)		X			

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Buffumville Lake when flowering heads are present as well as determine whether *Myriophyllum spicatum* is present in the lake. 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 Supporting	YES
2022 Use Attainment Summary	
As was previously reported, MassDEP staff noted an infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Buffumville Lake during a September 1994 synoptic survey. There are also reports (from 2006 and 2007) of Eurasian water milfoil (*Myriophyllum spicatum*) present in the lake in MassDEP's Freshwater Aquatic Invasive Species database. The Aquatic Life Use for Buffumville Lake will continue to be assessed as Not Supporting with the generic Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) being carried forward. An Alert is being added for the potential infestation of *M. spicatum*. A recommendation is also being made to conduct an aquatic macrophyte survey to confirm the presence of *M. heterophyllum* and/or *M. spicatum* in the lake when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994) (MassDEP Undated 1)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted an infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Buffumville Lake during a September 1994 synoptic survey. There are also reports (from 2006 and 2007) of Eurasian water milfoil (*Myriophyllum spicatum*) in MassDEP's Freshwater Aquatic Invasive Species database, but these should be confirmed by DEP staff- issue an Alert for this non-native species.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Buffumville Lake when flowering heads are present. Also note whether *Myriophyllum spicatum* is present in the lake.

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
The Fish Consumption Use for Buffumville Lake will continue to be assessed as Not Supporting with the Mercury in Fish Tissue impairment being carried forward. MA DPH advises Children under 12, pregnant women, nursing mothers, women of child-bearing age not to eat any fish from Buffumville Lake while the general public should limit all fish to 2 meals/month due to elevated mercury (MassDPH 2021).	

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
C-HAB postings for Buffumville Lake (MA42005) were reported to MassDPH for 15 days in 2016 and 14 days in 2017. Since none of the reported blooms was >20 days in length, an impairment decision will not be made at this time. The Aesthetics Use for Buffumville Lake is assessed as having Insufficient Information. The Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) is being removed from the use since it apparently only affected ~5% of the lake area (well below the 25% threshold in the 2022 CALM Guidance Manual (MassDEP 2022)). An Alert is being identified for C-HABs since there were blooms reported to MassDPH for 15 days in 2016 and 14 days in 2017.	

Algal Bloom Information

Cyanobacteria Harmful Algal Bloom (C-HAB) Summary Statements for 2015-2019 MassDPH Data (Bailey, Logan April 15, 2021) (MassDEP Undated 4)

C-HAB Summary Statement
C-HAB postings for Buffumville Lake (MA42005) were reported to MassDPH for 15 days in 2016 and 14 days in 2017. Since none of the reported blooms was >20 days in length, an impairment decision will not be made at this time. There are too limited data to assess the Aesthetics Use for Buffumville Lake so it is assessed as having Insufficient Information. The Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) is being removed from since it apparently only affected ~5% of the lake area while an Alert is being 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
Buffumville Lake	Not issued or confirmed by sampling		15	14			0	no

French Basin WBS coding sheet (MassDEP 2002):
Only 10 acres of the lake (~5% lake area) originally identified as a problem for Noxious Aquatic Plants (potentially including non-native aquatic macrophytes) so Non-Native Aquatic Plants should be removed as an impairment from Aesthetics, Primary Contact Recreation, and Secondary Contact Recreation, but it is being retained as impairment for the Aquatic Life use.

WBID: MA42005 WATERSHED: French (42) (Printed 02/03/98)
NAME: Buffumville Lake TYPE: Lake/Pond
CODE: 42005 SIZE: 186.00(acres) CLASS: B

LATITUDE: 42.12500
LONGITUDE: 71.91278 (420730/715446)
Lake/Pond Name: Buffumville Lake(Buffumville Reservo, Charlton/Oxford
Ecoregion Name: ()
Description:

Assessment Date: 9609 Begin Sampling: 9409 303(d) List?: Yes
Cycle: 96 End Sampling: 9409 Pathogens Only?: No

Lake Specific Information
Lake size greater than 10 acres?: Yes
Significantly Publicly Owned: xxxx
Trophic Status: Eutrophic
Trophic Trend: Unknown
Acidity/Toxics Trend: Unknown
Acidity Effects: Unknown

Uses	Support	Threat	Partial	Non-Sup	Not-Asses	Not-Attain
OVERALL USE SUPPORT			186.00			
ALUS			186.00			
FISH CONSUMPTION					186.00	
PRIMARY CONTACT			10.00		176.00	
SECONDARY CONTACT	176.00		10.00			
Aesthetics					186.00	

Nonattainment Causes

Code	Size	Magnitude
2200- Noxious aquatic plants	10.00	M
2600- Exotic species	186.00	M

"New"

Code	Size	Magnitude

Nonattainment Sources

Code	Size	Magnitude
9000- SOURCE UNKNOWN	186.00	M

"New"

Code	Size	Magnitude

Assessment Type
(Assessment Category = >Monitored)
B25- Ecological/habitat surveys (Qualitative/Quantitative)
R35- Primary Producer Surveys

"New"Assessment Category= > M E NA

Media/Pollutants Assessed (Toxics Monitoring = >N)

"New" Toxics Monitoring = > YES or NO

Comments:
1996:
A 21 SEPTEMBER 1994 SYNOPTIC SURVEY INDICATES THAT THE EASTERN SHORELINE HAS A VEGETATIVE BORDER OF UP TO 50 FEET. THE NORTH SHORE IS SIMILAR BUT THE WESTERN SHORE APPEARS TO EXHIBIT A NARROWER BAND OF OF PLANTS. THERE IS ABOUT 15%COVERAGE AT THIS NORTHEAST END OF THE LAKE. AT THE PUBLIC BEACH ON THE NORTH SIDE OF OXFORD ROAD THERE WAS 25%-50% COVERAGE. ACROSS OXFORD ROAD THERE WAS 0%-25% COVERAGE BUT IT WAS DIFFICULT TO TELL, AS ABOUT 90% OF THE WATER IS FREE OF EMERGENT AND FLOATING LEAF PLANTS, BUT CAN'T TELL HOW FAR THE MYRIOPHYLLUM EXTENDS INTO THE WATER. THE NON-NATIVE MYRIOPHYLLUM HETEROPHYLLUM THREATENS ABOUT 176 ACRES OF THE POND. NO OTHER DATA WAS AVAILABLE TO MAKE ASSESSMENTS.

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

There are no bacteria data available to assess the Primary Contact Recreational Use for Buffumville Lake.
The Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) is being removed from the use since it apparently only affected ~5% of the lake area (well below the 25% threshold in the 2022 CALM Guidance Manual (MassDEP 2022)). The Primary Contact Recreational Use is assessed as having Insufficient Information. An Alert is being identified for C-HABs since there were blooms reported to MassDPH for 15 days in 2016 and 14 days in 2017.

Secondary Contact Recreation

2022 Use Attainment	**Alert**
Insufficient Information	YES
2022 Use Attainment Summary	
There are no bacteria data available to assess the Secondary Contact Recreational Use for Buffumville Lake. The Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) is being removed from the use since it apparently only affected ~5% of the lake area (well below the 25% threshold in the 2022 CALM Guidance Manual (MassDEP 2022)). The Secondary Contact Recreational Use is assessed as having Insufficient Information. An Alert is being identified for C-HABs since there were blooms reported to MassDPH for 15 days in 2016 and 14 days in 2017	

Burncoat Brook (MA42-07)

Location:	Headwaters, outlet Bouchard Pond, Leicester to mouth at confluence with Town Meadow Brook, Leicester (through former 2008 segment: Ballard Hill Pond MA42069).
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

No usable data were available for Burncoat Brook (MA42-07) 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	Benthic Macroinvertebrates		Unchanged
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
Benthic Macroinvertebrates	Source Unknown (N)	X				
Escherichia Coli (E. Coli)	Source Unknown (N)				X	

Burncoat Pond (MA42007)

Location:	Leicester/Spencer.
AU Type:	FRESHWATER LAKE
AU Size:	115 ACRES
Classification/Qualifier:	B

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

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Burncoat Pond 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	
There is a suspected infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Burncoat Pond. The Aquatic Life Use for Burncoat Pond is Not Assessed. The Alert for the potential infestation of M. heterophyllum is being carried forward. A recommendation is also being made to conduct an aquatic macrophyte survey to confirm the presence of *M. heterophyllum* in the pond when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP Undated 1)

Summary Statement	Assessment Recommendation
As noted in previous WQARs, there is a suspected infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Burncoat Pond but confirmation needs to be made by DEP biologists. The Alert status should remain at present.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Burncoat Pond when flowering heads are present.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in Burncoat Pond, 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 Aesthetics Use for Burncoat Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	**Alert**
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Burncoat Pond, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	**Alert**
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Burncoat Pond, so it is Not Assessed.	

Carbuncle Pond (MA42008)

Location:	Oxford.
AU Type:	FRESHWATER LAKE
AU Size:	11 ACRES
Classification/Qualifier:	B

No usable data were available for Carbuncle Pond (MA42008) 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	Harmful Algal Blooms		Unchanged

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

Cedar Meadow Pond (MA42009)

Location:	Leicester.
AU Type:	FRESHWATER LAKE
AU Size:	140 ACRES
Classification/Qualifier:	B

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

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Cedar Meadow Pond 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 Supporting	NO
2022 Use Attainment Summary	
It was previously reported that MassDEP staff noted a likely infestation of the non-native aquatic macrophytes, variable milfoil (*Myriophyllum heterophyllum*) in addition to a fanwort (*Cabomba caroliniana*) infestation, in Cedar Meadow Pond during a July 1994 synoptic survey. The Aquatic Life Use for Cedar Meadow Pond will continue to be assessed as Not Supporting with the generic Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) being carried forward. The Fanwort (*Cabomba caroliniana*) impairment is being added. The generic Non-Native Aquatic Plants impairment is remaining in place for the likely *M. heterophyllum* infestation however a recommendation is also being made to conduct an aquatic macrophyte survey to confirm its presence in the pond when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
It was previously reported that MassDEP staff noted infestations of the non-native aquatic macrophytes, variable milfoil (*Myriophyllum heterophyllum*) and fanwort (*Cabomba caroliniana*), in Cedar Meadow Pond during a July 1994 synoptic survey.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Cedar Meadow Pond when flowering heads are present.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Cedar Meadow Pond, 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 Aesthetics Use for Cedar Meadow Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Cedar Meadow Pond, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Cedar Meadow Pond, so it is Not Assessed.	

Dresser Hill Pond (MA42014)

Location:	Charlton.
AU Type:	FRESHWATER LAKE
AU Size:	8 ACRES
Classification/Qualifier:	B

No usable data were available for Dresser Hill Pond (MA42014) 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	Turbidity	2360	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Turbidity	Historical Source, No Longer Present (Y)			X	X	X

Dutton Pond (MA42015)

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

No usable data were available for Dutton Pond (MA42015) 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	Nutrient/Eutrophication Biological Indicators	2354	Unchanged
4a	4a	Phosphorus, Total	2354	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Nutrient/Eutrophication Biological Indicators	Historical Source, No Longer Present (Y)	X		X	X	X
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (N)	X		X	X	X
Phosphorus, Total	Historical Source, No Longer Present (Y)	X		X	X	X
Phosphorus, Total	Municipal Point Source Discharges (N)	X		X	X	X

Easterbrook Pond (MA42017)

Location:	Dudley.
AU Type:	FRESHWATER LAKE
AU Size:	5 ACRES
Classification/Qualifier:	B

No usable data were available for Easterbrook Pond (MA42017) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

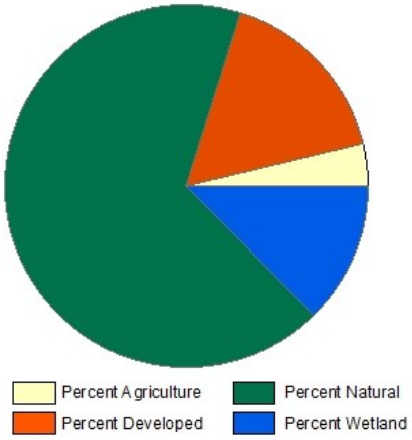
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

French River (MA42-03)

Location:	Headwaters, outlet Greenville Pond, Leicester to the outlet of Thayers Pond, Oxford (excluding approximately 0.6 miles through Rochdale Pond segment MA42048) (through former 2008 segments: Texas Pond MA42058 and Thayers Pond MA42059).
AU Type:	RIVER
AU Size:	3.8 MILES
Classification/Qualifier:	B: WWF

French River - MA42-03

Watershed Area: 24.19 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	24.19	5.31	9.12	2.09
Agriculture	3.7%	2.3%	1.1%	0.7%
Developed	16.5%	23.8%	14.5%	24.8%
Natural	67.2%	65.2%	64%	60.8%
Wetland	12.7%	8.6%	20.5%	13.8%
Impervious Cover	6.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
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
Mercury in Fish Tissue	Source Unknown (N)		X			

Recommendations

2022 Recommendations
ALU: Additional fish community data should be collected in this French River AU (MA42-03) and compared with the French River TFC model. Benthic macroinvertebrate sampling in the French River should also be conducted to better evaluate the Aquatic Life Use and whether or not the Alert is still needed.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES

2022 Use Attainment Summary

MA DFG biologists conducted backpack electrofishing in this French River AU (MA42-03) just downstream from the dam at Stafford Street in Rochdale in July 2018. The sample was dominated (78%) by fluvial fish including both moderately tolerant and tolerant species. It is also noted that a portion of this designated Warm Water Fishery is also mapped/identified as a Coldwater Fisheries Resource (CFR) by MA DFG biologists. Although a Target Fish Community Model was developed by DFG for the French River, fish community samples collected in this French River AU (MA42-03) were dated (2005-2009) so no comparison was made.
The Aquatic Life Use for this French River AU (MA42-03) will continue to be is assessed as Fully Supporting based on the dominance of fluvial fish but the former Alert for organic enrichment stress (two filter feeding taxa comprised 60% of benthic community sample as documented in the French & Quinebaug 2004 – 2008 Water Quality Assessment Report (MassDEP 2009)) is being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7738	MassDFG	Fish Community	French River	Stafford St., Right below dam, Rochdale	42.19581	-71.90434

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)
[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, BND = Blacknose Dace, CS = Common Shiner, F = Fallfish, GS = Golden Shiner, LMB = Largemouth Bass, WS = White Sucker, YB = Yellow Bullhead]

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
7738	07/09/18	BP	TP		9	165	0%	4	78%	0%	1	2%	No	Yes	AE, B, BND, CS, F, GS, LMB, WS, YB,

Data Sources: (MassDFG 2018, MassDEP Undated 2, Kashiwagi and Richards 2009)

Although a Target Fish Community Model was developed by DFG for the French River, fish community samples collected in French River MA42-03 and MA42-04 were dated (2005-2009) and were not geographically representative of the AU in the case of the MA42-04 AU. Additional fish community data should be collected and compared with the French River TFC model.

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP biologists conducted fish toxics sampling in the Texas and Thayer Pond impoundments in Oxford of this French River AU (MA42-03) in 1998 and 1994, respectively. Because of elevated mercury measured in largemouth bass fillets, MA DPH 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 largemouth bass from these waters, and the general public should limit consumption of largemouth bass to two meals per month. Since there is a site specific DPH advisory for elevated mercury in fish tissue in the Texas and Thayer Pond impoundments of this French River AU (MA42-03), the Fish Consumption Use is assessed as Not Supporting with the Mercury in Fish Tissue impairment being carried forward.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetics Use for this French River AU (MA42-03), so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in this French River AU (MA42-03) at the Route 56 bridge in Oxford (FRC_French16) in Oxford between June and September 2019 and June and September 2020. Data analysis indicated 14% of the intervals had GMs >126 cfu/100ml in 2019 (high frequency dataset) and one sample exceeded the 410 cfu/100ml STV while 7% of the intervals had GMS >126 cfu/100ml in 2020 (moderate frequency dataset) and two samples exceeded the 410 cfu/100ml STV (the seasonal GMs were 40 (n=16) in 2019 and 39 (n=9) cfu/100ml, in 2020). The cumulative %GM interval exceedance was 12%. The Primary Contact Recreational Use for this French River AU (MA42-03) is assessed as Fully Supporting since the E. coli bacteria data collected by FRC volunteers did not exceed the use attainment impairment decision schema described in the 2022 CALM guidance manual (MassDEP 2022).	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French16	French River Connection	Water Quality	French River	Route 56, Oxford	42.162652	-71.887219

Bacteria Data

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

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

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
FRC_French16	French River Connection	E. coli	06/04/19	09/21/19	16	5.1	2419.6	40

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
FRC_French16	French River Connection	E. coli	06/02/20	09/24/20	9	7.4	1119.9	39

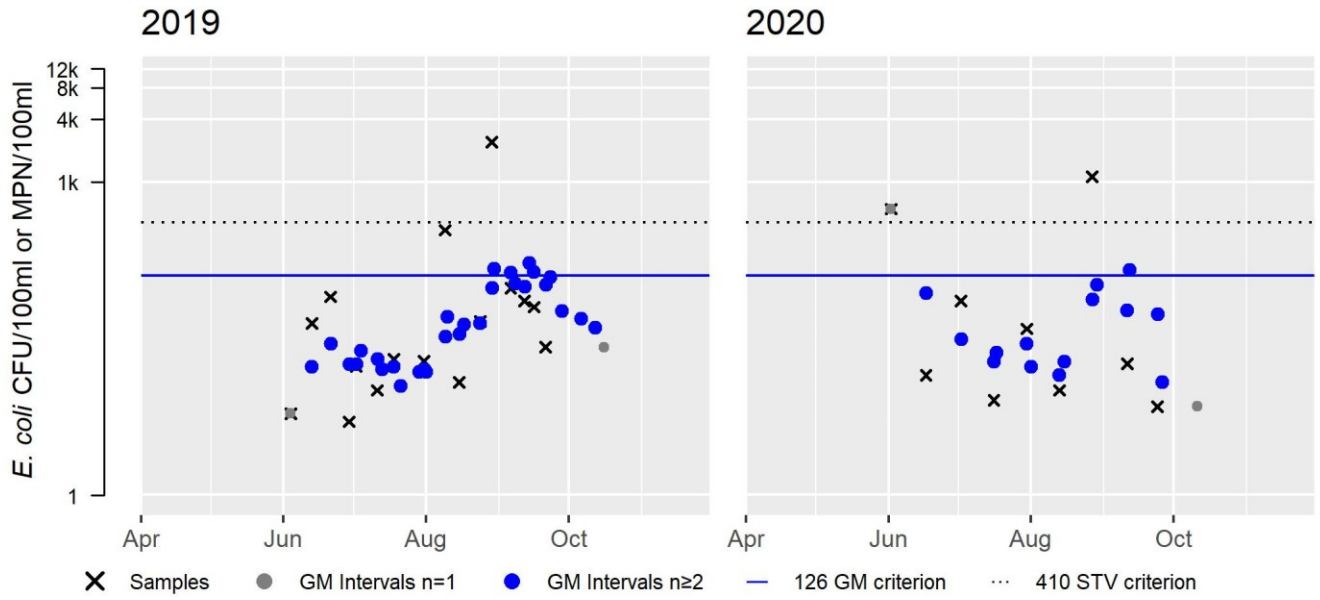
FRC_French16 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	40
#GMI	29
#GMI Ex	4
%GMI Ex	14
n>STV	1
%n>STV	6

Var	Res
Samples	9
SeasGM	39
#GMI	14
#GMI Ex	1
%GMI Ex	7
n>STV	2
%n>STV	22

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

Variable	Cumulative %GMI Ex (all years)
Result	12



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in this French River AU (MA42-03) at the Route 56 bridge in Oxford (FRC_French16) in Oxford between June and September 2019 and June and September 2020. Data analysis indicated none of the intervals had GMs >630 cfu/100ml in either 2019 (high frequency dataset) or 2020 (moderate frequency dataset) and only one sample exceeded the 1260 cfu/100ml STV (the seasonal GMs were 40 (n=16) in 2019 and 39 (n=9) cfu/100ml, in 2020).
The Secondary Contact Recreational Use for this French River AU (MA42-03) is assessed as Fully Supporting since the *E. coli* bacteria data collected by FRC volunteers did not exceed the use attainment impairment decision schema described in the 2022 CALM guidance manual (MassDEP 2022).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French16	French River Connection	Water Quality	French River	Route 56, Oxford	42.162652	-71.887219

Bacteria Data

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

[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)
FRC_French16	French River Connection	E. coli	06/04/19	09/21/19	16	5.1	2419.6	40
FRC_French16	French River Connection	E. coli	06/02/20	09/24/20	9	7.4	1119.9	39

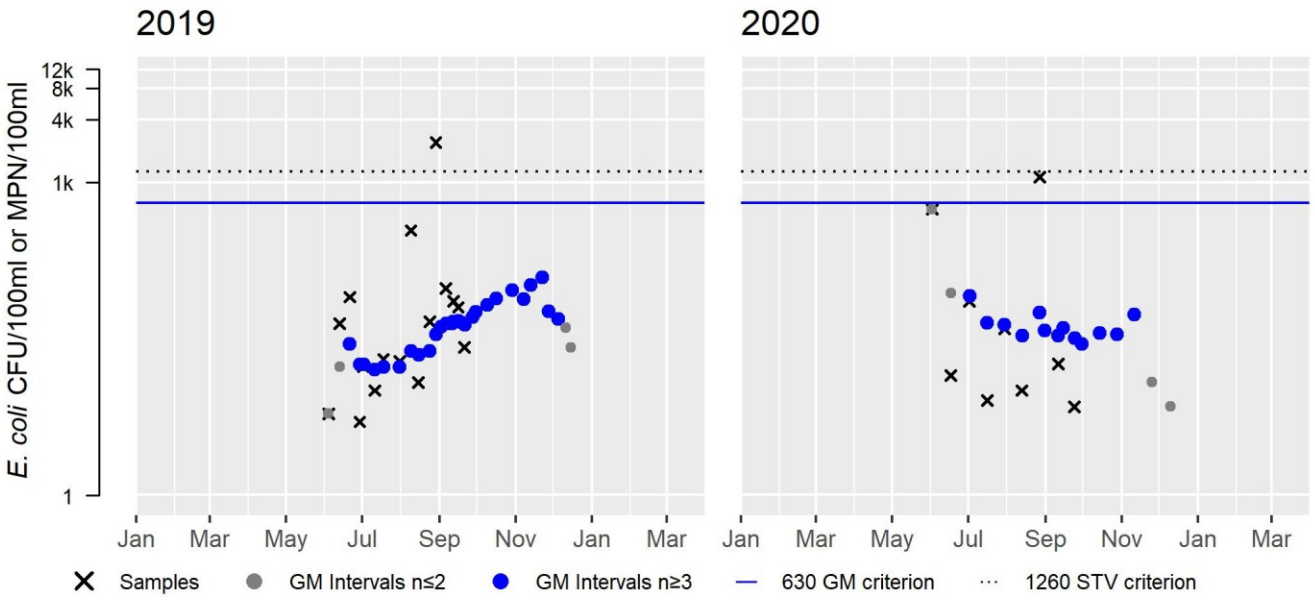
FRC_French16 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	40
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	6

Var	Res
Samples	9
SeasGM	39
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0

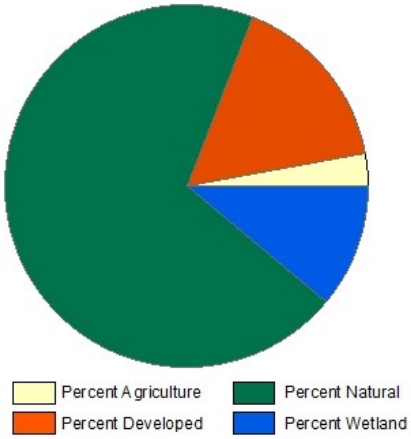


French River (MA42-04)

Location:	From dam (NATID: MA01946) just upstream of Clara Barton Road, Oxford, to dam (NATID: MA00108) at North Village, Webster/Dudley.
AU Type:	RIVER
AU Size:	9.6 MILES
Classification/Qualifier:	B: WWF

French River - MA42-04

Watershed Area: 83.27 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	83.27	16.11	29.62	5.64
Agriculture	2.9%	1%	1.4%	0.8%
Developed	16.2%	20.3%	14.3%	18.6%
Natural	69.8%	70.8%	64.9%	64.3%
Wetland	11%	7.8%	19.4%	16.3%
Impervious Cover	6.1%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
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
Mercury in Fish Tissue	Source Unknown (N)		X			

Recommendations

2022 Recommendations
ALU: Additional fish community data should be collected in this French River AU (MA42-04) and compared with the French River TFC model. Conduct an aquatic macrophyte survey in the French River (MA42-04) just downstream of the Little River confluence to confirm the presence of *Cabomba caroliniana* (fanwort).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES

2022 Use Attainment Summary

In July 2018 MA DFG biologists conducted backpack electrofishing in this French River AU (MA42-04) in Oxford from up to downstream as follows: above the bridge at Clara Barton Road (SampleID 7737), barge electrofishing at the Oxford Canoe Launch site (SampleID 8138), and backpack electrofishing downstream from Harwood Street crossing (SampleID 7735). The most upstream sampling site was dominated by fluvial fishes but none were collected at either of the two more downstream sampling locations where some moderately tolerant macrohabitat generalist species were collected. Sampling efficiency with the barge was poor (notes made that it was a partial survey as the generator died and the site was too deep). Although a Target Fish Community Model was developed by DFG for the French River, fish community samples collected in this French River MA42-04 were dated (2005-2009) and were not geographically representative so no comparison was made. MassDEP's Freshwater Aquatic Invasive Species database contains a report from the public of the non-native aquatic macrophyte, fanwort (*Cabomba caroliniana*) in this French River AU (MA42-04) just downstream from the confluence of the Little River. The presence of this species needs confirmation but an Alert is being identified. Too limited data are available so the Aquatic Life Use for this French River AU (MA42-04) will continue to be assessed as having Insufficient Information. The Alert identified because the benthic community appeared to be structured in response to some organic enrichment is being carried forward (MassDEP 2009). An Alert is also being added for the potential infestation of the non-native aquatic macrophyte, fanwort (*C. caroliniana*).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7735	MassDFG	Fish Community	French River	Downstream Harwood S. crossing. Site #2, Oxford	42.09145	-71.88017
7737	MassDFG	Fish Community	French River	Clara Barton Site, Above bridge, Oxford	42.15485	-71.88217
8138	MassDFG	Fish Community	French River	Oxford Canoe Launch. Site #2, Oxford	42.10765	-71.88348

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)

[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, BND = Blacknose Dace, CP = Chain Pickerel, CS = Common Shiner, F = Fallfish, GS = Golden Shiner, LMB = Largemouth Bass, RBS = Redbreast Sunfish, WS = White Sucker, YB = Yellow Bullhead]

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
7735	07/03/18	BP	TP		3	18	0%	0	0%	0%	1	11%	No	Yes	B, RBS, YB,

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
7737	07/09/18	BP	TP		9	224	0%	4	96%	0%	1	1%	No	Yes	AE, B, BND, CS, F, GS, LMB, WS, YB,
8138	07/05/18	BG	TP		4	10	0%	0	0%	0%	2	30%	Yes*	Yes	B, CP, RBS, YB,

*Partial survey, generator died and site too deep

Data Sources: (MassDFG 2018, MassDEP Undated 2, Kashiwagi and Richards 2009)

Although a Target Fish Community Model was developed by DFG for the French River, fish community samples collected in French River MA42-03 and MA42-04 were dated (2005-2009) and were not geographically representative of the AU in the case of the MA42-04 AU. Additional fish community data should be collected and compared with the French River TFC model.

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP Undated 1)

Summary Statement	Assessment Recommendation
MassDEP's Freshwater Aquatic Invasive Species database contains a report from the public of the non-native aquatic macrophyte, fanwort (*Cabomba caroliniana*) in the French River from just downstream of the confluence of the Little River in the French River (MA42-04). The presence of this species should be confirmed by MassDEP biologists and an Alert should be issued in the interim.	Conduct an aquatic macrophyte survey in the French River (MA42-04) just downstream of the Little River confluence to confirm the presence of *Cabomba caroliniana* (fanwort) in this French River AU.

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Fish toxics monitoring was conducted by MassDEP biologists at two sites along this French River AU (MA42-04) near Howarths Lower Pond in 2006 and in the river near the confluence with the Little River in 1884. Because of elevated mercury, MA DPH 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 French River AU (MA42-04) (the advisory specifically reads between the Hodges Village Dam in Oxford and the North Webster Village Pond Dam in Webster) and the general public should not eat largemouth bass and should limit consumption of other species to two meals per month. Since there is a site specific DPH advisory for elevated mercury in fish tissue, the Fish Consumption Use for this French River AU (MA42-04) is assessed as Not Supporting.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetics Use for French River AU (MA42-04), so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling at three sites along this French River AU (MA42-04) in Oxford between June and September 2019 and June and September 2020 from up to downstream as follows: Clara Barton Road (FRC_French12), Dudley Road (FRC_French14), and Harwood Street (FRC_French15). Data analysis indicated none of the intervals had GMs >126 cfu/100ml in 2019 (high frequency dataset) or 2020 (moderate frequency dataset) and only one sample exceeded the 410 cfu/100ml STV at the most upstream site in 2019. The seasonal GMs ranged from 22 to 102.
The Primary Contact Recreational Use for this French River AU (MA42-04) is assessed as Fully Supporting based on the low concentrations of *E. coli* bacteria (data collected by FRC volunteers

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French12	French River Connection	Water Quality	French River	Clara Barton Road, Oxford	42.154835	-71.882514
FRC_French14	French River Connection	Water Quality	French River	Dudley Road, Oxford	42.107183	-71.883204
FRC_French15	French River Connection	Water Quality	French River	Harwood Street, Oxford	42.091509	-71.880146

Bacteria Data

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

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

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
FRC_French12	French River Connection	E. coli	06/04/19	09/21/19	15	30.5	547.5	88
FRC_French12	French River Connection	E. coli	06/02/20	09/24/20	9	3.1	275.5	22
FRC_French14	French River Connection	E. coli	06/04/19	09/21/19	15	25.6	238.2	64
FRC_French14	French River Connection	E. coli	06/02/20	09/24/20	9	29.2	204.6	58
FRC_French15	French River Connection	E. coli	06/04/19	09/21/19	15	37.9	344.8	89
FRC_French15	French River Connection	E. coli	06/02/20	09/24/20	9	36.8	307.6	102

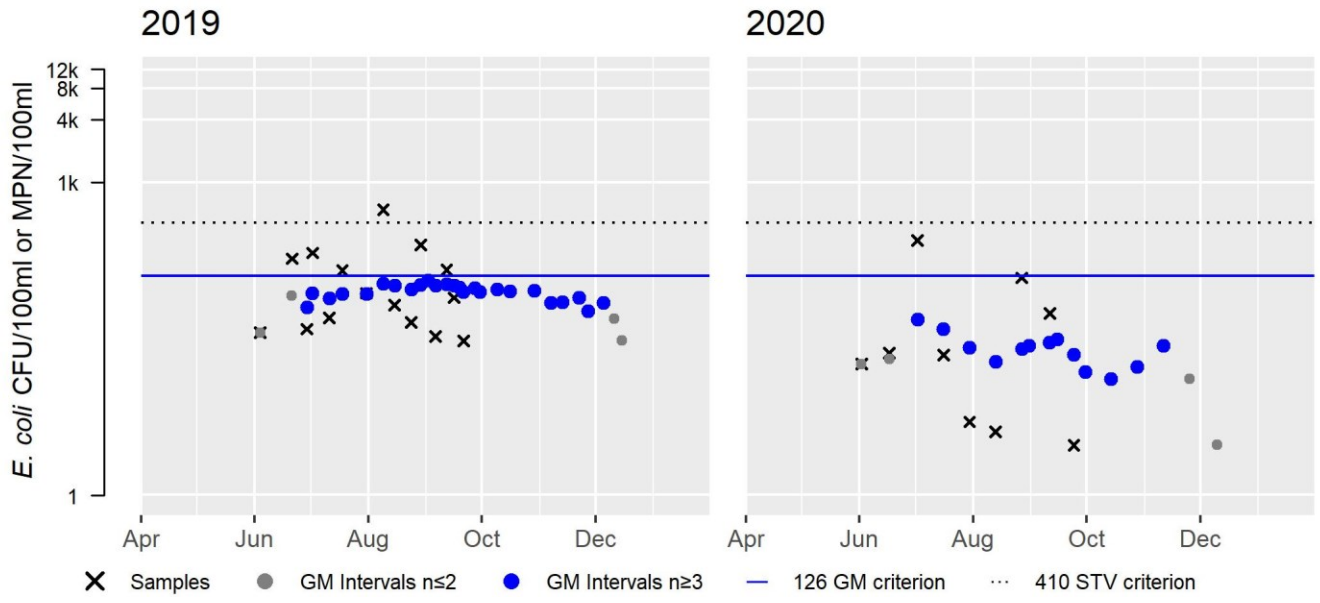
FRC_French12 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	88
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	7

Var	Res
Samples	9
SeasGM	22
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



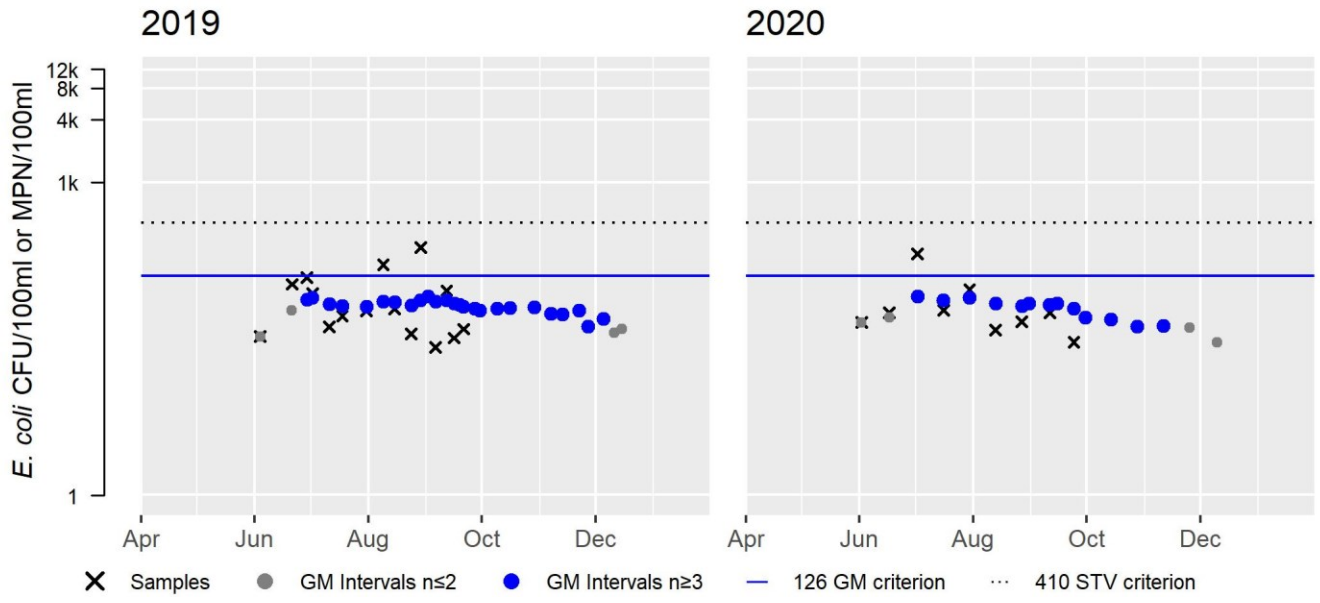
FRC_French14 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	64
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	58
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



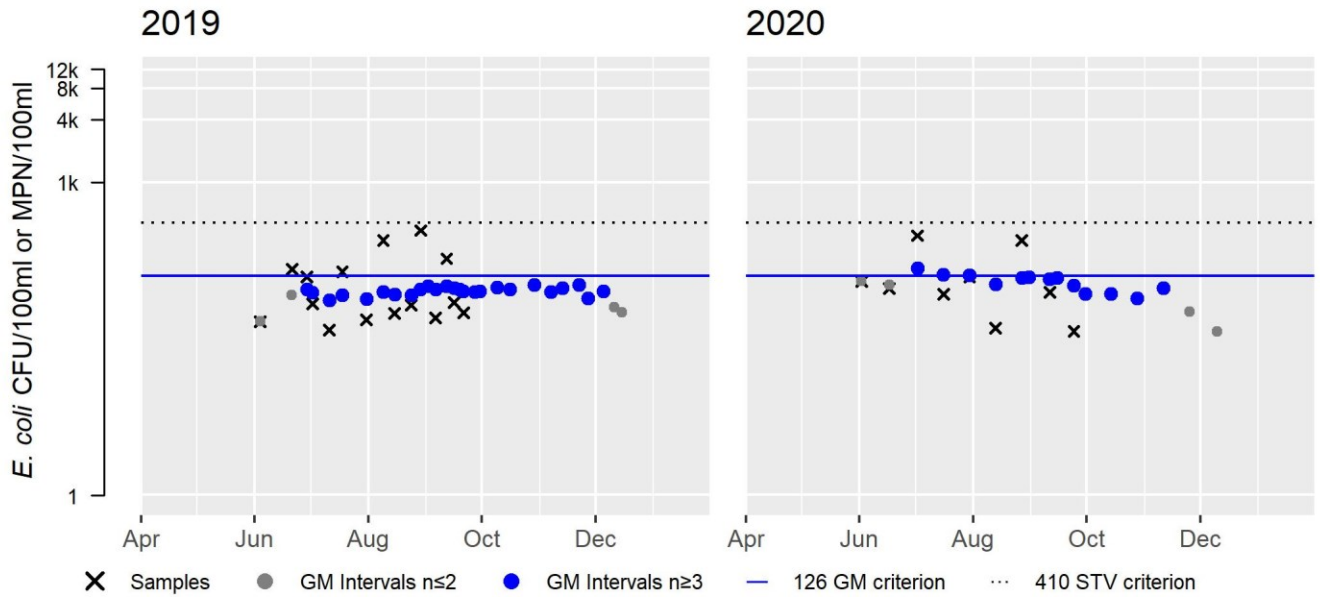
FRC_French15 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	89
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	102
#GMI	13
#GMI Ex	3
%GMI Ex	23
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

Variable	Cumulative %GMI Ex (all years)
Result	8



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO
2022 Use Attainment Summary	
French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling at three sites along this French River AU (MA42-04) in Oxford between June and September 2019 and June and September 2020 from up to downstream as follows: Clara Barton Road (FRC_French12), Dudley Road (FRC_French14), and Harwood Street (FRC_French15). Data analysis indicated none of the intervals had GMs >630 cfu/100ml in 2019 (high frequency dataset) or 2020 (moderate frequency dataset) and no samples exceeded the 1260 cfu/100ml STV. The seasonal GMs ranged from 22 to 102. The Secondary Contact Recreational Use for this French River AU (MA42-04) is assessed as Fully Supporting based on the low concentrations of *E. coli* bacteria (data collected by FRC volunteers).	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French12	French River Connection	Water Quality	French River	Clara Barton Road, Oxford	42.154835	-71.882514
FRC_French14	French River Connection	Water Quality	French River	Dudley Road, Oxford	42.107183	-71.883204
FRC_French15	French River Connection	Water Quality	French River	Harwood Street, Oxford	42.091509	-71.880146

Bacteria Data

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

[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)
FRC_French12	French River Connection	E. coli	06/04/19	09/21/19	15	30.5	547.5	88
FRC_French12	French River Connection	E. coli	06/02/20	09/24/20	9	3.1	275.5	22
FRC_French14	French River Connection	E. coli	06/04/19	09/21/19	15	25.6	238.2	64
FRC_French14	French River Connection	E. coli	06/02/20	09/24/20	9	29.2	204.6	58
FRC_French15	French River Connection	E. coli	06/04/19	09/21/19	15	37.9	344.8	89
FRC_French15	French River Connection	E. coli	06/02/20	09/24/20	9	36.8	307.6	102

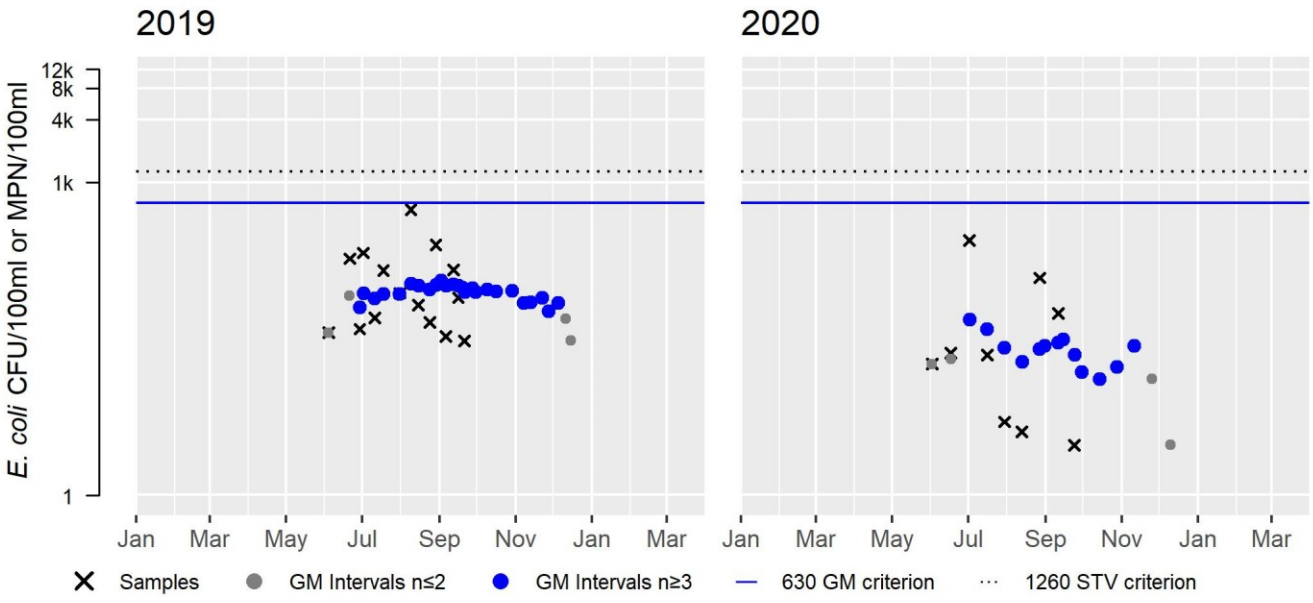
FRC_French12 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	88
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	22
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



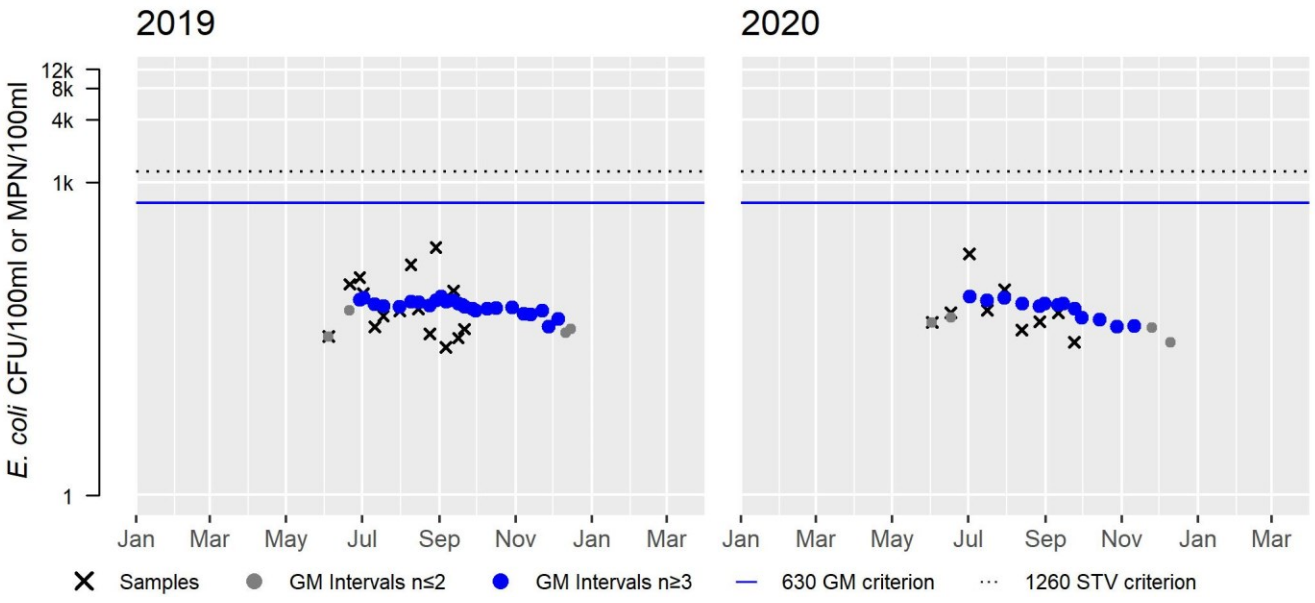
FRC_French14 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	64
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	58
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



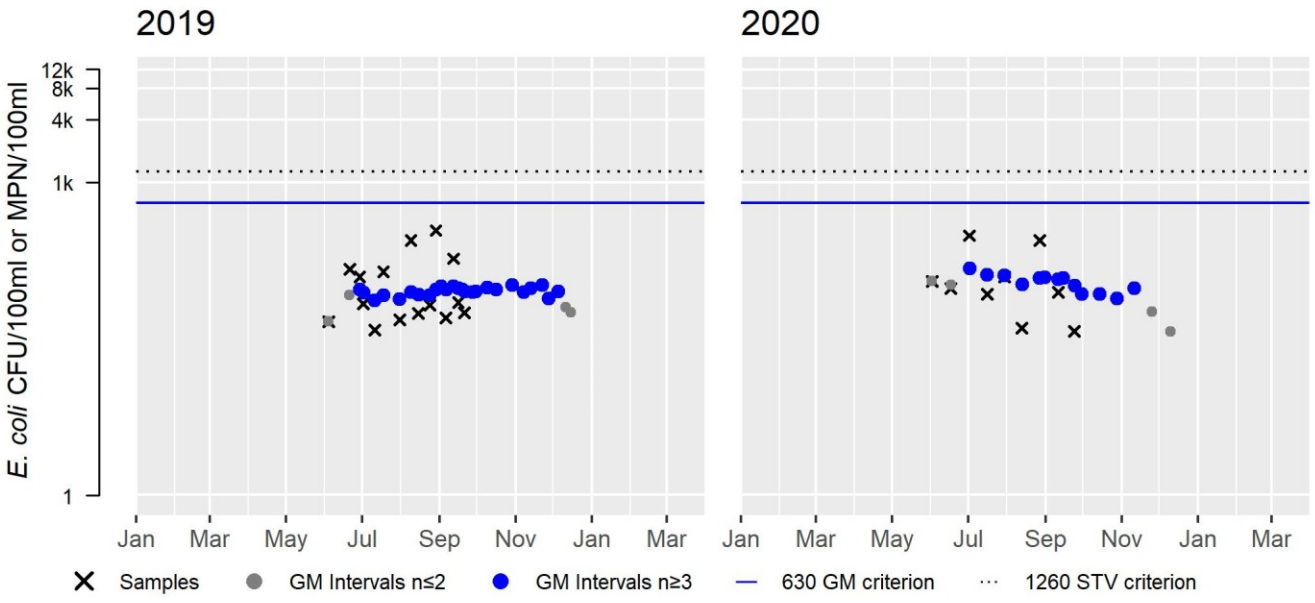
FRC_French15 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	89
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	102
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0

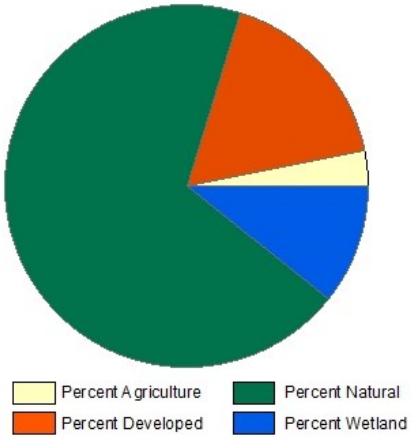


French River (MA42-05)

Location:	Dam (NATID: MA00108) at North Village, Webster/Dudley to Webster WWTP outfall (NPDES: MA0100439), Webster/Dudley.
AU Type:	RIVER
AU Size:	2.4 MILES
Classification/Qualifier:	B: WWF

French River - MA42-05

Watershed Area: 91.46 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	91.46	13.48	32.47	4.56
Agriculture	3.1%	2%	1.7%	2.6%
Developed	17.1%	27.9%	14.7%	25.4%
Natural	69.1%	63.7%	64.7%	58.7%
Wetland	10.7%	6.4%	18.9%	13.3%
Impervious Cover	6.7%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)		Added
5	5	(Flow Regime Modification*)		Unchanged
5	5	(Non-Native Aquatic Plants*)		Added
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
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Flow Regime Modification*)	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Benthic Macroinvertebrates	Impacts from Hydrostructure Flow Regulation/Modification (Y)	X				

Recommendations

2022 Recommendations
ALU: Benthic macroinvertebrate sampling in this French River AU (MA42-05) is recommended to better evaluate the Aquatic Life Use and determine if a delisting is warranted (statistically significant decrease in total phosphorus concentrations).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary

MA DFG biologists conducted barge electrofishing in this French River AU (MA42-05) upstream from the park on Tracy Ct (SampleID 7736) and backpack electrofishing in the river downstream from Chase Avenue (SampleID 7734) in July 2018 while MassDEP staff conducted water quality sampling in the river at Oxford Avenue/Pleasant Street, Dudley/Webster (W0602) as part of SMART sampling program between March 2011 and April 2013 and there were no observations of any algae in the river further downstream near Brandon Road (W2235) during the summer of 2011. Although no fluvial fish were collected in the barge sampling effort, 57% of the sample was represented by moderately tolerant macrohabitat generalist fishes. Further downstream the backpack sample was dominated (84%) by fluvial fish. MassDEP staff noted infestations of the non-native aquatic macrophytes variable milfoil (Myriophyllum heterophyllum) and curly-leaf pondweed (Potamogeton crispus) in the river at Oxford Avenue/Pleasant Street, Dudley/Webster (W0602) although the limited discrete water quality sampling data here between 2011 and 2013 (n=12) were indicative of generally good conditions. While no pre-dawn DO data were available, the data can be summarized as follows: minimum DO 7.9mg/L, maximum temperature 23.9°C, pH 6.4 to 7.2SU, generally no indications of nutrient enrichment problems (maximum DO saturation 105.8%, maximum pH 7.2SU, with only two notes of dense algae in 2011, maximum seasonal average total phosphorus concentration 0.027mg/L), low total ammonia-nitrogen concentrations (maximum 0.05mg/L), low chloride concentrations (maximum 50mg/L). Lastly a statistically significant decreasing trend of total phosphorus, both annually and seasonally, was calculated between 1994 and 2013 for sites in this French River AU (MA42-05).
The Aquatic Life Use for this French River AU (MA42-05) will continue to be assessed as Not Supporting with the Benthic Macroinvertebrates and Flow Regime Modification impairments being carried forward. Impairments are being added for Curly-leaf Pondweed (P. crispus) and the generic Non-native Aquatic Plants impairment for variable milfoil (M. heterophyllum).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7734	MassDFG	Fish Community	French River	Downstream Chase Ave. crossing. Site #1, Webster	42.04640	-71.88655
7736	MassDFG	Fish Community	French River	Upstream from park on Tracy Ct. Site #1, Webster	42.05127	-71.88068
W0602	MassDEP	Water Quality	French River	[Oxford Avenue/Pleasant Street, Dudley/Webster (near USGS flow gaging station #01125000)]	42.050945	-71.885074
W2235	MassDEP	Water Quality	French River	[approximately 200 feet downstream from Brandon Road, Webster]	42.042520	-71.887472

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)

[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, BND = Blacknose Dace, CP = Chain Pickerel, CS = Common Shiner, F = Fallfish, LMB = Largemouth Bass, RBS = Redbreast Sunfish, SMB = Smallmouth Bass, WS = White Sucker, YB = Yellow Bullhead]

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
7734	07/03/18	BP	TP		9	126	0%	4	84%	0%	3	6%	No	Yes	AE, BND, CS, F, LMB, RBS, SMB, WS, YB,
7736	07/05/18	BG	TP		7	35	0%	0	0%	0%	4	57%	No	Yes	AE, B, CP, LMB, RBS, SMB, YB,

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP Undated 1)

Summary Statement
MassDEP staff reported infestations of the non-native variable milfoil (*Myriophyllum heterophyllum*; 2009, 2010, 2017) and curly-leaf pondweed (*Potamogeton crispus*; 2009) in the French River (MA42-05) in the vicinity of water quality station W0602.

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0602	03/23/11	10/26/11	5	8.2	10.2	0	0	0
W0602	01/25/12	11/14/12	6	7.9	10.4	0	0	0
W0602	02/27/13	04/24/13	1	11.4	11.4	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0602	03/23/11	10/26/11	5	2	23.0	15.0	2	1	0	0
W0602	01/25/12	11/14/12	6	1	23.9	13.8	2	2	0	0

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
W0602	02/27/13	04/24/13	1	0	10.7	10.7	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

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
W0602	03/23/11	10/26/11	5	6.4	6.9	1	0
W0602	01/25/12	11/14/12	6	6.7	7.2	0	0
W0602	02/27/13	04/24/13	1	7	7	0	0

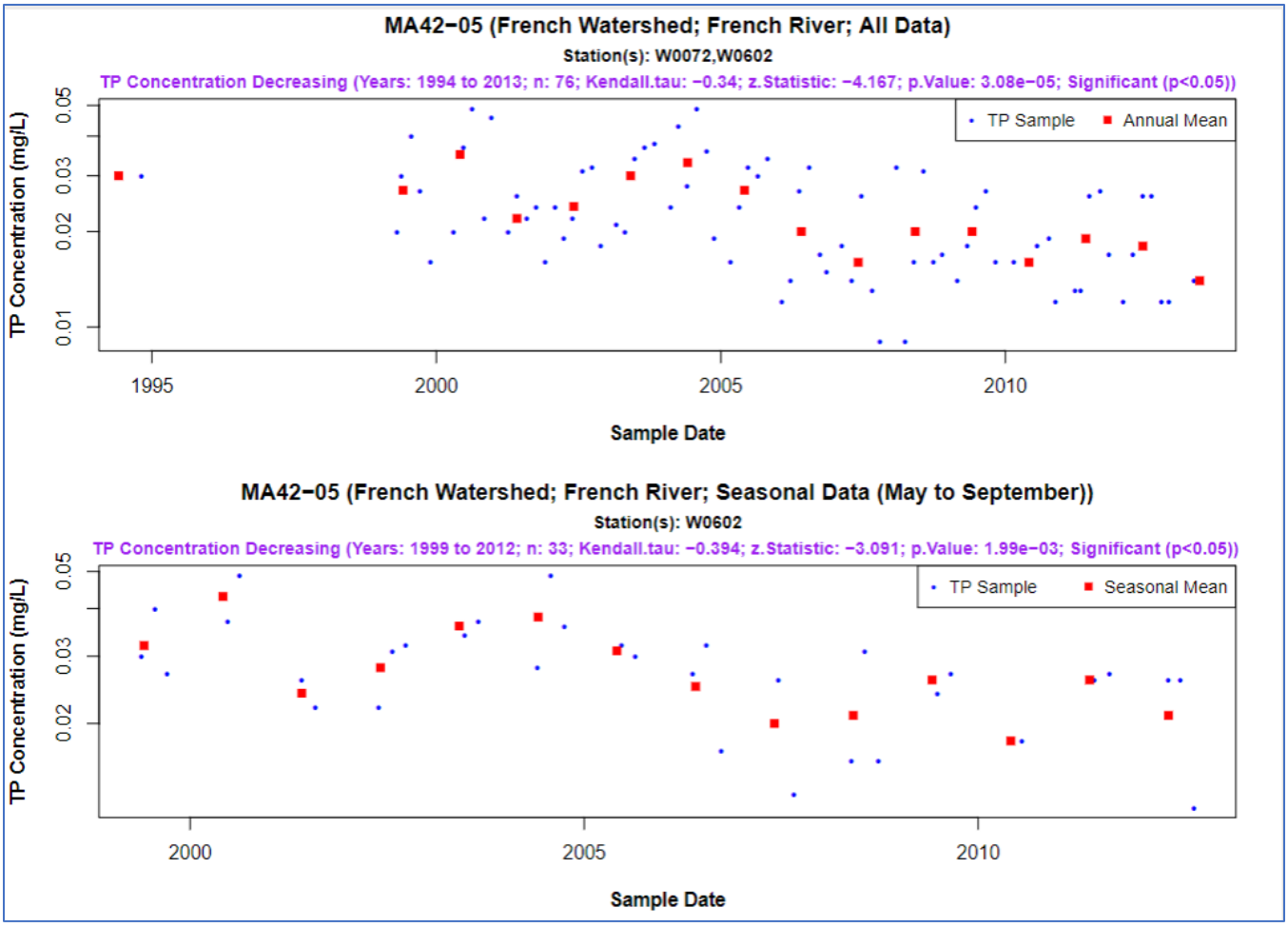
Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0602	2011	2	0.026	0.027	0.027	--	--	105.8	6.9	--	--
W0602	2012	3	0.012	0.026	0.021	--	--	103.2	7.2	2	2
W0602	2013	--	--	--	--	--	--	102.6	7.0	--	--
W2235	2011	--	--	--	--	--	--	--	--	4	0

Long Term Trend analysis for MassDEP total phosphorus data (MassDEP Undated 7)



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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0602	2011	5	0.020	0.050	0.028	0	0
W0602	2012	6	0.020	0.040	0.030	0	0
W0602	2013	1	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W0602	2011	5	25	41	33	0	0
W0602	2012	6	36	50	43	0	0
W0602	2013	1	48	48	48	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Start Date	End Date	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
W0602	03/23/11	10/26/11	5	123	192	0	0	0	0	0	0
W0602	01/25/12	11/14/12	6	171	236	0	0	0	0	0	0
W0602	02/27/13	04/24/13	1	215	215	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this French River AU (MA42-05), therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff recorded observations of aesthetics conditions at two sampling sites along this French River AU (MA42-05) from up to downstream as follows: near Oxford Avenue/Pleasant Street, Dudley/Webster (near USGS flow gaging station #01125000 (W0602) between 2011 and 2013 and further downstream ~200 feet downstream from Brandon Road, Webster (W2235) during the summer of 2011. There were generally no objectionable conditions documented. The Aesthetics Use for this French River AU (MA42-05) is assessed as Fully Supporting based on the general lack of objectionable conditions noted by MassDEP staff during their surveys conducted at two sampling sites during the summers of 2011 -2013. The former Alerts for dense filamentous algae and observations of trash are being removed.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0602	MassDEP	Water Quality	French River	[Oxford Avenue/Pleasant Street, Dudley/Webster (near USGS flow gaging station #01125000)]	42.050945	-71.885074
W2235	MassDEP	Water Quality	French River	[approximately 200 feet downstream from Brandon Road, Webster]	42.042520	-71.887472

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0602	French River	2011	5	MassDEP aesthetics observations for station W0602 on French River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2011.

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0602	French River	2012	6	MassDEP aesthetics observations for station W0602 on French River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2012.
W0602	French River	2013	1	MassDEP aesthetics observations for station W0602 on French River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2013. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=1).
W2235	French River	2011	8	MassDEP aesthetics observations for station W2235 on French River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2011.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0602	2011	5	0	0
W0602	2012	6	2	2
W0602	2013	1	0	0
W2235	2011	8	4	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0602	French River	2011	Color	Light Yellow/Tan	2	5
W0602	French River	2011	Color	None	1	5
W0602	French River	2011	Color	Reddish	2	5
W0602	French River	2011	Objectionable Deposits	Unobservable	5	5
W0602	French River	2011	Odor	Musty (Basement)	1	5
W0602	French River	2011	Odor	None	4	5
W0602	French River	2011	Scum	Yes	5	5
W0602	French River	2011	Turbidity	Slightly Turbid	1	5
W0602	French River	2011	Turbidity	Unobservable	4	5
W0602	French River	2012	Color	Light Yellow/Tan	3	6
W0602	French River	2012	Color	None	1	6
W0602	French River	2012	Color	Reddish	2	6
W0602	French River	2012	Objectionable Deposits	Unobservable	4	6
W0602	French River	2012	Objectionable Deposits	Yes	2	6
W0602	French River	2012	Odor	None	4	6
W0602	French River	2012	Odor	Other	2	6
W0602	French River	2012	Scum	Yes	6	6
W0602	French River	2012	Turbidity	None	1	6
W0602	French River	2012	Turbidity	Slightly Turbid	2	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0602	French River	2012	Turbidity	Unobservable	3	6
W0602	French River	2013	Color	None	1	1
W0602	French River	2013	Objectionable Deposits	Unobservable	1	1
W0602	French River	2013	Odor	None	1	1
W0602	French River	2013	Scum	Yes	1	1
W0602	French River	2013	Turbidity	None	1	1
W2235	French River	2011	Color	Light Yellow/Tan	4	8
W2235	French River	2011	Color	None	3	8
W2235	French River	2011	Color	NR	1	8
W2235	French River	2011	Objectionable Deposits	No	6	8
W2235	French River	2011	Objectionable Deposits	Unobservable	1	8
W2235	French River	2011	Objectionable Deposits	Yes	1	8
W2235	French River	2011	Odor	None	7	8
W2235	French River	2011	Odor	NR	1	8
W2235	French River	2011	Scum	No	3	8
W2235	French River	2011	Scum	Yes	5	8
W2235	French River	2011	Turbidity	None	6	8
W2235	French River	2011	Turbidity	Slightly Turbid	2	8

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted limited *E. coli* bacteria sampling in this French River AU (MA42-05) during the primary contact seasons between April 2011 and April 2013 at Oxford Avenue/Pleasant Street, Dudley/Webster (near USGS flow gaging station #01125000) (W0602). MassDEP staff and French River Connection (FRC) volunteers also collected E. coli bacteria samples further downstream near Brandon Road (W2235 and FRC_French4). MassDEP sampling at this location (W2235) was between May and October 2011 while FRC sampling (FRC_French4) was between June and September 2019 and June and September 2020. Data analysis indicated that while insufficient data were available to make an assessment for the upstream site, the moderate frequency data collected by MassDEP in 2011 in the river near Brandon Road (W2235) documented 56% of the intervals had GMs >126 cfu/100ml and one sample exceeded the 410 cfu/100ml STV (the seasonal GM (n=7) was 103 cfu/100ml) while the high frequency FRC data had 41% GM interval exceedances with one STV exceedance in 2019 but the moderate frequency data in 2020 had no GM or STV exceedances. The FRC_French4 cumulative GM exceedance was 28% with seasonal GMs of 110 (n=16) cfu/100ml in 2019 and 57 (n=9) cfu/100ml in 2020).

The Primary Contact Recreational Use for this French River AU (MA42-05) is assessed as Fully Supporting since the *E. coli* data collected by MassDEP staff and FRC volunteers in the summers of 2011, 2019, and 2020 did not exceed the Use Attainment Impairment Decision Schema (MassDEP 2022).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French4	French River Connection	Water Quality	French River	Brandon Road, Dudley	42.042582	-71.887444

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0602	MassDEP	Water Quality	French River	[Oxford Avenue/Pleasant Street, Dudley/Webster (near USGS flow gaging station #01125000)]	42.050945	-71.885074
W2235	MassDEP	Water Quality	French River	[approximately 200 feet downstream from Brandon Road, Webster]	42.042520	-71.887472

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (FRC 2020) (MassDEP Undated 4) (MassDEP Undated 7) (MassDEP Undated 6)

[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
FRC_French4	French River Connection	E. coli	06/04/19	09/21/19	16	37.3	686.7	110
FRC_French4	French River Connection	E. coli	06/02/20	09/24/20	9	20.4	235.9	57
W0602	MassDEP	E. coli	04/27/11	10/26/11	4	14	96	34
W0602	MassDEP	E. coli	05/29/12	09/26/12	3	35	228	77
W0602	MassDEP	E. coli	04/24/13	04/24/13	1	21	21	21
W2235	MassDEP	E. coli	05/05/11	10/12/11	7	30	548	103

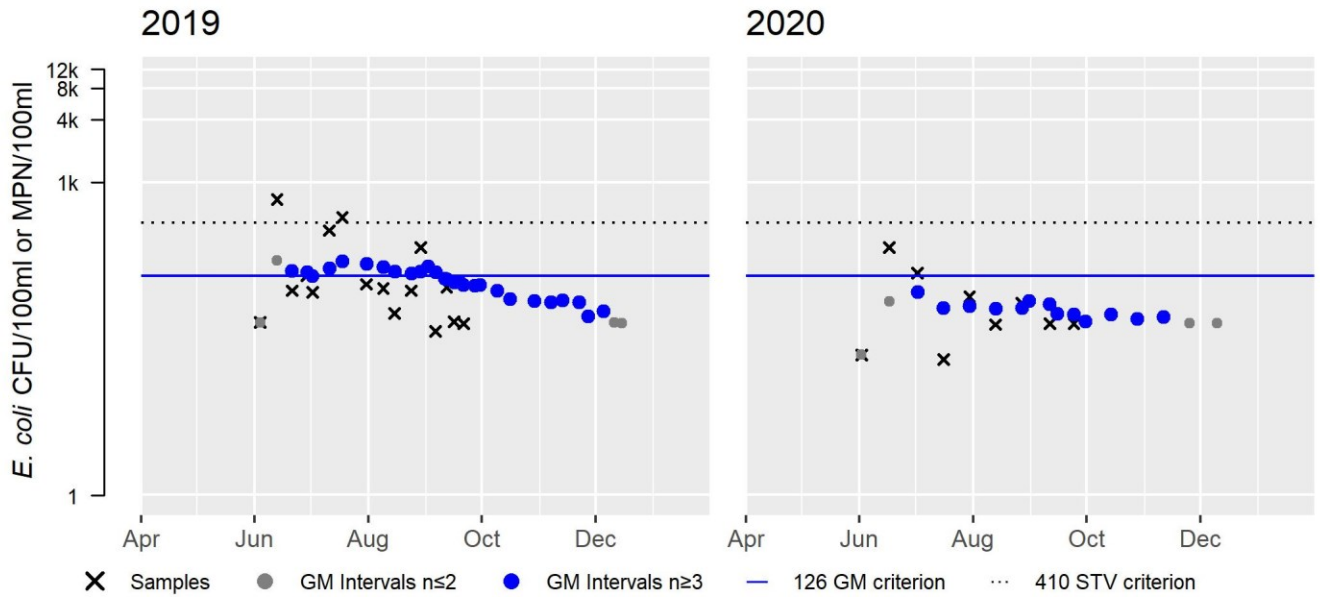
FRC_French4 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	110
#GMI	27
#GMI Ex	11
%GMI Ex	41
n>STV	2
%n>STV	12

Var	Res
Samples	9
SeasGM	57
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	28



W0602 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

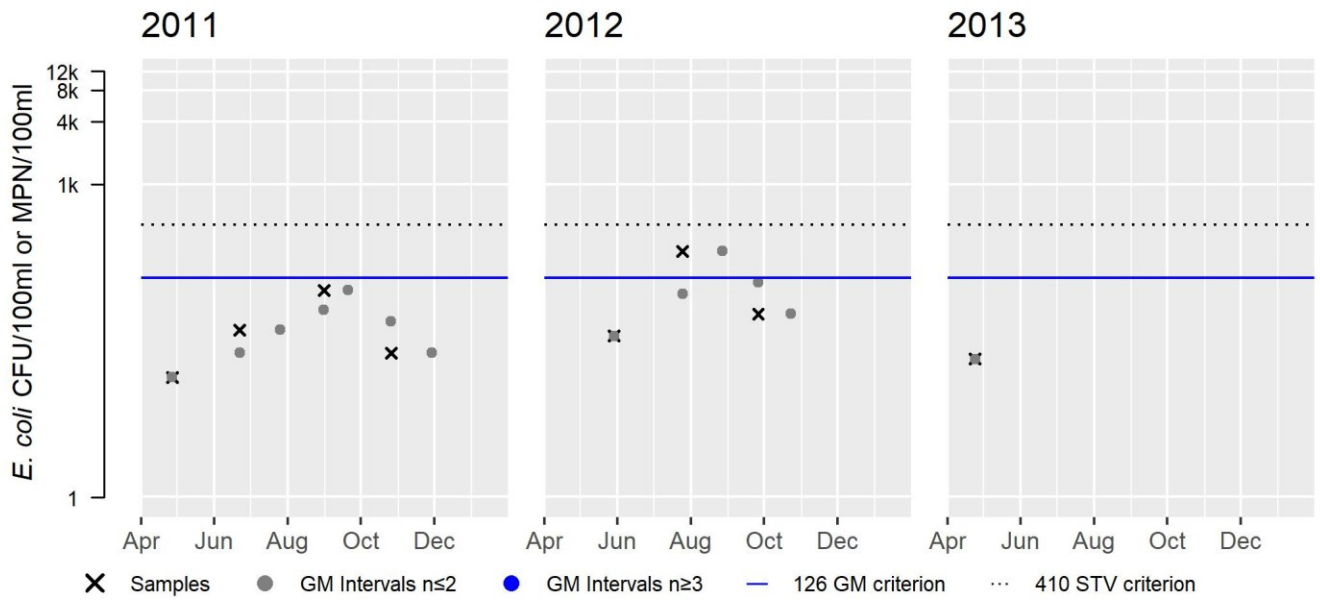
Var	Res
Samples	4
SeasGM	34
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	3
SeasGM	77
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	1
SeasGM	21
#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 Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

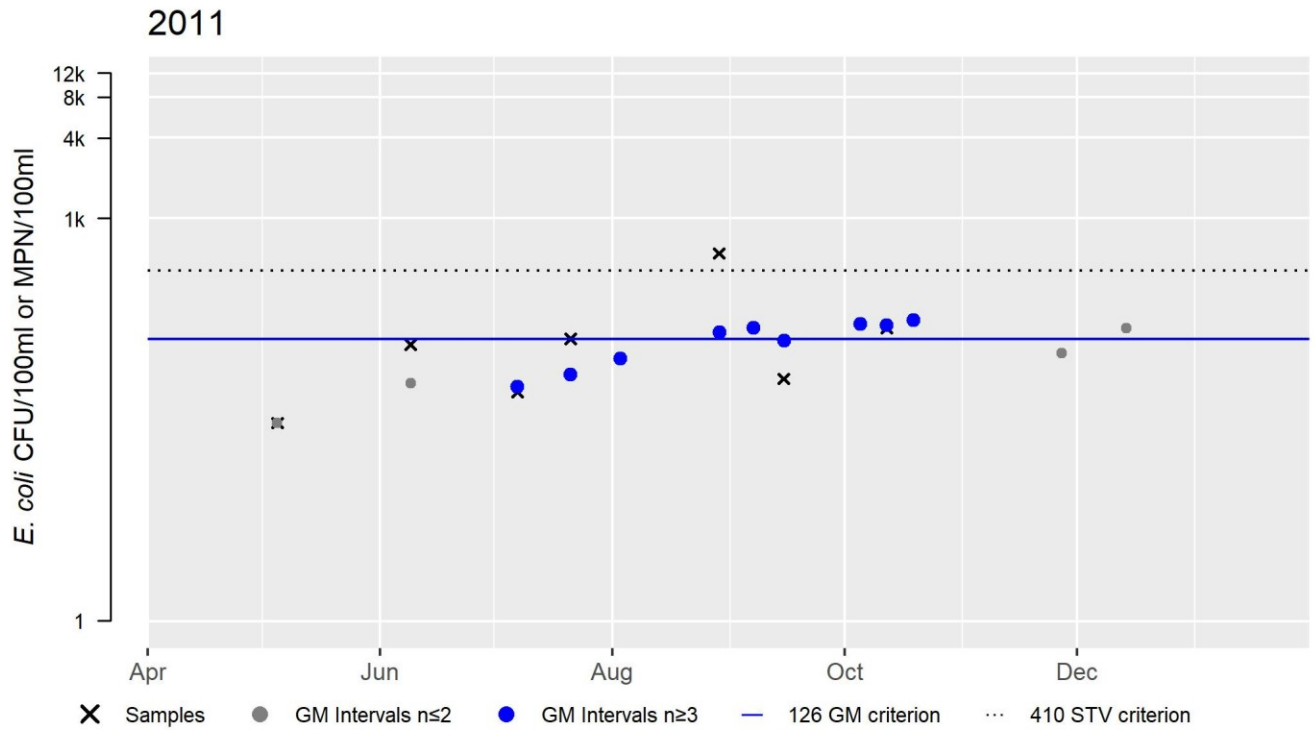
Variable	Cumulative %GMI Ex (all years)
Result	0



W2235 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	7
SeasGM	103
#GMI	9
#GMI Ex	5
%GMI Ex	56
n>STV	1
%n>STV	14

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



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted limited *E. coli* bacteria sampling in this French River AU (MA42-05) between March 2011 and April 2013 at Oxford Avenue/Pleasant Street, Dudley/Webster (near USGS flow gaging station #01125000) (W0602). MassDEP staff and French River Connection (FRC) volunteers also collected *E. coli* bacteria samples further downstream near Brandon Road (W2235 and FRC_French4). MassDEP sampling at this location (W2235) was between May and October 2011 while FRC sampling (FRC_French4) was between June and September 2019 and June and September 2020. Data analysis indicated that while insufficient data were available to make an assessment for the upstream site, the moderate frequency data collected by MassDEP in 2011 in the river near Brandon Road (W2235) documented none of the intervals had GMs >630 cfu/100ml and no samples exceeded the 1260 cfu/100ml STV (the seasonal GM (n=7) was 103 cfu/100ml) nor did the high frequency FRC data in 2019 or the moderate frequency data in 2020 had have any GM or STV exceedances in either. The FRC_French4 seasonal GMs were 110 (n=16) cfu/100ml in 2019 and 57 (n=9) cfu/100ml in 2020).

The Secondary Contact Recreational Use for this French River AU (MA42-05) is assessed as Fully Supporting since the *E. coli* data collected by MassDEP staff and FRC volunteers in the summers of 2011, 2019, and 2020 did not exceed the Use Attainment Impairment Decision Schema.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French4	French River Connection	Water Quality	French River	Brandon Road, Dudley	42.042582	-71.887444
W0602	MassDEP	Water Quality	French River	[Oxford Avenue/Pleasant Street, Dudley/Webster (near USGS flow gaging station #01125000)]	42.050945	-71.885074
W2235	MassDEP	Water Quality	French River	[approximately 200 feet downstream from Brandon Road, Webster]	42.042520	-71.887472

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (FRC 2020) (MassDEP Undated 4) (MassDEP Undated 7) (MassDEP Undated 6)

[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)
FRC_French4	French River Connection	E. coli	06/04/19	09/21/19	16	37.3	686.7	110
FRC_French4	French River Connection	E. coli	06/02/20	09/24/20	9	20.4	235.9	57
W0602	MassDEP	E. coli	03/23/11	10/26/11	5	2	96	19
W0602	MassDEP	E. coli	01/25/12	11/14/12	6	26	228	46
W0602	MassDEP	E. coli	04/24/13	04/24/13	1	21	21	21
W2235	MassDEP	E. coli	05/05/11	10/12/11	7	30	548	103

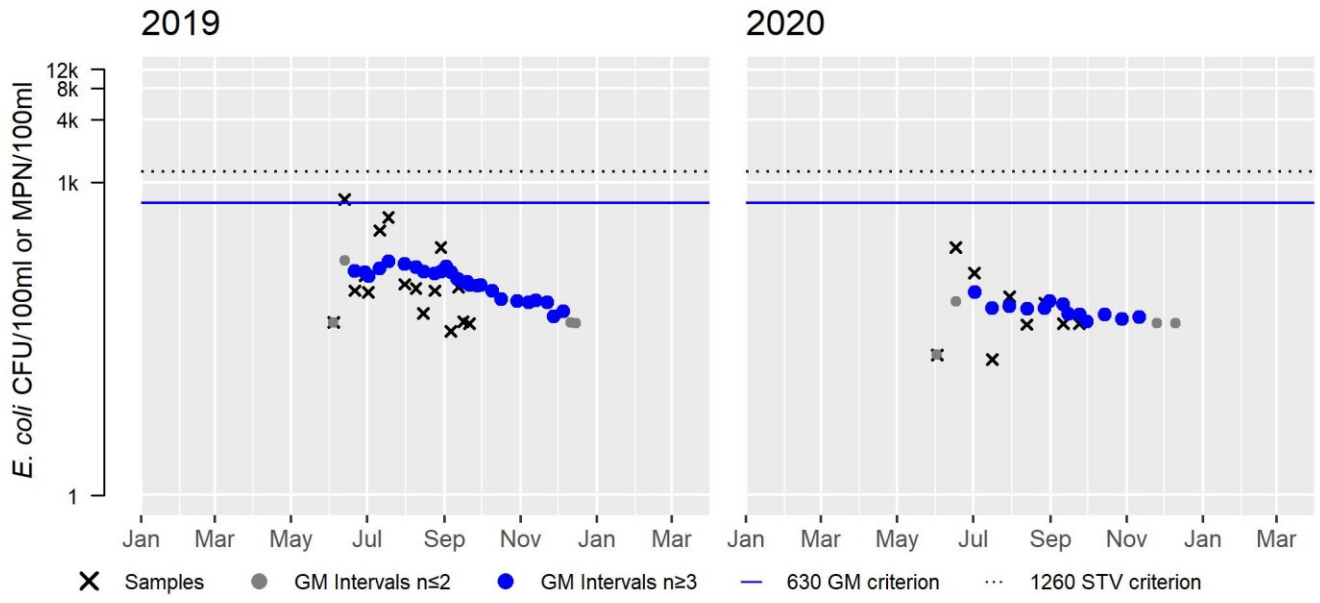
FRC_French4 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	110
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	57
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



W0602 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

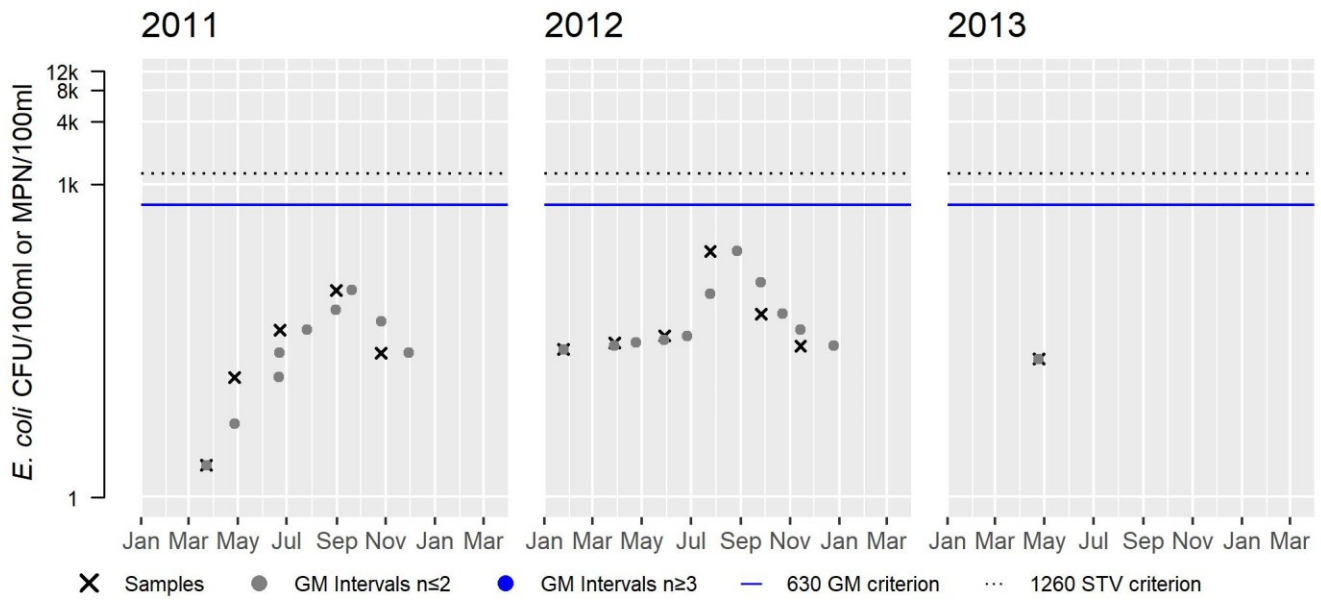
Var	Res
Samples	5
SeasGM	19
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	6
SeasGM	46
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	1
SeasGM	21
#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 Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

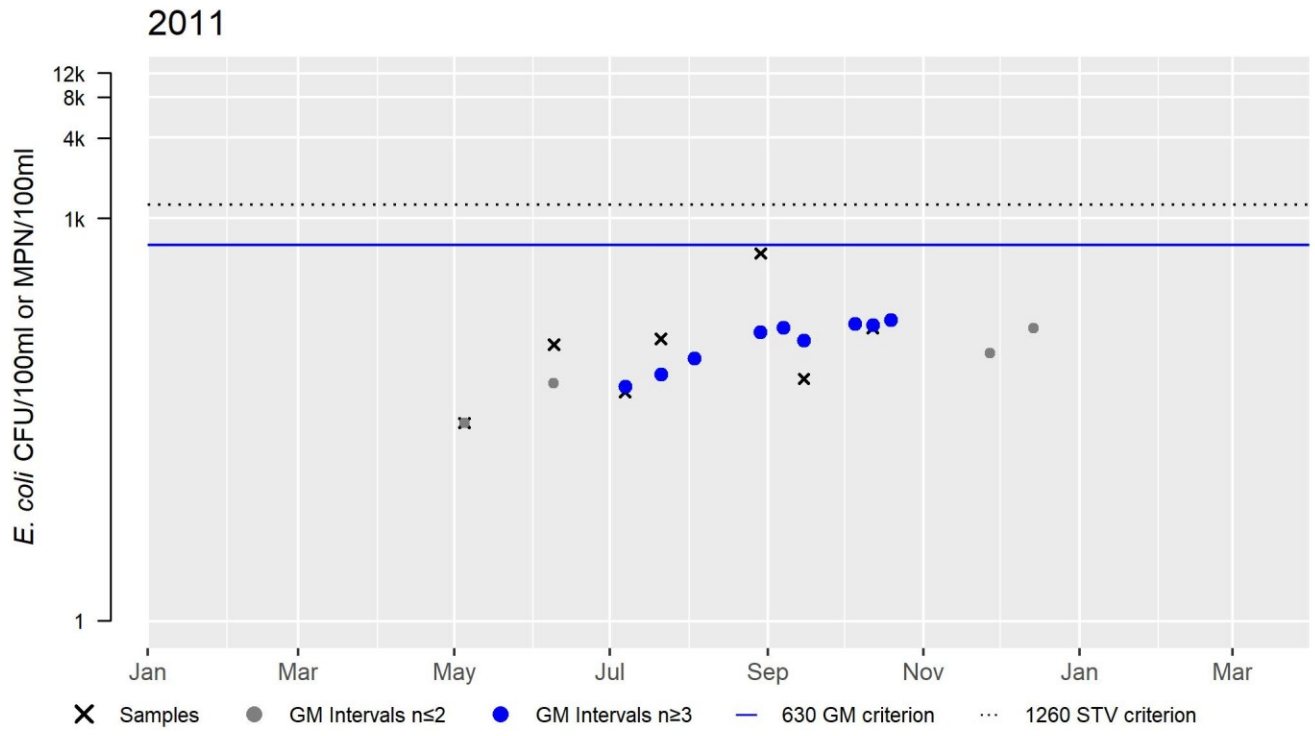
Variable	Cumulative %GMI Ex (all years)
Result	0



W2235 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	7
SeasGM	103
#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 Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

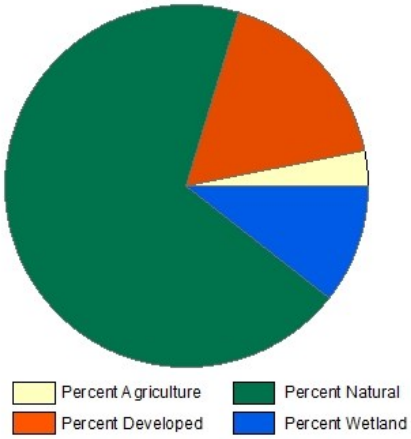


French River (MA42-06)

Location:	Webster WWTP outfall (NPDES: MA0100439), Webster/Dudley to state line, Dudley, MA/Thompson,CT.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: WWF

French River - MA42-06

Watershed Area: 93.05 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	93.05	11.03	33.03	3.49
Agriculture	3.1%	1.3%	1.7%	1.6%
Developed	17.3%	31.6%	14.8%	30.3%
Natural	69%	61.8%	64.7%	57.3%
Wetland	10.6%	5.3%	18.8%	10.8%
Impervious Cover	6.8%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Curly-leaf Pondweed*)		Added
5	5	Benthic Macroinvertebrates		Unchanged
5	5	Cause Unknown [Sediment Screening Value (Exceedance)]		Unchanged
5	5	Escherichia Coli (E. Coli)		Added
5	5	Nutrients		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				
Benthic Macroinvertebrates	Dam or Impoundment (Y)	X				
Benthic Macroinvertebrates	Municipal Point Source Discharges (Y)	X				
Benthic Macroinvertebrates	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
Cause Unknown [Sediment Screening Value (Exceedance)]	Contaminated Sediments (Y)	X				
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Nutrients	Dam or Impoundment (Y)	X				
Nutrients	Municipal Point Source Discharges (Y)	X				
Nutrients	Unspecified Urban Stormwater (Y)	X				

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey along this French River AU (MA42-06) to determine if *M. heterophyllum* is present. Additionally, water quality monitoring including deployed probes as well as benthic macroinvertebrate sampling is recommended to evaluate whether conditions have improved in this French River AU (MA42-06) because of improved treatment at the WWTP discharges upstream (the Webster WWTF, at the upstream end of this French River AU, completed extensive upgrades in 2011 and the facility now provides tertiary treatment of the wastewater including phosphorus removal).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
MassDEP staff conducted water quality sampling in this French River AU (MA42-06) downstream of the Perryville Dam and Webster-Dudley WWTP near Perryville Road bridge (W0075) as part of SMART sampling program between March 2011 and April 2013. Here an infestation of non-native aquatic macrophyte curly-leaf pondweed (*Potamogeton crispus*) was noted. The limited discrete water quality sampling data collected between 2011 and 2013 (n=13) were indicative of generally good conditions. While no pre-dawn DO data were available, the data can be summarized as follows: minimum DO 7.5mg/L, maximum temperature 23.4°C, pH 6.5 to 7.2SU, no indications of nutrient enrichment problems (maximum DO saturation 107.2%, maximum pH 7.2SU, no observations of dense algae, maximum seasonal average total phosphorus concentration 0.03mg/L), low total ammonia-nitrogen concentrations (maximum 0.04mg/L), low chloride concentrations (maximum 140mg/L). The Aquatic Life Use for this French River AU (MA42-06) will continue to be assessed as Not Supporting with the Benthic Macroinvertebrates, Nutrients, and Cause Unknown [Sediment Screening Value (Exceedance)] impairments being carried forward. A Curly-leaf Pondweed impairment is being added. Additional sampling is being recommended since the limited discrete water quality data collected between March 2011 and April 2013 do not indicate nutrient related stress so conditions may have improved. An Alert is also being identified for the potential infestation of *M. heterophyllum* which is present in the river upstream from this AU.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0075	MassDEP	Water Quality	French River	[downstream of the Perryville Dam and downstream of the Webster-Dudley WWTP, Perryville Rd. bridge, Webster]	42.024699	-71.884182

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP Undated 1)

Summary Statement
MassDEP staff reported the presence of an infestation of curly-leaf pondweed (*Potamogeton crispus*) in the French River (MA42-06) in the vicinity of water quality station W0075 in 2009.

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0075	03/23/11	10/26/11	5	8.5	10.5	0	0	0
W0075	01/25/12	11/14/12	6	7.5	10.4	0	0	0
W0075	02/27/13	04/24/13	2	11.6	13.1	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0075	03/23/11	10/26/11	5	2	22.5	15.0	2	1	0	0
W0075	01/25/12	11/14/12	6	1	23.4	13.8	2	2	0	0
W0075	02/27/13	04/24/13	2	0	10.8	6.7	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

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
W0075	03/23/11	10/26/11	5	6.5	7	0	0
W0075	01/25/12	11/14/12	6	6.8	7.2	0	0
W0075	02/27/13	04/24/13	2	7	7.1	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0075	2011	2	0.029	0.031	0.030	--	--	106.8	7.0	4	0
W0075	2012	3	0.018	0.030	0.025	--	--	104.6	7.2	1	0
W0075	2013	--	--	--	--	--	--	107.2	7.1	1	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W0075	2011	5	0.020	0.040	0.028	0	0
W0075	2012	6	0.020	0.040	0.028	0	0
W0075	2013	2	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W0075	2011	5	27	45	36	0	0
W0075	2012	6	38	58	46	0	0
W0075	2013	2	51	140	96	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Start Date	End Date	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
W0075	03/23/11	10/26/11	5	132	215	0	0	0	0	0	0
W0075	01/25/12	11/14/12	6	186	323	0	0	0	0	0	0
W0075	02/27/13	04/24/13	2	230	524	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in this French River AU (MA42-06), and since no site-specific advisory has been issued, the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert

Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff recorded observations of aesthetics conditions downstream of the Perryville Dam and Webster-Dudley WWTP near Perryville Road bridge (W0075) in this French River AU (MA42-06) between 2011 and 2013 (n=21 site visits). There were generally no objectionable conditions documented. The Aesthetics Use for this French River AU (MA42-06) is assessed as Fully Supporting based on the general lack of objectionable conditions in the river noted by MassDEP staff during their surveys conducted between 2011 -2013.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0075	MassDEP	Water Quality	French River	[downstream of the Perryville Dam and downstream of the Webster-Dudley WWTP, Perryville Rd. bridge, Webster]	42.024699	-71.884182

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W0075	French River	2011	13	MassDEP aesthetics observations for station W0075 on French River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2011.
W0075	French River	2012	6	MassDEP aesthetics observations for station W0075 on French River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2012.
W0075	French River	2013	2	MassDEP aesthetics observations for station W0075 on French River can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2013. 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 7) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0075	2011	13	4	0
W0075	2012	6	1	0
W0075	2013	2	1	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0075	French River	2011	Color	Light Yellow/Tan	9	13

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W0075	French River	2011	Color	None	2	13
W0075	French River	2011	Color	Reddish	2	13
W0075	French River	2011	Objectionable Deposits	No	4	13
W0075	French River	2011	Objectionable Deposits	Unobservable	7	13
W0075	French River	2011	Objectionable Deposits	Yes	2	13
W0075	French River	2011	Odor	Effluent (Treated)	3	13
W0075	French River	2011	Odor	Musty (Basement)	2	13
W0075	French River	2011	Odor	None	6	13
W0075	French River	2011	Odor	Other	2	13
W0075	French River	2011	Scum	Yes	13	13
W0075	French River	2011	Turbidity	Moderately Turbid	2	13
W0075	French River	2011	Turbidity	None	6	13
W0075	French River	2011	Turbidity	Slightly Turbid	2	13
W0075	French River	2011	Turbidity	Unobservable	3	13
W0075	French River	2012	Color	Light Yellow/Tan	2	6
W0075	French River	2012	Color	None	1	6
W0075	French River	2012	Color	Reddish	3	6
W0075	French River	2012	Objectionable Deposits	Unobservable	3	6
W0075	French River	2012	Objectionable Deposits	Yes	3	6
W0075	French River	2012	Odor	Effluent (Treated)	1	6
W0075	French River	2012	Odor	Fishy	1	6
W0075	French River	2012	Odor	None	4	6
W0075	French River	2012	Scum	No	1	6
W0075	French River	2012	Scum	Yes	5	6
W0075	French River	2012	Turbidity	None	1	6
W0075	French River	2012	Turbidity	Slightly Turbid	2	6
W0075	French River	2012	Turbidity	Unobservable	3	6
W0075	French River	2013	Color	None	2	2
W0075	French River	2013	Objectionable Deposits	No	1	2
W0075	French River	2013	Objectionable Deposits	Unobservable	1	2
W0075	French River	2013	Odor	Effluent (Treated)	1	2
W0075	French River	2013	Odor	None	1	2
W0075	French River	2013	Scum	Yes	2	2
W0075	French River	2013	Turbidity	None	1	2
W0075	French River	2013	Turbidity	Unobservable	1	2

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted *E. coli* bacteria sampling in this French River AU (MA42-06) during the primary contact seasons between April 2011 and April 2013 downstream of the Perryville Dam Webster-Dudley WWTP, at Perryville Road bridge (W0075) and French River Connection (FRC) volunteers also collected *E. coli* bacteria samples further downstream near the State Line (FRC_French1) between June and September 2019 and June and September 2020. Data analysis indicated that the moderate frequency data collected by MassDEP in 2011 (W0075) documented 18% of the intervals had GMs >126 cfu/100ml and one sample exceeded the 410 cfu/100ml STV (the seasonal GM (n=11) was 80cfu/100ml) while the high frequency FRC data had 41% GM interval exceedances with one STV exceedance in 2019 and the moderate frequency data in 2020 had 21% GM but no STV exceedances. The FRC_French1 cumulative GM exceedance was 35% (the seasonal GMs were 112 (n=16) cfu/100ml in 2019 and 52 (n=9) cfu/100ml in 2020).
The Primary Contact Recreational Use for this French River AU (MA42-06) is assessed as Not Supporting since the most recent *E. coli* data collected by FRC volunteers in the summers of 2019 and 2020 since both years exceeded the GM intervals by more than 20% which met the Use Attainment Impairment Decision Schema (MassDEP 2022).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French1	French River Connection	Water Quality	French River	State Line, Webster	42.02437	-71.883948
W0075	MassDEP	Water Quality	French River	[downstream of the Perryville Dam and downstream of the Webster-Dudley WWTP, Perryville Rd. bridge, Webster]	42.024699	-71.884182

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (FRC 2020) (MassDEP Undated 4) (MassDEP Undated 7) (MassDEP Undated 6)
[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
FRC_French1	French River Connection	E. coli	06/04/19	09/21/19	16	28.8	816.4	112
FRC_French1	French River Connection	E. coli	06/02/20	09/24/20	9	14.5	307.6	52
W0075	MassDEP	E. coli	04/27/11	10/26/11	11	28	687	80
W0075	MassDEP	E. coli	05/29/12	09/26/12	3	140	488	214
W0075	MassDEP	E. coli	04/24/13	04/24/13	1	20	20	20

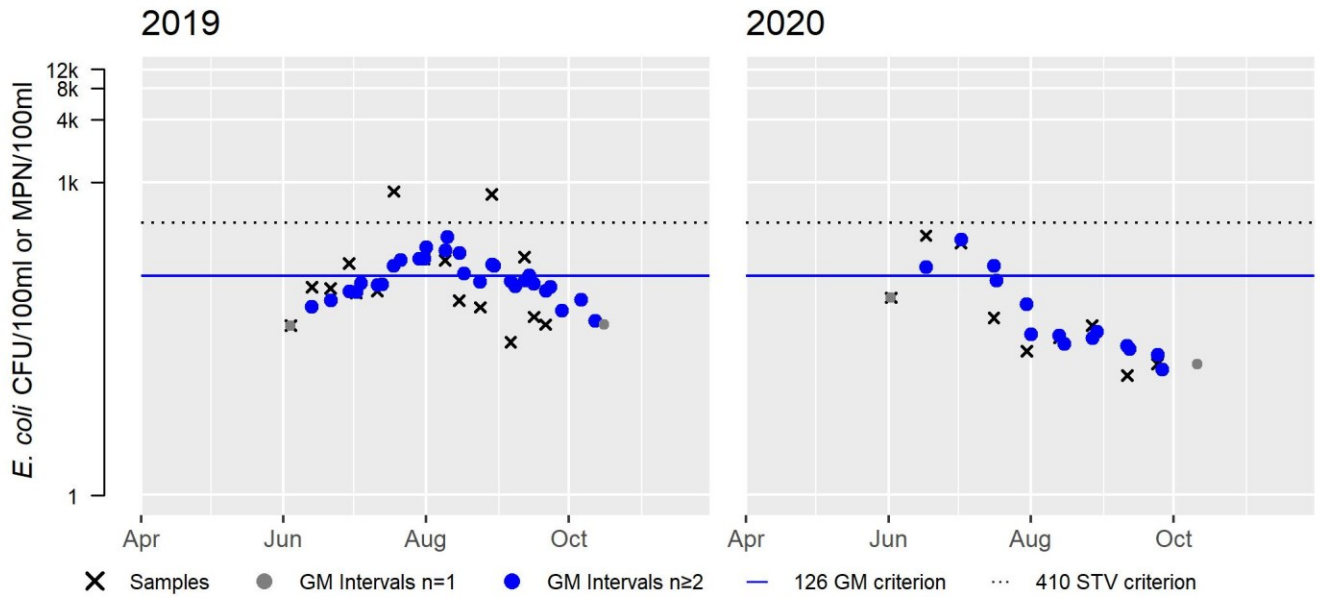
FRC_French1 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	112
#GMI	29
#GMI Ex	12
%GMI Ex	41
n>STV	2
%n>STV	12

Var	Res
Samples	9
SeasGM	52
#GMI	14
#GMI Ex	3
%GMI Ex	21
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

Variable	Cumulative %GMI Ex (all years)
Result	35



W0075 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

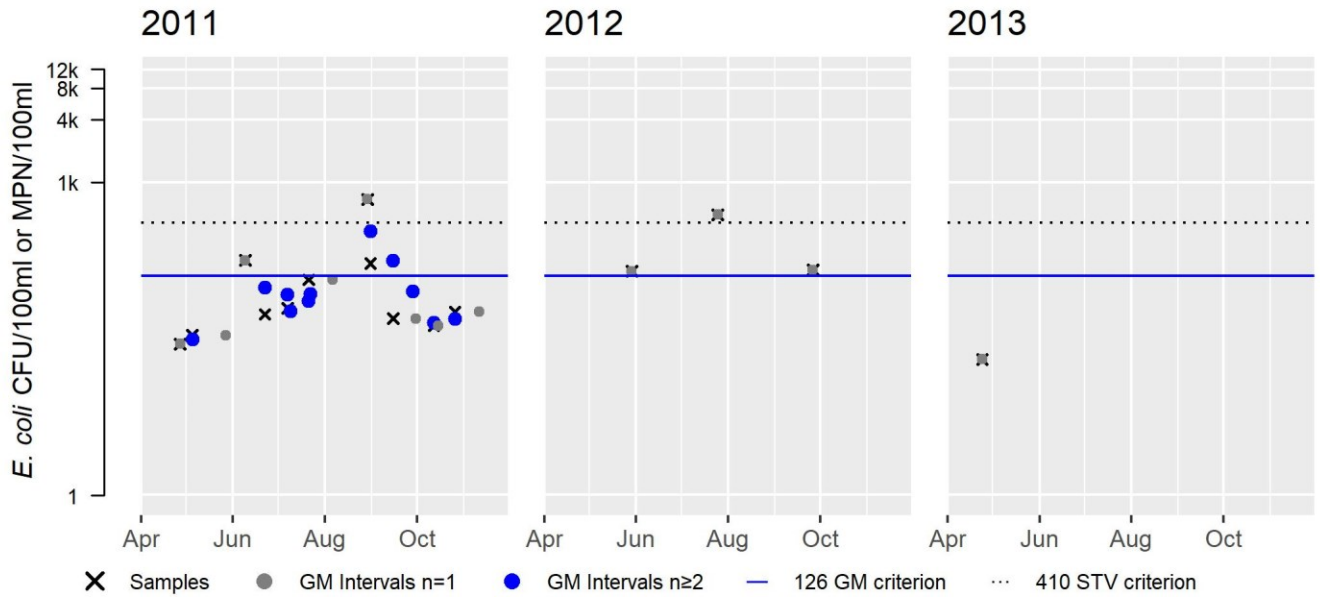
Var	Res
Samples	11
SeasGM	80
#GMI	11
#GMI Ex	2
%GMI Ex	18
n>STV	1
%n>STV	9

Var	Res
Samples	3
SeasGM	214
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	33

Var	Res
Samples	1
SeasGM	20
#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 Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

Variable	Cumulative %GMI Ex (all years)
Result	18



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted *E. coli* bacteria sampling in this French River AU (MA42-06) between March 2011 and April 2013 downstream of the Perryville Dam Webster-Dudley WWTP, at Perryville Road bridge (W0075) and French River Connection (FRC) volunteers also collected E. coli bacteria samples further downstream near the State Line (FRC_French1) between June and September 2019 and June and September 2020. Data analysis indicated that none of the data collected by either MassDEP staff or FRC volunteers had any GM interval or STV exceedances above 630 or 1260cfu/100ml, respectively in any year sampled.

The Secondary Contact Recreational Use for this French River AU (MA42-06) is assessed as Fully Supporting since none of the *E. coli* data collected by MassDEP staff or FRC volunteers in the river in 2011, 2012, 2013, 2019, or 2020 exceeded the Use Attainment Impairment Decision Schema (MassDEP 2022).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French1	French River Connection	Water Quality	French River	State Line, Webster	42.02437	-71.883948
W0075	MassDEP	Water Quality	French River	[downstream of the Perryville Dam and downstream of the Webster-Dudley WWTP, Perryville Rd. bridge, Webster]	42.024699	-71.884182

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (FRC 2020) (MassDEP Undated 4) (MassDEP Undated 7) (MassDEP Undated 6)

[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)
FRC_French1	French River Connection	E. coli	06/04/19	09/21/19	16	28.8	816.4	112
FRC_French1	French River Connection	E. coli	06/02/20	09/24/20	9	14.5	307.6	52
W0075	MassDEP	E. coli	03/23/11	10/26/11	12	28	687	80
W0075	MassDEP	E. coli	01/25/12	11/14/12	6	31	488	135
W0075	MassDEP	E. coli	02/27/13	04/24/13	2	20	53	33

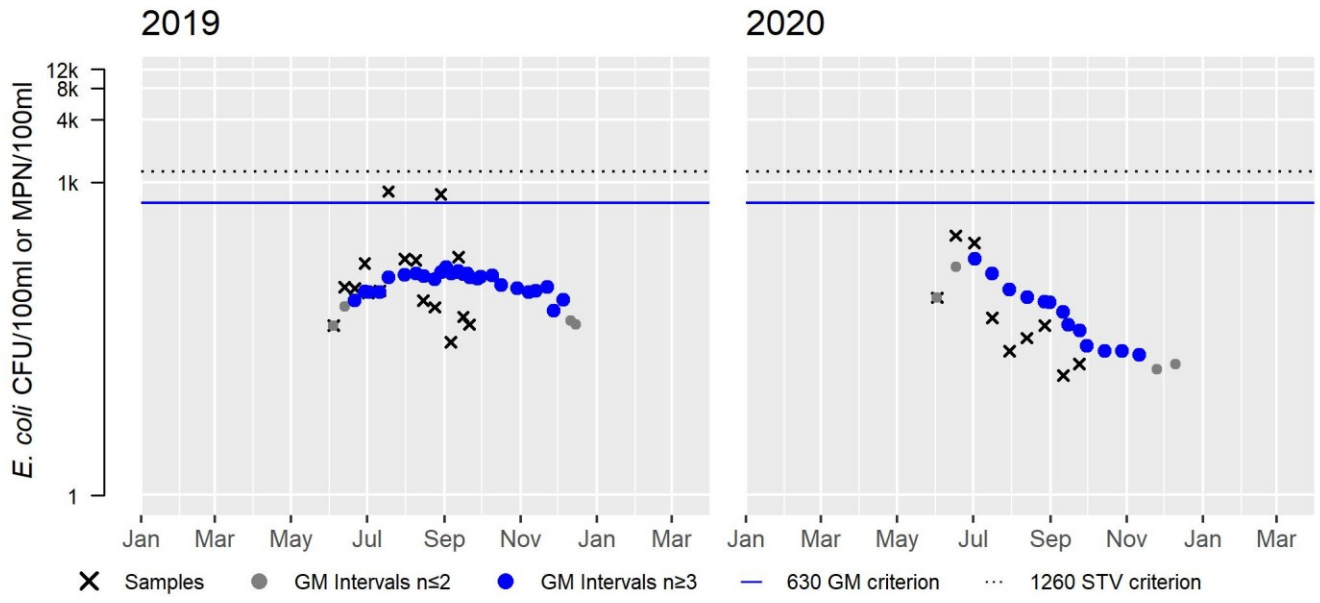
FRC_French1 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	112
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	52
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



W0075 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

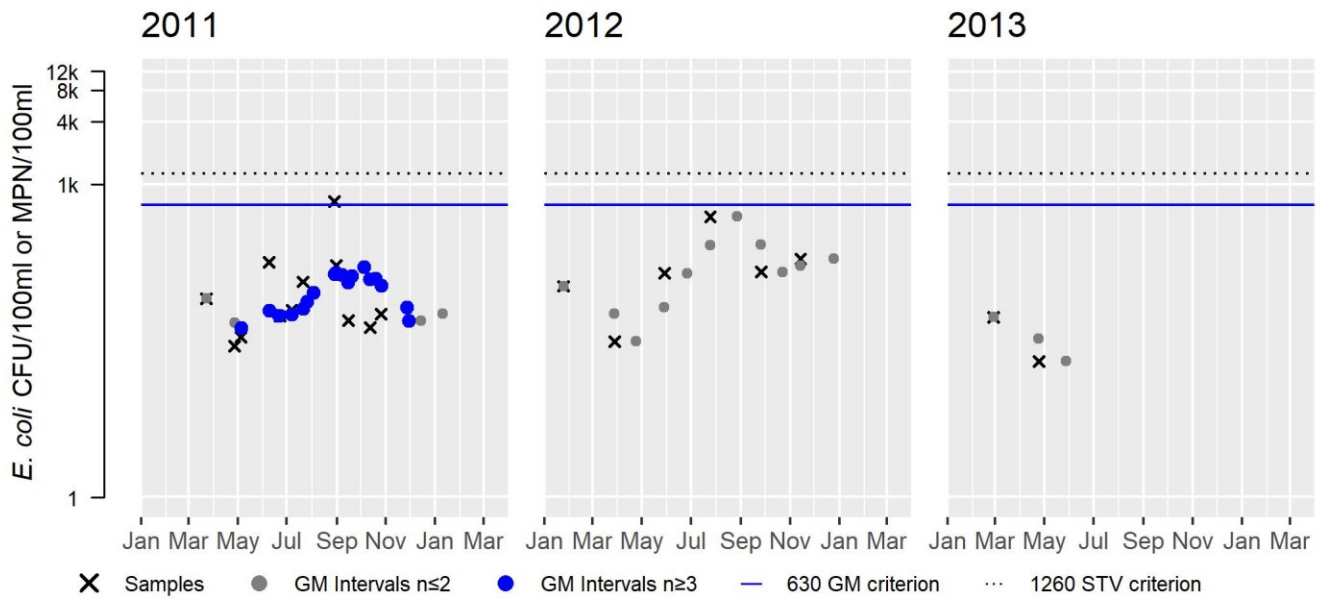
Var	Res
Samples	12
SeasGM	80
#GMI	19
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	6
SeasGM	135
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	2
SeasGM	33
#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 Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

Variable	Cumulative %GMI Ex (all years)
Result	0



Gore Pond (MA42018)

Location:	Dudley/Charlton.
AU Type:	FRESHWATER LAKE
AU Size:	169 ACRES
Classification/Qualifier:	B

No usable data were available for Gore Pond (MA42018) 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	(Non-Native Aquatic Plants*)		Unchanged
4a	4a	Algae	2361	Unchanged
4a	4a	Dissolved Oxygen	2361	Unchanged
4a	4a	Turbidity	2361	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
Algae	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	X		X	X	X
Algae	Historical Source, No Longer Present (Y)	X		X	X	X
Algae	Rural (Residential Areas) (N)	X		X	X	X
Dissolved Oxygen	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	X				
Dissolved Oxygen	Historical Source, No Longer Present (Y)	X				
Dissolved Oxygen	Rural (Residential Areas) (N)	X				
Turbidity	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	X		X	X	X
Turbidity	Historical Source, No Longer Present (Y)	X		X	X	X
Turbidity	Rural (Residential Areas) (N)	X		X	X	X

Granite Reservoir (MA42019)

Location:	Charlton. (also known as South Charlton Reservoir)
AU Type:	FRESHWATER LAKE
AU Size:	207 ACRES
Classification/Qualifier:	B

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				

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Granite Reservoir 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 Supporting	NO
2022 Use Attainment Summary	
It was previously reported that MassDEP staff noted a likely infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Granite Reservoir during a September 1994 synoptic survey. The Aquatic Life Use for Granite Reservoir will continue to be assessed as Not Supporting with the generic Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) being carried forward. A recommendation is being made, however, to conduct an aquatic macrophyte survey to confirm the presence of *M. heterophyllum* in the pond when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
It was previously reported that MassDEP staff noted an infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Granite Reservoir during a September 1994 synoptic survey.	The synoptic survey field sheet for Granite Reservoir actually said "Myriophyllum (very likely heterophyllum...)". An aquatic macrophyte survey should be conducted to confirm the presence of this species in Granite Reservoir.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Granite Reservoir, 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 Aesthetics Use for Granite Reservoir, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Granite Reservoir, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Granite Reservoir, so it is Not Assessed.	

Greenville Pond (MA42023)

Location:	Leicester.
AU Type:	FRESHWATER LAKE
AU Size:	31 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	(Water Chestnut*)		Added
4a	4a	Turbidity	2355	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Water Chestnut*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Turbidity	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X	X	X
Turbidity	Municipal Point Source Discharges (Y)			X	X	X
Turbidity	Rural (Residential Areas) (N)			X	X	X

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Greenville Pond 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 Supporting	YES
2022 Use Attainment Summary	
MassDEP's Freshwater Aquatic Invasive Species database contains three observations from the public (2007-2016) of the non-native aquatic macrophyte, water chestnut (*Trapa natans*) in Greenville Pond. An additional sighting of the non-native variable milfoil (*Myriophyllum heterophyllum*) has also been reported but needs confirmation. The Aquatic Life Use of Greenville Pond is assessed as Not Supporting because of the infestation of the non-native aquatic macrophyte with the Water Chestnut (*Trapa natans*) impairment being added. An Alert is also being identified for the potential infestation of *M. heterophyllum*.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP Undated 1)

Summary Statement	Assessment Recommendation
MassDEP's Freshwater Aquatic Invasive Species database contains three observations from the public (2007-2016) of the non-native aquatic macrophyte, water chestnut (*Trapa natans*) in Greenville Pond. An additional sighting of the non-native variable milfoil (*Myriophyllum heterophyllum*) should be confirmed by DEP biologists- an Alert status should be invoked in the interim.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Greenville Pond (MA42023) when flowering heads are present.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Greenville Pond, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to assess the Aesthetics Use for Greenville Pond. The Aesthetics Use for Greenville Pond will continue to be assessed as Not Supporting with the Turbidity impairment being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent bacteria data are available to assess the Primary Contact Recreational Use for Greenville Pond. The Primary Contact Recreational Use for Greenville Pond will continue to be assessed as Not Supporting with the Turbidity impairment being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent bacteria data are available to assess the Secondary Contact Recreational Use for Greenville Pond. The Secondary Contact Recreational Use for Greenville Pond will continue to be assessed as Not Supporting with the Turbidity impairment being carried forward.	

Greenville Pond West (MA42022)

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

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

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of Myriophyllum heterophyllum in Greenville Pond West 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	
As was previously reported, MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in the West Basin of Greenville Pond during a July 1994 synoptic survey. The Aquatic Life Use for Greenville Pond West is Not Assessed. The Alert for the possible infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*) is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in the West Basin of Greenville Pond during a July 1994 synoptic survey. The prior Alert status should be maintained and an aquatic macrophyte survey should be conducted to confirm the presence of this invasive species.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Greenville Pond (West Basin) when flowering heads are present.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in Greenville Pond West, 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 Aesthetics Use for Greenville Pond West, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the Primary Contact Recreational Use for Greenville Pond West, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the Secondary Contact Recreational Use for Greenville Pond West, so it is Not Assessed.	

Grindstone Brook (MA42-18)

Location:	Headwaters outlet Henshaw Pond, Leicester to mouth at inlet Rochdale Pond, Leicester.
AU Type:	RIVER
AU Size:	2.3 MILES
Classification/Qualifier:	B

No usable data were available for Grindstone Brook (MA42-18) 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	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)	Source Unknown (N)				X	

Hayden Pond (MA42024)

Location:	Dudley.
AU Type:	FRESHWATER LAKE
AU Size:	44 ACRES
Classification/Qualifier:	B

No usable data were available for Hayden Pond (MA42024) 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

Henshaw Pond (MA42025)

Location:	Leicester.
AU Type:	FRESHWATER LAKE
AU Size:	37 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Henshaw Pond (MA42025) 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

Hudson Pond (MA42029)

Location:	Oxford/Sutton.
AU Type:	FRESHWATER LAKE
AU Size:	15 ACRES
Classification/Qualifier:	B

No usable data were available for Hudson Pond (MA42029) 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	(Aquatic Plants (Macrophytes)*)		Unchanged
4a	4a	Nutrient/Eutrophication Biological Indicators	2363	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Agriculture (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Commercial Districts (Shopping/Office Complexes) (N)			X	X	X
(Aquatic Plants (Macrophytes)*)	Rural (Residential Areas) (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Agriculture (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Commercial Districts (Industrial Parks) (N)			X	X	X
Nutrient/Eutrophication Biological Indicators	Commercial Districts (Shopping/Office Complexes) (N)			X	X	X
Nutrient/Eutrophication Biological Indicators	Rural (Residential Areas) (Y)			X	X	X

Hultered Pond (MA42072)

Location:	Charlton (formerly reported as 2000 segment: Hultered Pond MA 41023).
AU Type:	FRESHWATER LAKE
AU Size:	4 ACRES
Classification/Qualifier:	B

No usable data were available for Hultered Pond (MA42072) 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

Jones Pond (MA42030)

Location:	Charlton/Spencer.
AU Type:	FRESHWATER LAKE
AU Size:	30 ACRES
Classification/Qualifier:	B

No usable data were available for Jones Pond (MA42030) 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	(Aquatic Plants (Macrophytes)*)		Unchanged
4a	4a	Nutrient/Eutrophication Biological Indicators	2364	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Agriculture (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Rural (Residential Areas) (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Agriculture (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Rural (Residential Areas) (Y)			X	X	X

Larner Pond (MA42068)

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

No usable data were available for Larner Pond (MA42068) 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	(Aquatic Plants (Macrophytes)*)		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
(Aquatic Plants (Macrophytes)*)	Agriculture (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Rural (Residential Areas) (Y)			X	X	X
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X		X	X	X

Little Nugget Lake (MA42032)

Location:	Charlton.
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
3	3	None		Unchanged

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Little Nugget Lake 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	
During validation of MassDEP aquatic invasive species records, it was noted that DEP biologists listed "Myriophyllum sp (possibly heterophyllum)" on the field sheet for a July 1994 synoptic survey of Little Nugget Lake. The Aquatic Life Use for Little Nugget Lake is Not Assessed. The Alert for the possible infestation with the non-native aquatic macrophyte Myriophyllum heterophyllum is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
During validation of MassDEP aquatic invasive species records, it was noted that DEP biologists listed "Myriophyllum sp (possibly heterophyllum)" on the field sheet for a July 1994 synoptic survey of Little Nugget Lake. An aquatic macrophyte survey should be conducted to determine whether any of the non-native *Myriophyllum* species are infesting the pond.	Conduct an aquatic macrophyte survey in Little Nugget Lake when flowering heads are present to determine if any non-native species of *Myriophyllum* are infesting the lake.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in Little Nugget Lake, 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 Aesthetics Use for Little Nugget Lake, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Little Nugget Lake, so it is Not Assessed.	

Secondary Contact Recreation

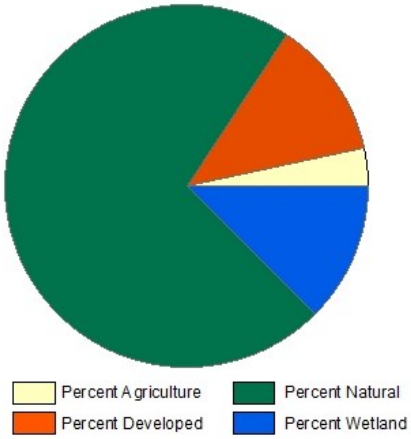
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Little Nugget Lake, so it is Not Assessed.	

Little River (MA42-13)

Location:	Outlet Pikes Pond, Charlton to inlet Buffumville Lake, Charlton (formerly part of 2008 segment: Little River MA42-09).
AU Type:	RIVER
AU Size:	3.5 MILES
Classification/Qualifier:	B

Little River - MA42-13

Watershed Area: 10.84 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	10.84	5.73	4.21	2.2
Agriculture	3.4%	1.9%	2.8%	1.6%
Developed	12.3%	15.3%	10.1%	13.5%
Natural	71.8%	71.1%	65.4%	64.1%
Wetland	12.4%	11.7%	21.6%	20.8%
Impervious Cover	4.3%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Benthic Macroinvertebrates		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
Benthic Macroinvertebrates	Source Unknown (N)	X				
Dissolved Oxygen	Source Unknown (N)	X				

Recommendations

2022 Recommendations
ALU: Benthic macroinvertebrate sampling and water quality monitoring (e.g., deployed DO and temperature probes) in the river upstream from Turner Road in Charlton (B0544, W1167) are recommended to better evaluate the status of the Aquatic Life Use in this Little River AU (MA42-13). This AU is heavily influenced by wetlands and Pikes Pond used to receive treated wastewater from the MASS Turnpike Authority 5W (west-bound rest area facility) in Charlton (NPDES # MA0022357) which was rerouted to Charlton WWTP in 1996 so over time things may have improved.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in this Little River AU (MA42-13) downstream of Rt 20 crossing in Charlton as follows: 0.1mi E of Bay Path Rd (SampleID 5470 in July 2015) and slight further downstream (SampleID 6159 in September 2016). Both samples in this high gradient reach were dominated by fluvial fishes with some intolerant and moderately tolerant species present. Although the fish sample information is indicative of generally good conditions, the Aquatic Life Use for this Little River AU (MA42-13) will continue to be assessed as Not Supporting with the Benthic Macroinvertebrates and Dissolved Oxygen impairments being carried forward. The last evaluation of water quality conditions (sampling conducted in the summer of 2004) in this segment of the Little River resulted in the following assessment (MassDEP 2009): RBP III analysis of the benthic community documented moderately degraded conditions (hyperdominance of filter feeders, low densities of EPT taxa and low numbers of algal scrapers characterized the benthic assemblage) and the limited water quality data indicating low dissolved oxygen concentrations. It was best professional judgement that these conditions were likely a combination of natural conditions (beaver activity and/or extensive wetland areas contributing to organic inputs and low DO) and other anthropogenic perturbations (agricultural areas and enriched impoundments in the upper watershed).	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5470	MassDFG	Fish Community	Little River	DS of Rt 20 xing, 0.1mi E of Bay Path Rd, Charlon	42.15427	-71.91207
6159	MassDFG	Fish Community	Little River	Rte 20 xing-DS, Charlton	42.15388	-71.91111

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)

[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: BB = Brown Bullhead, BC = Black Crappie, BND = Blacknose Dace, BT = Brown Trout, CCS = Creek Chubsucker, CP = Chain Pickerel, F = Fallfish, LMB = Largemouth Bass, SD = Swamp Darter, WS = White Sucker, YB = Yellow Bullhead]

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
5470	07/14/15	BP	TP	H	8	141	1%	4	82%	1%	2	4%	Yes	No	BB, BC, BND, BT, F, LMB, WS, YB,
6159	09/06/16	BP	TP		6	55	0%	3	80%	4%	2	7%	No	No	BB, CCS, CP, F, SD, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this Little River AU (MA42-13), 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 Aesthetics Use for this Little River AU (MA42-13), so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for this Little River AU (MA42-13), so it is Not Assessed.	

Secondary Contact Recreation

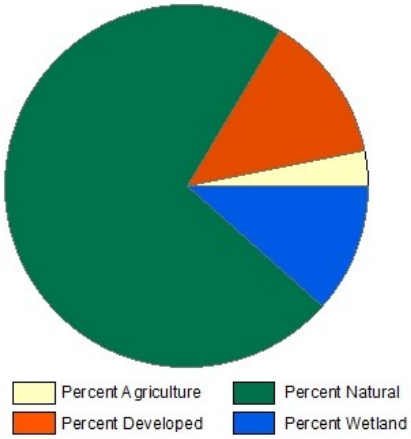
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for this Little River AU (MA42-13), so it is Not Assessed.	

Little River (MA42-14)

Location:	Outlet Buffum Pond, Oxford to mouth at confluence with French River, Oxford (formerly part of 2008 segment: Little River MA42-09).
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

Little River - MA42-14

Watershed Area: 26.92 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	26.92	10.04	10.04	3.56
Agriculture	3.1%	2.1%	2%	0.8%
Developed	13.3%	13.7%	11.8%	13.2%
Natural	72%	73.8%	67.2%	67.9%
Wetland	11.5%	10.3%	19%	18%
Impervious Cover	4.5%			

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

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in this Little River AU (MA42-14) 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	

MassDEP's Freshwater Aquatic Invasive Species database contains an observation from the public (2010) of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in this Little River AU (MA42-13) which needs confirmation. No other data/water quality information is available. The Aquatic Life Use for this Little River AU (MA42-14) is Not Assessed but an Alert is being identified for the potential infestation with the non-native aquatic macrophyte *M. heterophyllum*.

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP Undated 1)

Summary Statement	Assessment Recommendation
MassDEP's Freshwater Aquatic Invasive Species database contains an observation from the public (2010) of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in the Little River that should be confirmed by DEP biologists- an Alert status should be applied in the interim.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in the Little River (MA42-14) when flowering heads are present.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in this Little River AU (MA42-14), and since no site-specific advisory has been issued 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 Aesthetics Use for this Little River AU (MA42-14), so it is Not Assessed. The former Alert for trash/debris noted by FRC volunteers near the mouth of the river during surveys in 2007 and 2008 is being removed based on the general lack of notable trash and debris at this long-term FRC monitoring site.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in this Little River AU (MA42-14) near the confluence of the Little River with the French River (FRC_French13) in Oxford between June and September 2019 and June and September 2020. Data analysis indicated none of the intervals had GMs >126 cfu/100ml and no samples exceeded the 410 cfu/100ml STV (the seasonal GMs were 59 (n=15) in 2019 and 77 (n=9) cfu/100ml, in 2020). The Primary Contact Recreational Use for this Little River AU (MA42-14) is assessed as Fully Supporting based on the low *E. coli* bacteria data collected by FRC volunteers. The former Alert for trash/debris noted by FRC volunteers near the mouth of the river during surveys in 2007 and 2008 is being removed based on the general lack of notable trash and debris at this long-term FRC monitoring site.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French13	French River Connection	Water Quality	Little River	Little River, Oxford	42.11047	-71.883447

Bacteria Data

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

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

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
FRC_French13	French River Connection	E. coli	06/04/19	09/21/19	15	22.1	155.3	59
FRC_French13	French River Connection	E. coli	06/02/20	09/24/20	9	21.1	193.5	77

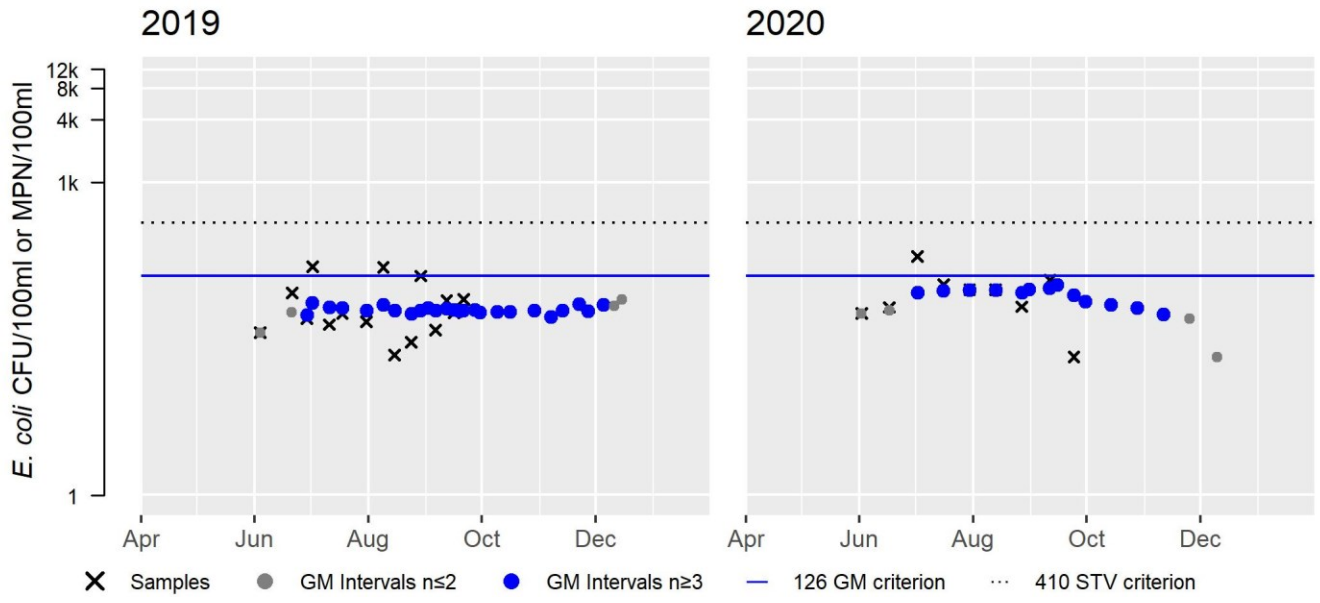
FRC_French13 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	59
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	77
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO
2022 Use Attainment Summary	
French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in this Little River AU (MA42-14) near the confluence of the Little River with the French River (FRC_French13) in Oxford between June and September 2019 and June and September 2020. Data analysis indicated none of the intervals had GMs >630 cfu/100ml and no samples exceeded the 1260 cfu/100ml STV (the seasonal GMs were 59 (n=15) in 2019 and 77 (n=9) cfu/100ml, in 2020). The Secondary Contact Recreational Use for this Little River AU (MA42-14) is assessed as Fully Supporting based on the low *E. coli* bacteria data collected by FRC volunteers. The former Alert for trash/debris noted by FRC volunteers near the mouth of the river during surveys in 2007 and 2008 is being removed based on the general lack of notable trash and debris at this long-term FRC monitoring site	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French13	French River Connection	Water Quality	Little River	Little River, Oxford	42.11047	-71.883447

Bacteria Data

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

[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)
FRC_French13	French River Connection	E. coli	06/04/19	09/21/19	15	22.1	155.3	59
FRC_French13	French River Connection	E. coli	06/02/20	09/24/20	9	21.1	193.5	77

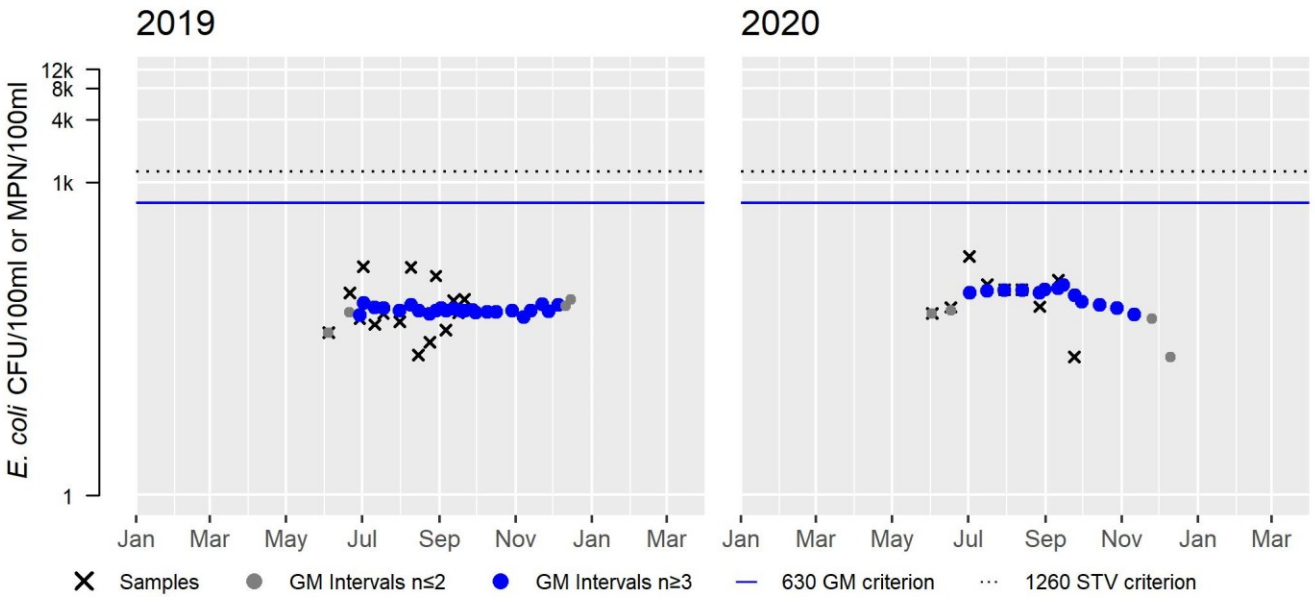
FRC_French13 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	15
SeasGM	59
#GMI	25
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	77
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0

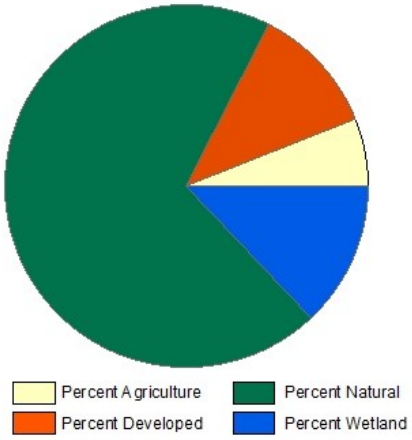


Little River (MA42-21)

Location:	Oulet Jones Pond, Charlton to mouth at inlet Pikes Pond, Charlton (excluding the approximately 0.1 mile through Wee Laddie Pond segment MA42065 and the approximately 0.1 mile through Little Nugget Lake segment MA42032).
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B

Little River - MA42-21

Watershed Area: 5.11 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.11	4.74	2.24	2.12
Agriculture	6%	6.1%	4.4%	4.6%
Developed	11.5%	11%	10.6%	10.5%
Natural	69.4%	69.6%	64.4%	64.3%
Wetland	13%	13.2%	20.6%	20.6%
Impervious Cover	4.4%			

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
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP biologists sampled this Little River AU (MA42-21) ~ 200 meters upstream from the Massachusetts Turnpike (Route 90), Charlton during the summer of 2011 as part of the Probabilistic Wadeable Streams (MAP2) monitoring project. Survey results can be briefly summarized as follows: the benthic sample collected in July 2011 (Station B0722) IBI score was indicative of satisfactory conditions (72) and water quality sampling data including both deployed probe and discrete sampling efforts (Station W2201) were also indicative of good conditions (minimum dissolved oxygen 7.6mg/L, maximum temperature 27.6°C during the thermistor deployment from 1 June to 15 September and a maximum 24 hour rolling average of 25.6°C, pH 6.8 to 7.0SU (n=6), little indication of any nutrient enrichment problems (seasonal average total phosphorus concentrations 0.026mg/L, max diel DO shift 0.8mg/L, maximum saturation 96%, maximum pH 7.0SU), with two observations of dense/very dense algae out of six sampling events. There were low concentrations of total ammonia-nitrogen (maximum 0.03mg/L), no acute or chronic exceedances among the two clean metals or aluminum samples at each station (note, dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). The maximum chloride concentration was only 12mg/L (n=5) and the maximum specific conductance measurement was only 95µs/cm (n=6).
The Aquatic Life Use of this Little River AU (MA42-21) is assessed as Fully Supporting based on the benthic macroinvertebrate and water quality monitoring data collected by MassDEP biologists during the summer of 2011.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
4599	MassDEP	Fish Community	Little River	~650ft US of I-90. DEP station MAP2-047	42.16427	-71.94886
B0722	MassDEP	Benthic	Unnamed And/Or Undefined Saris/*	[unnamed tributary to Pikes Pond approximately 200 meters upstream from the Massachusetts Turnpike (Route 90), Charlton, MA]	42.164267	-71.948856
W2201	MassDEP	Water Quality	Little River	[approximately 650 feet upstream from the Massachusetts Turnpike (Route 90), Charlton]	42.164267	-71.948856

*The Water Body at this sampling location has been updated by MassDEP to Little River (not unnamed tributary to Pikes Pond); this change will be applied to a future Benthic station database update.

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 5)

[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
B0722	07/13/11	RBP kicknet	Central_Hills_100ct	106	72	S

Fish Community Data and DELTS

Fish Community Data (2011-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)

[Habitat: FD = Fluvial Dependent, FS = Fluvial Specialist, MG = Macrohabitat Generalist; Tolerance: I = Intolerant, M = Moderately Tolerant, and T = Tolerant]

Station Description	Little River, ~650ft US of I-90. DEP station MAP2-047
Habitat Comments	DEP survey. 2 LMB approx 12" caught, not measured. High flow & dark water made efficiency only fair. May have missed some BND

Efficiency	#N/A		
Sample Date	**Species**	7	
9/12/2011	**Total Ind**	91	
Method	**% Dom**	71%	
Backpack Shocking	**Habitat**	**Species**	**% Ind**
Saris/Palis	FS	2	86%
4230275	FD	1	5%
	MG	4	9%
	Tolerant	**Species**	**% Ind**
	I	0	0%
	M	3	76%
	T	4	24%
	SampleID	4599	

Common Name	Fish Code	Count	Min Length	Max Length	Temp	FG	PT	Function
Brown bullhead	BB	2	158	160	W	MG	T	Generalist Feeder
Blacknose dace	BND	13	62	76	CW	FS	T	Generalist Feeder
Fallfish	F	65	52	190	CW	FS	M	Generalist Feeder
Pumpkinseed	P	2	85	92	W	MG	M	Generalist Feeder
White sucker	WS	5	51	124	CW	FD	T	Generalist Feeder
Yellow perch	YP	2	113	115	CW	MG	M	Top Carnivore
Yellow bullhead	YB	2	115	180	WB	MG	T	Generalist Feeder

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	2011	3	11	7.6	7.7	7.9	0.8	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	05/26/11	10/03/11	6	7.8	8.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2201	06/01/11	09/15/11	107	107	25.6	27.6	25.7	24.1	104	15	64	6	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2201	2011	3	12	22.1	24.1	22.8	21.5	3	0	1	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2201	06/01/11	09/15/11	107	5136	25.6	761	308	0
W2201	06/24/11	09/07/11	75	576	22.5	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2201	05/26/11	10/03/11	8	6	23.6	20.0	4	1	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

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
W2201	05/26/11	10/03/11	6	6.8	7	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	2011	4	0.021	0.031	0.026	0.8	0.5	96.0	7.0	6	2

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	2011	2	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	2011	2	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Selected TU Calculations. (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	08/31/11	0.4	0.7	0.7	0.87	0.1	0.0
W2201	09/12/11	0.7	0.0	0.5	0.63	0.1	0.0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	2011	2	0.130	0.13	0.130	0.2	0.5	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2201	2011	5	0.020	0.030	0.026	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2201	2011	5	6	12	9	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Start Date	End Date	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
W2201	05/26/11	10/03/11	6	58	95	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this Little River AU (MA42-21), therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews in this Little River AU (MA42-21) upstream from the Massachusetts Turnpike (Route 90), Charlton during the summer of 2011. The Aesthetics Use for this Little River AU (MA42-21) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2201	MassDEP	Water Quality	Little River	[approximately 650 feet upstream from the Massachusetts Turnpike (Route 90), Charlton]	42.164267	-71.948856

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2201	Little River	2011	6	MassDEP aesthetics observations for station W2201/MAP2-047 on Unnamed Tributary can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2011.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2201	2011	6	6	2

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2201	Little River	2011	Color	Brownish	2	6
W2201	Little River	2011	Color	Light Yellow/Tan	4	6
W2201	Little River	2011	Objectionable Deposits	No	5	6
W2201	Little River	2011	Objectionable Deposits	Unobservable	1	6
W2201	Little River	2011	Odor	None	6	6
W2201	Little River	2011	Scum	No	3	6
W2201	Little River	2011	Scum	Yes	3	6
W2201	Little River	2011	Turbidity	None	6	6

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff collected *E. coli* bacteria samples from this Little River AU (MA42-21) upstream from the Massachusetts Turnpike (Route 90), Charlton (W2201) between May and October 2011 (n=6) during the summer of 2011. Data analysis indicated 0% of the intervals had GMs >126 cfu/100ml, and none of the samples exceeded the 410 cfu/100ml STV. The seasonal GM was 49cfu/100ml. Since the *E. coli* concentrations were below the use attainment impairment thresholds for this single year limited frequency dataset, the Primary Contact Recreational Use for this Little River AU (MA42-21) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2201	MassDEP	Water Quality	Little River	[approximately 650 feet upstream from the Massachusetts Turnpike (Route 90), Charlton]	42.164267	-71.948856

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 6)

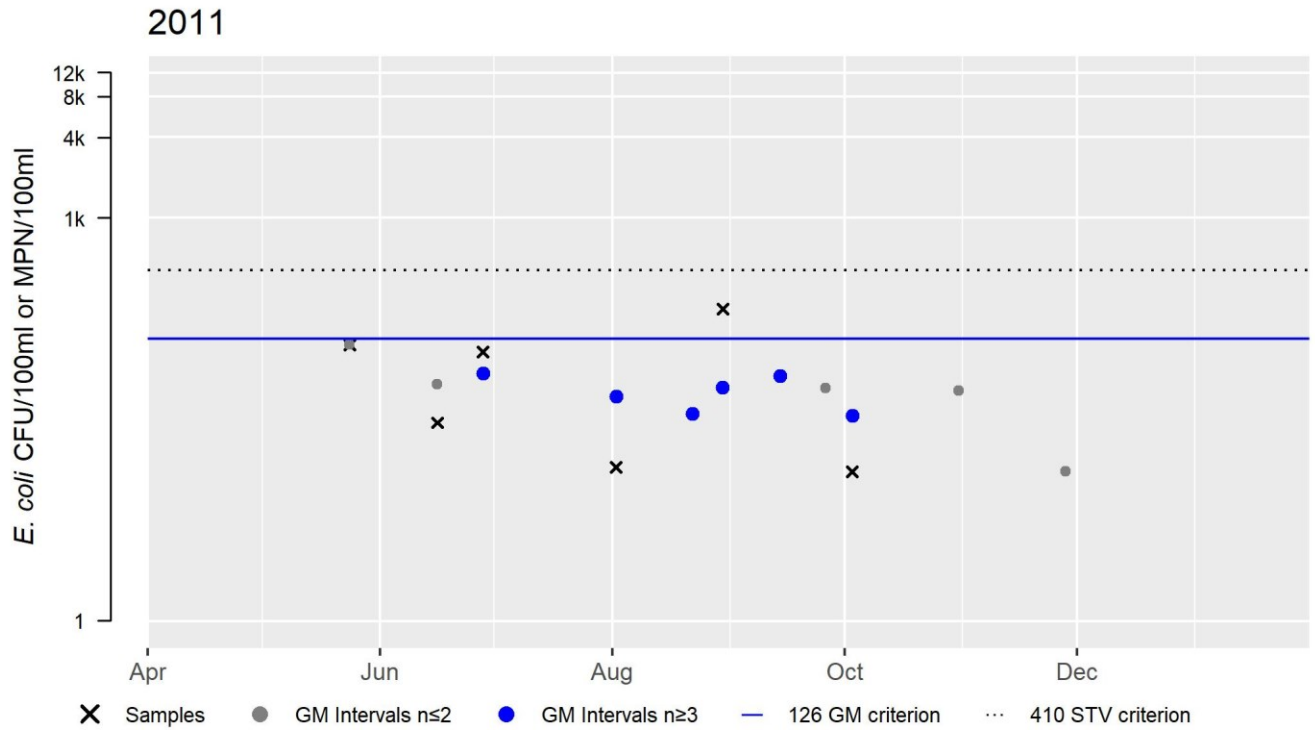
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2201	MassDEP	E. coli	05/24/11	10/03/11	6	13	210	49

W2201 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	49
#GMI	6
#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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff collected E. coli bacteria samples from this Little River AU (MA42-21) upstream from the Massachusetts Turnpike (Route 90), Charlton (W2201) between May and October 2011 (n=6) during the summer of 2011. Data analysis indicated 0% of the intervals had GMs >630 cfu/100ml, and none of the samples exceeded the 1260 cfu/100ml STV. The seasonal GM was 49cfu/100ml.
Since the E. coli concentrations were below the use attainment impairment thresholds for this single year limited frequency dataset, the Secondary Contact Recreational Use for this Little River AU (MA42-21) is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2201	MassDEP	Water Quality	Little River	[approximately 650 feet upstream from the Massachusetts Turnpike (Route 90), Charlton]	42.164267	-71.948856

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 6)

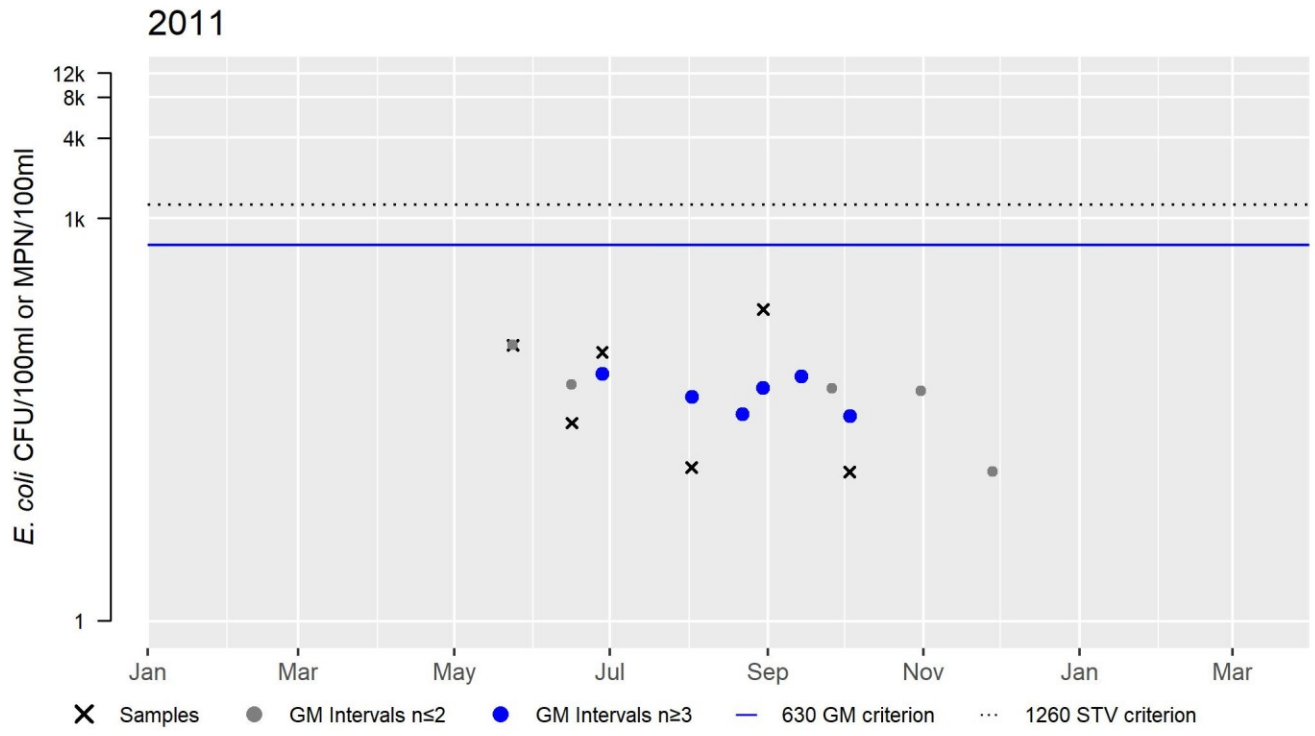
[Result units are CFU/100ml or MPN/100ml]

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)
W2201	MassDEP	E. coli	05/24/11	10/03/11	6	13	210	49

W2201 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	49
#GMI	6
#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



Low Pond (MA42033)

Location:	Dudley.
AU Type:	FRESHWATER LAKE
AU Size:	4 ACRES
Classification/Qualifier:	B

No usable data were available for Low Pond (MA42033) 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				

Lowes Pond (MA42034)

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

No usable data were available for Lowes Pond (MA42034) 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	Nutrient/Eutrophication Biological Indicators	2366	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Nutrient/Eutrophication Biological Indicators	Agriculture (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Rural (Residential Areas) (Y)			X	X	X

Mckinstry Pond (MA42035)

Location:	Oxford.
AU Type:	FRESHWATER LAKE
AU Size:	16 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Nutrient/Eutrophication Biological Indicators	2367	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Nutrient/Eutrophication Biological Indicators	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X	X	X
Nutrient/Eutrophication Biological Indicators	Rural (Residential Areas) (Y)			X	X	X

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey in Mckinstry Pond when flowering heads are present to determine if any non-native species of Myriophyllum or other macrophytes are infesting the pond. 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	
As was previously reported, MassDEP staff noted the presence of Myriophyllum sp. in Mckinstry Pond during a September 1994 synoptic survey. Without any more recent data, the Aquatic Life Use for Mckinstry Pond is Not Assessed. The Alert for the possible presence of a non-native species of *Myriophyllum* is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted the presence of *Myriophyllum* sp. in Mckinstry Pond during a September 1994 synoptic survey. The prior Alert status should be maintained and an aquatic macrophyte survey should be conducted to determine whether any non-native species of *Myriophyllum* are present in the pond.	Conduct an aquatic macrophyte survey in Mckinstry Pond when flowering heads are present to determine if any non-native species of *Myriophyllum* are infesting the pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Mckinstry Pond, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Aesthetics Use for Mckinstry Pond so it will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators impairment being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Primary Contact Recreational Use for Mckinstry Pond so it will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators impairment being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Secondary Contact Recreational Use for Mckinstry Pond so it will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators impairment being carried forward.	

Merino Pond (MA42036)

Location:	Dudley.
AU Type:	FRESHWATER LAKE
AU Size:	75 ACRES
Classification/Qualifier:	B

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

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Merino Pond 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	
As was previously reported, MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Merino Pond during a September 1994 synoptic survey. The Aquatic Life Use for Merino Pond is Not Assessed. The Alert for the possible infestation with the non-native aquatic macrophyte *M. heterophyllum* is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Merino Pond during a September 1994 synoptic survey. The prior Alert status should be maintained and an aquatic macrophyte survey should be conducted to confirm the presence of this invasive species.	Conduct an aquatic macrophyte survey in Merino Pond when flowering heads are present to determine if the non-native *Myriophyllum heterophyllum* is infesting the pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in Merino Pond, 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 Aesthetics Use for Merino Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Merino Pond, so it is Not Assessed.	

Secondary Contact Recreation

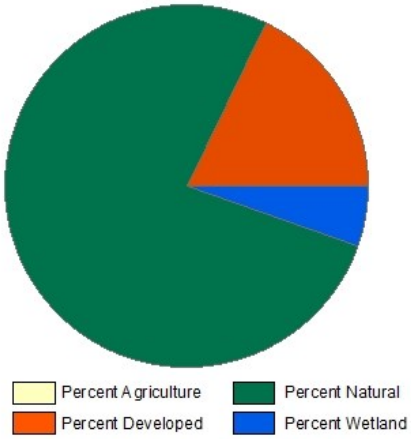
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Merino Pond, so it is Not Assessed.	

Mill Brook (MA42-10)

Location:	Headwaters, outlet Webster Lake, Webster to mouth at confluence with French River, Webster.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B

Mill Brook - MA42-10

Watershed Area: 10.81 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	10.81	8.22	3.6	2.86
Agriculture	0.1%	0%	0.3%	0%
Developed	17.8%	17.6%	20.8%	20.1%
Natural	76.8%	77.1%	69.2%	69.9%
Wetland	5.3%	5.3%	9.7%	10%
Impervious Cover	8.2%			

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing at two sites along Mill Brook in Webster as follows: upstream of Route 12 (SampleID 5649) in August 2015 and near Arkwright Rd- gravel pit (SampleID 6992) in August 2017. While no fluvial species were collected in this low gradient stream, both samples contained moderately tolerant macrohabitat generalist species representing between 30 and 45% of the samples. The Aquatic Life Use of Mill Brook is assessed as Fully Supporting based on the presence of moderately tolerant fish species collected by MA DFG biologists in the summers of 2015 and 2017. The prior Alerts due to concerns with habitat degradation from sand deposition, and occasional suspect water quality conditions (e.g., slightly low DO, pH) as well as potential infestation of a non-native aquatic macrophyte (milfoil) (MassDEP 2009) are being carried forward.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5649	MassDFG	Fish Community	Mill Brook	Rt 12 crossing US, Webster	42.06227	-71.86293
6992	MassDFG	Fish Community	Mill Brook	Arkwright Rd- gravel pit, Webster	42.06499	-71.87155

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)

[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: B = Bluegill, CP = Chain Pickerel, LMB = Largemouth Bass, 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
5649	08/19/15	BP	TP	L	3	20	0%	0	0%	0%	2	45%	No	No	B, LMB, P,
6992	08/29/17	BP	TP	L	4	77	0%	0	0%	0%	3	30%	No	No	B, CP, LMB, P,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Mill Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No data are available to assess the status of the Aesthetics Use for Mill Brook, so it is Not Assessed. The former Alerts for some observations of turbidity, trash/debris, sheens and odors (MassDEP 2009) are being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in Mill Brook near Webster Nursery (FRC_French8) and Bigelow Road (FRC_French7) in Webster between June and September 2019 and June and September 2020. Data analysis indicated none of the intervals near Webster Nursery (FRC_French8) had GMs >126 cfu/100ml and only one sample exceeded the 410 cfu/100ml STV (the seasonal GMs were 10 (n=14) in 2019 and 17 (n=9) cfu/100ml, in 2020). Near Bigelow Road (FRC_French7) there were exceedances in 2019 (both GM and STV at 59% and 4, respectively) but no exceedances of either the GM or STV in the summer 2020 (the seasonal GMs were 133 (n=16) in 2019 and 81 (n=9) cfu/100ml).
The Primary Contact Recreational Use for Mill Brook is assessed as Fully Supporting since the FRC *E. coli* data were not above the use attainment impairment decision schema (only one of three conditions was met as described in the CALM (MassDEP 2022)). Since the cumulative GM interval exceedance was above 10% in the brook near Bigelow Road, an Alert for *E. coli* is being identified and the aesthetic alert issues are also being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French7	French River Connection	Water Quality	Mill Brook	Mill Brook Bigelow, Webster	42.066887	-71.875485
FRC_French8	French River Connection	Water Quality	Mill Brook	Mill Brook Nursery, Webster	42.062538	-71.863994

Bacteria Data

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

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

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
FRC_French7	French River Connection	E. coli	06/04/19	09/21/19	16	9.8	1413.6	133
FRC_French7	French River Connection	E. coli	06/02/20	09/24/20	9	30.9	365.4	81
FRC_French8	French River Connection	E. coli	06/04/19	09/21/19	14	2	85.7	10
FRC_French8	French River Connection	E. coli	06/02/20	09/24/20	9	1	980.4	17

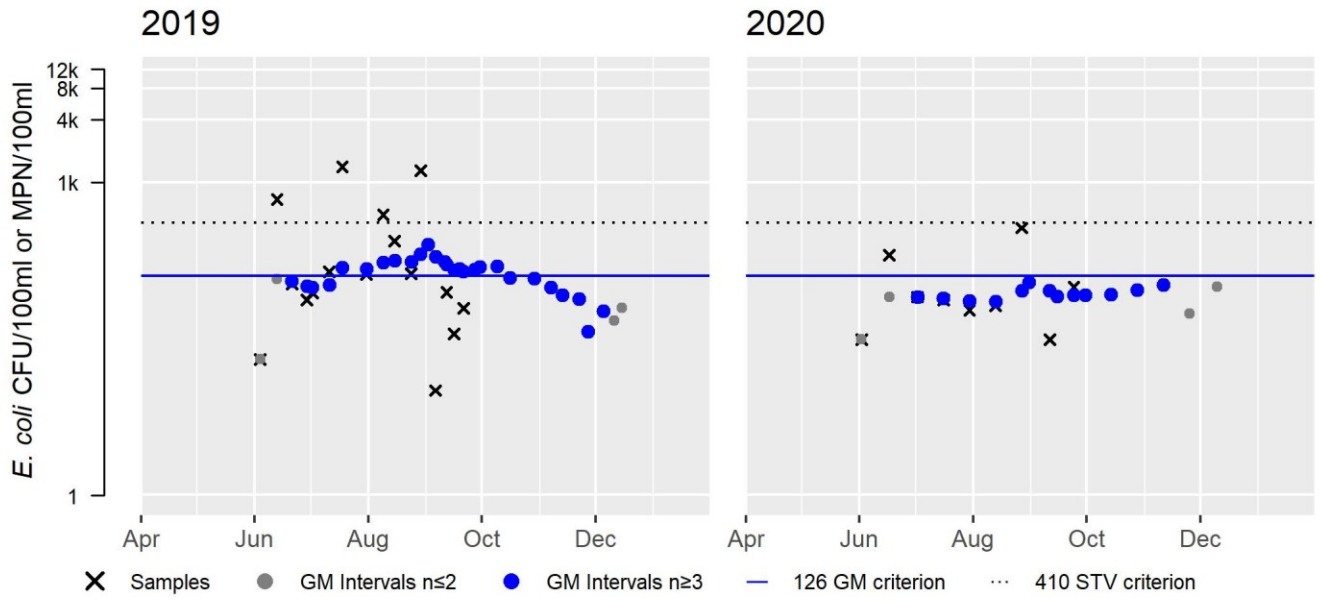
FRC_French7 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	133
#GMI	27
#GMI Ex	16
%GMI Ex	59
n>STV	4
%n>STV	25

Var	Res
Samples	9
SeasGM	81
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	40



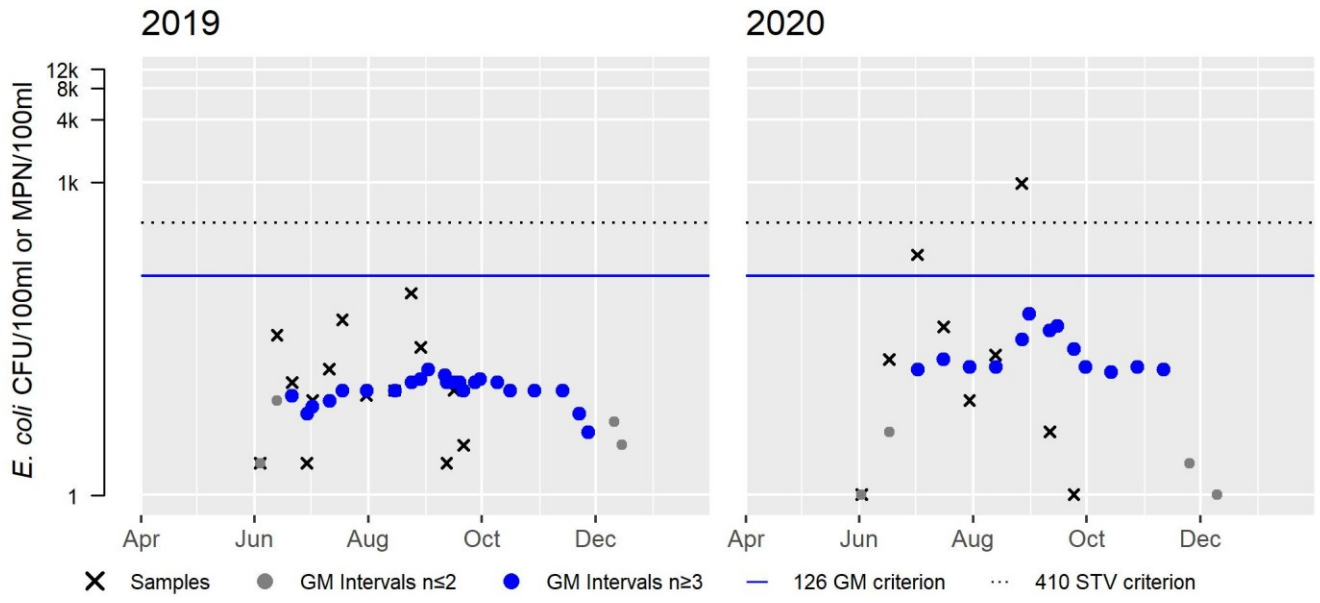
FRC_French8 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	14
SeasGM	10
#GMI	23
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	17
#GMI	13
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	11

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

Variable	Cumulative %GMI Ex (all years)
Result	0



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	YES
2022 Use Attainment Summary	
French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in Mill Brook near Webster Nursery (FRC_French8) and Bigelow Road (FRC_French7) in Webster between June and September 2019 and June and September 2020. Data analysis indicated none of the intervals near Webster Nursery (FRC_French8) had GMs >126 cfu/100ml and no samples exceeded the 410 cfu/100ml STV (the seasonal GMs were 10 (n=14) in 2019 and 17 (n=9) cfu/100ml, in 2020). Near Bigelow Road (FRC_French7) there were no GM exceedances but there were two STV exceedances in 2019 and no exceedances of either the GM or STV in the summer 2020 (the seasonal GMs were 133 (n=16) in 2019 and 81 (n=9) cfu/100ml). The Secondary Contact Recreational Use for Mill Brook is assessed as Fully Supporting since the FRC *E. coli* data were not above the use attainment impairment decision schema (MassDEP 2022). The former aesthetic alert issues are being carried forward.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French7	French River Connection	Water Quality	Mill Brook	Mill Brook Bigelow, Webster	42.066887	-71.875485
FRC_French8	French River Connection	Water Quality	Mill Brook	Mill Brook Nursery, Webster	42.062538	-71.863994

Bacteria Data

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

[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)
FRC_French7	French River Connection	E. coli	06/04/19	09/21/19	16	9.8	1413.6	133
FRC_French7	French River Connection	E. coli	06/02/20	09/24/20	9	30.9	365.4	81
FRC_French8	French River Connection	E. coli	06/04/19	09/21/19	14	2	85.7	10
FRC_French8	French River Connection	E. coli	06/02/20	09/24/20	9	1	980.4	17

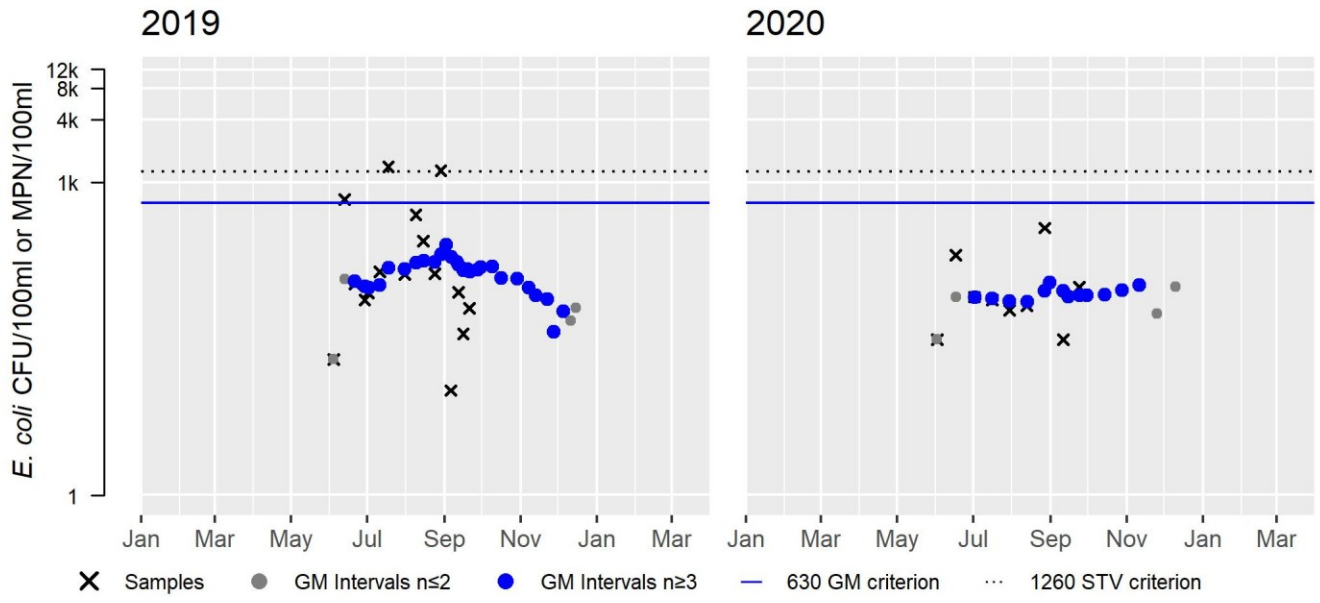
FRC_French7 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	133
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	2
%n>STV	12

Var	Res
Samples	9
SeasGM	81
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



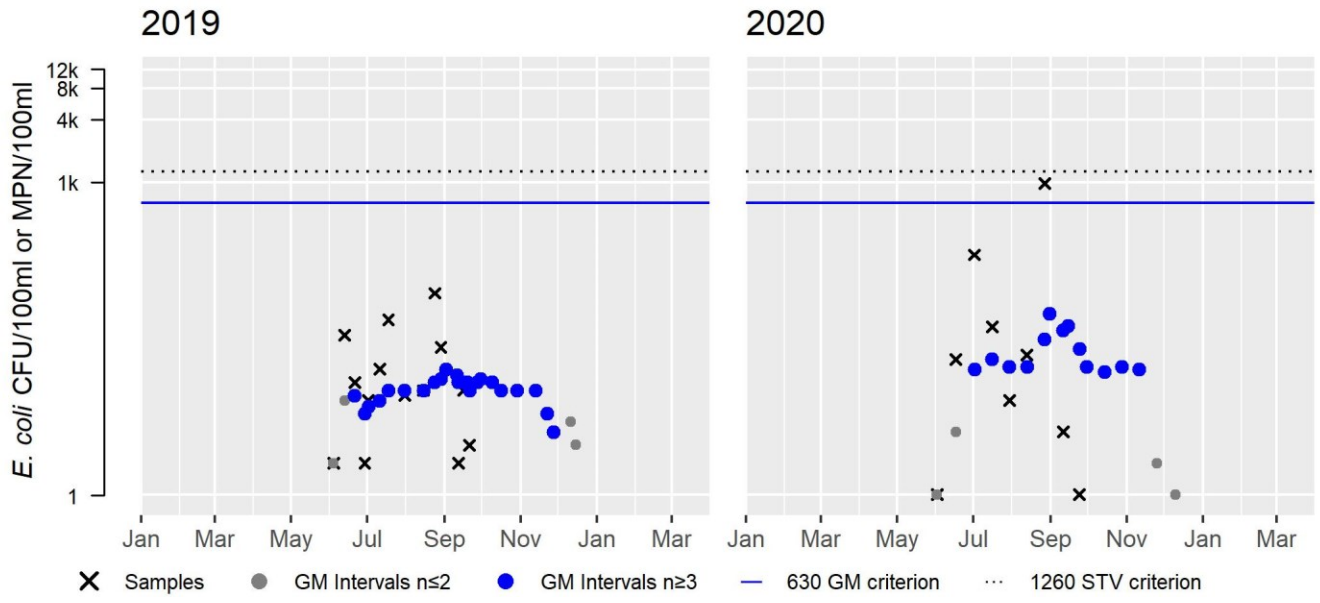
FRC_French8 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	14
SeasGM	10
#GMI	23
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	17
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0



Mine Brook (MA42-16)

Location:	Headwaters (perennial portion), Webster to mouth at inlet Club Pond, Webster.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Mine Brook (MA42-16) 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

Mosquito Pond (MA42060)

Location:	Dudley.
AU Type:	FRESHWATER LAKE
AU Size:	11 ACRES
Classification/Qualifier:	B

No usable data were available for Mosquito Pond (MA42060) 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	(Aquatic Plants (Macrophytes)*)		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Agriculture (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Rural (Residential Areas) (Y)			X	X	X

New Pond (MA42037)

Location:	Dudley.
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
3	3	None		Unchanged

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in New Pond 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	
As was previously reported, MassDEP staff noted the likely presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in New Pond during a September 1994 synoptic survey. The Aquatic Life Use for New Pond is Not Assessed. The Alert for the possible infestation with the non-native aquatic macrophyte *M. heterophyllum* is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted the likely presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in New Pond during a September 1994 synoptic survey. The prior Alert status should be maintained and an aquatic macrophyte survey should be conducted to confirm the presence of this invasive species.	Conduct an aquatic macrophyte survey in New Pond when flowering heads are present to determine if the non-native *Myriophyllum heterophyllum* is infesting the pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in New Pond, 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 Aesthetics Use for New Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	**Alert**
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for New Pond, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	**Alert**
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for New Pond, so it is Not Assessed.	

Nipmuck Pond (MA42039)

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

No usable data were available for Nipmuck Pond (MA42039) 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

Packard Pond (MA42040)

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

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				

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Packard Pond 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 Supporting	NO
2022 Use Attainment Summary	
As was previously reported, MassDEP staff noted a likely infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Packard Pond during an August 1994 synoptic survey. The Aquatic Life Use for Packard Pond will continue to be assessed as Not Supporting with the generic Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) being carried forward. A recommendation is being made, however, to conduct an aquatic macrophyte survey to confirm the presence of *M. heterophyllum* in the pond when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
During validation of MassDEP aquatic invasive species records, it was noted that DEP biologists listed "Myriophyllum (likely M. heterophyllum)" on the field sheet for an August 1994 synoptic survey of Packard Pond. Although the pond has been listed as impaired for this non-native aquatic macrophyte, DEP biologists should confirm the presence of this species when flowering heads are present.	Conduct an aquatic macrophyte survey in Packard Pond when flowering heads are present to determine if the non-native *Myriophyllum heterophyllum* is infesting the pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Packard Pond, 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 Aesthetics Use for Packard Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Packard Pond, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Packard Pond, so it is Not Assessed.	

Peter Pond (MA42042)

Location:	Dudley.
AU Type:	FRESHWATER LAKE
AU Size:	42 ACRES
Classification/Qualifier:	B

No usable data were available for Peter Pond (MA42042) 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

Pierpoint Meadow Pond (MA42043)

Location:	Dudley/Charlton.
AU Type:	FRESHWATER LAKE
AU Size:	95 ACRES
Classification/Qualifier:	B

No usable data were available for Pierpoint Meadow Pond (MA42043) 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				

Pikes Pond (MA42044)

Location:	Charlton.
AU Type:	FRESHWATER LAKE
AU Size:	28 ACRES
Classification/Qualifier:	B

No usable data were available for Pikes Pond (MA42044) 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	Turbidity	2371	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Turbidity	Agriculture (Y)			X	X	X
Turbidity	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)			X	X	X
Turbidity	Historical Source, No Longer Present (Y)			X	X	X
Turbidity	Rural (Residential Areas) (Y)			X	X	X

Putnam Pond (MA42046)

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

No usable data were available for Putnam Pond (MA42046) 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

Robinson Pond (MA42047)

Location:	Oxford.
AU Type:	FRESHWATER LAKE
AU Size:	99 ACRES
Classification/Qualifier:	B

No usable data were available for Robinson Pond (MA42047) 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

Rochdale Pond (MA42048)

Location:	Leicester.
AU Type:	FRESHWATER LAKE
AU Size:	43 ACRES
Classification/Qualifier:	B: WWF

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	Nutrient/Eutrophication Biological Indicators	2356	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Nutrient/Eutrophication Biological Indicators	Agriculture (Y)	X		X	X	X
Nutrient/Eutrophication Biological Indicators	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)	X		X	X	X
Nutrient/Eutrophication Biological Indicators	Municipal Point Source Discharges (Y)	X		X	X	X
Nutrient/Eutrophication Biological Indicators	Rural (Residential Areas) (Y)	X		X	X	X
Nutrient/Eutrophication Biological Indicators	Source Unknown (N)	X		X	X	X

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Rochdale Pond 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 Supporting	YES
2022 Use Attainment Summary	
As was previously reported MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Rochdale Pond during a July 1994 synoptic survey. The Aquatic Life Use for Rochdale Pond will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators impairment being carried forward. An Alert is also being identified because of the possible presence of the non-native aquatic macrophyte, variable milfoil (*M. heterophyllum*).	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Rochdale Pond during a July 1994 synoptic survey. An Alert is being identified and an aquatic macrophyte survey should be conducted to confirm the presence of this invasive species.	Conduct an aquatic macrophyte survey in Rochdale Pond when flowering heads are present to determine if the non-native *Myriophyllum heterophyllum* is infesting the pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Rochdale Pond, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Aesthetics Use for Rochdale Pond so it will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators impairment being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Primary Contact Recreational Use for Rochdale Pond so it will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators impairment being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Secondary Contact Recreational Use for Rochdale Pond so it will continue to be assessed as Not Supporting with the Nutrient/Eutrophication Biological Indicators impairment being carried forward.	

Sargent Pond (MA42049)

Location:	Leicester.
AU Type:	FRESHWATER LAKE
AU Size:	65 ACRES
Classification/Qualifier:	B

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4c	5	(Non-Native Aquatic Plants*)		Unchanged
4c	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
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Mercury in Fish Tissue	Atmospheric Deposition (N)		X			
Mercury in Fish Tissue	Source Unknown (N)		X			

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of Myriophyllum heterophyllum in Sargent Pond 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 Supporting	NO
2022 Use Attainment Summary	
As was previously reported, MassDEP staff noted a likely infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Sargent Pond during a July 1994 synoptic survey. The Aquatic Life Use for Sargent Pond will continue to be assessed as Not Supporting with the generic Non-Native Aquatic Plants impairment (used since the 1996 reporting cycle) being carried forward. A recommendation is being made, however, to conduct an aquatic macrophyte survey to confirm the presence of M. heterophyllum in the pond when flowering heads are present.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
It was previously reported that MassDEP staff identified an infestation of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Sargent Pond during a July 1994 synoptic survey.	Conduct an aquatic macrophyte survey in Sargent Pond when flowering heads are present to confirm the presence of the non-native *Myriophyllum heterophyllum* in the pond (the synoptic survey field sheet said "Myriophyllum (likely M. heterophyllum, but no flowering spikes)").

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Following a public request, MassDEP biologists conducted fish toxics sampling at Sargent Pond in Leicester in June 2012, May 2013, and May 2015 as part of public request surveys and also in May 2016 as part of the probabilistic lake surveys (MAP2). Because of elevated mercury measured in 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 (largemouth bass) from this water body and the general public should limit consumption of affected fish species (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 Sargent Pond (MA42049) is assessed as Not Supporting. The likely source, although not confirmed, is atmospheric deposition.	

Data Sources: (MassDPH 2019) (MassDEP 2016) (MassDEP Undated 7)

Following a public request, MassDEP biologists conducted fish toxics sampling at Sargent Pond in Leicester in June 2012, May 2013, and May 2015 as part of public request surveys and also in May 2016 as part of the probabilistic lake surveys (MAP2). Because of elevated mercury measured in 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 (largemouth bass) from this water body."*
- *"The general public should limit consumption of affected fish species (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 Sargent Pond (MA42049) 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 Aesthetics Use for Sargent Pond, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Sargent Pond, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Sargent Pond, so it is Not Assessed.	

Shepherd Pond (MA42051)

Location:	Dudley.
AU Type:	FRESHWATER LAKE
AU Size:	16 ACRES
Classification/Qualifier:	B

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

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Agriculture (Y)			X	X	X
(Aquatic Plants (Macrophytes)*)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)			X	X	X
(Aquatic Plants (Macrophytes)*)	Rural (Residential Areas) (Y)			X	X	X

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Shepherd Pond 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
Insufficient Information	YES
2022 Use Attainment Summary	
Herbicide permit applications for Shepherd Pond list the non-native aquatic macrophyte species, variable milfoil (*Myriophyllum heterophyllum*), on yearly permit application forms from 2009-2014. Too limited data are available to evaluate the Aquatic Life Use for Shepherd Pond so it is assessed as having Insufficient Information. The Alert for the potential infestation of *M. heterophyllum* is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 2017)

Summary Statement	Assessment Recommendation
Herbicide permit applications for Shepherd Pond list the non-native aquatic macrophyte species, variable milfoil (*Myriophyllum heterophyllum*), on yearly applications from 2009-2014. The presence of this species should be confirmed by MassDEP biologists and the Alert status should be retained.	Conduct an aquatic macrophyte survey in Shepherd Pond when flowering heads are present to confirm the presence of the non-native *Myriophyllum heterophyllum* in the pond.

Shepherd Pond Herbicide Permit Records (MassDEP 2017)

SHEPHERD POND	4/15/2004	LYCOTT ENVIRONMENTAL RESEARCH INC	DUCKWEED	FLOATING PONDWEED	WATERSHIELD	VARIABLE MILFOIL	WATER LILIES
SHEPHERD POND	9/18/2006	LYCOTT ENVIRONMENTAL RESEARCH INC	NYMPHAEA ODORATA	NUPHAR VARIEGATA			
SHEPHERD POND	4/26/2007	LYCOTT ENVIRONMENTAL RESEARCH INC	NYMPHAEA ODORATA	NUPHAR VARIEGATA			
SHEPHERD POND	1/22/2008	LYCOTT ENVIRONMENTAL RESEARCH INC	NYMPHAEA ODORATA	NUPHAR VARIEGATA			
SHEPHERD POND	2/5/2009	LYCOTT ENVIRONMENTAL RESEARCH INC	NYMPHAEA ODORATA	MYRIOPHYLLUM HETEROP	NUPHAR VARIEGATA		
SHEPHERD POND	4/23/2010	LYCOTT ENVIRONMENTAL INCORPORATED	NYMPHAEA ODORATA	MYRIOPHYLLUM HETEROP	NUPHAR VARIEGATA		
SHEPHERD POND	4/25/2011	LYCOTT ENVIRONMENTAL INCORPORATED	NYMPHAEA ODORATA	MYRIOPHYLLUM HETEROP	NUPHAR VARIEGATA		
SHEPHERD POND	5/2/2012	LYCOTT ENVIRONMENTAL INCORPORATED	NYMPHAEA ODORATA	MYRIOPHYLLUM HETEROP	NUPHAR VARIEGATA		
SHEPHERD POND	3/18/2013	LYCOTT ENVIRONMENTAL INCORPORATED	NYMPHAEA ODORATA	MYRIOPHYLLUM HETEROP	NUPHAR VARIEGATA		
SHEPHERD POND	3/5/2014	LYCOTT ENVIRONMENTAL INCORPORATED	NYMPHAEA ODORATA	MYRIOPHYLLUM HETEROP	NUPHAR VARIEGATA		
SHEPHERD POND	4/8/2015	AQUATIC CONTROL TECHNOLOGY, INC.	VARIABLE WATERMILFOI	WATERLILIES			
SHEPHERD POND	5/2/2016	SOLITUDE LAKE MANAGEMENT, LLC	VARIABLE WATERMILFOI	WATERLILIES			

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Shepherd Pond, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available so the Aesthetics Use for Shepherd Pond will continue to be assessed as Not Supporting with the Aquatic Plants (Macrophytes) impairment being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available so the Primary Contact Recreational Use for Shepherd Pond will continue to be assessed as Not Supporting with the Aquatic Plants (Macrophytes) impairment being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available so the Secondary Contact Recreational Use for Shepherd Pond will continue to be assessed as Not Supporting with the Aquatic Plants (Macrophytes) impairment being carried forward.	

Slaters Pond (MA42053)

Location:	Oxford.
AU Type:	FRESHWATER LAKE
AU Size:	105 ACRES
Classification/Qualifier:	B

No usable data were available for Slaters Pond (MA42053) 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

Snow Pond (MA42054)

Location:	Charlton.
AU Type:	FRESHWATER LAKE
AU Size:	1 ACRES
Classification/Qualifier:	B

No usable data were available for Snow Pond (MA42054) 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

Stiles Reservoir (MA42055)

Location:	Spencer/Leicester.
AU Type:	FRESHWATER LAKE
AU Size:	309 ACRES
Classification/Qualifier:	B

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

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Stiles Reservoir 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	
As was previously reported, MassDEP staff noted the "likely" presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Stiles Reservoir during a July 1994 synoptic survey. The Aquatic Life Use for Stiles Reservoir is Not Assessed. The Alert for the possible infestation of the non-native aquatic macrophyte, variable milfoil (*M. heterophyllum*) is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted the "likely" presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Stiles Reservoir during a July 1994 synoptic survey. The prior Alert status should be maintained and an aquatic macrophyte survey should be conducted to confirm the presence of this invasive species.	Conduct an aquatic macrophyte survey in Stiles Reservoir when flowering heads are present to confirm the presence of the non-native *Myriophyllum heterophyllum* in the reservoir.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in Stiles Reservoir, 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 Aesthetics Use for Stiles Reservoir, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Stiles Reservoir, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Stiles Reservoir, so it is Not Assessed.	

Sucker Brook (MA42-15)

Location:	Headwaters, outlet Nipmuck Pond, Webster to mouth at inlet Club Pond, Webster.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B

No usable data were available for Sucker Brook (MA42-15) 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	Benthic Macroinvertebrates		Unchanged
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
Benthic Macroinvertebrates	Source Unknown (N)	X				
Escherichia Coli (E. Coli)	Source Unknown (N)				X	

Town Meadow Brook (MA42-02)

Location:	Headwaters, outlet Dutton Pond, Leicester to mouth at inlet Greenville Pond, Leicester.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B: WWF

No usable data were available for Town Meadow Brook (MA42-02) 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 (MA42-01)

Location:	Unnamed tributary to Town Meadow Brook, outlet Sargent Pond, Leicester to inlet Dutton Pond, Leicester.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B: WWF, HQW

No usable data were available for Unnamed Tributary (MA42-01) 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 (MA42-12)

Location:	Unnamed tributary to Wellington Brook, perennial portion from Depot Road, Oxford to confluence with Wellington Brook, Oxford.
AU Type:	RIVER
AU Size:	0.2 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA42-12) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

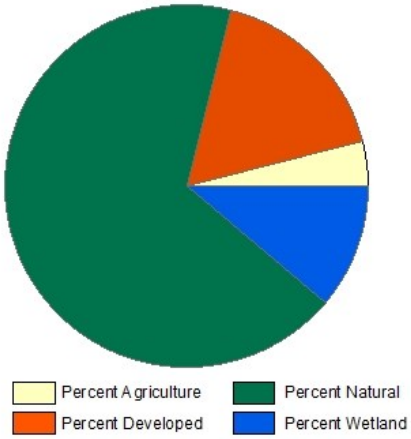
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
--	3	None		Unchanged

Unnamed Tributary (MA42-19)

Location:	Unnamed tributary to the French River on the 1982 USGS quad as 'Lowes Brook', from the outlet of Lowes Pond, Oxford to mouth at confluence with French River, Oxford.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

Unnamed Tributary - MA42-19

Watershed Area: 8.6 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	8.6	5.87	2.64	1.84
Agriculture	4%	4.2%	2.1%	2.7%
Developed	17.1%	21.8%	15.6%	20.1%
Natural	67.8%	63.9%	61.3%	55.2%
Wetland	11.1%	10%	21%	21.9%
Impervious Cover	6.7%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	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, so the Aquatic Life Use for this Unnamed Tributary known locally as “Lowes Brook” is Not Assessed. The former Alert for the dominance by macrohabitat generalist fish species in the backpack electrofishing sample collected in the brook in September 2005 is being removed since the sample contained both fluvial specialist/dependant species and was comprised (~ 80%) by moderately tolerant species (meeting the 2022 CALM guidance for a warm water fishery).	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary
No fish toxics sampling has been conducted in this Unnamed Tributary (MA2-19), therefore the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No recent data are available to evaluate the Aesthetics Use of this Unnamed Tributary (MA42-19) so it is Not Assessed. The Alert for some aesthetic issues (minor trash/debris, dark murky water, and turbidity) noted by French River Connection (FRC) volunteers in the brook at State Street crossing in Oxford during their monitoring in 2007 and 2008 is being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	
French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in this Unnamed Tributary (MA42-19) near State Street in Oxford between June and September 2019 and June and September 2020 (n=16 and 9 samples, respectively). Data analysis indicated none of the intervals in the summer 2019 had GMs >126 cfu/100ml and none of the samples exceeded the 410 cfu/100ml STV (the seasonal GM was 58 cfu/100ml) while in the summer 2020 100% of the intervals had GMs >126 cfu/100ml and two of the samples exceeded the 410 cfu/100ml STV (the seasonal GM was 195 cfu/100ml). The Primary Contact Recreational Use for this Unnamed Tributary (MA42-19) is assessed as Fully Supporting since the FRC *E. coli* data were not above the use attainment impairment decision schema (only one of three conditions was met as described in the CALM (MassDEP 2022)). Since the cumulative GM interval exceedance was above 10%, however, an Alert for E. coli is being identified.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French11	French River Connection	Water Quality	Lowe's Brook	Lowe's Brook, Webster*	42.104027	-71.866313

* Note this sampling station location projects to Lowes Brook at State Street in Oxford which FRC has sampled in the past so the station description “Webster” is assumed by MassDEP analysts to be in error and should be “Oxford”.

Bacteria Data

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

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

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
FRC_French11	French River Connection	E. coli	06/04/19	09/21/19	16	21.8	344.8	58
FRC_French11	French River Connection	E. coli	06/02/20	09/24/20	9	88.4	816.4	195

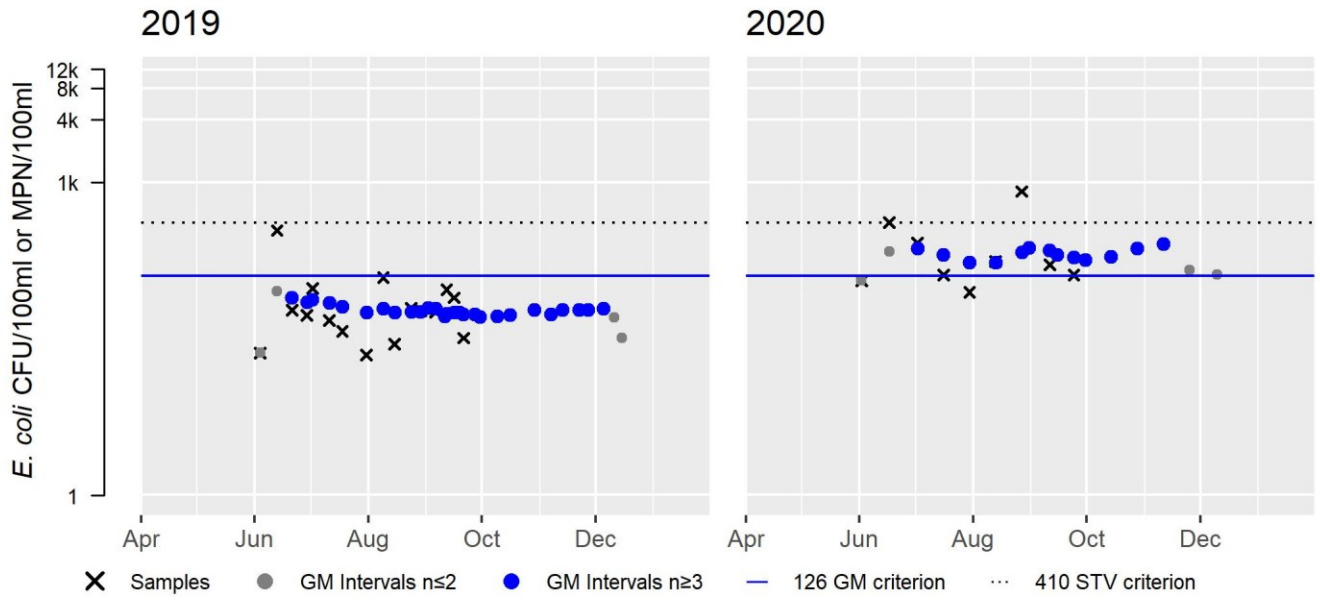
FRC_French11 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	58
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	195
#GMI	13
#GMI Ex	13
%GMI Ex	100
n>STV	2
%n>STV	22

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

Variable	Cumulative %GMI Ex (all years)
Result	32



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO
2022 Use Attainment Summary	
French River Connection (FRC) volunteers conducted *E. coli* bacteria sampling in this Unnamed Tributary (MA42-19) near State Street in Oxford between June and September 2019 and June and September 2020 (n=16 and 9 samples, respectively). Data analysis indicated none of the intervals in the summer 2019 or 2020 had GMs >630 cfu/100ml and none of the samples exceeded the 1260 cfu/100ml STV (the seasonal GMs were 58 and 195 cfu/100ml, respectively). The Secondary Contact Recreational Use for this Unnamed Tributary (MA42-19) is assessed as Fully Supporting based on the FRC volunteer *E. coli* bacteria data collected in the summers of 2019 and 2020.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
FRC_French11	French River Connection	Water Quality	Lowe's Brook	Lowe's Brook, Webster*	42.104027	-71.866313

* Note this sampling station location projects to Lowes Brook at State Street in Oxford which FRC has sampled in the past so the station description "Webster" is assumed by MassDEP analysts to be in error and should be "Oxford".

Bacteria Data

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

[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)
FRC_French11	French River Connection	E. coli	06/04/19	09/21/19	16	21.8	344.8	58
FRC_French11	French River Connection	E. coli	06/02/20	09/24/20	9	88.4	816.4	195

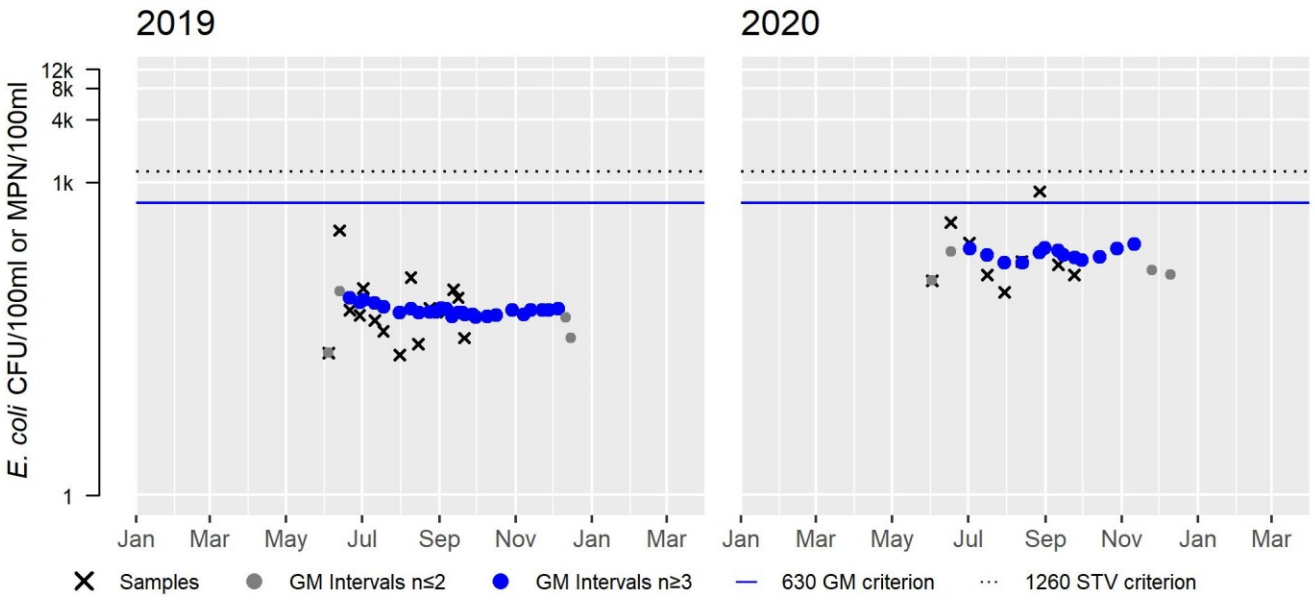
FRC_French11 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	16
SeasGM	58
#GMI	27
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	9
SeasGM	195
#GMI	13
#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

Variable	Cumulative %GMI Ex (all years)
Result	0

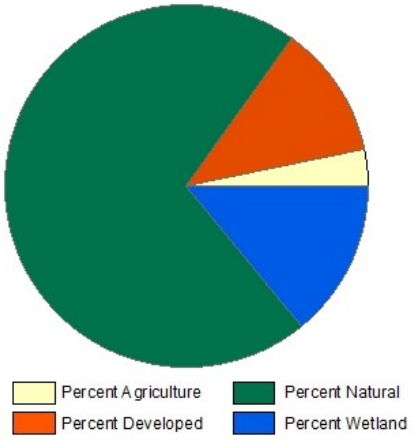


Unnamed Tributary (MA42-22)

Location:	Unnamed tributary to South Fork, locally known as 'Potters Brook', from outlet of Granite Reservoir dam (NATID: MA00105), Charlton to mouth at confluence with South Fork, Charlton (includes former 2018/20 segment: Unnamed Tributary MA42-20).
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

Unnamed Tributary - MA42-22

Watershed Area: 8.27 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	8.27	6.85	3.13	2.48
Agriculture	3.3%	3%	1.7%	0.8%
Developed	11.9%	11.4%	11.6%	11%
Natural	70.7%	70.7%	67.6%	67.7%
Wetland	14.1%	15%	19.1%	20.5%
Impervious Cover	4.3%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
--	5	Benthic Macroinvertebrates		Added
--	5	Dissolved Oxygen		Added
--	5	Lack of a Coldwater Assemblage		Added
--	5	Temperature		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Benthic Macroinvertebrates	Source Unknown (N)	X				
Dissolved Oxygen	Source Unknown (N)	X				
Lack of a Coldwater Assemblage	Dam or Impoundment (Y)	X				
Temperature	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

It is noted here that this Unnamed Tributary locally known as 'Potters Brook' is identified by MA DFG as a Coldwater Fishery Resource (CFR) although the historical records are not detailed in the database regarding sampling dates (only that multiple age classes and/or young-of-year Eastern brook trout were collected in the brook). Upon request for additional information, the sampling date was noted to be on 25 July 1979 (Kautza March 25, 2022), so this brook will be evaluated as an Existing Use Tier 1 Cold Water. MassDEP biologists sampled this Unnamed Tributary (MA42-22) ~45 meters downstream from the outlet of Granite Reservoir in Charlton during the summer of 2011 as part of the Probabilistic Wadeable Streams (MAP2) monitoring project. The benthic sample collected in July 2011 (Station B0709) IBI score was indicative of moderately degraded conditions (48) and while there were some fluvial fish collected in the barge electrofishing effort in September 2011 (SampleID 4602), no cold water species were collected. The water quality sampling data including both deployed probe and discrete sampling efforts (Station W2201), were indicative of generally good conditions except for DO (minimum dissolved oxygen 4.3mg/L and temperature (maximum 27.8°C during the three short term probe deployments -- maximum 24 hour rolling average temperature was 25.1°C). The pH was good (6.5 to 7.3SU (n=6), and there were few indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations 0.015mg/L, max diel DO shift 2.8mg/L, maximum saturation 99%, maximum pH 7.3SU), with no observations of dense/very dense algae out of six sampling events. There were low concentrations of total ammonia-nitrogen (maximum 0.05mg/L), no acute or chronic exceedances among the two clean metals or aluminum samples at each station (note, dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). The maximum chloride concentration was only 19mg/L (n=5) and the maximum specific conductance measurement was only 120µs/cm (n=6).

The Aquatic Life Use of this Unnamed Tributary AU (MA42-22) is assessed as Not Supporting since the benthic macroinvertebrate and some of the water quality monitoring data collected by MassDEP biologists during the summer of 2011 were indicative of degraded conditions for an Existing Use Tier 1 Cold Water and no cold water fish were collected. Impairments are being added for Benthic Macroinvertebrates, Lack of Cold Water Assemblage, Dissolved Oxygen, and Temperature since acute temperature exceedances for an Existing Use Cold Water were documented in the brook downstream from Granite Pond Dam. The former Alert for the lack of cold water fish is being removed.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
4602	MassDEP	Fish Community	Unnamed Tributary	UNT to Baker Pond (Potter Brook), ~140ft from Granite Reservoir outlet. DEP station MAP2-024	42.10455	-71.9288
B0709	MassDEP	Benthic	Unnamed And/Or Undefined Saris/	[unnamed tributary eventually to South Fork, approximately 45 meters from outlet of Granite Reservoir, Charlton, MA]	42.104548	-71.928798
W2187	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary eventually to South Fork, approximately 140 feet from outlet of Granite Reservoir, Charlton]	42.104548	-71.928798

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 5)

[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
B0709	07/14/11	RBP kicknet	Central_Hills_100ct	96	48	MD

Fish Community Data and DELTS

Fish Community Data (2011-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)

[Habitat: FD = Fluvial Dependent, FS = Fluvial Specialist, MG = Macrohabitat Generalist; Tolerance: I = Intolerant, M = Moderately Tolerant, and T = Tolerant]

Station Description	UNT to Baker Pond (Potter Brook), ~140ft from Granite Reservoir outlet. DEP station MAP2-024		
Habitat Comments	DEP survey		
Efficiency	#N/A		
Sample Date	**Species**	8	
9/13/2011	**Total Ind**	55	
Method	**% Dom**	35%	
Barge Shocking	**Habitat**	**Species**	**% Ind**
Saris/Palis	FS	1	20%
4230310	FD	1	11%
	MG	6	69%
	Tolerant	**Species**	**% Ind**
	I	0	0%
	M	4	71%
	T	4	29%
	SampleID	4602	

Common Name	Fish Code	Count	Min Length	Max Length	Temp	FG	PT	Function
Bluegill	B	5	87	185	W	MG	T	Generalist Feeder
Fallfish	F	11	112	175	CW	FS	M	Generalist Feeder
Golden shiner	GS	2	101	134	W	MG	T	Generalist Feeder
Largemouth bass	LMB	7	63	92	W	MG	M	Top Carnivore
Pumpkinseed	P	2	99	101	W	MG	M	Generalist Feeder
White sucker	WS	6	155	198	CW	FD	T	Generalist Feeder
Yellow perch	YP	19	83	150	CW	MG	M	Top Carnivore
Yellow bullhead	YB	3	60	73	WB	MG	T	Generalist Feeder

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	2011	3	11	4.3	4.8	5.9	2.8	1	2	0	0	1	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	05/26/11	10/03/11	6	5.9	7.2	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	2011	3	12	25.1	27.8	26.9	24.0	3	5	3	3	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	06/24/11	09/07/11	75	576	25.1	240	150	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	05/26/11	10/03/11	8	6	26.2	22.2	6	4	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

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
W2187	05/26/11	10/03/11	6	6.5	7.3	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	2011	4	0.014	0.016	0.015	2.8	1.2	99.3	7.3	5	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	2011	2	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	2011	2	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Selected TU Calculations. (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	08/31/11	0.3	0.6	0.6	0.71	0.1	0.0
W2187	09/12/11	0.6	1.0	0.7	0.83	0.1	0.0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2187	2011	2	0.061	0.08	0.071	0.1	0.3	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2187	2011	5	0.020	0.050	0.038	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2187	2011	5	14	19	17	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Start Date	End Date	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
W2187	05/26/11	10/03/11	6	83	120	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this Unnamed Tributary AU (MA42-22), therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews in this Unnamed Tributary (MA42-22) downstream form the outlet of Granite Reservoir, Charlton during the summer of 2011. The Aesthetics Use for this Unnamed Tributary (locally known as Potters Brook) AU (MA42-22) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2187	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary eventually to South Fork, approximately 140 feet from outlet of Granite Reservoir, Charlton]	42.104548	-71.928798

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2187	Unnamed Tributary	2011	6	MassDEP aesthetics observations for station W2187/MAP2-024 on Unnamed Tributary can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2011.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2187	2011	6	5	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2187	Unnamed Tributary	2011	Color	Light Yellow/Tan	2	6
W2187	Unnamed Tributary	2011	Color	NR	4	6
W2187	Unnamed Tributary	2011	Objectionable Deposits	No	5	6
W2187	Unnamed Tributary	2011	Objectionable Deposits	Unobservable	1	6
W2187	Unnamed Tributary	2011	Odor	Fishy	1	6
W2187	Unnamed Tributary	2011	Odor	None	5	6
W2187	Unnamed Tributary	2011	Scum	No	3	6
W2187	Unnamed Tributary	2011	Scum	Yes	3	6
W2187	Unnamed Tributary	2011	Turbidity	None	4	6
W2187	Unnamed Tributary	2011	Turbidity	NR	1	6
W2187	Unnamed Tributary	2011	Turbidity	Slightly Turbid	1	6

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff collected *E. coli* bacteria samples from this Unnamed Tributary, locally known as 'Potters Brook' ~140 feet downstream from the outlet of Granite Reservoir, Charlton (W2187) between May and October 2011 (n=6) during the summer of 2011. Data analysis indicated 0% of the intervals had GMs >126 cfu/100ml, and none of the samples exceeded the 410 cfu/100ml STV. The seasonal GM was 9 cfu/100ml.
Since the *E. coli* concentrations were all very low (below the use attainment impairment thresholds for this single year limited frequency dataset), the Primary Contact Recreational Use for this Unnamed Tributary, locally known as 'Potters Brook' (MA42-22) is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2187	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary eventually to South Fork, approximately 140 feet from outlet of Granite Reservoir, Charlton]	42.104548	-71.928798

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 6)

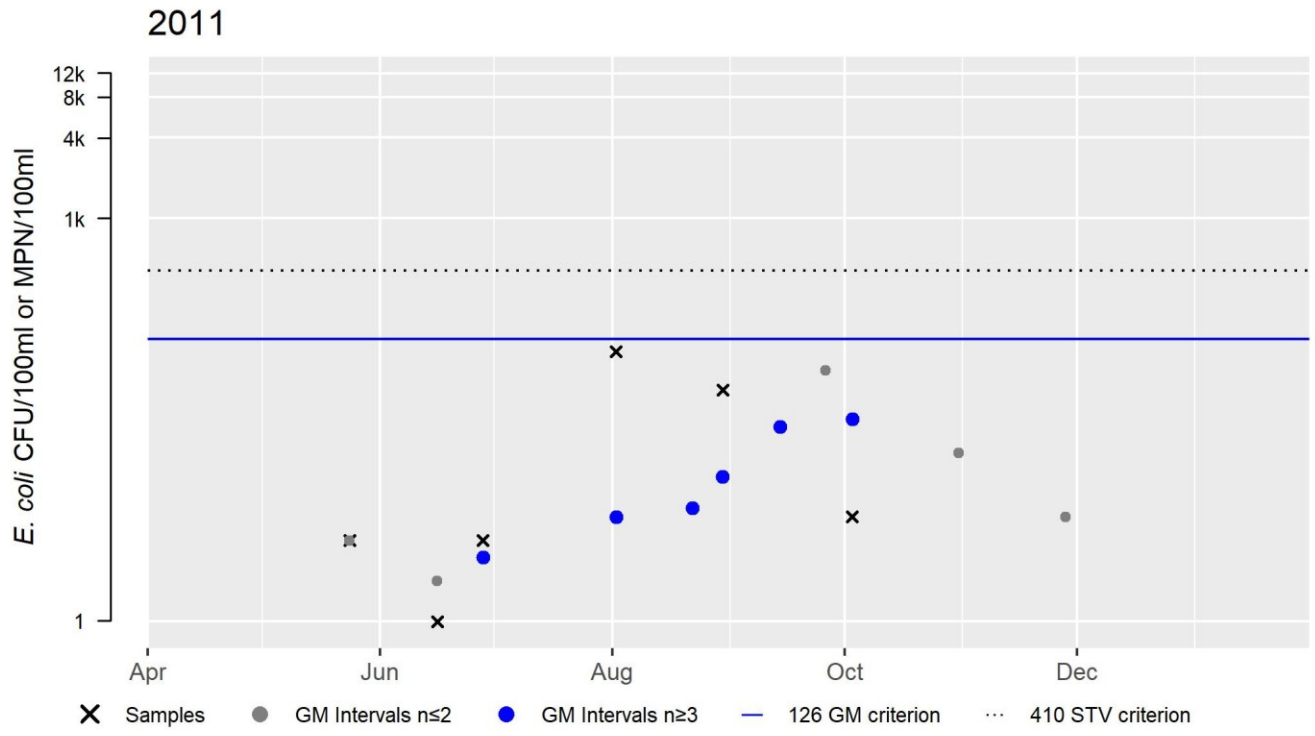
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2187	MassDEP	E. coli	05/24/11	10/03/11	6	1	102	9

W2187 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	9
#GMI	6
#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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff collected *E. coli* bacteria samples from this Unnamed Tributary, locally known as 'Potters Brook' ~140 feet downstream from the outlet of Granite Reservoir, Charlton (W2187) between May and October 2011 (n=6) during the summer of 2011. Data analysis indicated 0% of the intervals had GMs >630 cfu/100ml, and none of the samples exceeded the 1260 cfu/100ml STV. The seasonal GM was 9 cfu/100ml. Since the *E. coli* concentrations were all very low (below the use attainment impairment thresholds for this single year limited frequency dataset), the Secondary Contact Recreational Use for this Unnamed Tributary, locally known as 'Potters Brook' (MA42-22) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2187	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary eventually to South Fork, approximately 140 feet from outlet of Granite Reservoir, Charlton]	42.104548	-71.928798

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 6)

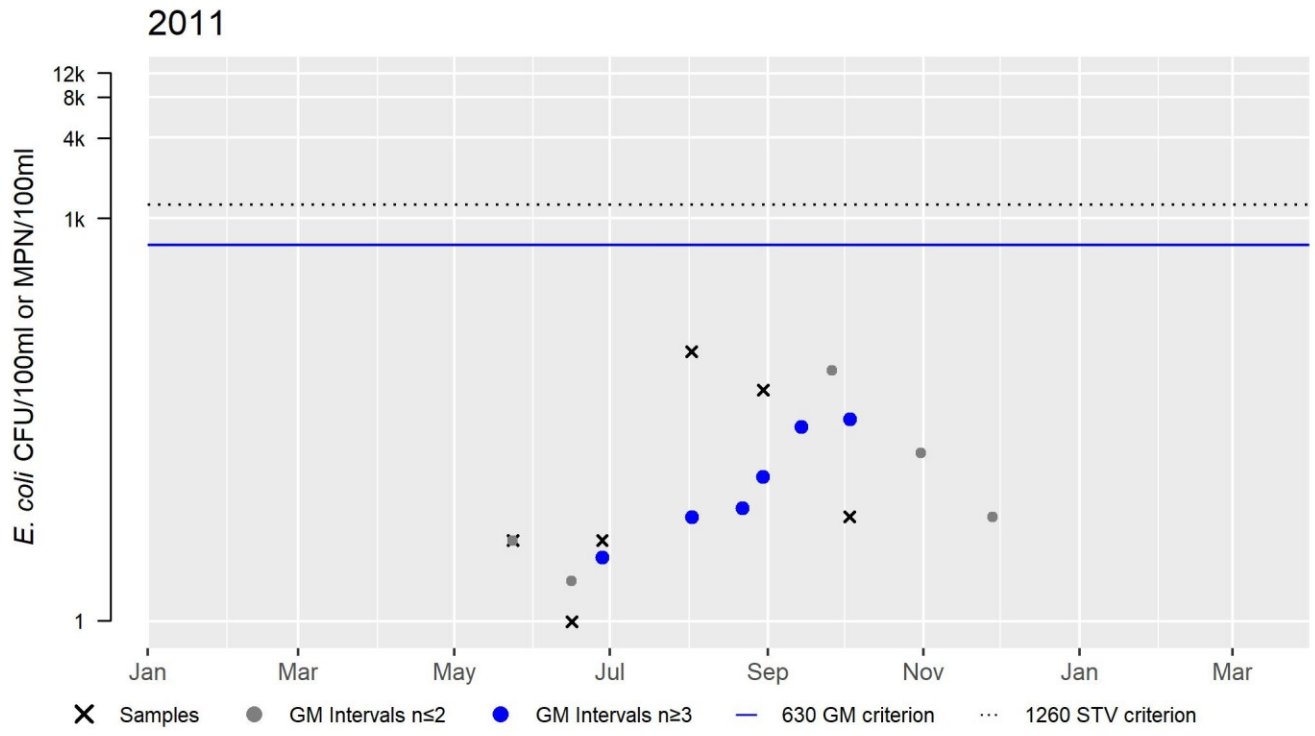
[Result units are CFU/100ml or MPN/100ml]

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)
W2187	MassDEP	E. coli	05/24/11	10/03/11	6	1	102	9

W2187 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	9
#GMI	6
#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



Wallis Pond (MA42062)

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

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
4a	4a	(Aquatic Plants (Macrophytes)*)		Unchanged
4a	4a	Dissolved Oxygen	2375	Unchanged
4a	4a	Nutrient/Eutrophication Biological Indicators	2375	Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Aquatic Plants (Macrophytes)*)	Agriculture (Y)	X		X	X	X
(Aquatic Plants (Macrophytes)*)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	X		X	X	X
(Aquatic Plants (Macrophytes)*)	Rural (Residential Areas) (Y)	X		X	X	X
Dissolved Oxygen	Agriculture (Y)	X				
Dissolved Oxygen	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	X				
Dissolved Oxygen	Rural (Residential Areas) (Y)	X				
Nutrient/Eutrophication Biological Indicators	Agriculture (Y)	X		X	X	X
Nutrient/Eutrophication Biological Indicators	Discharges from Municipal Separate Storm Sewer Systems (MS4) (Y)	X		X	X	X
Nutrient/Eutrophication Biological Indicators	Rural (Residential Areas) (Y)	X		X	X	X

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum heterophyllum* in Wallis Pond 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 Supporting	YES
2022 Use Attainment Summary	

As was previously reported, MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Wallis Pond during a September 1994 synoptic survey. The Aquatic Life Use for Wallis Pond will continue to be assessed as Not Supporting with the Aquatic Plants (Macrophtyes), Dissolved Oxygen, and Nutrient/Eutrophication Biological Indicators impairments being carried forward. An Alert is also being identified because of the possible presence of the non-native aquatic macrophyte, variable milfoil (*M. heterophyllum*).

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1994)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff noted the possible presence of the non-native aquatic macrophyte, variable milfoil (*Myriophyllum heterophyllum*), in Wallis Pond during a September 1994 synoptic survey. The prior Alert status should be maintained and an aquatic macrophyte survey should be conducted to confirm the presence of this invasive species.	Conduct an aquatic macrophyte survey in Wallis Pond when flowering heads are present to confirm the presence of the non-native *Myriophyllum heterophyllum* in the pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Wallis Pond, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Aesthetics Use for Wallis Pond so it will continue to be assessed as Not Supporting with the Aquatic Plants (Macrophytes) and Nutrient/Eutrophication Biological Indicators impairments being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Primary Contact Recreational Use for Wallis Pond so it will continue to be assessed as Not Supporting with the Aquatic Plants (Macrophytes) and Nutrient/Eutrophication Biological Indicators impairments being carried forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent data are available to evaluate the status of the Secondary Contact Recreational Use for Wallis Pond so it will continue to be assessed as Not Supporting with the Aquatic Plants (Macrophytes) and Nutrient/Eutrophication Biological Indicators impairments being carried forward.	

Watson Millpond (MA42063)

Location:	Spencer.
AU Type:	FRESHWATER LAKE
AU Size:	2 ACRES
Classification/Qualifier:	B

No usable data were available for Watson Millpond (MA42063) 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

Webster Lake (MA42064)

Location:	Webster.
AU Type:	FRESHWATER LAKE
AU Size:	1275 ACRES
Classification/Qualifier:	B

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	(Fanwort*)		Added
5	5	(Non-Native Aquatic Plants*)		Unchanged
5	5	(Non-Native Fish/Shellfish/Zooplankton*)		Removed
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
(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				
(Fanwort*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Dissolved Oxygen	Source Unknown (N)	X				

Supporting Information for Removed Impairments

2018/20 Removed Impairment	Removal Reason	Removal Comment
Non-Native Fish/Shellfish/Zooplankton	Clarification of listing cause	The generic “Non-Native Fish/Shellfish/Zooplankton” is not needed since the species-specific “Asian Clam” (*Corbicula fluminea*) impairment has been utilized.

Non-Native Fish/Shellfish/Zooplankton

The generic “Non-Native Fish/Shellfish/Zooplankton” impairment is being removed since the specific organism Asian Clam (*Corbicula fluminea*) impairment is being added.

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to provide an update on the status of non-native infestations in Webster Lake. Also, a voucher specimens of live Asian clams should be collected to provide confirmation of the presence of this non-native invertebrate species in Webster Lake.

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, Webster Lake has infestations of the non-native aquatic macrophytes, Eurasian water milfoil (*Myriophyllum spicatum*), variable milfoil (*Myriophyllum heterophyllum*), and fanwort (*Cabomba caroliniana*). All three species continued to be listed on yearly herbicide permit applications from 2007-2016. Additionally, MassDCR Lakes and Ponds staff recorded the presence of the non-native aquatic invertebrate, Asian clam (*Corbicula fluminea*) in 2005. The Aquatic Life Use for Webster Lake will continue to be assessed as Not Supporting with the Dissolved Oxygen, Eurasian Water Milfoil, *Myriophyllum Spicatum*, and the Non-Native Aquatic Plants impairments being carried forward. An impairment is being added for Fanwort (C. caroliniana). The generic Non-Native Fish/Shellfish/Zooplankton impairment is being removed and the Asian Clam (*C. fluminea*) impairment is also being added.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 2017) (MassDCR 2008)

Summary Statement	Assessment Recommendation
As was previously reported, Webster Lake has infestations of the non-native aquatic macrophytes, Eurasian water milfoil (*Myriophyllum spicatum*), variable milfoil (*Myriophyllum heterophyllum*), and fanwort (*Cabomba caroliniana*). All three species continued to be listed on yearly herbicide permit applications from 2007-2016. Additionally, MassDCR Lakes and Ponds staff recorded the presence of the non-native aquatic invertebrate, Asian clam (*Corbicula fluminea*) in 2005; however, the presence of live specimens should be confirmed by MassDEP biologists.	Conduct an aquatic macrophyte survey to provide an update on the status of non-native infestations. Also, collect voucher specimens of live Asian clams to provide confirmation of the presence of this non-native invertebrate species in Webster Lake.

Webster Lake Herbicide Permit Records (MassDEP 2017)

WEBSTER LAKE	4/9/2007	AQUATIC CONTROL TECHNOLOGY, INC.	CABOMBA CAROLINIANA	MYRIOPHYLLUM HETEROP	MYRIOPHYLLUM SPICATU			
WEBSTER LAKE	7/2/2008	AQUATIC CONTROL TECHNOLOGY, INC.	VARIABLE WATERMILFOI	CABOMBA CAROLINIANA	MYRIOPHYLLUM SPICATU			
WEBSTER LAKE	3/30/2009	AQUATIC CONTROL TECHNOLOGY, INC.	VARIABLE WATERMILFOI	CABOMBA CAROLINIANA	MYRIOPHYLLUM SPICATU	NUPHAR	NYMPHAEA	POTAMOGETON
WEBSTER LAKE	3/16/2010	AQUATIC CONTROL TECHNOLOGY, INC.	VARIABLE WATERMILFOI	CABOMBA CAROLINIANA	MYRIOPHYLLUM SPICATU	NUPHAR	NYMPHAEA	POTAMOGETON
WEBSTER LAKE	3/31/2011	AQUATIC CONTROL TECHNOLOGY, INC.	VARIABLE WATERMILFOI	CABOMBA CAROLINIANA	MYRIOPHYLLUM SPICATU	NUPHAR	NYMPHAEA	POTAMOGETON
WEBSTER LAKE	4/4/2012	AQUATIC CONTROL TECHNOLOGY, INC.	VARIABLE WATERMILFOI	CABOMBA CAROLINIANA	MYRIOPHYLLUM SPICATU	NUPHAR	NYMPHAEA	POTAMOGETON
WEBSTER LAKE	5/16/2013	AQUATIC CONTROL TECHNOLOGY, INC.	VARIABLE WATERMILFOI	CABOMBA CAROLINIANA	MYRIOPHYLLUM SPICATU	NUPHAR	NYMPHAEA	POTAMOGETON
WEBSTER LAKE	6/2/2014	AQUATIC CONTROL TECHNOLOGY, INC.	EURASIAN WATERMILFOI	VARIABLE WATERMILFOI	WATERLILIES	FANWORT	POMDWEED	
WEBSTER LAKE	6/9/2015	AQUATIC CONTROL TECHNOLOGY, INC.	EURASIAN WATERMILFOI	VARIABLE WATERMILFOI	WATERLILIES	FANWORT	PONDWEED	
WEBSTER LAKE	6/6/2016	SOLITUDE LAKE MANAGEMENT, LLC	EURASIAN WATERMILFOI	WATERLILIES	FANWORT	PONDWEED		

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in Webster Lake, and since no site-specific advisory has been issued 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 Aesthetics Use for Webster Lake, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Primary Contact Recreational Use for Webster Lake, so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Webster Lake, so it is Not Assessed.	

Wee Laddie Pond (MA42065)

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

No usable data were available for Wee Laddie Pond (MA42065) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

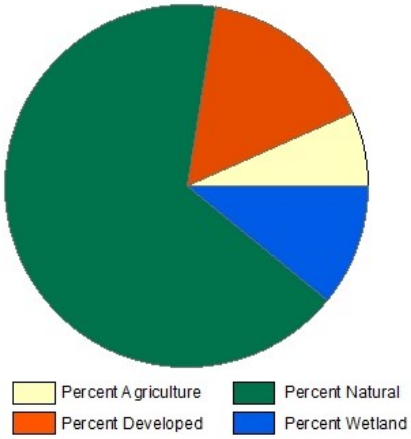
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Wellington Brook (MA42-11)

Location:	Headwaters south of Cedar Street, Auburn to mouth at confluence with French River, Oxford.
AU Type:	RIVER
AU Size:	3.4 MILES
Classification/Qualifier:	B

Wellington Brook - MA42-11

Watershed Area: 3.6 square miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	3.6	3.6	1.24	1.24
Agriculture	6.6%	6.6%	1.5%	1.5%
Developed	15.8%	15.8%	12.6%	12.6%
Natural	66.7%	66.7%	63%	63%
Wetland	10.9%	10.9%	23%	23%
Impervious Cover	5.4%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Escherichia Coli (E. Coli)		Unchanged
5	5	Lack of a Coldwater Assemblage		Added
5	5	Temperature		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Lack of a Coldwater Assemblage	Baseflow Depletion from Groundwater Withdrawals (N)	X				
Lack of a Coldwater Assemblage	Dam or Impoundment (Y)	X				
Temperature	Baseflow Depletion from Groundwater Withdrawals (N)	X				
Temperature	Dam or Impoundment (Y)	X				

Recommendations

2022 Recommendations
ALU: Additional chloride data and continuous specific conductance data should be collected in Wellington Brook (MA42-11) to track chloride trends. Given the regional trend of increasing chloride, the use of de-icing products containing chloride should be minimized in the Wellington Brook sub-watershed by all parties (i.e., highways/roads, municipalities, businesses, residences). REC: Additional *E. coli* bacteria sampling should be conducted in Wellington Brook upstream of Main Street (Route 12), Oxford (W2213) to determine if *E. coli* can be delisted as an impairment.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
It is noted here that Wellington Brook is identified by MA DFG as a Coldwater Fishery Resource (CFR) although the historical records are not detailed regarding sampling dates (only that multiple age classes and/or young-of-year Eastern brook trout were collected in the brook in 1983 (sample collected on 19 September) and 1985 (no specific sampling date as well as additional collection of young-of-the-year Eastern brook trout in 2012 (MassDFG 2020, Kautza March 25, 2022)). While additional detail would be helpful, this brook will be evaluated as an Existing Use Tier 1 Cold Water. MassDEP biologists sampled Wellington Brook upstream of Main Street (Route 12), Oxford during the summer of 2011 as part of the Probabilistic Wadeable Streams (MAP2) monitoring project. Survey results can be briefly summarized as follows: the benthic community sample collected in July 2011 (Station B0733) IBI score was indicative of satisfactory conditions (71), the backpack electrofishing sample (SampleID 4601) documented the presence of fluvial specialist and dependent species and the sample was dominated by moderately tolerant fishes however no cold water species (Eastern brook trout) were found, and water quality sampling data including both deployed probe and discrete sampling efforts (Station W2213) were indicative of generally good conditions except for temperature (minimum dissolved oxygen 7.0mg/L, maximum temperature 27.8°C with 7DADM exceeding 20°C 84 times during the thermistor deployment from 1 June to 15 September and a maximum 24 hour rolling average of 25.1°C exceeding 23.5°C 84 times as well, pH 6.7to 7.0SU (n=6), few indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations 0.039mg/L, max diel DO shift 1.7mg/L, maximum saturation 102%, maximum pH 7.0SU), with two observations of dense/very dense algae out of six sampling events. There were low concentrations of total ammonia-nitrogen (0.05mg/L), no acute or chronic exceedances among the two clean metals or aluminum samples at each station (note, dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). The maximum chloride concentration was 220mg/L (approaching the chronic criterion of 230mg/L). The Aquatic Life Use of Wellington Brook is assessed as Not Supporting. While the benthic macroinvertebrate and most water quality monitoring data collected by MassDEP biologists during the summer of 2011 were indicative of good conditions, impairments are being added for Temperature since both acute and chronic temperature exceedances for an Existing Use Cold Water were exceeded and Lack of a Coldwater Assemblage. Temperature exceedances were not considered natural as there is a dam on Wellington Brook (Chimney Pond Dam) and the Aquarion Water Department Zone II Wellhead Protection area comprises a large portion of the subwatershed area (MassDEP 2009). The former Alert for low flow (MassDEP 2009) is being carried forward. An Alert is also being identified for chloride since the maximum concentration is approaching the chronic criterion.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
4601	MassDEP	Fish Community	Wellington Brook	1/4mi US of Rt 12. DEP station MAP2-072, Oxford	42.14271	-71.86185

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
B0733	MassDEP	Benthic	Wellington Brook/	[approximately 390 meters upstream of Main Street (Route 12), Oxford, MA]	42.142714	-71.861845
W2213	MassDEP	Water Quality	Wellington Brook	[approximately 1275 feet upstream of Main Street (Route 12), Oxford]	42.142714	-71.861845

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 5)

[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
B0733	07/19/11	RBP multihab	Statewide_Low_Gradient	101	71	S

Fish Community Data and DELTS

Fish Community Data (2011-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)

[Habitat: FD = Fluvial Dependent, FS = Fluvial Specialist, MG = Macrohabitat Generalist; Tolerance: I = Intolerant, M = Moderately Tolerant, and T = Tolerant]

Station Description	Wellington Brook—1/4mi US of Rt 12. DEP station MAP2-072, Oxford		
Habitat Comments	DEP survey. Efficiency good. Awesome site. Good flow & variety of habitat. Most of reach low gradient, top of reach moderate.		
Efficiency	(Seconds Shocked – 995)		
Sample Date	**Species**	8	
9/12/11	**Total Ind**	18	
Method	**% Dom**	22%	
DEP Backpack Shocking	**Habitat**	**Species**	**% Ind**
Saris/Palis	FS	1	6%
4230325	FD	2	28%
	MG	5	67%
	Tolerant	**Species**	**% Ind**
	I	0	0%
	M	5	56%
	T	3	44%
	SampleID	4601	

Common Name	Fish Code	Count	Min Length	Max Length	Temp	FG	PT	Function
Chain pickerel	CP	4	109	230	W	MG	M	Top Carnivore
Common shiner	CS	2	105	110	CW	FD	M	Generalist Feeder
Fallfish	F	1	126	126	CW	FS	M	Generalist Feeder
Golden shiner	GS	3	94	120	W	MG	T	Generalist Feeder
Pumpkinseed	P	2	90	105	W	MG	M	Generalist Feeder
White sucker	WS	3	145	158	CW	FD	T	Generalist Feeder
Yellow perch	YP	1	75	75	CW	MG	M	Top Carnivore
Yellow bullhead	YB	2	94	150	WB	MG	T	Generalist Feeder

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2213	2011	3	12	7	7	7.7	1.7	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2213	05/26/11	10/03/11	6	8.2	8.5	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2213	06/01/11	09/15/11	107	107	25.1	27.8	24.6	22.8	84	1	21	1	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)
[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
W2213	2011	3	12	21.6	24.1	23.7	21.5	3	0	1	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2213	06/01/11	09/15/11	107	5136	25.1	84	58	0
W2213	06/24/11	09/07/11	75	578	21.8	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2213	05/26/11	10/03/11	8	6	21.9	18.8	3	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

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
W2213	05/26/11	10/03/11	6	6.7	7	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2213	2011	4	0.019	0.051	0.039	1.7	1.1	102.3	7.0	6	2

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2213	2011	2	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2213	2011	2	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2213	2011	2	0.053	0.055	0.054	0.1	0.2	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

[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
W2213	2011	5	0.020	0.050	0.030	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2213	2011	5	71	220	119	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Start Date	End Date	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
W2213	05/26/11	10/03/11	6	240	803	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Wellington Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP field sampling crews recorded observations for Wellington Brook ~1275 feet upstream of Main Street (Route 12), Oxford during the summer of 2011. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity).
The Aesthetics Use for Wellington Brook is assessed as Fully Supporting based on the general lack of objectionable conditions in the brook during the summer of 2011.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2213	MassDEP	Water Quality	Wellington Brook	[approximately 1275 feet upstream of Main Street (Route 12), Oxford]	42.142714	-71.861845

Aesthetic Observations

Aesthetics Summary Statements for MassDEP Stations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2213	Wellington Brook	2011	6	MassDEP aesthetics observations for station W2213/MAP2-072 on Wellington Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2011.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 7) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2213	2011	6	6	2

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 7)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2213	Wellington Brook	2011	Color	Light Yellow/Tan	3	6
W2213	Wellington Brook	2011	Color	None	2	6
W2213	Wellington Brook	2011	Color	NR	1	6
W2213	Wellington Brook	2011	Objectionable Deposits	No	6	6
W2213	Wellington Brook	2011	Odor	None	5	6
W2213	Wellington Brook	2011	Odor	NR	1	6
W2213	Wellington Brook	2011	Scum	No	4	6
W2213	Wellington Brook	2011	Scum	Yes	2	6
W2213	Wellington Brook	2011	Turbidity	None	6	6

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary

MassDEP staff collected *E. coli* bacteria samples from Wellington Brook approximately 1275 feet upstream of Main Street (Route 12), Oxford (W2213) between May and October 2011 (n=6). Data analysis indicated 67% of the intervals had GMs >126 cfu/100ml, one sample exceeded the 410 cfu/100ml STV, and the seasonal GM was 151 cfu/100ml. Although the *E. coli* concentrations did not exceed the use attainment impairment thresholds for a single year low frequency dataset, the Primary Contact Recreational Use for Wellington Brook will continue to be assessed as Not Supporting with the *E. coli* impairment being carried forward. Additional data should be collected to evaluate if a delisting of the *E. coli* impairment is warranted.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2213	MassDEP	Water Quality	Wellington Brook	[approximately 1275 feet upstream of Main Street (Route 12), Oxford]	42.142714	-71.861845

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 6)

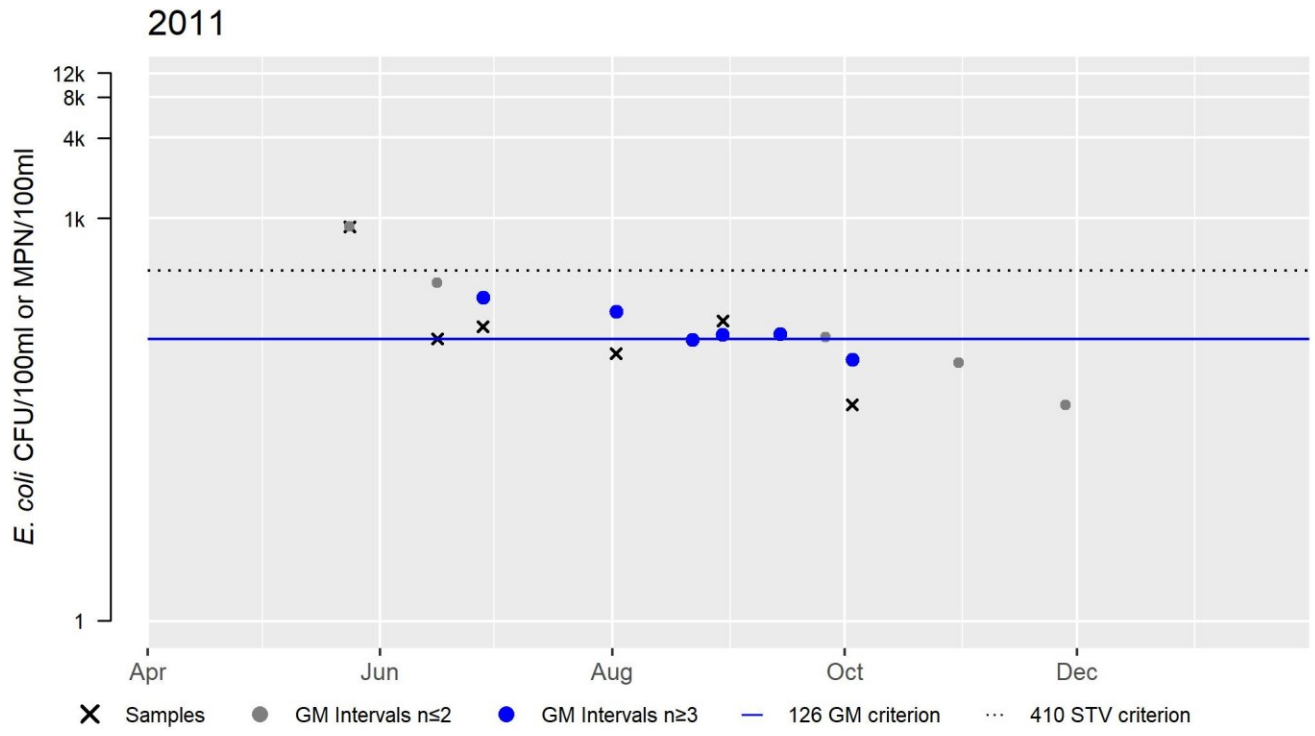
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2213	MassDEP	E. coli	05/24/11	10/03/11	6	41	866	151

W2213 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	151
#GMI	6
#GMI Ex	4
%GMI Ex	67
n>STV	1
%n>STV	17

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



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff collected *E. coli* bacteria samples from Wellington Brook approximately 1275 feet upstream of Main Street (Route 12), Oxford (W2213) between May and October 2011 (n=6). Data analysis indicated none of the intervals had GMs >630 cfu/100ml, no samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 151 cfu/100ml. The Secondary Contact Recreational Use for Wellington Brook will continue to be assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2213	MassDEP	Water Quality	Wellington Brook	[approximately 1275 feet upstream of Main Street (Route 12), Oxford]	42.142714	-71.861845

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 7) (MassDEP Undated 6)

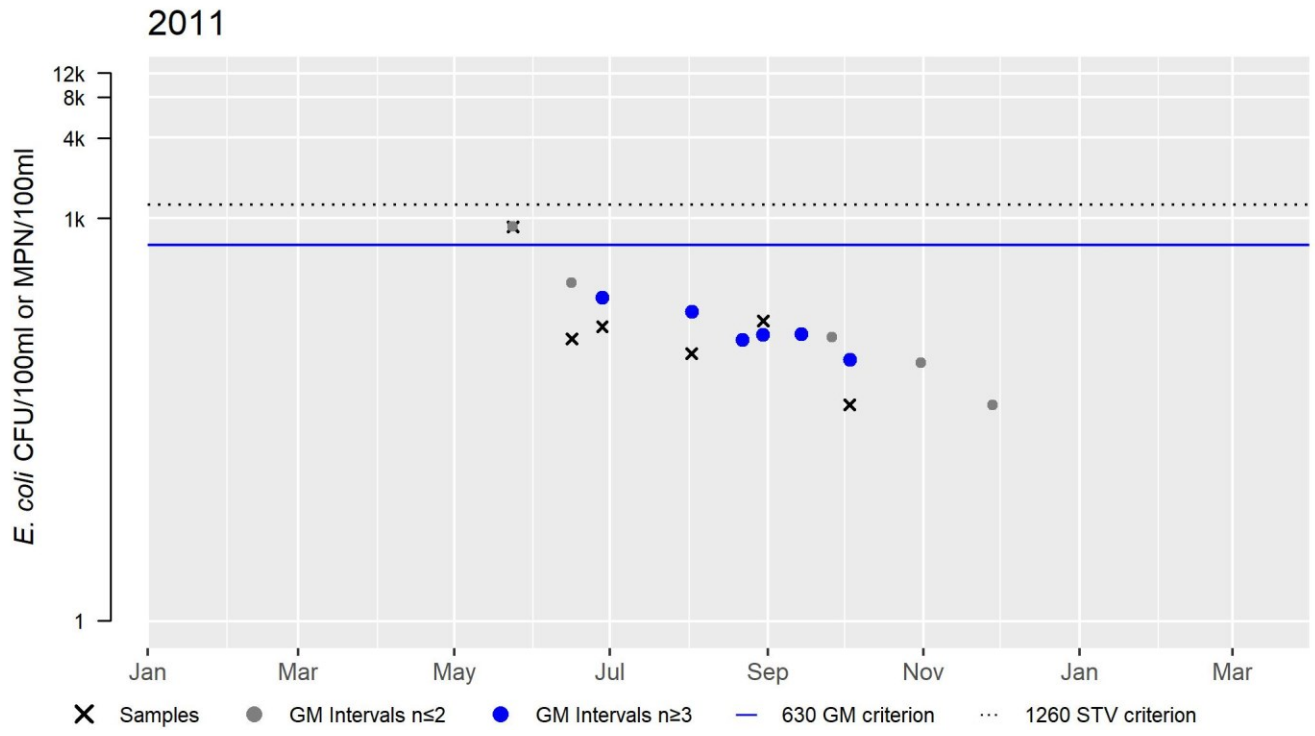
[Result units are CFU/100ml or MPN/100ml]

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)
W2213	MassDEP	E. coli	05/24/11	10/03/11	6	41	866	151

W2213 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	151
#GMI	6
#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



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